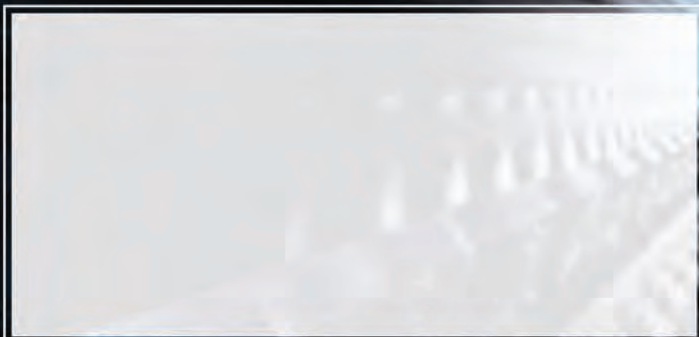


CompactPCI[®] and AdvancedTCA[®] Systems

The Magazine for Developers of Open Communication, Industrial, and Rugged Systems
www.CompactPCI-Systems.com • www.AdvancedTCA-Systems.com

2006 VOLUME 10 NUMBER 2

Resource Guide





www.SMAcomputers.com

3U CompactPCI CPU7.2

Pentium M Power For Every Application



Get the right performance at the right price: The CPU7.2, powered by a selection of Pentium M processors or the Celeron M ULV, provides all the options for any application or budget. Available with all major OS's including Windows, Linux and VxWorks.

SMA designs and manufactures digital, analog, and multi-function I/O, enclosures, complete systems, and custom solutions.

For all your 3U CompactPCI needs, choose one partner. Choose SMA.

SMA Computers
9550 Warner Ave. #250
Fountain Valley, CA 92708, USA
Phone +1 714.593.2338
info@SMAcomputers.com



Explore High Speed Data Recording



with Vortex Open and
Targeted Recorders

Powerful

- Up to **385 MB/s** sustained recording performance
- Scalable Fibre Channel SAN architecture providing virtually limitless storage capacity
- Ready-to-run application examples

Flexible

- Customer Programmable Recorder and Playback System
- Ready-to-run versions available through Targeted Recorders
- VME, CompactPCI and Industrial PC versions available

Innovative

- Access and Control using web browser or XML-RPC
- Disk Grouping & Intelligent Disk Management



Processing and FPGA - Input/Output - Data Recording - Bus Analyzers

For more information, please visit
recorder.vmetro.com or call (281) 584 0728

RSC# 3 @ www.compactpci-systems.com/rsc

VIMETRO 
innovation deployed

The Magazine for Developers of Open Communication, Industrial, and Rugged Systems

COLUMNS

8 Editor's Foreword
Introducing the 3rd annual *CompactPCI and AdvancedTCA Systems Resource Guide*
By Joe Pavlat

44 OSP Editor's Notes
Don't let AdvancedTCA wind up like UNIX
By Rosemary Kristoff

FEATURES

10 Telecom equipment vendors choose total AdvancedTCA solutions
By Sven Freudenfeld, Kontron

16 Assessing value, every job needs the right tools
By Jon Kenton, Motorola

22 Media servers for the mainstream:
Providing a smooth transition from today to tomorrow
By David Asher, NMS Communications

26 Storage technology enhances AdvancedTCA solutions
By Greg Novak, Adtron

30 Power management considerations in AdvancedTCA systems
By Tony Romero, Performance Technologies

34 Avoiding PCI Express link performance surprises
By Roland Scherzinger, Agilent Technologies

DEPARTMENTS






161 New Products

Published by:  **OpenSystems Publishing™**

© 2006 OpenSystems Publishing
© CompactPCI, PICMG, AdvancedTCA, ATCA, MicroTCA, and their logos are registered trademarks of the PCI Industrial Computer Manufacturers Group.
™ AdvancedMC and CompactTCA are trademarks of the PCI Industrial Computer Manufacturers Group.
© 2006 *CompactPCI and AdvancedTCA Systems*
All registered brands and trademarks in *CompactPCI and AdvancedTCA Systems* are property of their respective owners.



RESOURCE GUIDE

	AdvancedTCA	50
	CompactPCI	91
	CompactPCI Express	142
	Mezzanines and carrier boards	145
	MicroTCA	159

E-LETTER

March: www.compactpci-systems.com/eletter
Ethernet protocols primer for AdvancedTCA
By JP Landry, Diversified Technology, Inc.

E-CASTS

March 15:
VXS with RapidIO for SIGINT and radar deployments

March 28:
Meeting carrier requirements with AdvancedTCA and AdvancedMCs

www.opensystems-publishing.com/ecast.html

WEB RESOURCES

Subscribe to the magazine or E-letter at:
www.opensystems-publishing.com/subscriptions

Industry news:
Read: www.compactpci-systems.com/news
Submit: www.opensystems-publishing.com/news/submit

Submit new products at:
www.opensystems-publishing.com/vendors/submissions/np

ADVANCEDMCS NEEDED

- ✓ INTEL PROCESSOR
- ✓ 8 PORT-T1
- ✓ QUAD ETHERNET
- ✓ FIBRE CHANNEL
- ✓ OC 12
- ✓ OC 3
- ✓ DS 3
- ✓ VIDEO

SBS

AdvancedMCs™ get you from “To Do” to “Done.”

SBS knows AdvancedMC™. We're leading the way in modular system design.

AdvancedMC™

Intel®
Communications
Alliance
Associate Member
SILVER

PLUG-IN MODULES have never been so powerful, capable or easy to integrate. With AdvancedMCs, you simply choose the functions you need from our wide selection and plug them into your carrier. Voila: you've got a blade. And not just any blade, but one that can be easily upgraded, modified, or serviced without disrupting the entire system.

SBS has taken the lead in this dynamic field, as you'd expect based on our vast selection of PMCs. We've already created AdvancedMCs that cover the important telecom/datacom standards and

processing needs, and we also offer an innovative development chassis. Plus you can count on SBS to deliver AdvancedMCs that meet your future application requirements.



AdvancedTCA® systems are only the beginning for AdvancedMCs. Already, these high-performance, very affordable modules have been designed into proprietary systems, and soon they will serve as the building blocks of MicroTCA™ systems. Modular design is changing the way systems are developed, and if you're a designer, that's a good thing.

SBS
Technologies.

SBS knows. Find the AdvancedMC board you're looking for at www.sbs.com/amc or call 800.SBS.EMBEDDED

www.opensystems-publishing.com/ecast.html

E-cast

Embedded Computing Knowledge Webcasts
presented by OpenSystems Publishing

Next E-cast: MARCH 28, 2006

AdvancedTCA / AdvancedMCs
Moderated by Joe Pavlat



OpenSystems Publishing

CompactPCI[®] and AdvancedTCA[®] Systems

AN OPENSYSTEMS PUBLICATION

Communications Group

- CompactPCI and AdvancedTCA Systems
- CompactPCI and AdvancedTCA Resource Guide
- CompactPCI and AdvancedTCA E-letter

Editorial Director Joe Pavlat
jpavlat@opensystems-publishing.com

Assistant Managing Editor Anne Fisher
afisher@opensystems-publishing.com

Senior Editor (columns) Terri Thorson
tthorson@opensystems-publishing.com

Technology Editor Curt Schwaderer
cschwaderer@opensystems-publishing.com

Associate Editor Jennifer Hesse
jhesse@opensystems-publishing.com

European Representative Hermann Strass
hstrass@opensystems-publishing.com

Art Director Steph Sweet

Senior Web Developer Konrad Witte

Graphic Specialist David Diomede

Circulation/Office Manager Phyllis Thompson
subscriptions@opensystems-publishing.com

OpenSystems Publishing

Editorial/Production office:
16872 E. Ave of the Fountains, Ste 203
Fountain Hills, AZ 85268
Tel: 480-967-5581 ■ Fax: 480-837-6466
Website: www.opensystems-publishing.com

Publishers John Black, Michael Hopper, Wayne Kristoff

Vice President Editorial Rosemary Kristoff

Embedded and Test & Analysis Group

Editorial Director Jerry Gipper
Editorial Director Don Dingee
Technical Editor Chad Lumsden
Associate Editor Jennifer Hesse
Special Projects Editor Bob Stasonis
European Representative Hermann Strass

Military & Aerospace Group

Group Editorial Director Chris Ciuffo
Managing Editor Bonnie Crutcher
Assistant Editor Sharon Schnakenburg
Senior Editor (columns) Terri Thorson
European Representative Hermann Strass
European Bureau Chief Stefan Baginski

ISSN #1098-7622 ONLINE ISSN #1550-0381
Publication Agreement Number: 40048627
Canada return address: WDS, Station A, PO Box 54, Windsor, ON N9A 615

CompactPCI and AdvancedTCA Systems is published nine times a year by OpenSystems Publishing LLC., 30233 Jefferson Ave., St. Clair Shores, MI 48082. Subscriptions are free, upon request in writing, to persons dealing with or considering CompactPCI and AdvancedTCA Systems. For others inside the US and Canada, subscriptions are \$63/year. For 1st class delivery outside the US and Canada, subscriptions are \$90/year (advance payment in US funds required). Second class postage is paid at Columbus, WI and at an additional mailing office.

POSTMASTER: Send address changes to CompactPCI and AdvancedTCA Systems Fountain Oasis, Ste 203, 16872 E. Ave of the Fountains, Fountain Hills, AZ 85268

NEW GENERATION OF INJECTOR/EJECTOR HANDLE The ROCK-SOLID LEANHandle I



Hang a weight of 20 kg to test handle housing toughness.

Major Features of LEANHandle

- Patent Pending Handle**
 - New design & Patented
 - Self-manufactured, total quality control
- Rock-Solid Quality**
 - Toughest handle housing
 - Smooth control design
 - Standard handle compatibility
- Rock-Bottom Price**
 - USD 1.78/handle for 5,000 sets.
- Rock-Steady Standards**
 - Industrial plastic housing
 - Zinc Alloy Die-casting Card Holder (Zinc plated)

LEANPAC



Nextronics Engineering Corp.
2F No.31 Lane 169 Kang Ning Street, Hsi Chih, Taipei Hsien, Taiwan
TEL: (02) 6616-2000 FAX: (02) 8695-1177
<http://www.leanpac.com>

RSC# 6 @ www.compactpci-systems.com/rsc

NexusWare™

All the Linux tools you need in one spot.



NexusWare™ is a suite of Linux-based software products that enables users of Performance Technologies' hardware to rapidly develop and deploy value-added capabilities with their solutions.

NexusWare Core

Linux-based development, integration and management environment—the foundation for the NexusWare installable software packages below:

NexusWare WAN

WAN protocol support for X.25, Frame Relay, HDLC, Radar Receiver and more.

NexusWare C7

MTP-2 starting point for building SS7 applications.

NexusWare MG

Protocols and tools for media gateway control, IP call control and PSTN signaling.

NexusWare ISM

Programming and control tools for system-level intelligent shelf management.



Platforms. Components.
Software. Support.

Many solutions. One vendor.



Learn about our NexusWare software at:
www.pt.com/linux2





Editor's Foreword

By Joe Pavlat

CompactPCI & AdvancedTCA Systems

Introducing the 3rd annual *CompactPCI* and *AdvancedTCA* Systems Resource Guide

Within these pages you will find some of the industry's most innovative and useful products based upon today's most important open industry standards. They are offered by hundreds of companies, large and small, who relentlessly innovate and move technology implementation forward.

Innovation tops imagination

A great deal has changed in the approximately 30 years since the merchant microprocessor board market began. Early offerings were little more than prototyping boards or systems designed to showcase a silicon provider's products. As an example, Motorola Computer Group began business to provide such prototyping products for Motorola microprocessors. Early backplane standards such as S-100, STD, S-bus, and the ISA bus were little more than extensions of a particular microprocessor's addressing, data, and control pins.

This did not change much until the PCI bus emerged in the 1990s, when things changed quite fundamentally. For the first time, there was a processor-independent way to connect chips. Intel, Motorola, Sun, and DSP and RISC chipmakers got on board. While it was originally labeled a "local" bus it quickly made its way to backplanes in desktop computers and ruggedized platforms like CompactPCI. Suddenly, peripheral chip manufacturers could sell a single device to many more customers than before. The board-level market exploded as companies could specialize. A level playing field resulted with small and large companies alike feeding the marketplace. We've come to take all of this for granted, but I believe history will judge the wide acceptance of the open PCI bus as a watershed event.

But, the PCI bus is a parallel bus, and the laws of physics began to catch up with it. In the eternal quest for higher speeds and bandwidths clock rates got pushed up and the capacitance of every bus connection began to limit the number of devices that could be attached to a PCI bus, whether they were local to a card or a plug-in board on a backplane.

Once again, the industry innovated. Chip designers began to see the limits of increasing clock speeds indefinitely. At the same time, transistors began to be almost free, but pins on packages carried overhead expense. Pin counts limited how wide data paths could become. The answer? High-speed switched serial interconnects that are now commonly known as switched fabrics. By connecting a single source of data to a single destination for data at any instant, high throughputs could be attained. Other important benefits became evident, including high scalability, high reliability due to the ease with which redundant resources could be interconnected, and reduced pin counts.

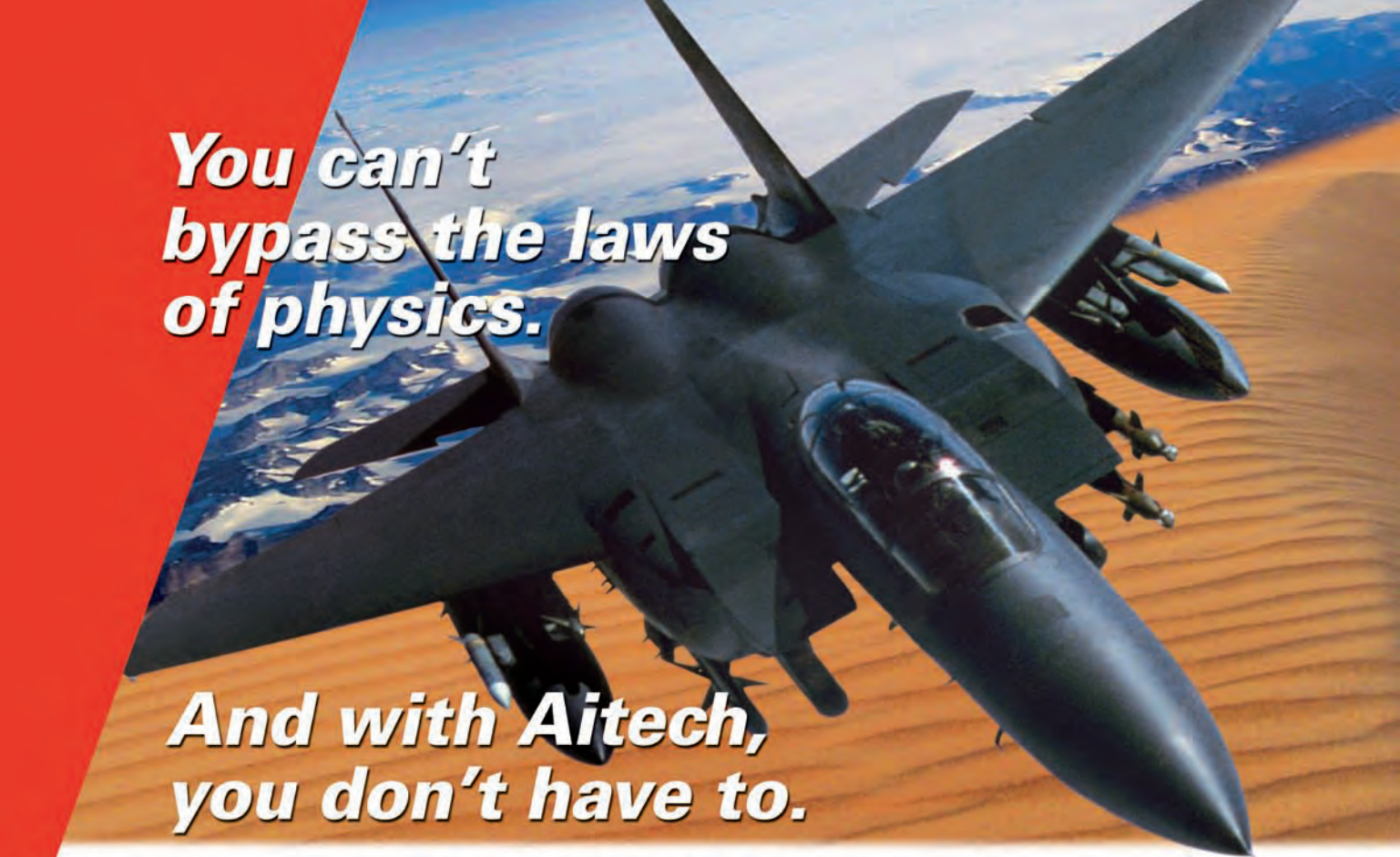
As in the early days of microprocessor data buses, no one can quite agree on a single fabric, and today we have RapidIO, PCI Express, InfiniBand, StarFabric, and a host of lesser known interconnect technologies. They all work essentially the same way and have their relative strengths and weaknesses. The granddaddy of serial interconnects, Ethernet, is still going strong like the Energizer bunny, and 10 Gigabit per second (Gbps) Ethernet standards are now finding their way to market. PICMG members and the AdvancedTCA community are working with the IEEE 802.3ab subcommittee developing 10 Gbps backplane standards, and I fully expect AdvancedTCA to make a speed step from the current 2.5 Gbps per pair data rate to 10 Gbps in the future.

The transition from switched serial interconnects as PowerPoint road map slides to real deployed products is finally happening, and in these pages you will see leading products based on switched serial technologies. Platforms for them include AdvancedTCA, Advanced Mezzanine Card, CompactPCI Express, SHB Express, and COM Express.

Thirty years ago my father and I assembled an Altair 8880 computer using the then new Intel 8080 CPU. That CPU contained just 6,000 transistors, but it was a huge improvement to the 4040 system I had designed and built the year before. Over the course of several years I designed and added memory, I/O, a paper tape reader, a 5.25-inch floppy disk, and eventually an 8088 coprocessor. My brother and I wrote code. There was nothing I could possibly think of that this machine couldn't do. But then I could not imagine fast networks, the Internet, or a mobile telephone infrastructure that would allow me to reach more than a billion people all over the world by just punching a few buttons on a handset smaller than a pack of cigarettes.

Microprocessors today are approaching a transistor count of a half billion, and no one thinks twice about a gigabyte or two of memory. Today these technologies are common, and the average kid doesn't know a world without them. The large amount of infrastructure behind these innovations is made possible in large part by the embedded computer market. What will the next 30 years bring that we cannot imagine now?

Joe Pavlat
Editorial Director



**You can't
bypass the laws
of physics.**

**And with Aitech,
you don't have to.**

True -55°C to +85°C operation... Standard!

Aitech continues to provide industry standard open systems architectures such as VMEbus and CompactPCI products, designed and tested to -55°C to +85°C as standard, because you can't bypass the rules of engagement either.

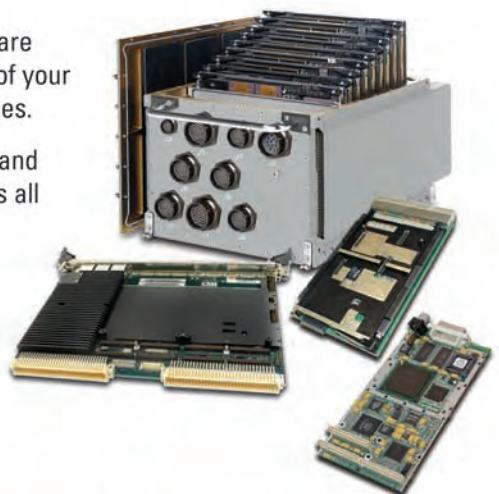
We can't change the physics... but we can ensure your COTS sub-systems are designed, built, and tested to perform reliably at the temperature extremes of your specification – without custom development, "work-arounds", or compromises.

We take the extra steps... including pre-screened parts qualification, HALT, and 100% HASS/ESS testing to ensure that every standard Aitech product meets all your temperature and rugged performance specifications...standard.

We've been there... Aitech subsystems have been proven in the world's most demanding mission-critical mil/aero applications – from complex ground, air and sea platforms to rad-tolerant solutions for the Space Shuttle, International Space Station and now earth orbiting satellites!

We've done that... Meeting full temperature-range specifications with standard products is just part of our 20+ year heritage and commitment to COTS advancements – from the first conduction-cooled Mil-Spec VME board in 1984, to today's highest functionality MIPS/Watt boards, multi-Gigabyte mass Flash mass memory cards, and high-speed mezzanines.

We have the proof... Visit our web site or call for more information and our catalog of proven solutions.



Aitech Defense Systems, Inc.

9301 Oakdale Avenue
Chatsworth, CA 91311

email: sales@rugged.com

Toll Free: 888-Aitech8 - (888) 248-3248

Fax: (818) 718-9787

www.rugged.com

Telecom equipment vendors choose total AdvancedTCA solutions

By *Sven Freudenfeld*

The smart choice for an increasing number of telecom equipment vendors – outside of the top tiered players – along with various software developers, has been to go with preintegrated, application-ready AdvancedTCA / AdvancedMC platforms, rather than making in-house efforts to integrate building blocks that have been purchased separately.

It's already happening. More telecom equipment providers and independent application developers are initiating new product projects that will be built on or integrated with various AdvancedTCA and AdvancedMC boards and modules. The key difference is in how they make their purchases. While much of the market focus lately has been on the adoption of AdvancedTCA by most of the major equipment players, many on the playing field don't always have the same in-house resources and are quickly picking up the pace by working with AdvancedTCA vendors who can provide a total, preintegrated, pretested open modular solution. Moving into 2006 and beyond, it's likely these secondary and tertiary vendors could generate a significant portion of the open modular platform business.

Even though AdvancedTCA is still in its early phase of development, the economic and practical advantages have been elaborated upon for quite some time. For these firms, it makes good business sense to buy off the shelf as much as possible, but the next logical step is to determine which vendor is capable of providing a total solution, namely a preintegrated system that has been carefully configured with the appropriate hardware and software building blocks that are fully tested to be interoperable and ready for the client's particular application. Resources and investments in their specific applications need to be protected, and thus relying on a total solution provider to get them to be network ready is much faster than if they were to do it themselves.

Consequently, there are a number of factors that need attention when deciding

upon a total open modular solution. What are the ideal hardware components? What footprint is required? Perhaps 5U full mesh, 12U full mesh, 12U dual star, or 12U dual-dual star? What configurations will meet the processing, storage, and I/O requirements? These requirements include SAS/SATA storage, DSP or CPU intensive applications, and I/O and packet processing applications. The amount of flexibility required for OAM&P will also determine AdvancedTCA, AdvancedMC, or even MicroTCA form factors. Among the questions are:

- How will the platform be managed
- How will the final package maximize total throughput and still maximize the shelf real estate for future growth
- What are the OS requirements, as determined by the application
- How does one choose the right switch fabric
- What type of middleware products are necessary

Hardware validation and interoperability

Naturally, one of the first steps is to assemble the right hardware requirements for the application at hand. Does the application require a full 12U chassis (full mesh, dual star, or dual-dual star), or will a smaller 5U suffice? Where will this application fit within the network, and what type of network are we talking about? The type of application that will be supported by the platform will determine the building blocks used in the system. First applications for AdvancedTCA are mainly in the telecommunications sector with Home Location Registers (HLRs), transcoding, DSP, I/O, and VoIP intensive applications being first out the gate. Secondary applications are appearing in the commercial/enterprise and military markets.

With the tight integration of AdvancedTCA blades with the various processors, storage, and I/O AdvancedMC modules, the design choices are exceptionally diverse. With the right mix, a final system will pro-

vide a highly dense feature set of functionalities in a small footprint as a fully NEBS compliant integrated system.

One of the first steps in making the right choice of building blocks is the performance validation or hardware characterization of various CPU blade options – namely, single processor, dual processor, or dual processor/dual core blades and their respective performance analysis in a chassis configuration with reference to power consumption and thermal airflow. The choice of the backplane will determine the switch blade the designer selects for the system as well as the redundancy matrix applied in the system configuration.

Although there is a growing ecosystem of AdvancedTCA vendors striving to be interoperable, there is still a fair amount of work to be done, especially with application specific AdvancedMCs such as for DSPs, NPUs, E1/T1, IPSec, storage, and processing.

Intelligent Platform Management Interface (IPMI) functionality is also a critical part of any interoperability issues, simply by the fact that AdvancedMCs could be deployed in multiple variations in an AdvancedTCA carrier blade. Thermal performance as well as NEBS (shock and vibration) need to be fully validated in an application-ready platform.

For example, an AdvancedTCA carrier blade using four AdvancedMCs could be populated with:

- (a)
 - One processing AdvancedMC
 - One storage AdvancedMC
 - One DSP AdvancedMC
 - One I/O AdvancedMC
- (b)
 - Four processing AdvancedMCs
- (c)
 - Two processing AdvancedMCs
 - Two storage AdvancedMCs



The Performance of AdvancedTCA. The Convenience of A/C Power.

Your application demands AdvancedTCA, and you demand convenience and flexibility. You can have it all, with Elma's line of A/C powered ATCA system platforms. These chassis are ideal for prototyping, demos, or any application that requires A/C power. Available in 2U and 5U heights, with a multitude of configurations, Elma has an ATCA system to meet your requirements. And nobody is better than Elma in customizing to your exact specifications. When you're ready to plug into success, give Elma a call.

Enclosures &
Components

Backplanes

System
Platforms

Switches,
Knobs & LEDs

Cabinets

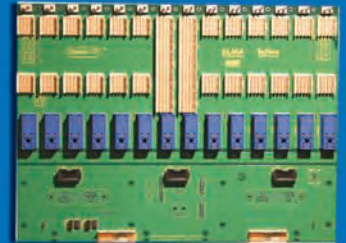
ELMA
Your Solution Partner

USA Elma Electronic Inc.

Phone: 510.656.3400 Fax: 510.656.3783 E-mail: sales@elma.com Web: www.elma.com

© 2003 Elma Electronic Inc.

RSC# 11 @ www.compactpci-systems.com/rsc



ATCA Chassis

- A/C or D/C versions in 2U, 5U and custom heights
- A/C input option, up to 700W
- Pluggable to a conventional A/C wall outlet
- Pluggable shelf manager options
- D/C versions in 4U, 12U, 13U, 13U ETSI and custom heights

ATCA Backplanes

- 2, 4, 5, 14 & 16 slots
- Dual Star, Mesh or Replicated Mesh
- Compliant to PICMG 3.0 Rev 1.0
- Optimized via signal integrity studies

ATCA Capabilities

- Simulation
- 3D Solid Modeling
- NEBS Certification
- Manufacturing
- Customization
- Integration

ATCA Accessories

- Front Panels
- Handles
- Shelf Management

- (d)
 - One processing AdvancedMC
 - Three storage AdvancedMCs (SAS)
- (e)
 - Three I/O AdvancedMCs
 - One storage AdvancedMC

Given the multiple vendors in the AdvancedTCA and AdvancedMC market, interoperability testing, thermal performance, and NEBS compliancy are necessary steps for application-ready platforms. A total solution provider needs to be sure that any final system configuration of AdvancedTCA blades and AdvancedMC modules are compatible and fully validated to meet the corresponding standards.

Designing an application-ready platform also requires a closer look at the redundancy matrix and the performance needed in the network. Latency and load balancing are crucial for the system development and deployment in the network.

Switch fabric conundrum – or not

Yes, the market currently offers an array of emerging and established switch fabrics that are dependent on the application, the required data rate, and choice of building blocks. The reality is that for a number of years, they will coexist and find their niche with respect to which applications are more ideal for any particular switch fabric.

The choices include the more mature Gigabit Ethernet (GbE) and Serial RapidIO, with Advanced Switching, InfiniBand, and others as burgeoning interconnects. Each one offers various transfer speeds, and all are proving to be

suitable for specific network elements with perhaps only some overlap.

For example, Serial RapidIO is being touted more for DSP and storage-focused applications, while PCI Express and Advanced Switching better suit chip-to-chip and board-to-board applications that are specific to I/O.

Middleware – an essential value add

The middleware solutions that are out on the market provide the “glue” between the hardware configuration and the actual application. In most cases, they provide the High Availability (HA) – the 5-nines – of data involved with various subscriber services, as an example.

The key foundation for HA middleware is the OS and the core services such as Messaging, Distribution, Discovery/Supervision, Event logging, Data transfer, and Debug services. The HA middleware building blocks are the system management, embedded management, and the HA framework.

- System management exchanges information with the IPMI and the Service Availability Forum Hardware Platform Interface (HPI). This includes:
 - HW inventory
 - Shelf bring up
 - Alarm management
 - Event notification
 - Resource monitoring
 - Redundancy
- Embedded management is responsible for all of the system configuration data, such as:

- Provisioning
- Monitoring
- Accounting
- Thresholds

- HA framework consists of verifying the health of the entire system, such as:
 - Fault management
 - Checkpointing
 - Hot upgrade/in-service upgrade
 - API change management

One key element for choosing the correct middleware is that once deployed, it will support multiple AdvancedTCA platforms independent from the OS used on various blades. Depending on the application, different middleware building blocks need to support additional functionalities such as load balancing and J2EE.

Additionally, they can provide core messaging services between applications, as well as the supervision, shelf, and upgrade management services that make it easy to monitor, repair, and configure/provision AdvancedTCA systems in the field.

A vendor that provides full-system integration must be able to select from the array of middleware providers and, naturally, be interoperable.

An ASI-based multimedia resource function platform

Advanced Switching is one suitable backplane interconnect for many of the emerging IP Multimedia Subsystem (IMS) network elements. In certain cases, GbE provides sufficient connectivity across a backplane, but maximizing flexibility demands a second interconnect, such as ASI.



ept - connectors and more ...

HIGH SPEED

ept

AMC-Connectors

- Data Transmission 12.5 Gbps
- In Pressfit Technology
- Available NOW!



AdvancedTCA®
ATCA-AMC B+

Visit us at
DESIGNCON 2006
 February 6–9, 2006
 Santa Clara Convention Center
 Santa Clara, California, USA
 Booth number 742

www.ept.de • phone 1-800-323-2568 • sales@eptusa.com

Depending upon the element in the IMS infrastructure (for example, security gateway, application server, media gateway, and call session controller), the type and mix of processing and I/O elements will change. By implementing Ethernet on AdvancedTCA's base channel and Advanced Switching on the fabric channel, developers can meet the performance, cost, flexibility, and high availability requirements of IMS platforms.

An AdvancedMC everywhere-enabled AdvancedTCA system with ASI and GbE interconnects lets system designers have the ability to host large pools of DSPs, NPs, processors, and storage, making them nearly ideal throughout any network from access to transport segments.

Using this capability, IMS platform developers can disaggregate their I/O elements from their processing elements, thereby increasing design flexibility, modularity, and high availability, while maintaining a clear path to migrate to more complex system architectures using native ASI features.

One of the key drivers in IMS is multimedia content delivery for the mobile subscriber base. Packet-Switched Streaming (PSS), Multimedia Messaging Service (MMS), and Multimedia Broadcast/Multicast Service (MBMS) are all standardized by the 3GPP and are the key elements for data transport. To accomplish this service delivery platform with open modular components, the key elements required are:

- Ethernet
- Network processing
- TDM and ATM line interfaces

- Storage for content storage
- DSPs for digital signal processing

The multimedia service options for cellular subscribers are numerous, built to deliver server-to-user, user-to-user, or multiuser applications. In light of the traditional network deployment of dedicated servers per application, TEMs currently can offer advanced equipment, for instance, AdvancedTCA/AdvancedMC that consolidates the various content, billing, and transport applications on far fewer platforms. Figure 1 shows a sample IMS network element (Media Resource Function Platform combined with Media Gateway Control Function) as a 5U 5-slot AdvancedTCA chassis with CPU processing boards, hub boards, and an AdvancedMC carrier featuring storage, I/O, and DSP AdvancedMC modules.

The application in this example is for streaming audio/video (PSS, MMS, MBMS), SMS, and transcoding, which handles the interoperability compliance of any file format to any file format, such as AMR, AMR-WB, AMR-WB+, AAC, AAC+, VMR-WB codec, MPEG-4, MPEG-2, and JPEG, among others.

The hub in this example supports base interface via GbE and the fabric interface supports ASI by using a mezzanine card built with an ASI chipset, where eight ports are connected to the Fabric Interface and two ports are routed to the two AdvancedMC modules.

In an IMS environment, the system needs to interface with GbE, ATM such as E1/T1, TDM such as an OC-3/STM1, AdvancedMC, and processor traffic with DSP AdvancedMCs or a processor

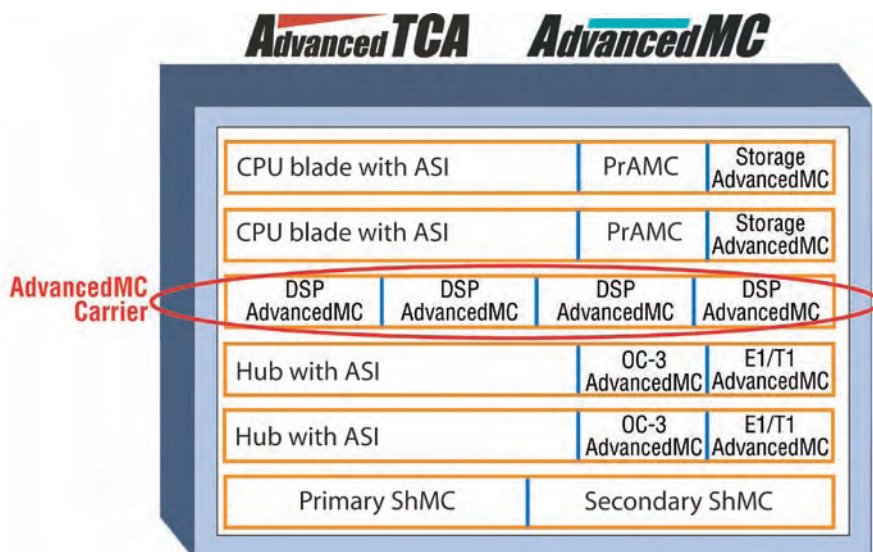


Figure 1

Plug-and-Play Switching



Use USB to configure a high-density switch system in minutes.

National Instruments offers more than 100 PXI and SCXI switch configurations and NI Switch Executive switch management software for creating integrated, high-density, plug-and-play switching systems.

Matrix	Up to a 4 by 2176 matrix per chassis
Multiplexer	Up to a 3332 by 1 multiplexer per chassis
General Purpose	Up to 300 V, 12 A
RF	500 MHz to 4 GHz
NI Switch Executive Software	Interactive switch management and routing

To see a switch system configured in two minutes, visit ni.com/switches.
(800) 891 8841



© 2005 National Instruments Corporation. All rights reserved. National Instruments, NI, and ni.com are trademarks of National Instruments. Product and company names listed are trademarks or trade names of their respective companies. 5489-101-D

RSC # 13 @ www.compactpci-systems.com/rsc

AdvancedMC. For addressing application and/or content storage, SATA storage AdvancedMCs or PATA drives are mounted onto the module. The DSP AdvancedMC and PrAMC respectively operate both the transcoding application and digital signal processing functions such as echo cancellation. Multimedia content (audio, video, pictures) can be encoded in various formats supported by SIP and H.248 network infrastructures and may be stored in the SAN over several different networks.


Content transcoding is an important part of the puzzle for the deployment of next generation services and requires high processing resources (MIPS) for quality operation. Using the 5U 5-slot chassis with AdvancedMC supported AdvancedTCA carrier blades will keep the footprint, and therefore the cost, small. However, the ideal scenario would be to use a 12U or 13U AdvancedTCA chassis.

Having this configuration, as in Figure 2, with ASI tunneling supported, the boards are linked together via GbE and PI-8 binding. This ASI architecture provides many benefits such as eliminating the need for over provisioning via congestion management, 2.5 Gbps SerDes for more backplane granularity, guaranteed QoS for multiple protocol support, and backward compatibility to PCI Express.

In addition, high availability is increased with this ASI architecture. The switch-over time is improved, and if a CPU blade

“With the tight integration of AdvancedTCA blades with the various processors, storage, and I/O AdvancedMC modules, the design choices are exceptionally diverse.”

fails or needs to be removed, the I/O AdvancedMC modules can be supported by a backup CPU blade. It is fully supported in dual star and full mesh configurations, while the quality of multimedia service delivery would be still be guaranteed within a smaller footprint.

By combining ASI and GbE on the backplane, with PCI Express and Ethernet local to the blades, a flexible system architecture is possible that addresses IMS platform requirements for the foreseeable future. So essentially, ASI, with its backwards compatibility to PCI Express, enables an I/O disaggregation from the processing engines without adding any software burden to the system developer. 



Sven Freudenfeld is responsible for North American business development for the Kontron line of AdvancedTCA and AdvancedMC

modular solutions. Sven possess more than 20 years' experience with voice, data, and wireless communications, having worked extensively with Nortel Networks, Sanmina-SCI, and Deutsche Telekom.

To learn more, contact Sven at:

Kontron Canada Inc.
 616 Curé Boivin Blvd.
 Boisbriand, Quebec J7G 2A7
 Tel: 450-437-5682
 Fax: 450-437-8053
 E-mail: sven.freudenfeld@ca.kontron.com
 Website: www.kontron.com

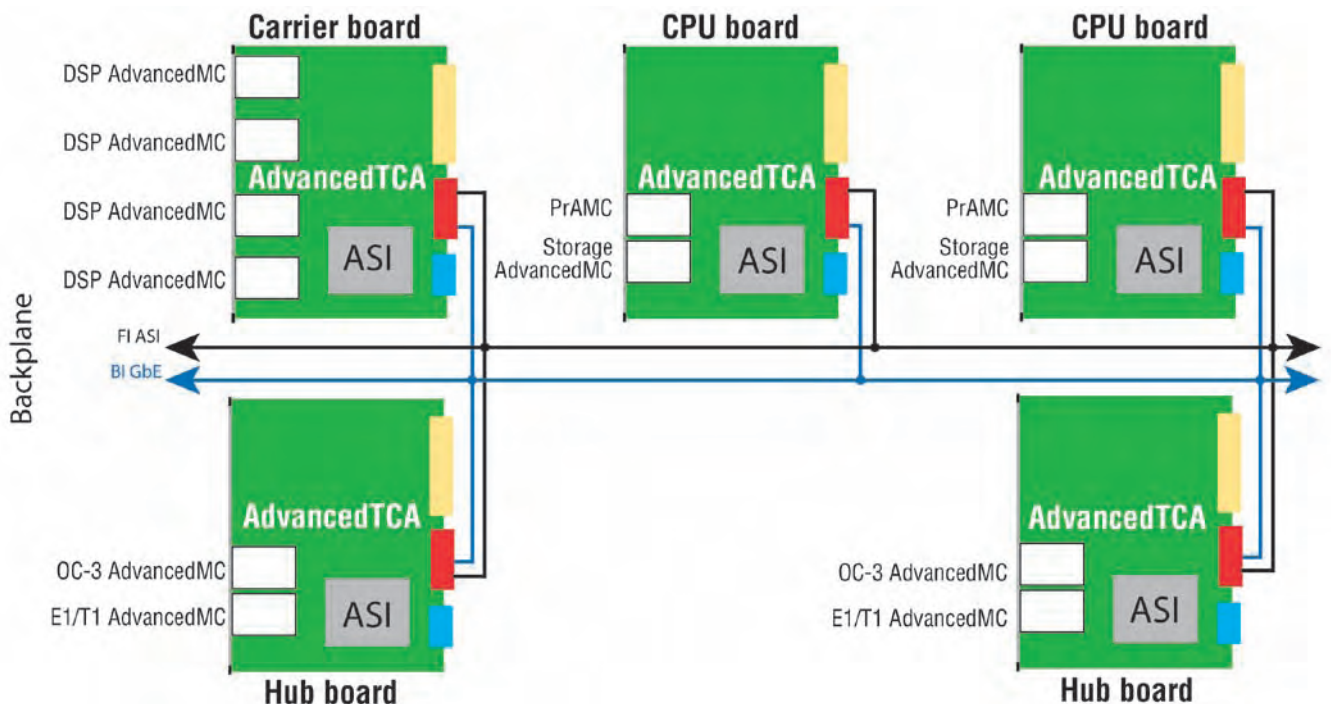


Figure 2

Open Architecture Solutions

Diversified Technology, Inc. (DTI) has a 34-year history of delivering embedded systems to the communications market and now builds on that by offering an increased line of performance-driven solutions based on the latest processing and switched fabric products. This line of AdvancedTCA (ATCA) systems, DTI's Targa Series, addresses the needs of the core and edge application markets, while also delivering unique features designed to handle the next generation services of advanced voice, data and mobile applications.

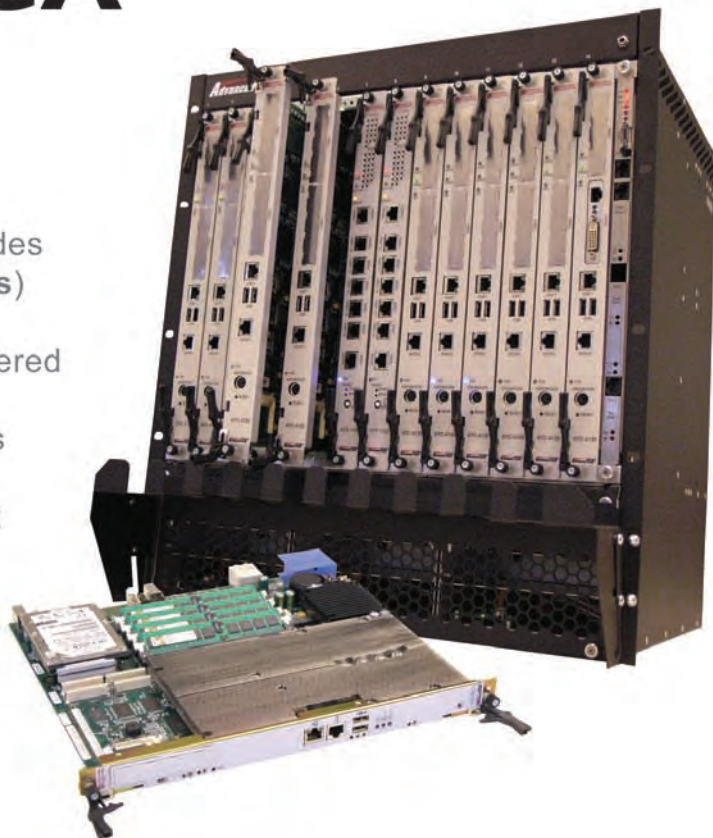
> Find out more at www.ATCAtoGo.com

AdvancedTCA • CompactPCI • PCI/ISA • Embedded PCI-X • ETX • COM Express • Custom Design and Manufacturing



AdvancedTCA Blade Platforms

- Complete AdvancedTCA Blade Systems packaged with Node Boards and Switch Blades (5 and 14 slot platforms - DTI's Targa Series)
- Multiple Node Boards and Switch Blades offered to provide increased functionality and customization features for Platform Solutions
- Fabric Agnostic Solutions based on Ethernet (PICMG 3.1) or InfiniBand (PICMG 3.2)
- Carrier Grade Linux
- Dual Star and Full Mesh Backplane Options



Three Decades of Embedded Solutions

CPU Boards - Switch Blades - Rackmount Systems - Modular Platforms
Computer Modules - System Integration - Custom Designs - Outsourcing Capabilities

1.800.443.2667 • sales@dtims.com • <http://www.dtims.com>

Assessing value, every job needs the right tools

By Jon Kenton

For many years, the telecom value chain was simple and well understood. Deployed services depended on what was available from the world's few telecom equipment manufacturers; thus the buying criteria focused on a relatively low/deep technological level.

A new competitive landscape has now changed the procurement debate. A key question today is: "How will any given solution provide maximum competitive advantage?"

In this article Jon explores how traditional approaches for selecting a computing platform rarely capture all costs or evaluate all potential benefits and introduces a new evaluation tool that assists Telecom Equipment Manufacturers (TEMs) in choosing between preintegrated network-ready platforms and integrating modular building blocks in house. In turn, this tool will allocate a monetary value to factors such as time-to-market, ability to redeploy resources, and reduced risk, enabling the user to make a more informed decision.

"The times they are a'changin.'" Bob Dylan's words ring true as much now as in 1963 when he first sang those immortal lyrics. In the telecommunications world it's been a time of drastic change and they are still "a'changin.'" These changes include:

- Incumbents no longer have monopolies
- The Internet is here to stay
- Wireless subscribers overtake wireline
- Consumers have multimegabit data pipes to their homes
- You can make voice calls over those data pipes, and for "free"
- Search engine companies are getting into the telecom business

The list goes on and on, and these things are not going away. Competition in every

segment is now rampant and global. Services can be deployed hundreds or thousands of miles from subscribers and the wars over subscriber capture and revenue retention are significantly more complex. The key to unlocking these puzzles comes back to the fundamentals of marketing – differentiation and value.

The new dynamic

Both old and new generations of TEMs now exert the majority of their energy on building service-based solutions that provide their customers with rapid time-to-deployment and more importantly time-to-profit. For example, some TEMs have effectively stopped manufacturing equipment, and prefer to be referred to as "Telecom Solutions Providers."

For this shift to happen requires that the underlying systems and infrastructure are highly leveraged and cost efficient and that the software service layers above the computing platform provide tangible value from a consumer perspective. Service providers want to see business models that make sense, where the return on investment and payback periods are aggressive. Less focus is maintained on the specific internal architecture of a solution, other than it should be "open" and offer related freedom of choice and potential for configurability and options as well as flexible repurposing for maximum reuse.

Value in differentiation

This shift in the value chain, which is well underway, also requires a change in mindset as solutions and propositions are evaluated.

The questions today should be evaluating how any given solution will provide maximum competitive advantage, that is, differentiation and edge. As discussed, what is vital is getting the right computing platform, ready for service deployment to an operator, with the right functionality, at the right time. Therefore the TEMs'

supply chain must be capable of delivering optimal time-to-market benefit along with technologies that allow for maximum leverage of design and manufacturing, which in turn leads to maximum reuse.

This then leads to what the return on investment will be on such platforms and internal investments. With competition and risk at all time highs, this needs to be factored in to assess how the various alternatives would affect the chances of achieving the desired end goal.

Assessing value beyond cost

The costs involved in creating, building, and maintaining any infrastructure platform are many and as mentioned, extend far beyond a simple costs comparison. Table 1 highlights how using only a simple cost comparison will miss significant contributors to the equation.

Value below the surface

While detailed financial comparisons certainly form a crucial element to such an important decision, company and brand value attributes also come into play. Selecting the lowest cost solution when the supplier may not be around in six months time would not be a sound choice. Attributes such as market leadership, experience, and presence along with technology innovation, stability, and financial security provide indications of a company's longevity and likelihood of making a sound partnership. It is also worth evaluating a company's ability to construct computing platforms to specific customer requirements, beyond its standard off-the-shelf products.

Theory and reality, as is often the case, can be difficult to align. Assigning a monetary value at a base component level is relatively easy. Even at a "raw" system level one can apply similar logic. The world becomes significantly more complex when software is added and a fully integrated system is the desired result. With potentially numerous hardware

	In-source costs	Outsource costs
Simple cost comparison	Direct costs to design and manufacture	Cost to purchase
More detailed comparison	Direct and indirect costs to design Cost to maintain over the life cycle Cost to manufacture Cost to test/verify the integrated system Cost to manage complex supply chain (for example inventory management, many suppliers) Opportunity costs Life-cycle costs Cost of time to market Risk	Cost to purchase Cost to manage a simple supply chain (less inventory for shorter periods; fewer suppliers at higher level of integration)

Table 1

and software interactions, bringing everything together creates a multiplication factor that could extend logarithmically. The bottom-line equation would state that the more complex the system/issues, the higher the ultimate value is in sourcing an integrated solution.

With so many attributes to compare, contrast, and consider it can be a daunting task to evaluate all possibilities and make an informed decision. As with any job, using the right tools helps significantly. With such a decision some basic financial comparisons can be made using tools found in standard spreadsheets. As previously discussed, cost comparisons can be easily constructed, and including net present value calculations to ensure long term value and benefit is recognized. Return on investment tools are fairly common, however accurately capturing the investment part can be very tough. This is especially acute when much of the investment relates to indirect costs and intangibles. The bottom line is that rarely – if ever – do standard tools or approaches accurately capture all costs or evaluate all potential benefits.

Tools that capture value

Motorola has recognized the difficulties of accurately capturing all costs and evaluating all potential benefits, as well as the pain that most of our customers suffer as they conduct complex evaluations. The company considered how to solve the problem and provide a win-win.

We wanted a tool that could be used easily by our customers and one that would encompass all the attributes needed for a realistic assessment of any solution. The result was the creation of not one, but two complementary tools:

- A highly detailed sourcing benefits calculator
- A simplified online estimator

A Visionary Alliance



IMAGE: ROYAL GEOGRAPHICAL SOCIETY © VERT POMME

Sir Edmund Hillary and Sherpa Tensing Norgay conquering Mount Everest.

1 GHz
2 GS/s
< 16 W



High-speed digitizers with GHz performance, now available in single-slot 3U PXI format.



Ctrl I/O



Frequency Counter

Acqiris, the reference for high-speed data conversion, introduces single-slot high-speed PXI digitizers with unprecedented performance, size and power consumption. Using large-scale IC technology, the DC140 and DC135 deliver synchronous dual-channel or interleaved single-channel acquisition at up to 2 GS/s, with up to 16 Mpoints of on-board memory, in a unit that consumes less than 16 W.

With its cutting-edge PXI technology, Acqiris is changing the face of data conversion in measurement and automation.

For more information on PXI, PCI and CompactPCI modules, call us at 1 877 227 4747 or visit our website at www.acqiris.com



RSC# 17 @ www.compactpci-systems.com/rsc

The calculator tool, shown in Figure 1, allows significant granularity and definition of all related attributes with multiple inputs required across topics covering development and manufacturing costs:

- Selling, General, and Administrative expenses (SG&A)
- Overheads
- Sustaining commitments
- Time-to-market

The online estimator provides a quick view and order of magnitude based on only a few key variables.

As with any detailed financial analysis it is important that all elements are clearly understood and accurately captured. The calculator tool represents such a detailed analysis, and Motorola works hand-in-hand with customers to conduct the analysis as a collaborative consultation. Customers have found that the details provided are a significant help in identifying internal costs and justifying the shifting of resources to more value-added activities. There is certainly an investment involved related to the time it takes to complete a full analysis with the calculator, however the value it brings is well worth the effort.

For those that want to get a “rough order of magnitude” assessment, the online estimator is the place to go. With only a few variables it is possible to gain a view of the magnitude and source of the benefits that may be derived from an outsourced relationship with Motorola. For some, this may be enough to justify moving forward, others may then choose to embark on a more detailed analysis working with one of Motorola’s specialists. To enable its customers to easily reach the rough order of magnitude assessment stage, Motorola makes the estimator tool available online at www.motorola.com/computing. The interface is simple, and clear instructions and a help function are available. Various examples illustrate typical scenarios. Customers have the ability to adapt these scenarios and save them to their own profiles.

The online estimator will illustrate a total value benefit and break this down into four constituent parts:

1. Directly attributable cost savings
2. Time-to-market benefit

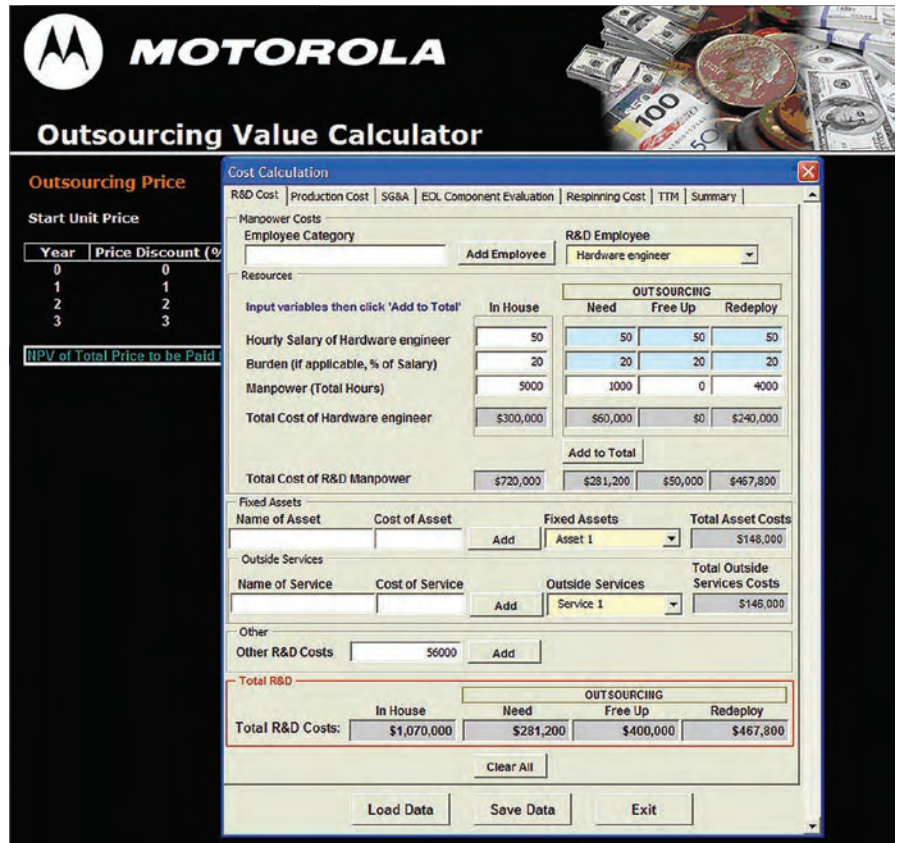


Figure 1

3. Resource redeployment benefit
4. Risk reduction benefit

In most cases the benefits will all be positive. However, there are scenarios where it would seem that the direct cost calculations might indicate that it would be cheaper to not select an externally sourced solution. When all the other benefits are considered, virtually all scenarios will show a positive value that can be achieved through an outsourced decision.

Using the tool there would be a huge number of potential variations and sce-

narios. Figure 2 illustrates three fairly typical scenarios. The examples range from outsourcing a simple single board through to outsourcing a complex fully configured and integrated system platform. The results indicate that as the level of complexity increases, so does the level of benefit. Across our scenarios this ranges from approximately \$5 million to over \$33 million.

In the current business climate, clearly recognizing both strengths and weaknesses is crucial to long-term success. Likewise, partnering with others – where

	Board	Basic Integrated Platform	Advanced Integrated Platform
Results			
Customer’s estimated cost to produce in-house	\$7,600,000	\$31,000,000	\$92,800,000
Estimated benefits			
Cost savings (increase) from outsourcing	\$975,000	\$7,000,000	\$22,800,000
Time-to-market benefit	\$3,600,000	\$3,600,000	\$3,600,000
Resource redeployment benefit	\$410,000	\$1,830,000	\$5,090,000
Risk reduction value	\$806,000	\$1,080,000	\$1,990,000
Estimated overall benefit	\$5,790,000	\$13,500,000	\$33,500,000

BENEFIT LEVEL INCREASES

Figure 2

LOST

With two decades of experience
in avionics communications
we can help you navigate.

www.mil-1553.com



It's about the support

the combination is greater than the sum of the parts – offers opportunities. As all businesses strive to achieve a unique value proposition and create differentiation, being able to associate the value that each function within an organization contributes towards such differentiation is essential.


While cost consciousness and control is fundamental to good business, deci-

sions surrounding an external sourcing strategy can be counterintuitive. Simply examining – in minute detail – the cost of every last resistor or silicon component along with each step of the manufacturing chain will miss major contributors or detractors to creating value. Not assessing potential opportunity costs and long term life cycle and sustaining commitments can dangerously bias any analysis. Similarly, businesses need to consider

“Selecting the lowest cost solution when the supplier may not be around in six months time would not be a sound choice.”

whether saving five percent on basic costs or underestimating project risk is worth missing a market window.

The value chain has irreversibly changed and the fundamental decision is, “where do you want to play in this new structure?” Once you have established what position to take and what constitutes differentiated value, efficiencies will dictate that all other nonvalue components should be ceded to those in the value chain who can provide the specialization required. Essentially this represents the switch from vertically integrated organizations where the whole value chain was controlled internally, to a horizontal approach with companies providing unique products and services that match the requirements of each step through the chain.

The bottom line, therefore, to ensuring that any company finds the road to success comes back to the fundamentals of marketing: Differentiation and value. 



Jon Kenton
is strategic marketing manager at Embedded Communications Computing, Motorola, Inc. He has 24 years of experience working in the computing and communications industry. Jon has an extensive sales and marketing background with formal qualifications in Electronic Engineering from the University of Westminster, London, UK.

Embedded Communications Computing Motorola, Inc.
2900 South Diablo Way
Tempe, AZ 85282
Tel: 800-759-1107 or 602-438-5720
E-mail: Jon.kenton@motorola.com
Website: www.motorola.com/computing

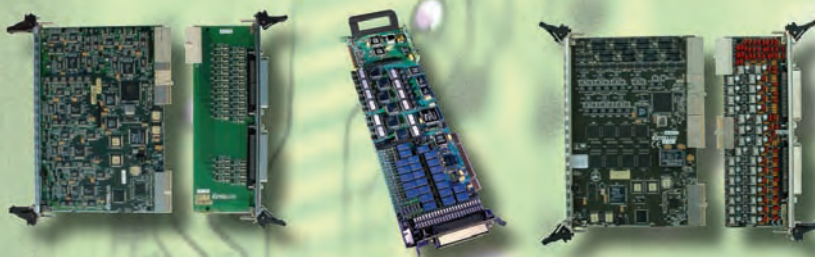
Your TDM Specialists!

Need to add high quality analog services to your application?

Look no further!

AMTELCO XDS has your solutions for:

- Loop Start Business Lines
- Station Ports for Operators or Telephones
- E&M Boards for Interfacing to Trunked Radios
- High Density Conference Boards
- Economical E1/T1 Interfaces in 4 to 8 Trunks
- Multi-Chassis Connections



◆ Available in H.110 CompactPCI or H.100 PCI compatible formats. ◆

Visit xds.amtelco.com for complete specifications, and then contact us today!

amtelco
XDS Technology

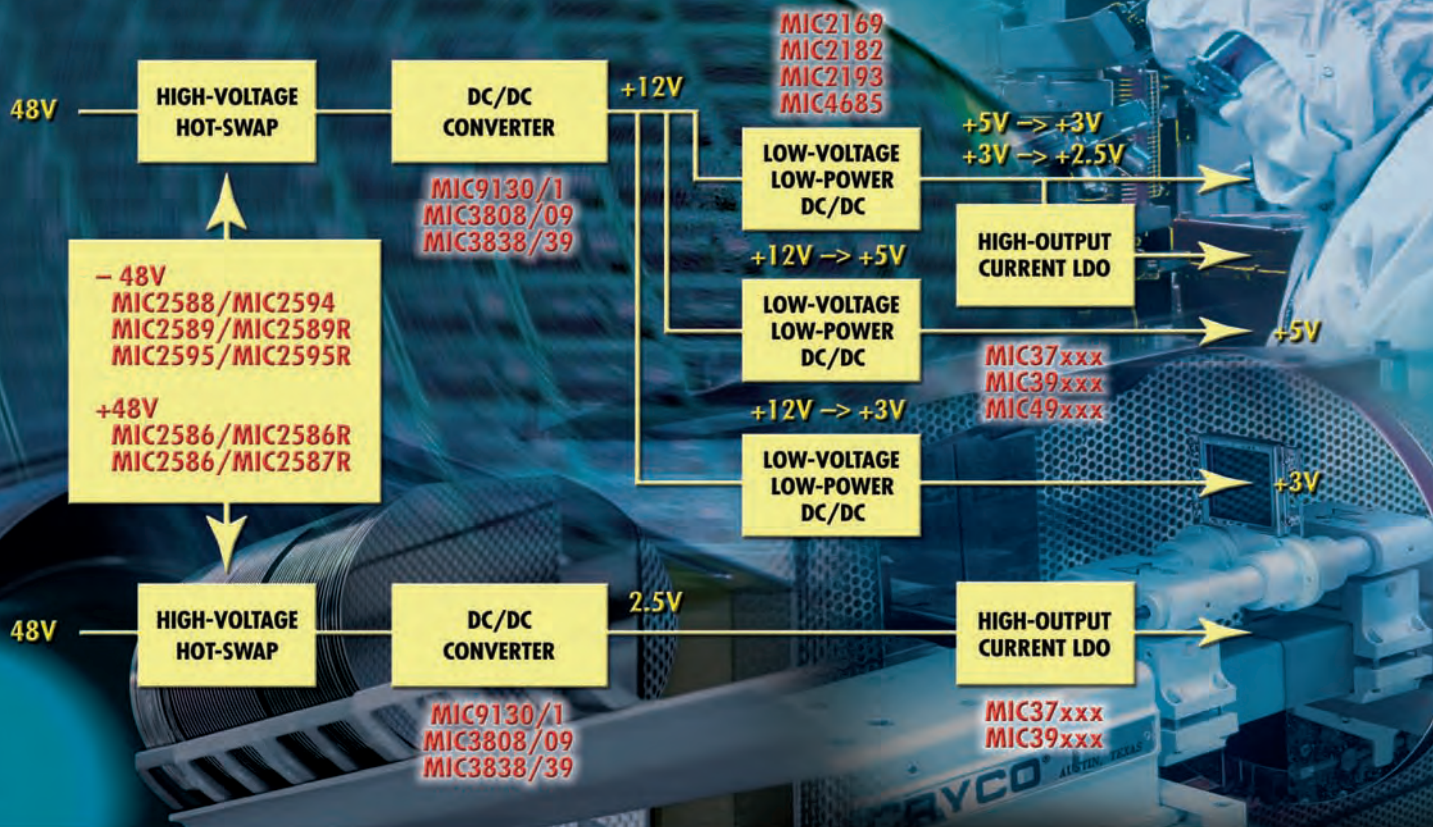
(800)356-9224
Web: xds.amtelco.com
E-mail: xds@amtelco.com
(608)838-4194 • FAX (608)838-8367
4800 Curtin Drive • McFarland, WI 53558

RSC# 20 @ www.compactpci-systems.com/rsc

Micrel's High-Voltage Hot-Swap Power Controllers – Only the Best!

For General Purpose Networking/Datacom/Telecom Applications

TELECOM INFRASTRUCTURE DISTRIBUTED POWER



Micrel's family of high-voltage hot-swap power controllers increase reliability and lower the overall system cost to implement power controllers in pc board space conscious applications such as storage network, datacom, and telecom infrastructure applications. Micrel offers the system design engineer a number of solution-optimized products to address single- or redundant-rail power control requirements. Add high-performance power management products, like the MIC2169, the MIC37500, the MIC49500, and the MIC5190, and your challenging power control and distribution problems are a distant memory.

For more information, please contact your local Micrel sales representative or visit us at: www.micrel.com/ad/hv-hotswap.
Literature: 1 (408) 435-2452
Information: 1 (408) 944-0800

MICREL[®]
Innovation Through Technology™
www.micrel.com

The Good Stuff:

- ◆ Positive and negative, high-voltage single-channel power controllers available in SO-8 and SO-14 packages
- ◆ All products offer wide supply voltage operation to 80V
- ◆ Surge voltage protection to 100V, simplifying external protection techniques
- ◆ All products offer programmable current limiting with active current regulation
 - ❖ Latch-off and auto-retry electronic circuit breaker options available
- ◆ Flexible overcurrent (oc) detection circuitry
 - ❖ Fixed and user-programmable response time
 - ❖ Fast responding detection to shorted load conditions
- ◆ Open-drain, active-HIGH and active-LOW "Power-is-Good" outputs available
 - ❖ Single and multiple outputs for sequencing dc/dc converters

Media servers for the mainstream: Providing a smooth transition from today to tomorrow

By David Asher

A momentous transformation is taking place in the development of enhanced telephony services – a shift from vertically integrated embedded systems to distributed Internet architectures. Telephony applications based on CompactPCI and AdvancedTCA will continue to be valued in the central office, but the effects will be far-reaching as more modular equipment emerges into the marketplace. Chief among these modular components will be the new category of “mainstream” media servers, that is, a media server that addresses any network – not just IP, along with more familiar offerings like media gateways and application platforms.

Voice over IP (VoIP) is a significant factor in this transformation, but many other forces are also at work, including business model shifts away from platform investment in order to concentrate resources on software development and services delivery. As developers focus more on applications and move away from in-house development, they need open, commercially available technology on which to develop and deploy their multimedia applications.

Multimedia applications require significant media processing to deliver integrated, high-performance services that meet the expectations of demanding subscribers. While initial deployments of rich media services often used dedicated media processing platforms within vertically embedded systems to execute each application or service, developers are now turning toward media servers. Media servers, fundamental components of next generation networks, facilitate the sharing of media processing resources within the network among many different services, enabling significant cost savings for service providers and vendors alike.

Adopting Internet technologies

The telecom world is discovering the enormous productivity gains and risk reduction that adopting Internet software technologies can achieve. Innovations, such as the rise of network distributed processing using Internet protocols and the move from compiled code development to scripting and markup languages, are shrinking software development cycles significantly.

By building computing resources from a distributed network of processors and accessing them via Internet protocols, developers

no longer need to create special purpose processors. They can now build applications on a variety of network servers, most based on general purpose computing platforms. Multimedia applications, with their tremendous appetite for processing power, make a natural fit for this distributed computing environment, and media servers deliver this modular capability.

With markup languages like VoiceXML and CCXML developers can render the interactive voice user interface and implement complex network signaling much faster than with compiled languages. This dramatically reduces the number of software cycles required during an application’s development, test, trial, and deployment processes. And complementing these languages are the Session Initiation Protocol (SIP) and other network protocols, which simplify traditional telecom functions that normally require highly specialized programming skills.

Media servers: The key to rapid deployment

Media servers manage the telephony user interface under remote control from an application and provide powerful media processing capabilities such as Interactive Voice Response (IVR), messaging, conferencing, transcoding, video, and fax. Using Internet-based control protocols, applications can remotely control the media server over a network. Because the protocols use industry standards like SIP and XML, developers can use any language or rapid development environment, such as Java and C#, to build applications. A new class of SIP application platforms has evolved to serve as the foundation for rapid development of communications services.

A new breed of media server is emerging based on key principles that are highly distinguished from other commercial media servers and focused on providing complete solutions for rapid application development and deployment.

Control protocols also enable scalable applications to be developed for high service availability, with minimal effort, by exploiting the properties of SIP to provide service discovery, load balancing, server failover, and other features that are well established for building distributed Internet applications. There are several approaches to implementing the control protocol:

- Megaco
 - A control protocol derived from media gateways and standardized by the IETF. (H.248 under the ITU standards)
- Newer protocols based on SIP include: Netann; MSML; MOML; MSCML; and MSCP

PCI Express Solutions for POS/ATM

Key Features

1. PCI Express

2. ROHS

3. WEEE

4. WHQL

5. Performance

6. Competitive Price



MOXA
Lifetime
Warranty

*For US & Canada only

Bank of Moxa

NEW



PCI Express

- PCI Express x1 compliant
- Serial communication speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- MD1 Low Profile board for compact-sized PCs
- On-board 15KV ESD Protection
- 4 Port & 8 Port Available

MOXA

Moxa Technologies, Inc.
Toll-free: 1-888-MOXA-USA
info@MoxaUSA.com
www.MoxaUSA.com

ALL APPLICATIONS LEAD TO...

Compact PCI[®]

PCI **PCI-X**
CONVENTIONAL

ONE STOP
SYSTEMS

PCI **EXPRESS**[®]

MAX **EXPRESS**

ONE STOP SYSTEMS
Corporate Headquarters
2235 Enterprise, Suite 110
Escondido, CA 92029
Tel (760) 745-9883
Fax (760) 745-9824

Call today.

(877) 438-2724

www.onestopsystems.com



These newer protocols are proposed standards but fit more closely to the Internet style of distributed service architecture.

Media servers for the mainstream

A new breed of media server is emerging based on key principles that are highly distinguished from other commercial media servers and focused on providing complete solutions for rapid application development and deployment. A media server that can truly address the mainstream market and is not exclusive to IP will:

- Own and manage the bearer channels (VoIP, ISDN, or ISUP), with responsibility for network signaling
- Perform dense and complex media processing such as IVR functions, messaging, transcoding, media streaming, conferencing, fax, and video stream processing
- Be controlled by applications through a network protocol, enabling multiple applications to be distributed on the network
- Feature a layered architecture that is configurable, adaptable, and supports open standards
- Redefine the media server as an *open development platform* so that legacy features or unique capabilities can be accommodated
- Offer a range of interoperable server products that address a variety of application needs

A mainstream media server for today's networks should be ready to deploy in a wide range of applications such as network announcements, messaging, prepaid card processing, conferencing, self-service, voice portals, call centers, IP and mobile Centrex, and more. By using a media server built for the mainstream, developers of all networks – not just IP – will be able to select the perfect cost, performance, and feature profile for each deployment, bringing their applications to market faster than ever before. 🌐



David Asher is a senior product manager at NMS Communications, responsible for the strategic direction and development of the company's Vision Media Servers. During his five-year career at NMS, David has also led the efforts to support Linux and Host Media Processing, and directed engineering operations. Prior to joining

NMS, at Banyan Systems, he led the development of the first web-based e-mail gateway for the enterprise market. David was a principal at Intelligent Music, a developer of advanced composition software and interactive touchpad technology, where he authored four patents. He holds an MBA, an MS in Electrical Engineering, and a BS in Physics and Computer Science.

For more information, contact David at:

NMS Communications

100 Crossing Blvd.
Framingham, MA 01702
Tel: 508-271-1000
Fax: 508-620-9313
E-mail: david_asher@nmss.com
Website: www.nmscommunications.com

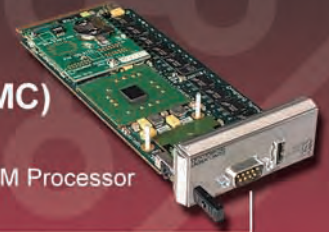
CONCURRENT TECHNOLOGIES 



Single Board Computers based on Intel® processors

AdvancedMC® (AMC)

Processor boards
up to 2 GHz Intel® Pentium® M Processor



6U CompactPCI®

Processor boards,
switches and chassis
up to 2 GHz Intel
Pentium M Processor,
or 2.4 GHz dual Intel®
Xeon™ Processors



3U CompactPCI®

Processor boards
up to 1.8 GHz Intel
Pentium M Processor



VME

Processor boards
up to 2 GHz Intel
Pentium M Processor



Concurrent Technologies Inc.
3840 Packard Road,
Ann Arbor, MI 48108
USA

Tel: (734) 971 6309
Fax: (734) 971 6350
http://www.gocct.com
Email: sales@gocct.com

RSC# 25 @ www.compactpci-systems.com/rsc

Storage technology enhances AdvancedTCA solutions

By Greg Novak

For decades system architects have wrestled with effective methods to scale embedded platforms to support larger and more complex applications in ever diminishing spaces as component and compute density continue to march forward. The flexible nature of the AdvancedTCA architecture provides multiple options when tailoring storage solutions to complement these system requirements and address the ever-expanding variety of telecom applications.

These storage options provide various levels of support for key system attributes including capacity, system

management, availability, performance, and cost. In this article Greg illustrates the range of storage solutions for your application and the impact of the various choices on critical system attributes. Table 1 summarizes these considerations.

Storage in AdvancedTCA must be harmonious with the system goals of high availability, high performance, long service life, and scalability. When designing for system availability, a key consideration is management of single points of failure. This is especially relevant with respect to storage since mechanical items such as disks and fans are the

components in an electronic system with the lowest reliability.

Managing disks is essential to architecting an AdvancedTCA high availability storage system. AdvancedTCA specifications incorporate standardized techniques to provide visibility to component health, hot swapping of failed components, and redundant components coupled with failover techniques to maintain uptime. The storage solutions for AdvancedTCA must be consistent with these goals.

Disk on host CPU

The simplest, most common, and lowest purchase cost storage solution places a

	Disk on Host CPU	Disk on carrier	Subsystem: In chassis	Subsystem: External
Typical Media	<ul style="list-style-type: none"> • 2.5-inch IDE or SATA notebook class disk • AMC.3 storage using notebook class disk 	<ul style="list-style-type: none"> • One or two 3.5-inch, or up to six 2.5-inch Fibre Channel or SCSI enterprise class disks • Managed off board by CPU blade 	<ul style="list-style-type: none"> • One to four 2.5-inch enterprise class disks • RAID0, RAID1, or RAID5 • Managed by local RAID controller 	<ul style="list-style-type: none"> • Four to 10 3.5-inch enterprise or desktop class disks • RAID0, RAID1, RAID5 • Managed by local RAID controller
Capacity	40 GB to 120 GB	37 GB to 250 GB	37 GB to 292 GB	500 GB to 5+ TB
Performance	Low	Good	Good	Best
Reliability	Low with notebook class disks	Best with enterprise class disks	Best with enterprise class disks	Good, requires complete duplication of chassis, power supply, cooling, and interface hardware
Management Support	Host CPU blade communicates through Intelligent Platform Management Interface (IPMI)	Host CPU blade communicates through IPMI	Onboard RAID processor communicates through IPMI or in-band	Onboard RAID processor communicates in-band
Support	Host CPU blade communicates through Intelligent Platform Management Interface (IPMI)	Host CPU blade communicates through IPMI	Onboard RAID processor communicates through IPMI or in-band	Onboard RAID processor communicates in-band
Availability	Low, with no protection against disk failure	<ul style="list-style-type: none"> • Low, with no protection against single disk failure • Good, when operated with redundant disks 	Best, with redundant and hot swappable disks	Best, with redundant and hot swappable disks
Scalable	No, change to larger disk	Limited, add second disk or use larger disk	Good, iSCSI can be shared across multiple slots	Best, adding disks and increasing disk capacity
Cost	Lowest, just one disk	Low, as carrier includes very little circuitry	Moderate, as the storage blade includes network interface and RAID processor	Highest, with external chassis, power supplies, interface and RAID processor

Table 1

single disk drive directly on the host CPU blade. Single Board Computer (SBC) products have implemented this straightforward approach for years and it certainly does provide advantages. The principal advantage is that this solution is simple to implement since the host CPU storage interface and the OS software access this local disk just like a desktop PC.

However, a range of disadvantages keeps this from being a good overall system solution for high availability systems, including:

- CPU board space required
- Limited capacity
- Single disk performance limitations
- Reliability
- Serviceability

Low upfront cost is often the driving factor behind collocating storage drives on the CPU blade. A major factor influencing this low cost is the use of commodity priced 2.5-inch notebook class drives that ship in very large volumes. By contrast, an enterprise class disk delivers much better performance and reliability at a significantly higher upfront price. Table 2 summarizes several attributes characteristic of different disk classifications.

While the AdvancedTCA standard provides for a 200 W power budget per blade, thermal design, especially with onboard disks, becomes a very critical issue. Higher performance CPUs draw additional power that must be dissipated and tall profile disks restrict airflow. Adding to these CPU thermal issues is the significant disk power (typically up to 20 W) that adds to blade cooling problems.

At the foundation of the AdvancedTCA architecture is the goal of creating high availability systems. In other words, a systematic approach manages single points of failure and failure management reduces the probability of the system

going offline due to a component failure. A single disk drive on the SBC is a high probability single point failure that will take the entire CPU blade offline.

The single disk on the CPU blade could be an attractive solution if the disk drive reliability were equal or better than the reliability of the other electronic components on the blade. Today, flash-based disk drives supply reliability and performance that is two to five times better than a hard disk. The consistently declining cost of flash memory now brings this solution to a feasible price point. Flash disks, as pictured in Figure 1, have the demonstrated ability to meet AdvancedTCA system goals by increasing storage performance, decreasing the thermal impact, increasing reliability, and meeting cost targets.



Figure 1

Disk on carrier

In an evolutionary step, additional storage capacity can be accomplished through a carrier blade containing one or more 3.5-inch disks. Carrier blades contain the minimum components/costs required to meet the AdvancedTCA requirements. Connection may be through a fabric (Zone 2) or user I/O RTM rear transition module (Zone 3) connection. For example, the designer could employ a Fibre Channel interface with the appropriate backplane and switch, or external cabling via an RTM.

The AdvancedTCA form factor accommodates up to two 3.5-inch disks or

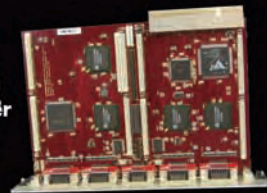
Disk Type	Power on Hours	Duty Cycle	Total Availability	Service Life	Temperature Range	Life Cycle Cost
Notebook class • SATA	50%	40%	20%	1-2 years	5 °C → +55 °C	\$\$\$\$
Enhance Availability	100%	50%	50%	2-3 years	5 °C → +45 °C	\$\$\$
Enterprise Class • SCSI/SAS	100%	100%	100%	5 years	5 °C → +55 °C	\$\$
Flash	100%	100%	100%	20+ years	0 °C → +70 °C -40 °C → +85 °C	\$

Table 2

A Truly Scalable Solution

SUNDANCE

SMT300Q
6U cPCI carrier



SMT300Q 6U cPCI carrier with 4 Module sites; PXI compatible. Choose from a large selection of Sundance DSP, FPGA, ADC and DAC modules to tailor-make a solution for any application. High performance multi-DSP and FPGA solution with ADC modules up to 1GHz sampling rate. Can cascade multiple carriers to build systems with 100s of DSPs and FPGAs. On-board XDS-510 compatible JTAG Master.

SMT300
3U cPCI carrier



The SMT300 is a single site module carrier with all the functionality of its larger relative the SMT300Q. This module is fully compatible with PXI standard. Like the SMT300Q, this carrier can be used for supporting multi-DSP, FPGA and DAQ solutions.

SMT7008
cPCI C6416 Multi DSP System



This multi-DSP example system has full software support from CCS and 3L Diamond. Can be further expanded to include more DSPs, FPGAs and DAQ modules.

RSC# 27 @ www.compactpci-systems.com/rsc

SUNDANCE DIGITAL SIGNAL PROCESSING INC.
Tel: +1 775 827 3103 USA

SUNDANCE MULTIPROCESSOR TECH. LTD.
Tel: +44 01494 793167 UK

SUNDANCE ITALIA S.R.L.
Tel: +39 0185 385193 ITALY

sales@sundance.com www.sundance.com

six 2.5-inch disks in a single slot. The 3.5-inch disks may represent a cooling issue by blocking the airflow across the blade. Enterprise class 3.5-inch or 2.5-inch disks are candidates for use in a carrier blade storage solution due to availability and service life characteristics.

Managing the disks on a direct attached carrier blade remains the responsibility

of the host CPU. However, now the blade can be removed in case of a disk failure and the CPU remains operational when using redundant disk carrier blades.

Another possibility with a disk carrier blade is to use two disks on the blade and organize the disks in a mirror RAID Level 1 configuration controlled by the host CPU blade. In this way the active

blade remains operational in the event of a single disk failure, allowing servicing to be performed before the system goes into single failure risk mode.

Disk carriers deliver:

- Enterprise disk capability
- Some isolation from the host CPU
- The possibility of RAID management

These advantages support the high availability goals of AdvancedTCA, yet the carrier blades are disadvantaged by requiring a CPU to manage RAID and the failover process.

In-chassis storage subsystem

If the disk on carrier impact of implementing RAID in software on the host CPU creates performance concerns, the subsystem in-chassis storage architecture is often of interest. An iSCSI RAID storage blade, as pictured in Figure 2, exemplifies this class of product. Similar to the disk on carrier it takes advantage of enterprise class drives to increase reliability. It also implements RAID5 error correction but rather than place demands on limited host CPU resources, an onboard CPU provides the network interface management, disk RAID management, and disk hot swapping.

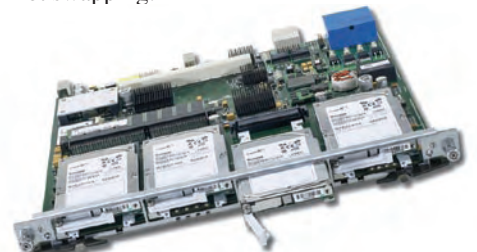


Figure 2

Onboard disk management improves the High Availability (HA) attributes of AdvancedTCA storage beyond RAID5 with the capability to hot swap a failed disk rather than requiring that the entire blade be removed. Individual disk hot swap improves high availability by reducing the Mean Time To Repair (MTTR). With a redundant disk removed or offline, the *storage blade continues to operate*, and the AdvancedTCA system never enters the single failure risk state. Alternatively, if the only choice is to hot swap the entire storage blade, the system lacks redundancy until the failing blade is replaced and completely rebuilt.

For your Heatsink...

How low can we go?

As low as you need us too

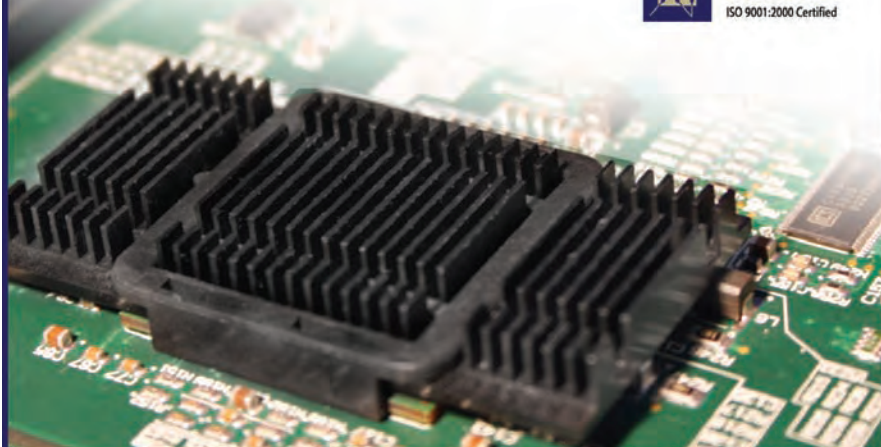
Our low profile standard & custom heat sinks are available for Compact PCI format.

The low profile heat sinks have two mounting options. They can be hard attached to your PC board or they can be easily mounted with our EZ Snap™ Mounting Clips. And since our clips don't require holes to be drilled in your PC Boards, they reduce assembly cost at the board level by eliminating complex installations and special board modification. The clips fits most FPGA & BGA packages from 19 to 45 mm.

For more information visit
www.radianheatsinks.com

or

Buy them at
www.radianstore.com



Radian Heatsinks is a division of Intracast Company Inc. • tel: 800-689-2802 fax: 408-988-0683

RSC# 28 @ www.compactpci-systems.com/rsc

Another advantage that reduces MTTR is the efficient rebuild of the redundant disk. This technique reduces time and network bandwidth compared to rebuilding the entire storage blade. Rebuilding the drive can all be done locally and takes about 40 percent of the time required to rebuild the entire blade from another mirrored blade across the network interface, which today likely requires host CPU intervention.

External storage subsystem

The choice to move to an external array of disks is driven by a combination of requirements for capacity, performance, and scalability. This solution set includes a wide range of implementations from four disks to more than 10 disks and RAID functions that allow disk redundancy and disk hot swapping.

A speed advantage may be achieved through the use of Fibre Channel or Serial Attached SCSI to the host CPU within the AdvancedTCA chassis. System health can be monitored through an in-band connection, serial, or Ethernet ports. Capacity scaling can be achieved by adding multiple storage chassis and through larger or an increased number of disks within a chassis. The drawback to the external storage subsystem is found in the decreased reliability of additional chassis components, qualification efforts for the external subsystem, external cabling between the AdvancedTCA and the cost and footprint concerns of an additional storage chassis.

Conclusion

Selecting a storage system requires a review of appropriateness for application, reliability, availability, and connectivity. No, it is not just capacity and performance. Each application will vary by a variety of attributes, and the chosen solution set must meet the high availability goals of the system. Figure 3 provides a summary of the various storage alternatives and their potential applicability in AdvancedTCA platforms.



Greg Novak is the Adtron Blade-pak product line manager for CompactPCI and AdvancedTCA platforms, focusing on high availability storage solutions. Before joining Adtron, Greg was a product manager for the VME, CompactPCI, and PrPMC families with Motorola Embedded Communications Computing Group for more than 10 years. With more than 40 published articles and seminars Greg is an advocate of the embedded storage market.

For further information, contact Greg at:

Adtron Corporation

4415 E. Cotton Center Blvd., Suite 100
 Phoenix, AZ 85040
 Tel: 602-735-0358
 Fax: 602-735-0349
 E-mail: gnovak@adtron.com
 Website: www.adtron.com

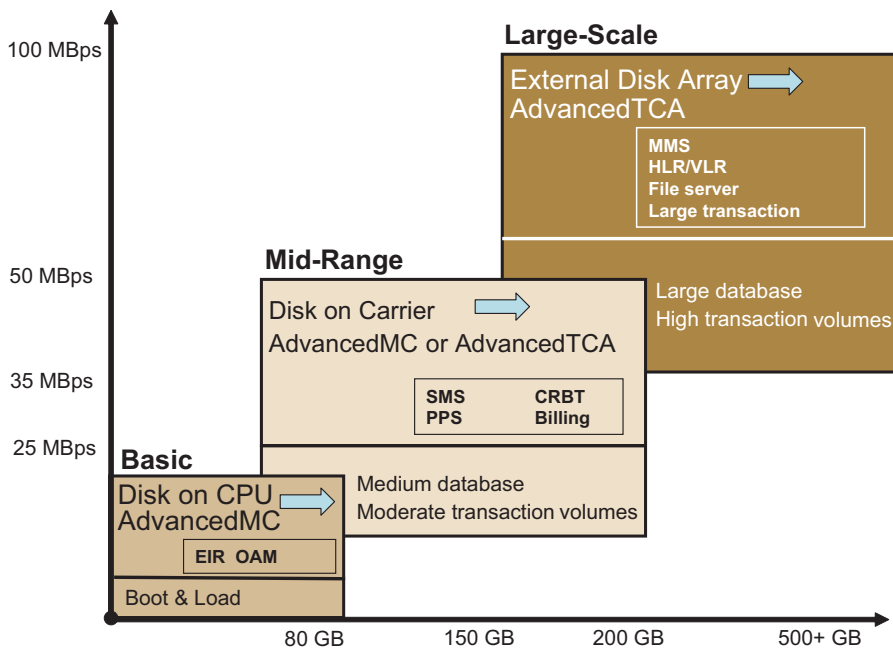


Figure 3

A Truly Scalable Solution

SUNDANCE

SMT791 PCI two channel ADC



Built on the SMT391 module this combination provides a two channel ADC sampling at 1GHz per channel with 8bits resolution.

SMT787 PCI Disk Storage Solution



This is an example unit made up of SMT300 carrier and SMT387 module with C6415 DSP; Virtex II VP20; SATA Link; and Rocket Serial Link (RSL). In this solution the DSP can directly write to or read from Serial ATA hard disk supporting a FAT32 filing system.

SMT795 PCI DSP



Based on SMT395 design, it offers a DSP resource with a 1GHz 64-bits C6416T DSP, Xilinx XC2VP20-6 Virtex II Pro FPGA, 256Mbytes of SDRAM and four RSL.

RSC# 29 @ www.compactpci-systems.com/rsc

SUNDANCE DIGITAL SIGNAL PROCESSING INC.
 Tel: +1 775 827 3103 USA

SUNDANCE MULTIPROCESSOR TECH. LTD.
 Tel: +44 01494 793167 UK

SUNDANCE ITALIA S.R.L.
 Tel: +39 0185 385193 ITALY

sales@sundance.com www.sundance.com

Power management considerations in AdvancedTCA systems

By *Tony Romero*

CompactPCI has gained wide acceptance as the preferred architecture for equipment manufacturers developing high availability, embedded applications. Its powerful, standards-based computing solutions, hot-swap functionality, and high availability capabilities make it ideal for telecommunications, data communications, commercial, and military applications. Also emerging as a standards-based solution is AdvancedTCA. With AdvancedTCA, intelligent power management and the power distribution architecture are critical to the success of high service availability for the complete application. Here, Tony explores the power architecture issues companies should consider when developing their applications with advanced managed platforms.

The evolution of intelligent power management

Since today's embedded applications demand higher performance and compute power, the Power Entry Modules (PEMs) in an AdvancedTCA application now deliver twice as much power as they have traditionally. However, these dense PEMs require ample cooling and management to ensure maximum performance, hence the need for intelligent power management.

Traditionally, PEMs offered simple management information, with two typical management signals being the *Degrade* signal, which provides warning when power supply temperature is within 20 °C of derating point, and the *Power Fail* signal, which indicates any output below 90 percent and/or a low input < 36 Vdc.

Recently, PEMs have started implementing the Intelligent Platform Management Interface (IPMI), offering a comprehensive set of information to fully manage and predict failures for each power supply. IPMI is an industry standards-based interface that allows subcomponents from multiple vendors to be monitored by redundant shelf managers in a system.

IPMI is a request-response protocol, where the shelf manager (also considered the master or baseboard management controller) issues a Request Message to an intelligent PEM (also considered the slave or satellite management controller). The supply then responds with a separate Response Message. Both Request Messages and Response Messages are transmitted on the bus using I2C Master Write transfers. The Sensor Data Record (SDR) is the sensor information stored on the power supply.

Each PEM has an Intelligent Platform Management Controller (IPMC) to provide the Shelf Manager with health, sensor, and product information. While

PEM input is rated for 100 amps, their input is segmented down to four separate 25 amp circuit breakers, or four internal feeds per PEM, as shown in Figure 1.

Many shelf management modules provide an Ethernet interface (either in-band, out-of-band, or both) allowing Operations, Administration and Maintenance (OA&M) managers access to the shelf remotely through a common interface. Via IPMI, the shelf manager then communicates to all intelligent components. Each of these feeds has voltage and circuit breaker monitoring. The PEM includes EMI filtering and transient voltage suppression requirements to limit transients to the backplane as required in Section 4

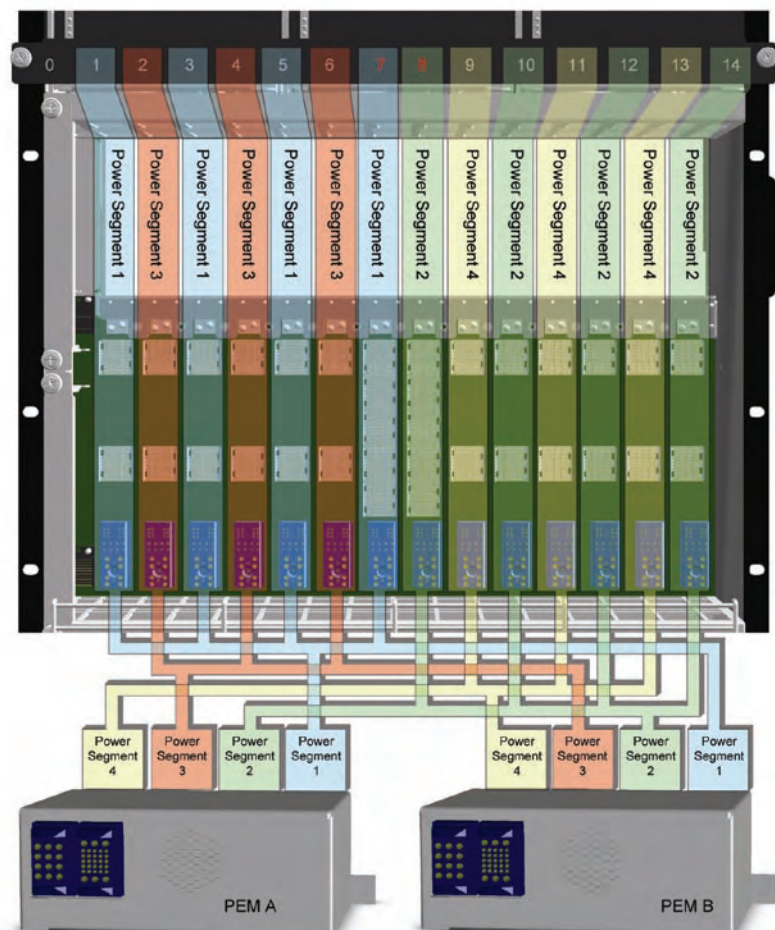


Figure 1

VECTOR

ELECTRONICS & TECHNOLOGY, INC.
A FINE TECHNOLOGY GROUP

ONE SOURCE SYSTEM PACKAGING
DESIGN AND TOTAL INTEGRATION.



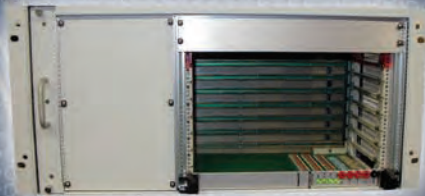
SUBRACKS



MODEL 2345 ENCLOSURE



790 & 792
RUGGEDIZED
CHASSIS



2377 ENCLOSURE



SERIES 2370 HORIZONTAL
ENCLOSURE

VECTOR SPECIALIZES IN:

- CUSTOM CONFIGURATIONS
- SHORTER LEAD TIME
- FACTORY STOCK



MADE IN U.S.A

(800)423-5659

WWW.VECTORELECT.COM

RSC# 31 @ www.compactpci-systems.com/rsc



of the PICMG 3.0 specifications. A single PEM is capable of supplying 200 W of power to each blade slot and the entire shelf with power. The PEM converts 48 Vdc to 24 Vdc and distributes dual power buses of 24 Vdc to the system. Two independent DC/DC converters power separate sections of the system. The +24 V outputs are provided on the midplane connector to the rest of the shelf. An additional +24 V power input

from the midplane supplies redundant power to the PEM IPM Controller. Each individual payload board includes +24 V converters to generate 12 V, 5 V, and 3.3 V for use by components on that board. The +24 V DC/DC converters are monitored for a fault and shut down if required. Typically, PEMs require cooling, which redundant fans can provide. The IPMC monitors each fan in the PEM.

The Field Replaceable Unit (FRU) commands provide asset information about each PEM, information that is critical to high availability applications in many ways:

- It stores the version of firmware a power supply runs and can upgrade its firmware remotely if required.
- FRU information on the supply (contains part number, serial number, asset tag, date of manufacture, and so on) ensures the technician removes the right power supply and replaces it appropriately.
- Knowing a specific power supply can also drive routine FRU replacements, as some OA&M managers proactively replace components prior to failure based on their Failure In Time (FIT) analysis.

Firmware commands provide the ability to effectively and remotely update the power supply. Commands also include the ability to erase flash memory space occupied by the program code being updated, and to program the flash.

OEM commands allow users to change the power supply state locally or remotely. This includes monitoring and overriding Power OK, LED state and power supply shutdown output, any device status command, device-implemented FRU type commands, and device setup commands.

Power budgeting

When dealing with high performance AdvancedTCA applications, it is important to develop a power budget analysis to ensure there is sufficient power for the complete system configuration. High performance AdvancedTCA applications will tax both power and cooling architectures supported in the platform. Power budgeting also provides a rough estimate of how much average power can be delivered to each platform slot.

To properly budget power for 12U platforms, it is best to develop a spreadsheet to account for all components that draw power. Start the analysis by listing the maximum current rating for each component and board to be integrated into the platform. For each unique board, write down its maximum current draw in amps per voltage rail. It is important when calculating power budget to use the maximum power draw for each component



Advance Your CompactPCI Computing Platform

Trusted ePlatform Services

ADVANTECH

Pentium® M/PCI-E Dual GbE/DDR2/SATA/IPMI 2.0 Maximizing cPCI Computing Platform

The MIC-3390 architecture delivers the performance and high scalability required for the most cutting-edge computing applications. This low-power consumption cPCI board enables fast deployment of next-generation platforms to maximize competitive advantage.



MIC-3390
6U cPCI Processor Board

- Supports Intel® Pentium® M (Dothan & LV Dothan)
- PICMG 2.16 compliance
- PICMG 2.9 (IPMI 2.0) compliance
- PCI Express Dual Gigabit Ethernet
- Dual channel DDR2 400/533 MHz SDRAM up to 2 GB
- On-board SATA 2.5" HDD PMC and CompactFlash



RIO-3310
6U cPCI Rear Transition Board

- Ultra320 SCSI interface
- Supports RAID 0, 1, 10
- Supports IDE/SATA interface

Advantech Headquarters
Tel: 886-2-2792-7818
MKT.ACL@advantech.com.tw

San Diego, CA Office
Toll Free: 1-800-557-6813
ctinfo@advantech.com

Europe

Germany
Tel: +49 89 12599 100
cp.ci.adl@advantech.de

U.K.
Tel: +44 1908 304800
cp.ci.auk@advantech-uk.com





© 2005 Advantech Co., Ltd. www.advantech.com

RSC# 32 @ www.compactpci-systems.com/rsc

to calculate worst case scenario. If its datasheet does not provide current ratings for each rail, contact the manufacturer. The next step is to list all boards and components to be configured in the platform, including quantity.

One more question to keep in mind with an AdvancedTCA deployment: Does the facility provide enough power to the rack or frame? The analysis performed previously assumes the facility can provide sufficient power to the PEMs.

What comes next: The future of intelligent power management

Increasingly, designers are realizing the benefit of higher levels of availability. Not only does this provide them with a leg up on the competition, but it also reduces total cost of ownership during the life of deployment. System management is an important element in this equation, and PEMs are no exception. They need to be managed intelligently like any other high availability board or component in the platform. With never-ending performance enhancements, it is important to keep in mind the analysis necessary to ensure PEMs can power your complete configuration. 



Tony Romero is a senior product manager with Performance Technologies. For the past three years Tony has worked extensively in

system architecture and product development of platforms with CompactPCI packet-switched backplanes, both pre-PICMG 2.16 and PICMG 2.16. His responsibilities have included managing computing platform products that comprise chassis, midplanes, system management, power supplies, and cooling. Prior to working at Performance Technologies, Tony worked for Primus Knowledge Solutions and Dell Computer Corporation.

For more information, contact Tony at:

Performance Technologies
205 Indigo Creek Drive
Rochester, NY 14626
Tel: 585-256-0200
Fax: 585-256-0791
E-mail: tony.romero@pt.com
Website: www.pt.com

Flexible and Powerful Software



SMT6050 Simulink® - Toolbox for DSP code generation and co-design



SMT6050 generates optimized C code from Simulink model and creates Target DSP code without needing to learn details of underlying hardware. SMT6050 adds functionality to MATLAB for interacting with running application on the DSP. While parts of application run on the host PC, the DSP can have access to the Matlab's powerful GUI.

Diamond RTOS with true support for Multi-DSP



Diamond provides the best tools for fast development of multi-processor DSP projects on systems using one or many C6000s. Compilation, linking and debugging are done using Texas Instruments' Code Composer Studio, to which Diamond adds a comprehensive framework for multi-processor software development.

GDD600 & GDD8000



GDD600 Floating Point computation on Fixed Point TMS320C6000. A set of over 100 functions and macros for DSP operations like FFT, Fast Hartley Transform, FIR/IIR filters, vector, complex number arithmetic, and data conditioning (spectral windows). These are performed on the IEEE-754 Floating Point format. A set of data conversions functions is available to convert FP data to/from integer and Q15 fixed-point formats. Unlike other libraries in the market all GDD libraries are fully interruptible and re-entrant. With a single instance of any function linked in, all application threads can make a call to it simultaneously.

GDD8000 Hand coded EISPACK library for solving eigenvalue/eigenvector problems on TMS320C6000. The library is a set of about 100 functions and macros that find a solution to a linear algebraic eigensystems with various matrices, real or complex, general, band, symmetric or Hermitian. All or selected eigenvalues and eigenvectors can be computed. Several types of matrix decompositions like SVD or QR are performed by the library functions.

RSC# 3302 @ www.compactpci-systems.com/rsc

SUNDANCE DIGITAL SIGNAL PROCESSING INC.
Tel: +1 775 827 3103 USA

SUNDANCE MULTIPROCESSOR TECH. LTD.
Tel: +44 01494 793167 UK

SUNDANCE ITALIA S.R.L.
Tel: +39 0185 385193 ITALY

sales@sundance.com www.sundance.com

NEW VMEbus and CompactPCI® Products!

Flash Drives or Hard Drives with Ultra Wide SCSI LVD interface



DVD-RW / CD-RW / CDROM with Ultra Wide SCSI LVD Interface



Mass Storage Modules for VMEbus and CompactPCI®
See the full line of VMEbus and CompactPCI® mass storage module products at:

RedRockTech.com

Toll-free: 800-808-7837 · 480-483-3777
Red Rock Technologies, Inc.

RSC# 3301 @ www.compactpci-systems.com/rsc

Avoiding PCI Express link performance surprises

By Roland Scherzinger

The serial point-to-point PCI Express technology supports up to 4 GBps bandwidth per direction. Depending on the link width, the bandwidth scales from 250 MBps to 4 GBps per direction. However this high theoretical bandwidth does not guarantee that overall performance will be optimal. Performance always depends on the efficiency of both devices on a PCI Express link. Parameters including payload size, flow control credit availability, and different latencies strongly influence the overall result.

It's not an easy job to predict the actual performance of a new device. The numerous input factors make it very difficult to find a precise estimate of real-life performance.

A first performance estimate

What is the maximum throughput one can get for read completions on a x1 PCI Express link under the following conditions?

- The requester is able to accept completion packets at maximum rate (ideal requester).
- The completer is able to send completion packets at maximum rate.
- The completer splits the completion at each 64-byte read completion boundary.
 - 240 MBps
 - 210 MBps
 - 190 MBps
 - 170 MBps

The result is 190 MBps. Is this surprising? Is it lower or higher than expected? Why is the maximum only 190 MBps?

Definition of performance parameters

The most interesting performance parameter is the link throughput, the actual amount of bytes being transferred in one second.

Also interesting is information concerning how the link is utilized. How does

link usage time compare to total link time (Equation 1)?

$$Utilization = \frac{LinkActiveSymbols}{TotalSymbols}$$

Equation 1

Finally, the link efficiency builds a ratio of number of payload symbols divided by the amount of symbols while the link is active. Efficiency is evaluated as shown in Equation 2.

This parameter tells how many symbols would be transferred if the complete link time was used.

Figures 1 and 2 show efficiency over payload size and maximum throughput

“When the transaction layer finally has accepted the TLP, the buffer spot will be freed again, and the transmitter will send a flow control update to the link partner.”

over payload size respectively. The actual throughput is calculated with the formula shown in Equation 3.

$$Efficiency = \frac{PayloadSymbols}{LinkActiveSymbols}$$

$$LinkActiveSymbols = OverheadSymbols + PayloadSymbols$$

Equation 2

$$Throughput = MaximumThroughput * Utilization * Efficiency$$

Equation 3

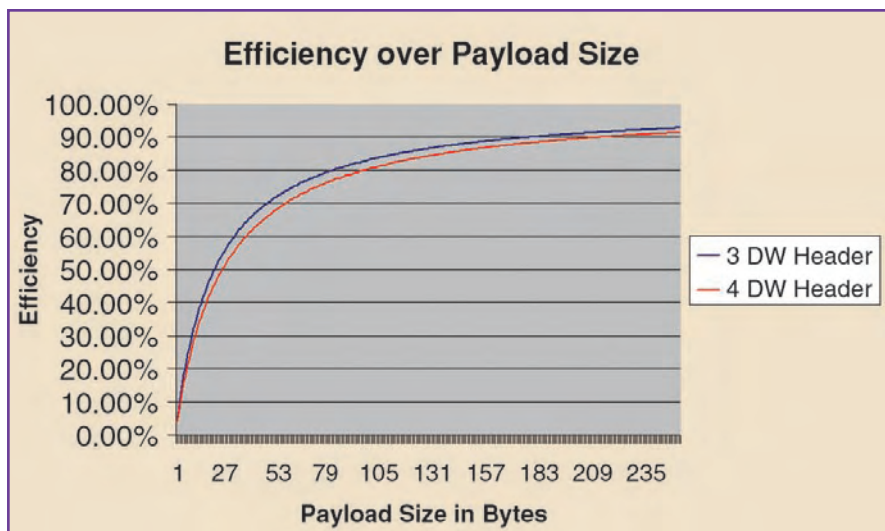


Figure 1

CUSTOM SOLUTIONS for CUSTOMER APPLICATIONS



Technology rich CABINETS/ENCLOSURES

Cooling, Shock/VIB/Seismic,
EMC, Cabling, MIL-SPEC, NEBS

Industries served include:
Defense, Industrial Automation,
Broadcasting, Telecom,
Datacenter, Medical

Global Resources Fast and Flexible



770-496-4000
optimaeps.com
sales@optimaeps.com

2166 Mountain Industrial Parkway
Tucker, GA 30084

Optima EPS
Cabinets & Enclosures
An ELMA Company

RSC# 35 @ www.compactpci-systems.com/rsc

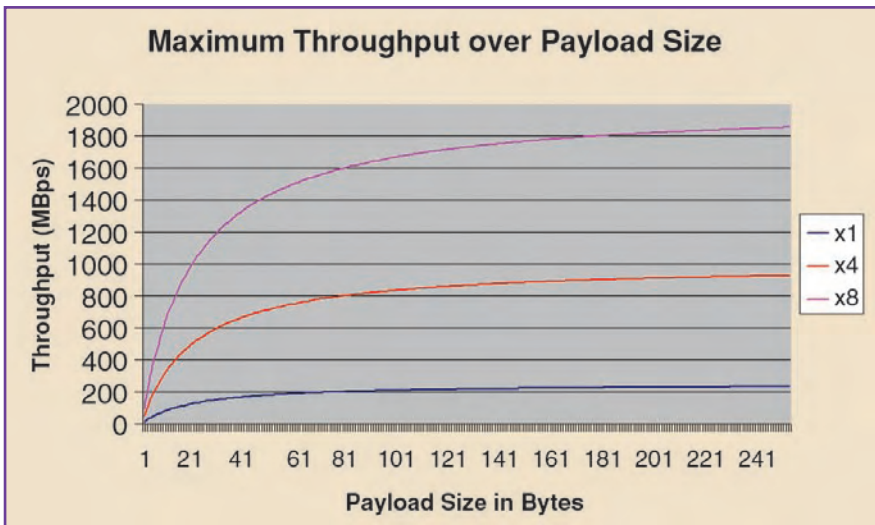


Figure 2

Latencies

Figure 3 shows that the request to completion latency determines the responsiveness of the system. One can distinguish here between first DWORD latency and last DWORD latency. The values here may differ, depending on actual load condition of the backend. Missing credits for completion headers or data may also influence these numbers.

TLP to flow control update

When the Transaction Layer Packet (TLP) is received, sequence number and CRC checking takes place. If there's no error the TLP will be put into the receive buffer. Then the TLP will be given to the transaction layer. When the transaction layer finally has accepted the TLP, this frees the buffer spot again, and the transmitter sends a flow control update to the link partner.

TLP to Flow Control (FC) update is the time between the end of a TLP and

the flow control update Data Link Layer Packet (DLLP) that returns the credits that were used by the originating TLP. Figure 4 shows TLP to FC update latency.

Flow control update to TLP

Following CRC checking, flow control updates are forwarded to the transaction layer. If this flow control update results in additional posted, nonposted, or completion credits, any TLP waiting for credits will be forwarded from the transaction layer to the data link layer (if replay buffer space is available). The data link layer will add the framing and finally transmit the TLP.

The *flow control update to TLP latency* is the time it takes from receiving a FC update DLLP until a TLP waiting for credits is transmitted. Flow control update to TLP latency is illustrated in Figure 5.



Figure 3

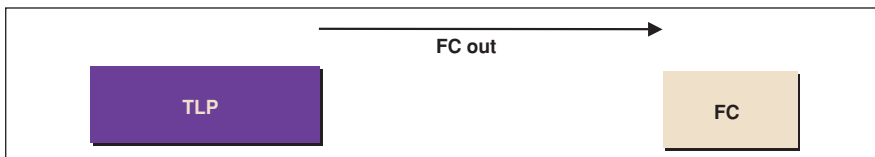


Figure 4

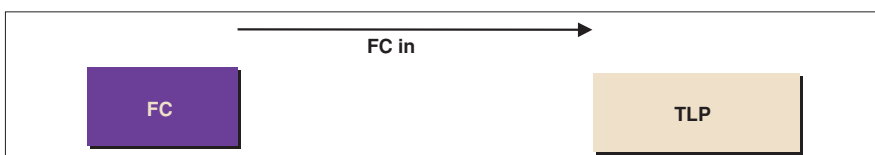


Figure 5

The *flow control update latency* (see Figure 6) is the sum of TLP to FC update plus FC update to TLP, plus the DLLP length.

Buffer sizes for each virtual channel need to be sufficient so that substantial flow control update latency does not cause lower utilization and throughput. It's highly important to realize that both sides of the length determine this latency. Designers should choose buffer sizes that enable the device's performance requirements to be met at maximum link width and big flow control update latency.

In other words if a device received credits for 8 headers and 1,024 bytes, it needs to wait until it has used up all the credits if the flow control update for the first TLP did not come in on time.

For example, if the flow control update latency in a x1 link is 1 μ sec, a device needs sufficient header and payload credits for sending 250 bytes. If the initially advertised credits from the link partner are lower, the device cannot achieve full line rate, as it has to eventually wait for additional credits. Utilization will drop in this case.

"It's highly important to realize that both sides of the length determine this latency."

The device, with a x8 link, needs credits for sending 2 KB if the flow control update latency is 1 μ sec. Maximum utilization over FC update latency for x1, x4, and x8 links is shown in Figures 7, 8, and 9.

TLP to ACK/NAK latency

When the data link layer receives a TLP, it will check that TLP for framing and CRC errors. Depending on the result of that test it will schedule either an acknowledge (ACK) or a not acknowledge (NAK) DLLP.

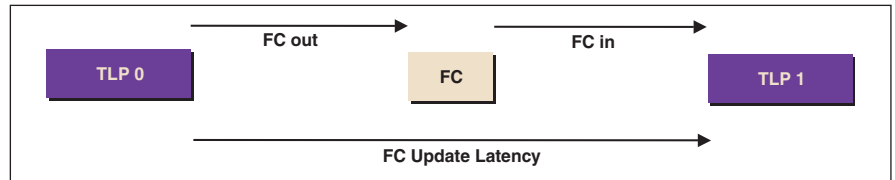


Figure 6

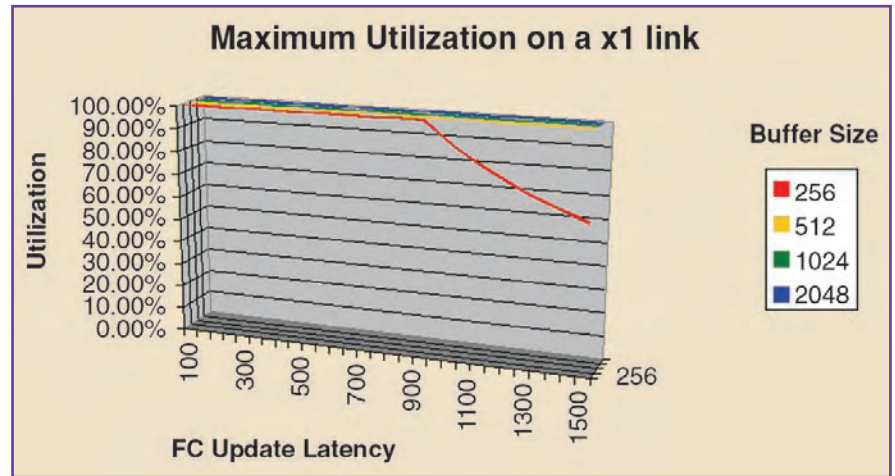


Figure 7

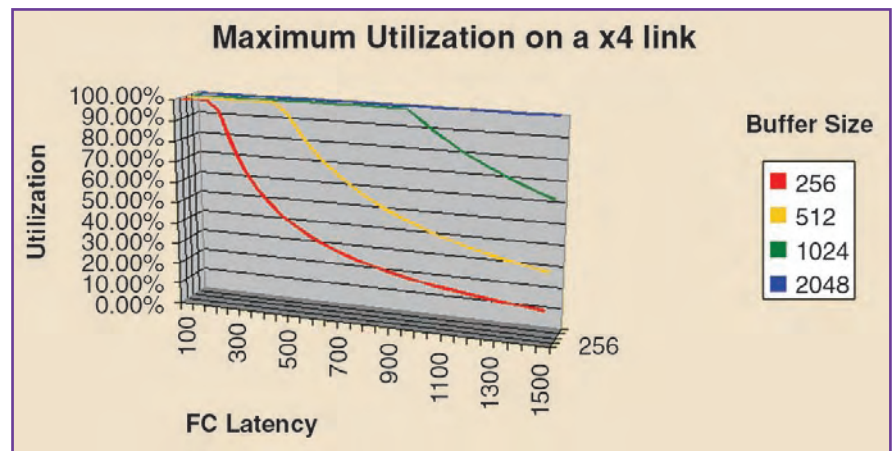


Figure 8

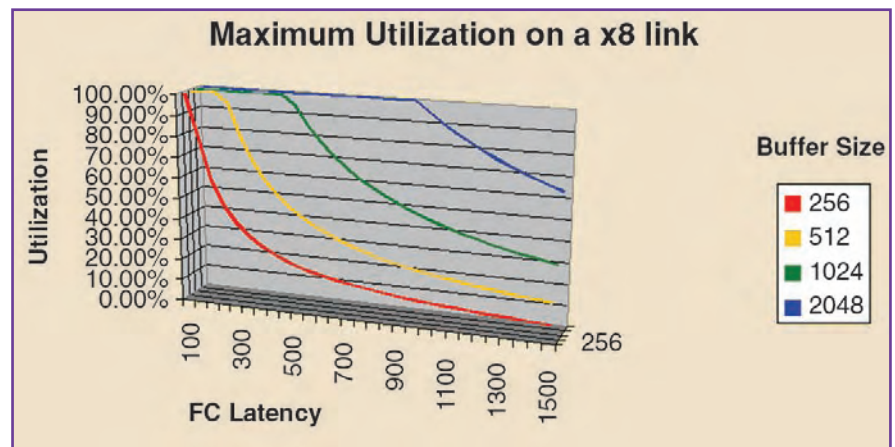
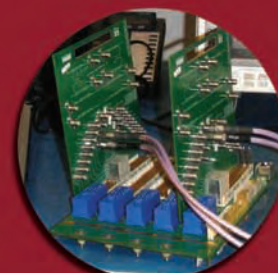
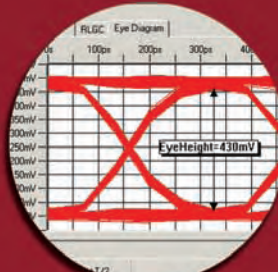


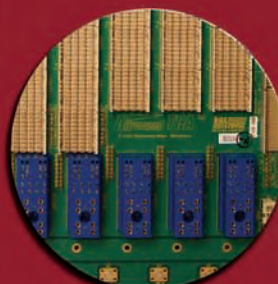
Figure 9



Unique
Probe Card



Simulation/
Characterization



Various Backplane
Configurations

AdvancedTCA performance. We have the evidence!

Not all ATCA backplane designs are created equal. With multi-gigabit fabric signals across the backplanes, you need proof of performance. Elma Bustronic's Signal Integrity Initiative (SII) provides just that. Our unique ATCA probe card lets us characterize the backplane quickly and accurately, assuring the backplane we provide you has been designed and fabricated for superior results.

Elma Bustronic's pre-design HSPICE simulation and model extraction service assures that our backplane is optimized with your integrated ATCA system. Simulating interconnect paths from line cards to the backplane to system managers, our service assures you of superior performance throughout your system before it is ever built. Come to Elma Bustronic, the proven leader in ATCA backplanes.

Visit www.elmabustronic.com to learn more about our published and upcoming ATCA SII studies.

ELMA BUSTRONIC

Tel: 510.490.7388 Fax: 510.490.1853 info@elmabustronic.com

RSC# 37 @ www.compactpci-systems.com/rsc

ELMA
Your Solution Partner

The *TLP to ACK/NAK latency* (Figure 10) is the average time from the end of the TLP to the ACK or NAK DLLP for the appropriate TLP.

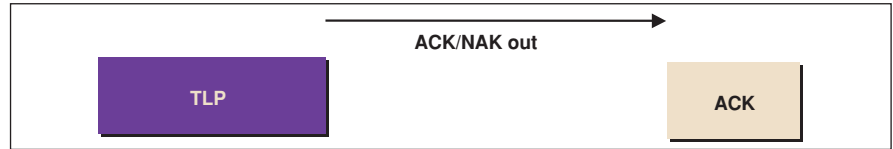


Figure 10

ACK to buffer free and NAK to replay

Receiving an ACK or NAK data link layer packet uses up some time. Also, the action that is either buffer free or replay needs some time.

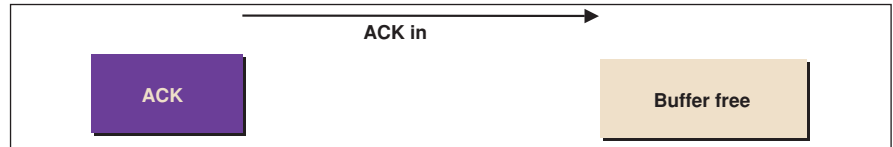


Figure 11

The time from reception of the ACK DLLP until the receive buffer is freed is the *ACK in latency*. See Figure 11.

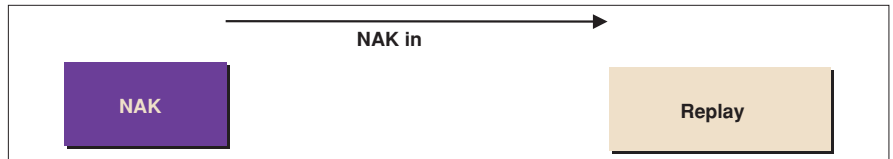


Figure 12

As seen in Figure 12, the time from reception of the NAK DLLP until the TLP is replayed is the *NAK in latency*.

Unlike the NAK in latency, the ACK in latency cannot be measured, since buffer free does not result in an observable event on the link. See Figure 13. Nevertheless, a device may need to wait for replay buffer space depending on ACK latency, link speed, and replay buffer size.

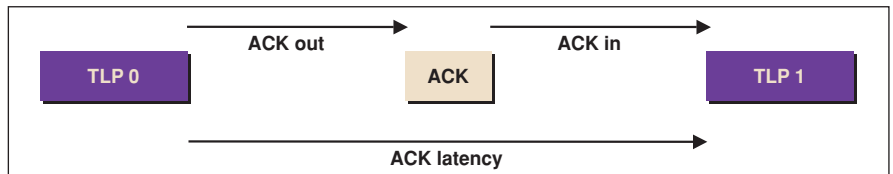


Figure 13

VISIONPOWER®
 Tel: +44 (0)1227 700746
 Email: info@visionpower.co.uk

**Advanced TCA
 plug and play
 power supply solutions**

COMPLETE POWER SUPPLY SOLUTIONS
 IPCM product range - 120W to 200W stand alone IPCMs.
 IPSY product range - 1V5 to 12V Intermediate Bus
 Supplies with integrated IPCMs

KEY FEATURES INCLUDE:
 8.4ms holdup
 Integral input fuses
 Input voltage monitor
 Active FET orring
 Input current monitor
 3v3 IPMI supply
 5v blue LED supply
 Output voltage monitor
 Programmable via I²C
 Regulatory compliance

More information online at www.visionpower.co.uk

ALPHI TECHNOLOGY CORPORATION



MIL-STD-1553

- UTMCI Summit
- DDC ACE & mini ACE
- 1,2,3,4 channels
- Dual redundant
- For: CompactPCI, PMC, PCI & Industry Pack

Analog I/O

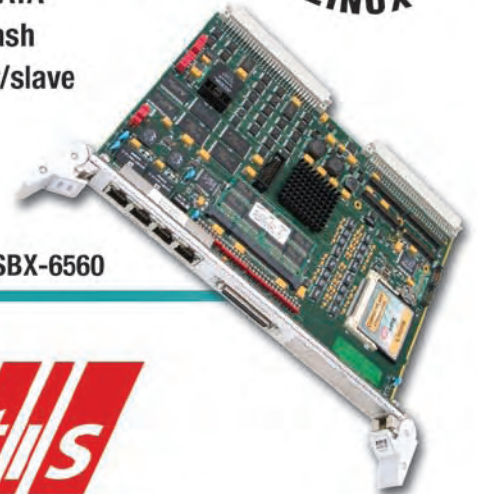
- 16 bit A/D and D/A
- Fast S/H converters
- DSPs and waveform RAM
- Simultaneous sampling
- For: CompactPCI, PMC, PCI, VME & Industry Pack

PMC Modules & Industry Packs

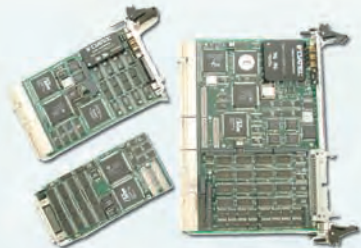
- Data Acquisition
- Mil-Std-1553
- FPGA
- D/A out w/ wave RAM
- Serial I/O, Networking
- Digital, Isolated I/O

PowerQUICC III @ 833 MHz

- DDR+ECC memory
- 2 Gigabit Ethernet
- 4 HDLC port
- 64-bit PMC slot
- Dual Serial-ATA
- Compact Flash
- VME master/slave



VSBX-6560



www.actis-computer.com
usasales@actis-computer.com
480-838-1799

NEW DEVELOPMENT KIT



KSBC-0405

- Low Cost Eval/Development Kit
- PowerPC SBC
- PPC405GPr
- Linux tools included (ECLIPSE)



Industry Pack Carriers

- For: CompactPCI, PXI PCI and VME bus
- 3U & 6U form factor
- Front and rear I/O
- Low cost slave versions
- High performance with local DSP processors

KEY PRODUCTS

Altera and Xilinx FPGA's on PMC & Industry Pack modules. I/O interfaces to include ttl, 422/485 and LVDS options.

For custom applications, call us at 480-838-2428.

RSC# 39 @ www.compactpci-systems.com/rsc



Looking for a solution?

We've got it!

Electronic Solutions continues to reach new heights in standard off-the shelf chassis products supporting the Open Bus Architectures for CompactPCI, VME, VME64Extensions, PXI/VXI, AdvancedTCA, and other Switched Fabric Architectures. Our system level components and turnkey system solutions incorporate high performance interconnect technologies for today's fast moving industries: telecommunications, networking, commercial, instrumentation, medical and military.

At Electronic Solutions our focus is on the optimum solution in support of your unique system packaging requirements. We can make modified or custom solutions to your requirements.

Electronic Solutions

a business unit of **apw** Ltd.



RSC# 40 @ www.compactpci-systems.com/rsc

ARCHITECTURES

ATCA | cPCI | VME | VME64X | VXI/PXI

For more information: sales.elsol@apw.com or visit www.electronicsolutions.com

Test methods and setup

Setup 1

Test team members took performance measurements with an Agilent E2960 protocol analyzer set up to measure throughput, efficiency, and utilization on the link between Device 1 and Device 2. See Figure 14.

It's possible to measure only the actual results with the protocol analyzer. This setup does not allow measuring the maximum capabilities of Device 1 or Device 2.

Setup 2

Measuring the maximum capabilities of a device requires an ideal link partner. A suitable stimulus is a device that does not influence the performance parameters of the device under test. We used an Agilent E2960A Protocol Exerciser and Analyzer setup for this task.

The exerciser stimulates the system with ideal traffic. In Figure 15 we see the pro-

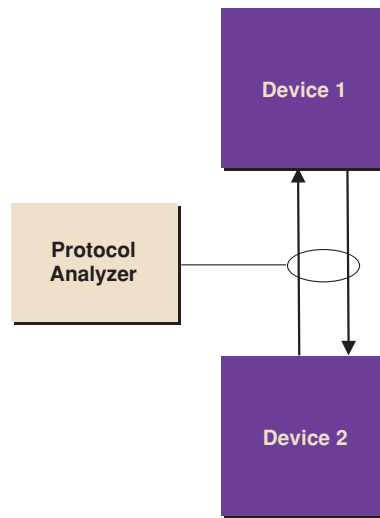


Figure 14

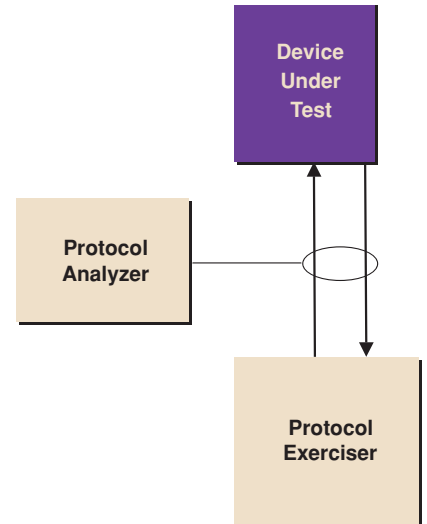


Figure 15

col analyzer. The protocol analyzer measures the actual performance numbers in this setup. Agilent used the setup for measuring maximum capabilities, as shown in Figure 15.

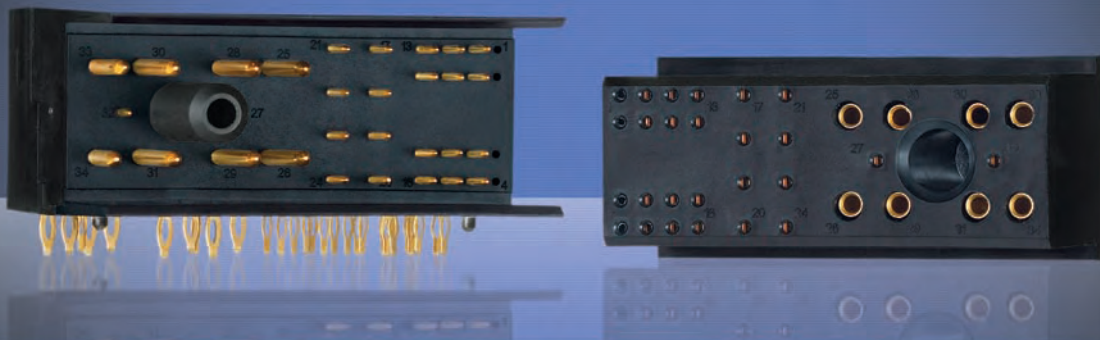
Measurement results

Actual device performance

Because utilization of the upstream direction on a x1 link is more efficient, utilization of the upstream direction was half

No, it's not blue. It's better.

Better quality... Better service



ATCA Zone 1 Power Connectors
Winchester Electronics
...the better choice

62 Barnes Industrial Road North
 Wallingford, CT 06492
 Phone: (203) 741-5400 Fax: (203) 741-5500
 www.winchesterelectronics.com

as big as the downstream direction, as can be seen in Figure 16 (showing throughput, utilization, and efficiency) and Table 1, which lists results obtained using a x1 link.

Maximum completion throughput

Next Agilent used the exerciser to send infinite read requests to the device under test. The receiver of the exerciser was configured to show infinite credits for completions. This way it's possible to measure the maximum completion throughput that the device under test is able to drive. See Figure 17. The result was 180 MBps at 99 percent utilization and 75 percent efficiency. The low efficiency was due to the average payload size of 64 bytes.

TLP to FC update latency

Here the exerciser was programmed to send a memory write request to the DUT. The protocol analyzer was used to measure the time between that TLP and the next flow control update. The result was 624 ns. Looking at Figure 18 we can see that with the TLP duration of 240 ns, the real TLP to FC update latency for posted writes on this device was 384 ns.

FC update to TLP latency

Finally, we programmed the exerciser to show very limited completion credits for the device under test so that it was forced to wait for flow control updates. This way it's possible to measure the FC update to TLP latency by measuring the time between a flow control update (completion) packet and the next completion TLP. As Figure 19 depicts, the device under test showed a latency of 432 ns.

Conclusion

As it has been shown previously, the performance on a PCI Express link depends on the characteristics of both devices on the link. In order to make sure performance requirements are met, it's a good idea to anticipate that the device at the other side of the link has high latencies. Here are some suggestions on meeting performance requirements:

- Make sure the device is sending packets with maximum payload size.
- Avoid unnecessary DLLPs.
- Minimize the flow control and ACK/NAK latencies of the device.
- Supply sufficient buffer size for each virtual channel and the reply buffer so that big flow control and ACK/NAK

Direction Throughput	Upstream	Downstream
	7 MBps	7 MBps
Utilization	5%	10%
Efficiency	55%	30%

Table 1

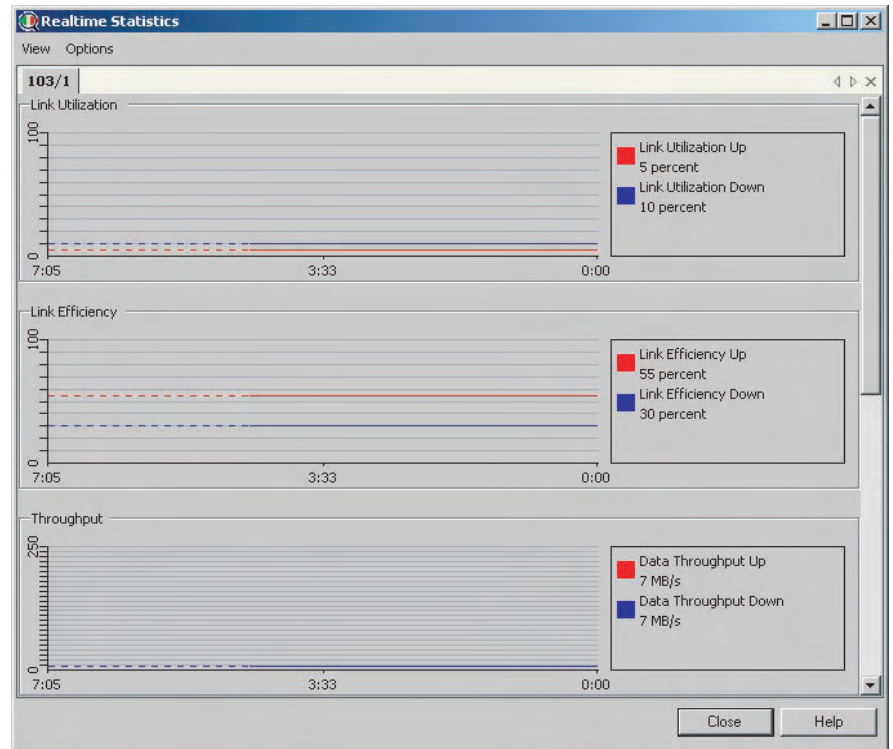


Figure 16

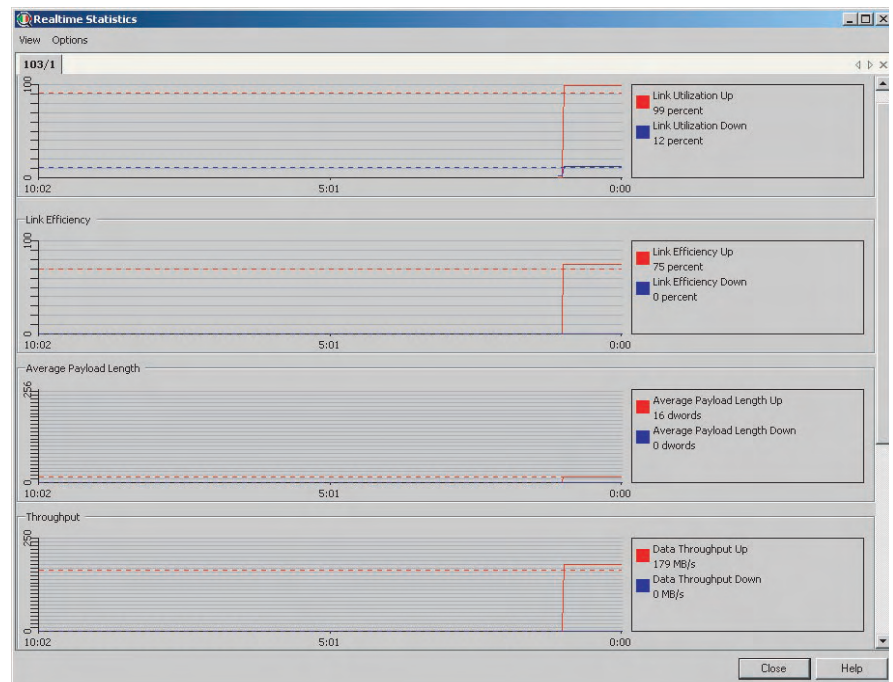


Figure 17

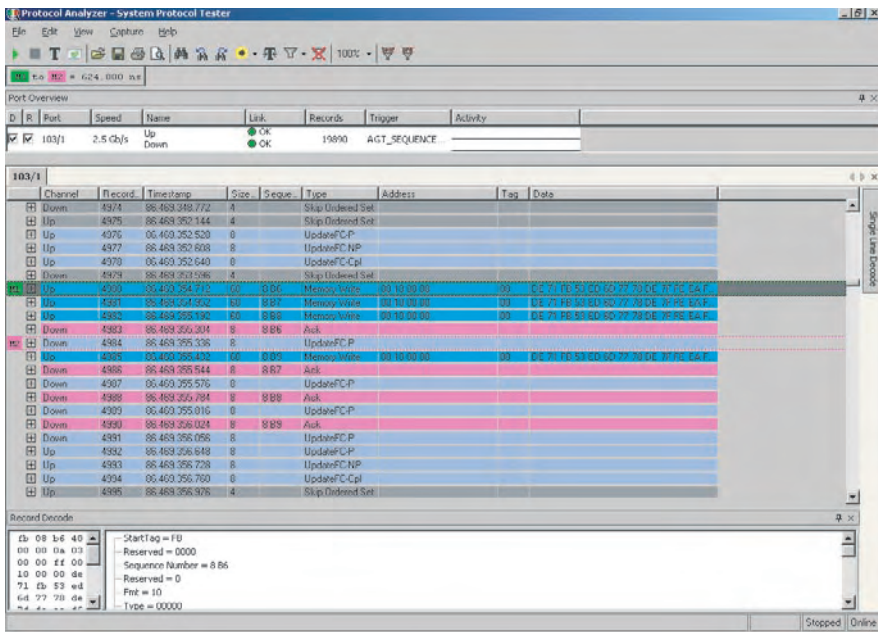


Figure 18

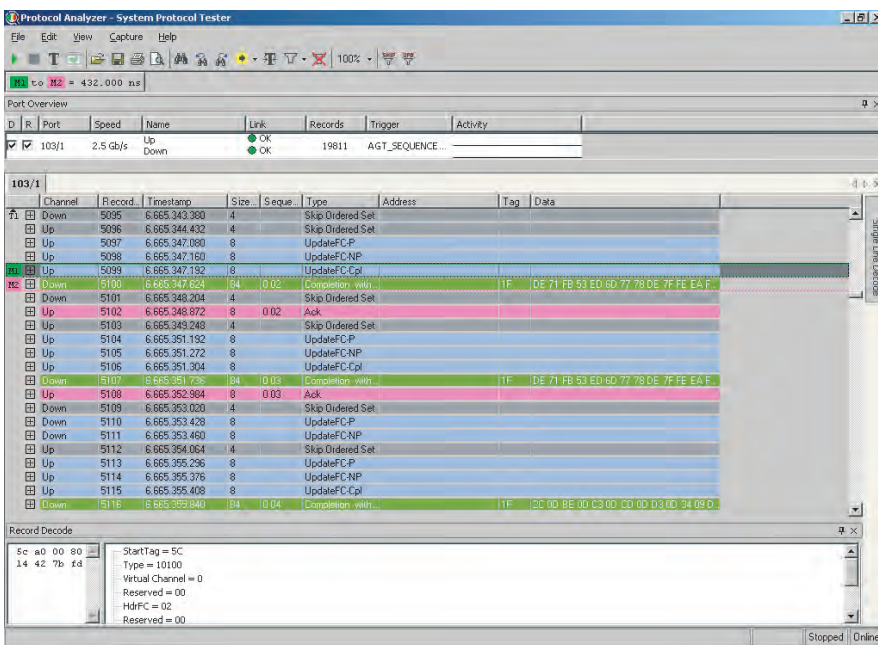


Figure 19

- latencies at the other side of the link are not harmful.
- PCI Express parameters such as TLP size, availability of flow control credits, and latencies have a strong influence on the overall performance.
- Both sides of a link are influencing the overall performance.
- For corner case measurements an ideal stimulus is required. 🌐



Roland Scherzinger is a technical marketing engineer in the Digital Verification Solutions (DVS) Division, a part of Agilent's Electronic Products Solutions Group. DVS provides digital test solutions for physical layer and system and protocol test.

He is currently focusing as a technical specialist on test applications for computer buses, such as PCI, PCI-X, InfiniBand, and PCI Express. In this role, Roland provides application consulting for bring-up and debug, validation, performance, and compliance testing. Roland actively contributed to the PCI-SIG plugfests. Roland joined Agilent Technologies (formerly Hewlett-Packard) in 1980 as a test engineer. After holding various positions as process and manufacturing engineer he joined the technical marketing team in 1995.


To learn more, contact Roland at:

Agilent Technologies
 1900 Garden of the Gods Road
 Colorado Springs, CO 80907
 Tel: 719-590-3265
 Fax: 719-590-5092
 E-mail: roland_scherzinger@agilent.com
 Website: www.agilent.com

www.opensystems-publishing.com/ecast.html

E-cast

Embedded Computing Knowledge Webcasts
presented by OpenSystems Publishing



OpenSystems Publishing

Serial fabrics E-cast: MARCH 15, 2006

VXS with RapidIO for SIGINT and radar deployments

AdvancedTCA E-cast: MARCH 28, 2006

Meeting carrier requirements with AdvancedTCA and AdvancedMCs
Moderated by Joe Pavlat

Rugged applications E-cast: MAY 3, 2006

Multicomputer systems for small spaces and harsh environments



Don't let AdvancedTCA wind up like UNIX

At the February joint session of PICMG and Service Availability Forum members, Fred Cook from Sprint-Nextel had some words of warning for the audience: Don't let the growing variety of AdvancedTCA specifications result in fragmenting the technology or you'll wind up like UNIX.

Carriers at the session such as Sprint-Nextel and Verizon/MCI delivered a clear message. They are getting involved because they want the number of options reduced. Standards tend to accept diversity, and that produces differentiation. Instead, carriers prefer fewer options resulting in less training and maintenance expense. More options increases operator error. Operator error results in downtime.

Carriers want the number of physical devices decreased and, more importantly, they want the number of types of devices reduced. Product standardization for operators promotes ease of use and familiarity along with lower cost than traditional proprietary solutions.

And can you work on those error messages? How about something useful that isn't repeated over and over again as each device realizes there is an error. Carriers are optimistically embracing the promise of IPMI on AdvancedTCA blades and want to see system management integrated to the level that an operator receives usable feedback.

Fred summed it up with a wish list for equipment manufacturers:

- Keep the standards tight
- Group options together and name them
- Continue to test interoperability and publish the results
- Provide correlation and filtering of error messages
- Simplify system integration
- Minimize downtime due to operator error
- Demonstrate how the device is supposed to operate to TEMs
- Develop standard load balancing components

Specification developers are listening

It all started last year with the formation of an umbrella organization, Mountain View Alliance. As Rob Davidson, PICMG's vice president of marketing and representative to the Mountain View Alliance, explains, "Now that we have all these great specs, how do we build stuff that actually works together?" Recently, three new groups have been formed to ensure that the products developed to PICMG, SAF, OSDL, and other standard organizations are interoperable. These new groups include:

- SCOPE Alliance
- PICMG Requirements Engineering Subcommittee (RES)
- Communications Platform Trade Association (CP-TA)

Figure 1 shows a Mountain View Alliance map of SCOPE, CP-TA, and SIG relationships. The groups provide an ecosystem driven by carrier input and facilitate inroads into the carrier's fresh build opportunities (also known as green field). The carriers don't have the dollars to

replace or make a wholesale upgrade of working proprietary CO equipment, however, the new data centers required to support VoIP, softswitch technology, and Customer Premise Equipment (CPE) provide a huge potential market for network equipment.

Six leading network equipment providers (Alcatel, Ericsson, Motorola, NEC, Nokia, and Siemens) launched SCOPE a few weeks ago to accelerate the developing ecosystem for carrier grade products by promoting open specifications created by other groups. To accomplish this, the new alliance will develop a distinct profile for each carrier grade base platform based on carrier requirements. The first profile expected for release by the first quarter of 2006 is for AdvancedTCA server applications. Profiles for Carrier Grade Linux and Middleware are scheduled for later this year.

Any PICMG related profile will be handed off to PICMG's new RES subcommittee, where the appropriate PICMG specification requirements will be matched against the profile requirements. If any gaps

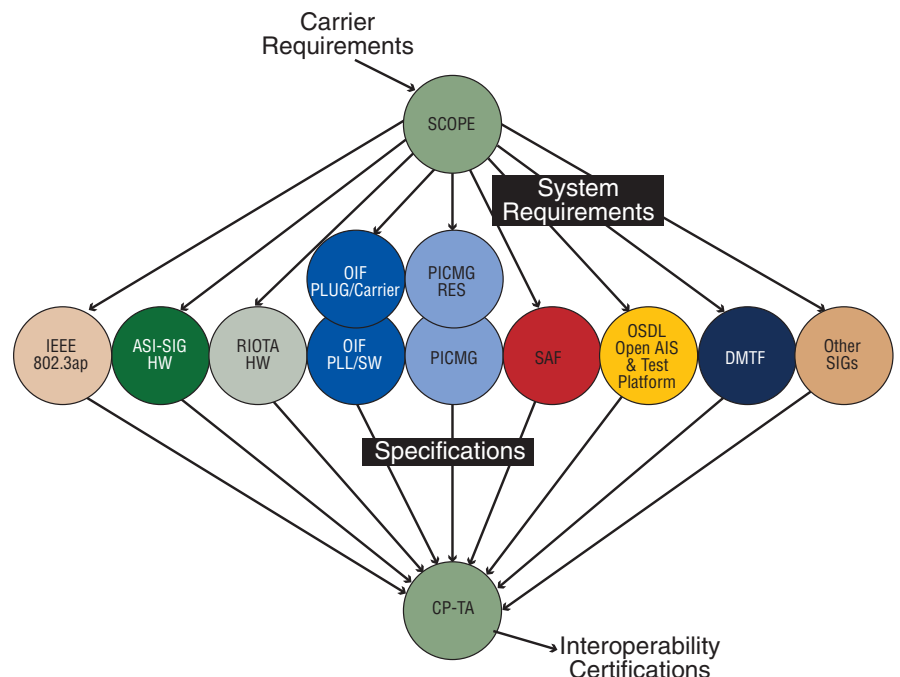


Figure 1

A blurred photograph of an office hallway with people in business attire moving through it, creating a sense of motion and activity.

ONBOARDMOTO



Costs down. Profits up. Seems like a good idea to everyone.

No wonder Motorola's standards-based communications servers are drawing a crowd.

By integrating AdvancedTCA[®], CompactPCI[®], Carrier Grade Linux, Service Availability[™] Forum and other industry standards into highly scalable and pre-integrated platforms, Motorola helps deliver significant time-to-market, cost and flexibility benefits. And by eliminating steps that don't add value, you can spend your time and budget on the stuff that makes your products stand out in the crowd. Controlling costs today, and helping to protect your long-term investment. Ready to get on board?

Visit www.motorola.com/computing

MOTOROLA and the Stylized M Logo are registered in the US Patent & Trademark Office. CompactPCI and AdvancedTCA are registered trademarks of the PCI Industrial Computer Manufacturers Group. Service Availability is a trademark of the Service Availability Forum. All other product or service names are the property of their respective owners. © Motorola, 2006.

RSC# 45 @ www.compactpci-systems.com/rsc

or inconsistencies are found, the subcommittee works with the PICMG membership, both to clarify existing and identify new specifications. In addition, working through the Mountain View Alliance members, the RES subcommittee will harmonize technical efforts with other specification organizations in the ecosystem.

This begs the question of how the various "special interest" factions within

these standard-making bodies would be appeased. As Rob said, "The purpose is to open bilateral discussions and to facilitate, not act as an arbitrator. It's going to take making some hard decisions."

Achieving interoperability

Some carriers have their own internal testing labs. Jim Sylvester, vice president of systems integration and testing at Verizon, identified the physical design compliance criteria for different types

of equipment ranging from the NEBS-compliant central office to the less rigorous requirements for a data center. A variety of testing capabilities exists among network equipment customers. Standards bodies such as PICMG do not have and do not want to establish testing labs.

To fill this gap, Motorola and Intel initiated a new industry association, the CP-TA working group, to provide a level of certification testing to facilitate faster carrier adoption. To create a preference for products that have been proven interoperable, the CP-TA will certify compliant products. This is not a specification body, but rather a facilitator to move new COTS technologies from early adoption to mainstream adoption. Translated into market potential, this means driving the market tenfold from where its today, according to Shlomo Prital of Motorola.

People involved in these organizations have expended a great deal of effort to establish the new telecom COTS ecosystem needed to meet the new carrier requirements. But, now the real work begins. We will keep you apprised of the developments in these groups in the next few issues to keep you abreast of their accomplishments.

For additional information on the associations mentioned in this column, e-mail Chris Williams, of Communications Platform Trade Association, at chris.williams@Motorola.com

Or visit:

Mountain View Alliance
www.mountainviewalliance.org

PICMG
www.picmg.org

SCOPE
www.scope-alliance.org

Service Availability Forum
www.saforum.org

Verizon NEBS website
www.verizonnebs.com

NAS RAIDStor Solution

Finally, a blade level solution that enables hot swappable, removable storage technology in a PICMG 2.16 or VITA 31.1 system chassis

ACT/Technico's RAIDStor is ideal for secure storage and fast field replacement

RAIDStor™ Features:

- Requires only one slot per blade
- RAID 0 or RAID 1
- Up to 120 GB per blade capacity
- Each drive is **removable** via front panel without removing blade from system
- High availability & hot swap removable
- Dual 10/100/1000Tx Ethernet ports
- Automatic fail over & data synchronization
- Supports NFS, Web Server, bootp, and FTP
- Can deliver up to 400 MB/sec sustained data rates



RAIDStor System Platforms available for PICMG 2.16 or VITA 31.1 architectures

Typical applications supported:

<input type="checkbox"/> Embedded file server	<input type="checkbox"/> Active/Active NAS solution
<input type="checkbox"/> NAS embedded storage using NFS	<input type="checkbox"/> Boot server
<input type="checkbox"/> Redundant, self hosted web server	<input type="checkbox"/> OA&M server

Call us or visit our website for details.

Systems By Design
www.acttechnico.com
215-957-9102 or 800-445-6194



RSC# 46 @ www.compactpci-systems.com/rsc

ATCA!



Anodize, chromate, paint, powder coat, and silk screen finishes

In-house design assistance for custom pieces

Component kitting and full assembly



THIS LABEL PRINTED BY IDEAL JACOBS CORPORATION - WWW.IDEALJACOBS.COM
Advanced TCA®

CQI
CONTINUOUS
QUALITY
IMPROVEMENT



80 TRIM WAY, RANDOLPH, MA 02368 • (781)963-7200 • WWW.XTECH-OUT.COM

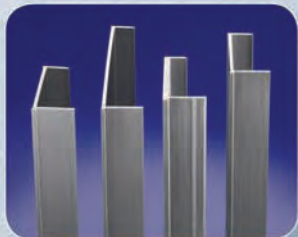
Custom labels/overlays from Ideal Jacobs

Available in extruded aluminum, sheet metal and plastic.

Southco ejectors in black or custom colors

Advanced TCA solutions.

Get it your way! Get it now!



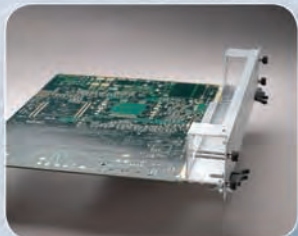
4 standard profiles



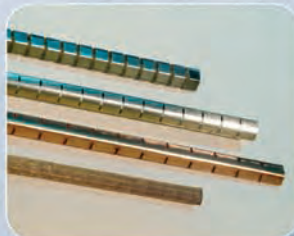
AMC Carrier with modules



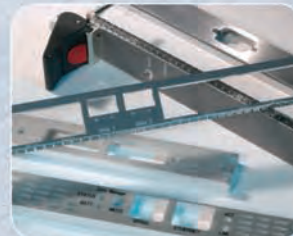
Blanks with pans and air deflectors



Advanced TCA300 faceplate extenders



Metal or fabric over foam EMI gaskets



Custom machining and punching for all cutouts

"Your XTech ATCA faceplate solution will arrive on spec, on budget, and on time. You can count on it."



We Think Outside of the Box
So You Can Think In It

For more information, call 781-963-7200 or visit www.atcaxtech.com

Advanced TCA®

Advanced TCA®300

Advanced MC™

RoHS Restriction of Hazardous Substances

*Advanced TCA, Advanced TCA300, Advanced MC, AMC and the Advanced TCA logo are registered trademarks of the PCI Industrial Computers Manufacturers Group.

RSC# 47 @ www.compactpci-systems.com/rsc

Triple-play. IMS. Converged services. Profit?

profitable

OPEN MODULAR SOLUTIONS

ACCESS

EDGE

CORE

TRANSPORT

DATA CENTER

DESIGN AND DEPLOY

Your new IMS infrastructure applications for the next generation wireless network using Kontron ATCA / AMC modular solutions.

Kontron simply takes the worry – and the expense – out of building complex IMS communication platforms for **next generation 3G wireless networks**. Whatever the application, your project is designed and deployed in a heartbeat with fully integrated, open standard modular solutions that are application-ready, right off the shelf. That means reduced development costs for you, and tremendous “swap in – swap out” service flexibility for your carrier customers. It’s a very **profitable** win-win go-to-market strategy for everything from data and signaling platforms to IP streaming multimedia applications for video-on-demand, real-time voice and video telephony. It’s so simple. It’s the way of the wireless future. **Open.**

> Go Open Standards > Go Kontron > Ask for an Eval today >



kontron.com/openATCA

1-888-526-ATCA

EMEA: +49 0 800 7253756

ASIA: +886 2 2910 3532

sales@us.kontron.com

Advanced TCA™

Intel®
Communications
Alliance
Premier Member

solid. montavista™

Computer On
Modules

Blades &
Mezzanines

CPU
Boards

Systems

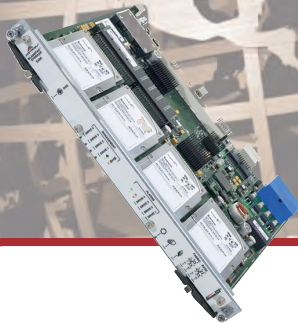
Mobile
Rugged

Custom
Solutions



kontron

RSC# 48 @ www.compactpci-systems.com/rsc



AdvancedTCA	50
Boards	
Components	
Connectors	
Fabric switches	
Front panel hardware	
Load/Test boards	
Power management/Entry modules	
Servers	
Shelf and management	
Software	
Storage	
System management	
Systems	
Thermal management	

CompactPCI	91
Analog I/O	
ARINC	
Backplanes	
Blades and single board computers	
Chassis and enclosures	
Connectors	
DSPs and FPGAs	
Enclosures	
Front panel hardware	
Media processors	
Military and aerospace	
Motion control	
Networking/Communication	
Power supplies	
Processor boards	
Servers	
Software-defined radio	
Storage	
Switches	
Systems	
Test instrumentation	

CompactPCI Express	142
Chassis and enclosures	
Boards	
Systems	
Mezzanines and carrier boards	145
AdvancedMCs	
PMCs	
PrPMCs	
MicroTCA	159
Virtual carrier manager	
Connectors	

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
 Tel: 608-831-5500 • Fax: 608-831-4249
www.artesynpc.com

**Katana® Qp**

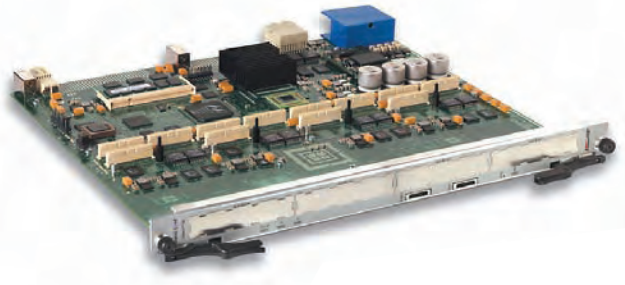
AdvancedTCA (PICMG 3.0) is the consummate open architecture telecom platform, and the KatanaQp is the ultimate configurable AdvancedTCA telecom blade. The KatanaQp features a two-way Symmetric Multi-Processing (SMP) architecture with dual PowerPC MPC7447A processors along with a full complement of I/O for communications applications.

The KatanaQp blade's PCI Telephony Mezzanine Card (PTMC, PICMG 2.15) expansion sites give telecom OEMs, who want to get started with AdvancedTCA today, instant access to a wealth of third party PTMC modules. This off-the-shelf expansion capability makes it easy to configure the KatanaQp for a wide variety of control and packet processing applications, including WAN access, SS7/SIGTRAN signaling, media gateways, traffic processing, wireless basestation controllers, and softswitches.

In telecom network elements, system management is essential. KatanaQp is an intelligent FRU and implements a redundant System Management Bus (SMB). It also fully supports the Intelligent Platform Management Interface (IPMI) with AdvancedTCA extensions to support standards-based shelf management.

Using an off-the-shelf processor blade saves you time to market by allowing you to focus your engineering efforts on the key value add portions of the system without spending time and effort on the processor design and testing. A processor subsystem blade also lowers your lifetime cost of ownership by providing an easy upgrade path and protecting you from obsolescence issues.

Katana is a Japanese word for "sword." Artesyn's Katana family of processor blades embodies the power and swiftness of this sword.

**FEATURES:**

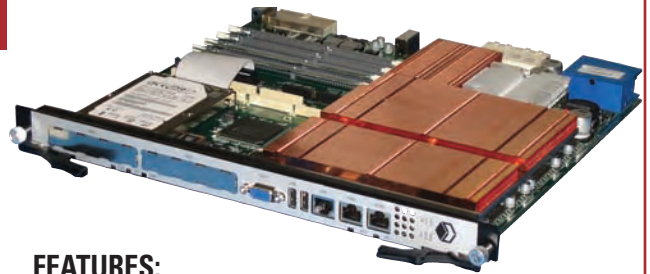
- Single or dual Freescale PowerPC MPC7447A processors running at up to 1.3 GHz
- Two-way SMP architecture
- AdvancedTCA PICMG 3.1 Node (1000BASE-T base fabric + Octal high speed GbE fabric)
- Layer 2 or 3 Ethernet switch option
- Quad PTMC expansion sites
- Redundant system management bus with IPM controller
- Up to 2 GB DDR SDRAM with ECC
- Up to 128 MB linear flash
- Real-time clock with supercap backup
- VxWorks and CG Linux support
- Quality assured by more than 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Continuous Computing

9380 Carroll Park Drive • San Diego, CA 92121
 Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com

**FlexCompute™ ATCA-XE20**

Targeting the scalable application needs of next-generation telecom markets, XE20 provides the ideal AdvancedTCA single board computer solution for telecom equipment manufacturers seeking superior Intel-based processing power. Both carrier class as well as PICMG 3.1-compliant, XE20 offers symmetric multiprocessing performance with next-generation dual Intel Low Voltage Xeon processors, providing 1 MB of L2 cache and an 800 MHz FSB. Designed as a modular processor blade for telecom development, XE20 is built on industry standards to ensure easy integration and management for fast time-to-market development. Connectivity includes Gigabit Ethernet, USB 2.0, video, serial console, and legacy PS/2 keyboard/mouse ports. In addition, two PMC sites support a wide variety of expansion options.

**FEATURES:**

- 2-way symmetric multiprocessing; dual 2.8 GHz Intel Low Voltage Xeon processors
- 1 MB of L2 cache, 800 MHz processor bus and Intel E7520 chipset
- Supports memory-intensive applications with up to 16 GB of 400 MHz DDR2 memory using four DIMM sites
- Dual 64-bit 33/66/100/133 MHz PCI-X PMC sites (one with rear I/O support)
- Dual base interface ports provide a redundant 1 Gbps path for control data
- Quad Gigabit Ethernet fabric interface ports provide redundant 2 Gbps fabric connectivity

For more information, contact: info@ccpu.com.

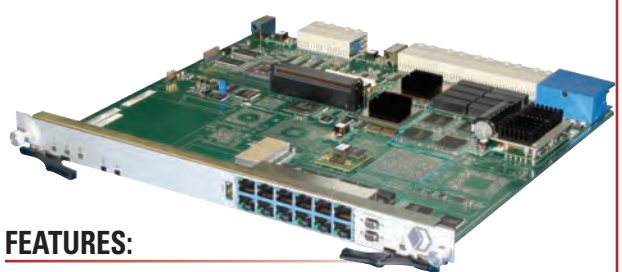
RSC #5101 @ www.compactpci-systems.com/catalogrsc

Continuous Computing

9380 Carroll Park Drive • San Diego, CA 92121
 Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com

**FlexDSP™ ATCA-TI320**

With up to 32 DSPs per board, TDM termination options, packet processing, and Gigabit Ethernet connectivity, FlexDSP provides telecom equipment manufacturers with a flexible, high density DSP solution for voice or video applications based on Texas Instruments' popular line of C64x DSPs. Carrier class FlexDSP includes up to eight DSP clusters, totaling 32 DSP chips in a single AdvancedTCA slot. Each cluster combines four TI TMS320C6415T DSPs running at up to 1 GHz with an FPGA to support offload and shared memory. FlexDSP can be configured with either a dual-core or quad-core Broadcom processor to support packet processing. It also provides a PTMC site for I/O expansion and quad PICMG 3.1 Gigabit Ethernet ports for redundant 2 Gbps fabric interface bandwidth.

**FEATURES:**

- Up to 32 Texas Instruments TMS320C6415T DSPs running up to 1 GHz; 8, 16, and 32 DSP configurations
- Quad DSP clusters with FPGA offload and shared memory to support voice, video and complex algorithms
- 64-bit Broadcom dual-core and quad-core packet processor options with core speeds up to 1.2 GHz
- Dual base interface ports provide a redundant 1 Gbps path for control data
- Quad fabric interface ports provide a redundant 2 Gbps path for payload data
- Initial release supports 16 DSP configuration on baseboard

For more information, contact: info@ccpu.com.

RSC #5102 @ www.compactpci-systems.com/catalogrsc

Diversified Technology, Inc.

476 Highland Colony Parkway • Ridgeland, MS 39157
 Tel: 800-443-2667 • Fax: 601-898-4185
www.dtims.com

**AdvancedTCA Node Blade**

The ATC5231 is DTI's AdvancedTCA Node Board designed for the next generation of telecom equipment markets. The board is a PICMG 3.1 compliant processor blade that combines low price with high performance for wireless access/edge, telecom fiber transport, media gateways, softswitches, and Internet IP-based applications. The ATC5231 is equipped with dual low voltage 3.06 GHz Intel Xeon processors with 2 MB L2 cache. It utilizes a high I/O bandwidth Intel E7520 server-class chipset with 800 MHz FSB and support for up to 16 GB of memory. Located on board are two 10/100/1000 Mbps auto-negotiating Ethernet controllers for the base interface, two 1000 Mbps Ethernet ports for the fabric interface, and one 64-bit/66 MHz PMC site for user configuration.

**FEATURES:**

- Dual LV Intel Xeon processors with speeds up to 3.06 GHz and 2 MB L2 cache
- Intel E7520 chipset
- 800 MHz Front Side Bus
- Supports one on-board 64-bit/66 MHz 3.3 V PMC cards
- Two 10/100/1000 Mbps auto-negotiating Ethernet controllers for the base interface
- Two 1000 Mbps Ethernet ports for the fabric interface and One 64-bit/66 MHz PMC site

For more information, contact: sales@dtims.com.

RSC #5201 @ www.compactpci-systems.com/catalogrsc

Diversified Technology, Inc.

476 Highland Colony Parkway • Ridgeland, MS 39157
 Tel: 800-443-2667 • Fax: 601-898-4185
www.dtims.com

**AdvancedTCA Switch Blade**

The ATS1160 AdvancedTCA Switch Blade brings integration to a new level with support for the control plane, data plane, and storage plane all on a single board. The ATS1160 provides separate switching for PICMG 3.0 10/100/1000 Mbps Ethernet base fabric, PICMG 3.1 1000 Mbps Ethernet expansion fabric, and PICMG 3.1 2 GbE Fibre Channel expansion fabric.

**FEATURES:**

- AdvancedTCA PICMG 3.0/3.1 Option 1 hub board with three switches on one board
- Fully managed solution: SNMP, CLI, Web Interface, Telnet/SSH
- 24 port Gigabit Ethernet base fabric L2/L3 switch and 24 port Gigabit Ethernet expansion fabric L2/L3 switch
- Wire speed nonblocking performance on all three switches and support for up to the full 16-slot shelf
- High availability through redundant hub support and full support for AdvancedTCA IPMI with dual redundant buses
- Dual redundant Shelf Management Controller support (cross connect)

For more information, contact: sales@dtims.com.

RSC #5202 @ www.compactpci-systems.com/catalogrsc

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
 Tel: 608-831-5500 • Fax: 608-831-4249
www.artesynpc.com

**KatanaPPB**

The KatanaPPB is a high speed multiprocessor AdvancedTCA telecom blade optimized for control and packet processing applications such as WAN access, SS7/SIGTRAN signaling, media gateways, wireless basestation controllers, radio network controllers, and softswitches. It is equipped with up to six Freescale PowerPC MPC7447A or MPC7448 processors, two processors on the baseboard and up to four processors mounted on four processor PMC (PrPMC) modules. Each processor complex has its own DRAM and flash memory. The KatanaPPB features a high speed PICMG 3.1 compliant AdvancedTCA interface with 10 Gigabit Ethernet channels, two base channels, plus two fabric channels with four ports each. To optimize control performance and packet processing throughput, the KatanaPPB employs a versatile multiprocessor interconnect with separate control and data planes. The product uses a local PCI bus to interconnect all six processors for the control plane. The on-board GbE switch eliminates the packet routing processing overhead of traditional data plane architectures. The KatanaPPB features a PICMG 3.0 Intelligent Platform Management Interface (IPMI version 1.5 with AdvancedTCA extensions). This interface, which incorporates dual I2C-based Intelligent Platform Management Buses (IPMBs), enhances system management by making it easy for shelf management controllers to monitor, control, and exchange information with the KatanaPPB.

Katana is a Japanese word for sword. Artesyn's Katana family of processor blades embodies the power and swiftness of this sword. For quality in real time, choose the performance, reliability, and responsiveness of Artesyn Communication Products. Our customer support group is available to answer your questions. For more information, please visit our website at www.artesynpc.com or call 1-800-356-9602.

**FEATURES:**

- Up to six PowerPC 7447A or 7448 processors – dual Freescale PowerPC 7447A or 7448 processors running up to 1 GHz on the base board
- AdvancedTCA PICMG 3.1 Option 3
- Up to 1 GB DDR SDRAM with ECC in SODIMM package on the base board and up to 512 MB DDR SDRAM on each processor module
- 128 MB of flash memory on the base board and total of 256 MB of flash memory on four modules
- Managed L2/L3 Gigabit Ethernet switch
- Dual 10/100/1000 Ethernet with access to on-board switch fabric
- Dual 10/100 Ethernet front panel access per module
- IPMI Controller with redundant Intelligent Platform Management Bus (IPMB)
- Carrier Grade Linux and VxWorks support
- RoHS/WEEE compliant configuration available in 2006
- Quality assured by over 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
 Tel: 608-831-5500 • Fax: 608-831-4249
www.artesynncp.com

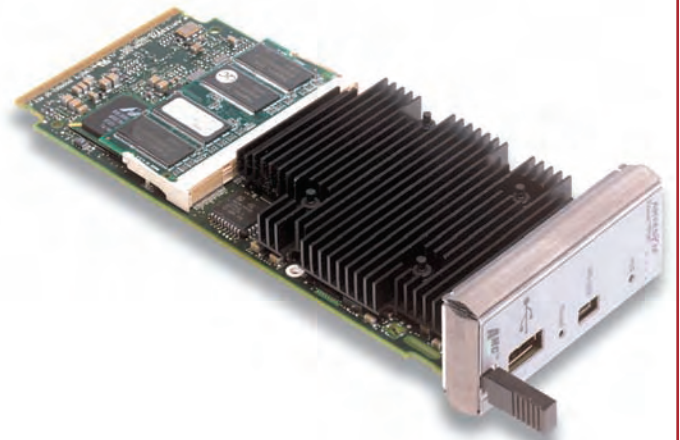
**KosaiPM**

Advanced Mezzanine Card (AdvancedMC) is a collaboration of major telecom OEMs and suppliers to create an optimal expansion platform for AdvancedTCA or proprietary baseboards that addresses major bandwidth, availability, field upgradeability, cost, scalability, management, and interoperability issues.

KosaiPM is an AdvancedMC module based on the Intel Pentium M processor, providing a complete processor subsystem. It is designed to allow communication equipment manufacturers to add modular and upgradeable compute functionality to their AdvancedTCA or proprietary baseboards and provide the localized horsepower necessary for applications such as protocol processing, packet processing, data management, and I/O management. To support high speed packet data transfers on and off the card, KosaiPM features both PCI Express and dual Gigabit Ethernet interfaces to the base board. With ever-increasing application and data transfer requirements, this combination of more traditional Gigabit Ethernet interfaces and the emerging PCI Express interface allows developers to easily migrate existing applications to PCI Express.

KosaiPM is hot swappable, which allows modules to be replaced by operators or service organizations in the field without bringing down an entire AdvancedTCA blade or system. This reduces spares costs and Mean-Time-To-Repair (MTTR), lowering both CAPEX and OPEX. KosaiPM also provides an IPMI-based system management interface, which enables operators to pinpoint and fix problems at the module level, also lowering MTTR and OPEX.

For quality in real time, choose the performance, reliability, and responsiveness of Artesyn Communication Products. Our customer support group is available to answer your questions. Please call 1-800-356-9602 or visit our website at www.artesynncp.com for more details.

**FEATURES:**

- Intel Pentium M running at up to 1.8 GHz
- Full-height and half-height PICMG AdvancedMC form factor
- Up to 2 GB DDR DRAM with ECC
- Dual Gigabit Ethernet connectivity to baseboard
- PCI Express connectivity to baseboard
- Full hot swap support
- USB and Console serial ports via front panel
- Intelligent peripheral management functionality
- Carrier Grade Linux support
- RoHS/WEEE compliant configuration available in 2006
- Quality assured by over 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Kontron

14118 Stowe Drive • Poway, CA 92064-7147

Tel: 888-294-4558 • Fax: 858-677-0898

www.kontron.com**AT8001 PrATCA**

The Kontron AT8001 AdvancedTCA PICMG 3.0/3.1 processor board is simply the most unique AdvancedTCA processing platform on the market. It features a low voltage, high performance Intel Xeon processor at 2.8 GHz, plus supports two AdvancedMC modules, and offers Telecom Equipment Manufacturers (TEMs) significantly increased design flexibility for any number of applications for wireless, wireline, and data center network infrastructures. The AT8001 feature-set includes dual Gigabit Ethernet and dual Fibre Channel on fabric interface, and dual Gigabit Ethernet on base interface, and is loaded with up to 8 GB of DDR-II 400 SDRAM.

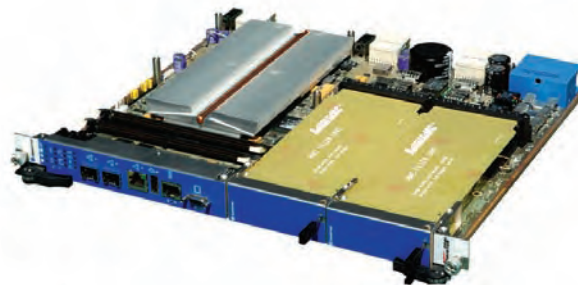
Designed with the Intel E7520 chipset, the AT8001 includes revolutionary PCI Express serial I/O technology and DDR2, the next generation memory technology, to help increase I/O bandwidth and reduce system latency for data-intensive applications. Its 800 MHz system bus also allows increased platform bus bandwidth (50 percent more than 533 MHz) and delivers increased system performance.

"AMC Everywhere" strategy

Kontron ensures all of its next generation AdvancedTCA platforms are "AMC Everywhere" enabled, offering support for AdvancedMC modules in its processor, hub, and carrier products. This is a major factor in providing TEMs with unprecedented flexibility in the design of new, IMS-based applications, as well as increased economies of scale by freeing up valuable AdvancedTCA system slots for other payload blades.

AdvancedMC modules are the smallest Field Replaceable Units (FRU) on the market that are hot swappable and support the RASM concept of "Reliability, Availability, Serviceability, and Maintainability." Ultimately for Service Providers and Carriers, this translates into a significantly lower OPEX with easy upgrades in the field, reduced risk for the introduction of new subscriber services, and the ability to expand networks.

AdvancedMCs are also proving to be an attractive solution for proprietary form factor base boards, outfitted with AdvancedMCs to enable a smooth migration from purely proprietary technology to a 100 percent AdvancedTCA system in the future.

**FEATURES:**

- Single-slot AdvancedTCA PICMG 3.0/3.1 processor board with support for two AdvancedMC modules
- Intel Xeon up to 2.8 GHz
- Dual AMC.1 module support
- Dual DDR-II DIMM for 8 GB of PC2-3200 registered 400 SDRAM
- Dual Gigabit Ethernet base interface
- Dual Gigabit Ethernet plus dual Fibre Channel on fabric interface
- IPMI v1.5 support

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
 Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**AT8400 Carrier****Built for maximum design versatility**

The Kontron AT8400 carrier board is a PICMG 3.0 and 3.1 compliant node board for AdvancedTCA shelves, supporting four AdvancedMC slots – full-height/single-width – ideal for a multitude of application requirements.

“AMC Everywhere” integration for customization

With support for four AdvancedMC modules, the AT8400 provides equipment manufacturers with the exceptional flexibility to customize the design of their network applications. The AT8400 supports a wide assortment of AdvancedMC modules used for processing, storage, and I/O applications. A prime example is for the AT8400 to be configured for RAID 5 storage using three SAS AdvancedMC modules and one Processor AdvancedMC (PrAMC). This enables quick and reliable look up times of wireless customer information integrated into HLR/HSS network elements already built on open modular platforms.

Full redundancy and high availability

Suitable for dual star and full mesh configurations in 14- and 16-slot systems, the AT8400 is hot swappable, supports full redundancy, and provides PCI Express and Gigabit Ethernet connectivity. With full IPMI 1.5 support, the AT8400 also features a dedicated controller as an additional Firmware Update Manager (FWUM) for field upgrades, rollbacks, and watchdog functions.

“AMC Everywhere” strategy

Kontron ensures all of its next generation AdvancedTCA platforms are “AMC Everywhere” enabled, offering support for AdvancedMC modules in its processor, hub, and carrier products. This is a major factor in providing TEMs with unprecedented flexibility in the design of new, IMS-based applications, as well as increased economies of scale by freeing up valuable AdvancedTCA system slots for other payload blades.

**FEATURES:**

- AdvancedTCA carrier board with four PCI Express and Gigabit Ethernet switching
- SAS controller
- Redundant base interface
- Dual redundant fabric interface
- Telco clock for all AdvancedMC slots
- Full hot swap capabilities
- Management via SNMP, TELNET, CLI, either In-band or Out of band via 10/100BASE-T Ethernet or RS-232
- IPMI version 1.5 support

PLX Technology, Inc.

870 Maude Avenue • Sunnyvale, CA 94085

Tel: 408-328-3500 • Fax: 408-774-2169

www.plxtech.com**PCIe Bridges**

PLX Technology offers high performance PCI Express (PCIe) ExpressLane™ bridges that enable designers to migrate legacy PCI, PCI-X, and Local bus interfaces to the high speed, serial, PCI Express architecture.

The PEX 8111 is the world's smallest, low power PCIe bridge that provides a x1 PCI Express link and a parallel bus segment supporting conventional PCI operation.

The PEX 8114 is the most flexible PCIe bridge equipped with a standard PCI Express port that scales to x1, x2, or x4 and a parallel bus segment supporting the PCI-X protocol or conventional PCI operation.

The PEX 8311 is a multipurpose Bridge that includes a x1 PCI Express link to 32-bit, 66 MHz Generic Local Bus, enabling scalable high bandwidth to a variety of embedded systems.

All PCI Express ExpressLane Bridges are available now.

The PLX ExpressLane PCI Express family of bridges and switches is being designed into the first wave of PCI Express-based systems.

Contact PLX today at www.plxtech.com or 1-800-759-3735.

**FEATURES:**

- Each device includes an integrated PCI Express PHY that provides 2.5 Gbps PCI ExpressLane speed
- Each device's PCI Express port is compliant with the PCI-SIG specification 1.0a with polarity reversal
- PEX 8111 and 8114 support forward/reverse bridging while PEX 8114 also offers non-transparent bridging mode
- PEX 8111's 10 mm x 10 mm package is ideal for applications with limited board space and power budget
- PEX 8311 offers direct connection to two industry-standard interconnect buses
- PEX 8311 includes two DMA channels to offload CPU
- PEX 8111 is available in a 144 PBGA and 161 fine pitch PBGA
- PEX 8114 is available in a 256 PBGA
- PEX 8311 is available in a 337 PBGA

PLX Technology, Inc.

870 Maude Avenue • Sunnyvale, CA 94085

Tel: 408-328-3500 • Fax: 408-774-2169

www.plxtech.com**PCIe Switches**

Offering the industry's largest selection of PCI Express (PCIe) Switches, our ExpressLane™ PCI Express Switches include 8-, 16-, 24-, and 32-lane devices.

The PEX 8508 is an 8-lane, 5-port switch, offering PCIe port fan-out for NIC, HBA, AdvancedMC, Notebook Docking Stations, Intelligent I/O modules, and other aggregation applications.

The PEX 8516, 8517, and 8518 Switches provide 16 lanes and are available in 4-port and in 4&5-port configurations, respectively, providing port fan-out and peer-to-peer communication for factory automation, network interface adapters, AdvancedMC cards, graphics fan-out, image capture, and host isolation.

The PEX 8524 is a 24-lane, 6-port device suitable for server fan-out, instrumentation, AdvancedMC carrier cards, and backplanes.

The PEX 8532 is a 32-lane, 8-port switch suitable for fan-out, fabric backplane, and host isolation applications.

All of the PCI Express Switches are available now.

The PLX ExpressLane PCI Express family of bridges and switches is being designed into the first wave of PCI Express-based systems.

Contact PLX today at www.plxtech.com or 1-800-759-3735.

**FEATURES:**

- Offers highly flexible port configurations allowing optimum use of available lanes and ports
- Four to eight ports with flexible configurations including x1, x2, x4, x8, and x16
- Provides end-to-end packet integrity, lane reversal, polarity reversal, programmable outputs, and hot plug
- PEX 8508, 8517, and 8518 offer low packet cut-through latency of 150 ns and fully non-blocking architecture
- Offers non-transparent bridge port for dual host and two virtual channels for Quality of Service applications
- All ExpressLane devices are compliant with the PCI-SIG PCI Express specifications
- Production proven with thousands of units shipped
- Fully non-blocking switches
- Pin compatible paths to next-generation products (higher performance and lower cost)

Degree Controls, Inc.

18 Meadowbrook Drive • Milford, NH 03055
 Tel: 603-672-8900 • Fax: 603-672-9565
www.DegreeC.com

**ProntoFlow Control-ATCA**

The ProntoFlow Control-ATCA is a fully intelligent AdvancedTCA compliant, dual IPMI bus fan tray controller. This controller is an AdvancedTCA based, hot swappable, intelligent FRU, combined with the flexible, reprogrammable, feature-rich, thermal control functionalities that designers can leverage across multiple thermal platforms.

The ProntoFlow Control-ATCA is designed to operate with Degree Controls' standard voltage regulator circuit where a wide voltage input (36-75 Vdc) is regulated to 48 Vdc nominal, for those systems requiring it. This portion may be integrated into the controller card, for a cost-optimized production solution.

**FEATURES:**

- Real-time, IPMI based selection of several fan control modes for synchronized, closed loop RPM control of fans
- IPMI based reconfiguration of alarm thresholds and fan control curve set points, and access to fan speeds
- Private, I2C based communication bus between fan trays, for those chassis containing multiple fan trays
- Fire response functionality to either reduce or increase fan speed, depending on chassis architecture needs
- Multiple filter clog and maintenance schemes
- Fan fail prediction and fan fail monitoring to ensure fan tray replacement occurs as fan performance degrades

For more information, contact: customer.service@degreec.com.

RSC #5901 @ www.compactpci-systems.com/catalogrsc

ERNI Electronics

3005 East Boundary Terrace • Midlothian, VA 23112
 Tel: 804-228-4100 • Fax: 804-228-4099
www.erni.com

**ERmetZD®**

The ERmetZD connector system was specifically designed for high speed differential data transmission from 3.125 Gbps to 10+ Gbps. With its adoption as the PICMG AdvancedTCA Zone 2 differential connector, the ERmetZD allows high bandwidth, serial data transmission over various switch fabric backplane architectures. ERmetZD connectors share many design fundamentals with CompactPCI designed 2 mm Hard Metric connectors such as key layout dimensions, mating dimensions, and press-fit hole requirements. Three pair and two pair ERmetZD connector configurations are also available along with the AdvancedTCA defined four pair ERmetZD connector. Additionally, the ERmetZD product line offers high speed cable and mezzanine configurations to meet Zone 3 and board-to-board applications.

**FEATURES:**

- Supports differential data transmission from 3.125 Gbps to 10+ Gbps
- Fully compatible with 2 mm Hard Metric equipment
- Routing channels allow twin pair routing for improved routing density and PCB manufacturing cost savings
- Four pair ERmetZD provides 40 differential pairs/25 mm
- Three pair ERmetZD provides 30 differential pairs/25 mm
- Two pair ERmetZD provides 20 differential pairs/25 mm

For more information, contact: info.usa@erni.com.

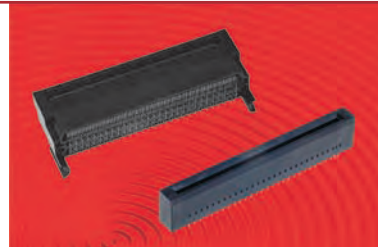
RSC #5902 @ www.compactpci-systems.com/catalogrsc

HARTING North America

1370 Bowes Road • Elgin, IL 60123
 Tel: 847-741-1500 • Fax: 847-717-9420
www.HARTING-USA.com

**AMC and MicroTCA Connectors**

HARTING brings to the market two innovative connectors that feature time-proven press-fit termination technology: Our AdvancedMC connector (B+ style) is fully compliant with the PICMG AMC.0 specification for use with AdvancedTCA carrier boards or related applications; our MicroTCA connector is fully compliant with the PICMG MicroTCA specification for use with MicroTCA backplanes. Both connectors are designed to support the full range of AdvancedMC data transmission speeds up to 12.5 Gbps while sharing a new precision press-fit compliant pin designed for 0.55 mm plated PCB holes. This provides significant reliability advantages over other termination technologies. The footprints are optimized to minimize PCB layer count, leading to PCB manufacturing cost reductions.

**FEATURES:**

- Press-fit termination technology for a most reliable connection
- High availability – MicroTCA and B+ connectors are in serial production; A+B+ introduction in 2006
- Designed for high speed differential applications up to 12.5 Gbps
- Optimized footprint enables routing on low layer count
- Fully compliant with PICMG AMC.0 and MicroTCA specifications
- Assembly with standard flat rock die

For more information, contact: more.info@HARTING.com.

RSC #6001 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca

**AdvancedTCA Zone 1 Connectors**

Tyco Electronics' Z1 Power Connector meets and exceeds the PICMG 3.0 (AdvancedTCA) specification for Zone 1 connectors. The unique stamped contact design offers superior current carrying capacity and "true position" of the contacts when compared to alternative designs. The connectors are designed for "flat-rock" seating (requiring no special tools) to printed circuit boards. Integrated lead-in on the housing provides improved blind-mating and is fully intermateable with AdvancedTCA compliant Zone 1 power connectors.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

Catalog 1773096

**FEATURES:**

- Precision stamped and formed power and signal contacts – for improved reliability
- Contacts and housing allow thermal cooling – for better current carrying capacity
- Proven eye-of-needle compliant contacts – offer better retention to PCB
- No additional mounting screws required – reduces assembly costs
- One PCB hole size/pattern for both RoHS compliant and non-RoHS compliant applications – reduces design cycle time and cost

For more information, contact: product.info@tycoelectronics.com.

RSC #6002 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca
www.hmzd.tycoelectronics.com

**Z-PACK HM-Zd Signal Connectors**

Z-PACK HM-Zd product from Tyco Electronics is the high speed, Advanced Differential Fabric Connector system specified by PICMG for use in AdvancedTCA Zone 2. The coplanar application version using the right-angled male and identical Zone 2 card connector (right-angled female), can be used in Zone 3. In addition to the four-pair connector modules specified for use in AdvancedTCA Zone 2, the product line includes two-pair and three-pair signal modules, coplanar connectors, and high speed cable assemblies for use in Zone 3. A mezzanine style connector is also available in a four-pair version.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

Catalog 1773095

**FEATURES:**

- Designed specifically for high speed differential applications (3.125 Gbps to 10+ Gbps)
- A modular connector system with a standard module size of 25.00 mm [.984"]
- Z-PACK HM-Zd product is an extension of the Z-PACK 2 mm HM product line
- Pin header and receptacle have the exact same footprint to simplify PC board layout
- Optimized footprint supports quad routing techniques for improved electrical performance, ease of trace routing, and significant PCB manufacturing cost reductions
- Designed to meet Telcordia requirements

For more information, contact: product.info@tycoelectronics.com.

RSC #6101 @ www.compactpci-systems.com/catalogrsc

Yamaichi Electronics USA, Inc.

2235 Zanker Road • San Jose, CA 95131
 Tel: 408-456-0797 • Fax: 408-456-0799
www.yeu.com

**MicroTCA/VCM Plug Connector**

CN080 Series – AdvancedMC Backplane Connector is compliant with the PICMG MicroTCA specification. The compression technology reduces number of layers providing the lowest total cost backplane, and the highest signal speed capability.

The MicroTCA specification-compliant VCM Plug Connector can support one to four tongue mating interfaces to the aggregated AdvancedMC backplane connectors and supports the connection between two mating interfaces. This connector solves tolerance stack up problems between the aggregated AdvancedMC backplane connectors. Its reduced insertion force doesn't require a special mechanism even at the four-tongue VCM module. The plug connector provides high reliability with high speed capability and works well for multi-tongue AdvancedMC connector interfaces.

**FEATURES:**

- Available in 1, 2, 3, or 4 (all) tongues
- Solves tolerance stack up problem between aggregate backplane connectors
- Reduced insertion force: 50 percent
- Supports speeds beyond 12.5 Gbps
- Remountable
- PICMG MicroTCA compliant
- GR-1217-CORE compliant
- RoHS compliant
- 200 mating cycles

For more information, contact: debbie.p@yeu.com.

RSC #6102 @ www.compactpci-systems.com/catalogrsc

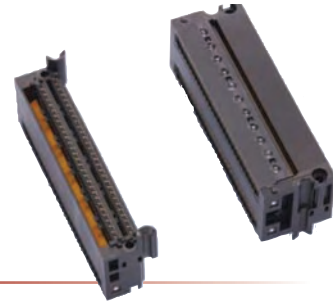
Yamaichi Electronics USA, Inc.

2235 Zanker Road • San Jose, CA 95131
 Tel: 408-456-0797 • Fax: 408-456-0799
www.yeu.com

**AMC – Connector for ATCA Carrier**

The CNO74 Series is the first connector series to the worldwide embedded systems market that connects the new extension cards called Advanced Mezzanine Card (AdvancedMC) to the carrier board (board-to-board principle). The connector supports high speed interfaces up to 12.5 Gbps and the new AdvancedTCA standards.

The Yamaichi CN074 connector is a “Z-pluggable” surface mounted compression connector. The design is modular in concept. There are three basic parts to the connector: the contacts mating to the AdvancedMC Module, the flex circuit, and the contacts mating to the carrier board. Many of the internal parts are interchangeable within the B, B+, AB, and A+B+ connectors, and only the housing is different. This allows more flexibility meeting the spec, as well as other custom oriented designs.

**FEATURES:**

- GR-1217-CORE compliant
- Compression style contacts interface to carrier board with wiping action for high reliability
- Integrated high performance Y-Flex technology
- High speed contact design (Controlled impedance, very short stub)
- Low dielectric constant insulation material
- Controlled impedance, $100\Omega \pm 10\Omega$
- High speed interface up to 12.5 Gbps

For more information, contact: debbie.p@yeu.com.

RSC #6201 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

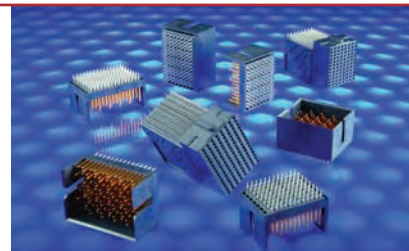
P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca
www.tycoelectronics.com/zpackmax

**Z-PACK MAX Connectors**

Z-PACK MAX product from Tyco Electronics is a new high speed, 100 ohm impedance matched backplane connector with extreme signal density. This connector is designed without shields and can be pinned out for lower speed single ended lines, too. The connector exists in four- and five-pair-per-column versions for backplane applications. The right-angle male connector is ideal for coplanar applications such as Zone 3 in AdvancedTCA.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

Datasheet 2-1773441-5

**FEATURES:**

- High speed: +10 Gbps
- High density: 25 pairs/cm (66 pairs/inch)
- Four- and five-pair-per-column
- Press-fit termination
- Without ground blades
- Designed to meet Telcordia requirements

For more information, contact: product.info@tycoelectronics.com.

RSC #6202 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

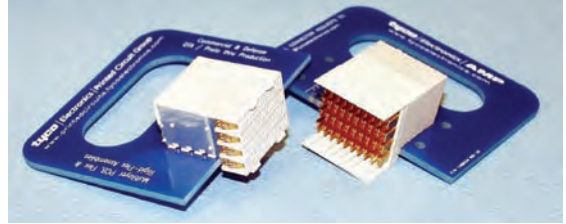
P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca
www.hmzd.tycoelectronics.com

**Z-PACK HM-Zd Coplanar Connector**

Z-PACK HM-Zd product from Tyco Electronics is the high speed, Advanced Differential Fabric Connector system specified by PICMG for use in AdvancedTCA Zone 2. The coplanar application version using the right-angled male and identical Zone 2 card connector (right-angled female), can be used in Zone 3. In addition to the four-pair connector modules specified for use in AdvancedTCA Zone 2, the product line includes two-pair and three-pair signal modules, coplanar connectors, and high speed cable assemblies for use in Zone 3. A mezzanine style connector is also available in a four-pair version.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

Catalog 1773095

**FEATURES:**

- Designed specifically for high speed differential applications (3.125 Gbps to 10+ Gbps)
- 40 high speed differential pairs per 25.00 mm [.984"]; A modular connector system with standard module size of 25.00 mm [.984"]
- Z-PACK HM-Zd product is an extension of the Z-PACK 2 mm HM product line
- Pin header and receptacle have the exact same footprint to simplify PC board layout
- Optimized footprint supports quad routing techniques for improved electrical performance, ease of trace routing, and significant PCB manufacturing cost reductions
- Designed to meet Telcordia requirements

For more information, contact: product.info@tycoelectronics.com.

RSC #6301 @ www.compactpci-systems.com/catalogrsc

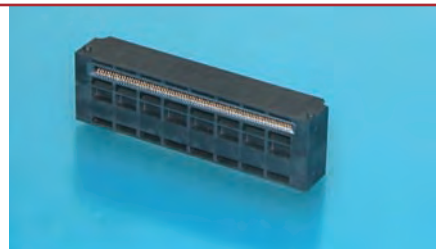
Tyco Electronics

P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca

**AMC.0 Connector**

Tyco Electronics has developed an Advanced Mezzanine Card (AMC) connector designed to meet the PICMG AMC.0 specification for use with AdvancedTCA carrier boards and other related applications. The AMC product family from Tyco Electronics will include single-part Z-Pluggable connectors in Extended (B+ and A+B+) styles.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

**FEATURES:**

- B+, A+B+ styles
- Targeted for high speed differential applications
 - Precision formed compliant pin reduces stub effect and offers excellent retention to ensure a reliable connection
 - Suitable for assembly processes using flat rock tooling

For more information, contact: product.info@tycoelectronics.com.

RSC #6302 @ www.compactpci-systems.com/catalogrsc

ept, Inc.

150 Hatwell Street • West Boylston, MA 01583

Tel: 508-835-9850 x3010 • Fax: 508-835-9851

www.ept.de**ATCA B+/MicroTCA**

ept is supporting the connector requirements of both AdvancedTCA and MicroTCA for AMC.0 connector families. Both of these connectors are card edge style components. The connectors are designed to transfer data up to 12.5 Gigabits per second (Gbps). They are modular designs, utilizing flat rock press-fit insertion to the PCB. The ept telecom press-fit section provides high reliability and industry proven performance.

For the AdvancedTCA platform, ept makes available the AdvancedMC connector in a rectangular B plus version to connect the AdvancedMC card with the carrier board.

The MicroTCA backplane connectors are a cost-effective reliable card edge interconnect. ept offers these connectors with and without pre-alignment feature, using UL 94V0 plastics. Both ept AdvancedMC connectors are available now. Contact Steve Lawler at slawler@eptusa.com or 215-547-4056.

ept is a global supplier of PCB connectors, utilizing both press-fit and solder application to the PCB. The company supports the telecom, datacom, industrial automation, and automotive markets. The company has a long history of supporting standardized products in the board-to-backplane marketplace.

Please see more information on the ept website at www.ept.de or call 800-323-2568 x3010.

**FEATURES:**

- 12.5 Gbps signal speeds, with minimal loss of signal integrity
- Rugged design with ept telecom industry proven press-fit insertion technology
- Easily routed signal paths with offset pin designs
- High density cost effective solution when compared directly to compression fit designs
- Highly reliable card edge to PCB connection, which eliminates potential pin stubbing
- Available with optional pre-alignment for safe and easy assembly

FCI

825 Old Trail Road • Etters, PA 17319
 Tel: 800-237-2374 • Fax: 717-938-7527
www.fciconnect.com

FCI**AirMax VS® System**

The AirMax VS® connector system provides the most comprehensive family of high speed, lightweight, flexible, and scalable connectors available today, making it ideal for a broad range of applications in Data, Communications, and Industrial equipment. The revolutionary AirMax VS system uses edge-coupling technology and an air dielectric between adjacent conductors to deliver high signal density with low insertion loss and low crosstalk, all without the use of costly and space-consuming metal shields. And data rates can scale from 2.5 Gbps to beyond 12 Gbps without requiring redesign of a basic platform.

Co-planar signal, power, and guidance modules from the AirMax VS family are ideally suited for use as Zone 3 interconnects in next-generation AdvancedTCA carrier grade communications equipment. Zone 3 in an AdvancedTCA shelf allows for direct connection between an AdvancedTCA front board and a Rear Transition Module (RTM) to route signals to the rear of an AdvancedTCA rack. AirMax VS right-angle signal modules easily enable these high-density connections. Up to four 150-position modules, with each module supporting 50 differential pairs, can be placed side by side in Zone 3 to provide a total of 200 differential pairs.

In addition to superior electrical performance, the AirMax VS family offers design versatility because signal connectors can be scaled by varying the number of columns of contacts, the number of contacts per column, and the column spacing. AirMax VS connectors also allow for mixed pin assignments (differential or single-ended signals or power), to provide additional flexibility to system designers.

AirMax VS co-planar power modules are also available to provide increased current-carrying capacity when needed. These compact 12 mm-wide modules utilize a 1x2 or 2x2 contact configuration rated to 80 Amps with 150 V voltage rating. Two available mating lengths for power receptacle contacts offer capability for sequential mating of power, ground, and signal contacts.

For more information, please visit our website at www.fciconnect.com/airmax.

**FEATURES:**

- Innovative edge-coupling technology and air dielectric between adjacent conductors deliver lowest insertion loss and crosstalk
- High speed serial data rates can scale from 2.5 Gbps to beyond 12 Gbps without requiring redesign of a basic platform
- Contains no interleaving shields reducing connector weight, cost, and PCB routing complexity
- Allows for allocation of differential or single-ended signals or power within the same signal module connector
- Co-planar signal modules are available with 15 contacts (5 differential pairs) or 12 contacts (4 differential pairs) per column
- 2 mm column spacing and 15 contacts (5 differential pairs) per column in co-planar signal modules provide highest signal density
- 2 mm pitch, 5-pair configuration provides 63 differential pairs per linear inch on 25 mm (1.0 inch) card slot spacing
- Wider 3 mm column spacing offers the opportunity to reduce board cost by routing more traces on a single board layer
- Compact 12 mm-wide power modules provide increased current-carrying capacity of 80 Amps with 150 V voltage rating
- "Eye of the Needle" (EON)-compliant tail for press-fit PCB termination. Lead-free and RoHS-compatible options are available
- Available guidance modules provide alignment capability prior to connector engagement
- A full set of building blocks for backplane, co-planar, mezzanine, and cable-to-board applications in Hard Metric building practices

FCI

825 Old Trail Road • Etters, PA 17319
 Tel: 800-237-2374 • Fax: 717-938-7527
www.fciconnect.com

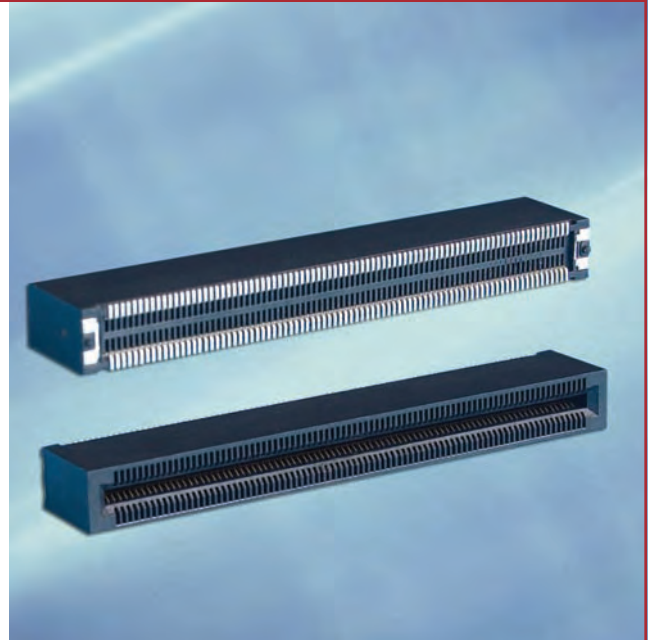
FCI**MicroTCA Connectors**

FCI has introduced card edge connectors to enable implementation of the MicroTCA standard under development within PICMG. The backplane connectors provide 170 contacts on 0.75 mm pitch so any standard AdvancedMC card can be plugged directly to a MicroTCA backplane. The surface-mount connectors utilize an optimized PCB footprint and will support differential signaling at data rates of 12.5 Gbps per lane with very low loss and crosstalk.

FCI's MicroTCA connectors are designed for low manufacturing cost through the use of proven connector manufacturing processes, low cost materials, and a minimal number of components. A low applied cost is achieved by low cost surface-mount installation and because no costly hardware, secondary mechanical retention, or compensating board stiffeners are required.

The MicroTCA standard, under development within the PICMG organization, defines a physically small but very powerful system in a shelf measuring 4U high by 300 mm deep. The MicroTCA system architecture reduces size and cost by eliminating the AdvancedTCA carrier board and providing a chassis that accepts AdvancedMC modules directly. MicroTCA shelves will also support hot-pluggable modules, which will increase availability by allowing individual modules to be serviced or upgraded without taking the shelf offline. The MicroTCA form factor is expected to be ideal for communications equipment, such as core routers and IP gateways, radio basestations and switching centers, and customer premises equipment, where small physical size and cost are key design constraints.

All mezzanines conforming to the AdvancedMC standard fit directly into a MicroTCA shelf without modification. By using the same AdvancedMC modules that are deployed as mezzanines on AdvancedTCA blades, products based on the MicroTCA standard can get to market quickly.

**FEATURES:**

- Dual-row, 170-position card-edge interface with 0.75 mm contact pitch
- Surface-mount (SMT) termination optimized for electrical performance, cost, and availability
- Very low loss and crosstalk for low voltage differential signaling at data rates of 12.5 Gbps per lane
- SMT footprint allows for increased flexibility in routing PCB traces
- Metal retention clips at connector ends provide additional mechanical strength after soldering
- Lead-free and RoHS-compatible
- Designed to be compliant with Telecordia Uncontrolled Environment (UE) requirements

Positronic Industries

423 N. Campbell Avenue • Springfield, MO 65806
 Tel: 800-641-4054 • Fax: 417-866-4115
www.connectpositronic.com

**VPB Series**

Plug-in boards used in today's computing platforms must provide higher reliability and greater functionality, and require more power than ever before. Many next-generation platforms deliver bulk voltage to boards. DC-to-DC converters are used to supply the various voltage requirements on the board. This allows systems to adapt as semiconductor voltages change.

The VPB series was developed as a dedicated interface between backplanes and boards. These connectors are capable of providing power, system management, and high voltage auxiliary circuits to each slot within the platform. Some options provide outstanding blind mating capability that can be used to align the board during insertion. Positronic's VPB series is compliant to PICMG3.0 AdvancedTCA Zone 1 connector requirements. Alternate variants of the VP series have been selected by VITA for specifications currently under development.

Zone 1 compatibility study complete!

In the Spring of 2005 a Zone 1 compatibility study was initiated. The purpose of this study is to establish multisupplier compatibility through testing. The study is complete. Please visit www.connectpositronic.com for details.

Visit www.connectpositronic.com for information about the VPB series, as well as other dedicated power interface connectors.

**FEATURES:**

- Low contact resistance
- Up to 8 power contacts rated at 16 amps per contact at a 30 °C temperature rise
- Up to four levels of sequential mating
- Integral blind mating features
- Power/signal contacts in a single package
- Options for coplanar mounting
- Proven performance and customer support for an excellent value

Continuous Computing

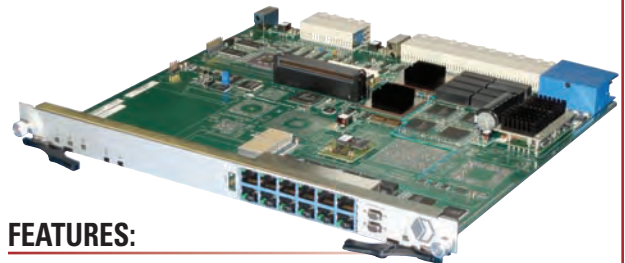
9380 Carroll Park Drive • San Diego, CA 92121
Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com



FlexCore™ ATCA-FM30

FlexCore is designed to consolidate common switching, management, storage, and clocking functions common to any telecom application. FlexCore maximizes the node slots available for application processing while reducing spares required for operational support.

Carrier class as well as compliant with PICMG 3.1, FlexCore offers single base interface and dual fabric interface Gigabit Ethernet switching for both 14-slot and 16-slot AdvancedTCA systems. Dual 10 Gbps interfaces are routed to each AdvancedMC site to support network processing and external access to either the 10 Gbps ports or additional 1 Gbps ports using optional AdvancedMC modules. In addition, an Intel Pentium M processor is provided for hosting platform management and OA&M applications. Dual swappable AdvancedMC disk modules are also available.



FEATURES:

- Gigabit Ethernet base interface switching and dual Gigabit Ethernet fabric interface switching
- Integrated switch management software; ten 1G and five 10G expansion ports
- Intel Pentium M processor for OA&M or application processing; support for 14-slot or 16-slot chassis; up to 4 GB of memory
- 440GX PowerPC processor with IPMI access to support switch and shelf management separate from the Pentium M
- CompactFlash and/or integral 2.5" IDE/SATA/SAS disks; up to two AdvancedMC disk modules; support for AdvancedMC DVD-RW
- Helps ensure successful deployment of high performance, carrier grade wireless, VoIP, and IMS applications

For more information, contact: info@ccpu.com.

RSC #6801 @ www.compactpci-systems.com/catalogrsc

Tundra Semiconductor

603 March Road • Ottawa, ON K2K 2M5 Canada
Tel: 613-592-0714 • Fax: 613-592-1320
www.tundra.com



Tundra Tsi568A™ & Tundra Tsi564A™

The Tundra family of Serial RapidIO switches – the Tsi568A and the Tsi564A – delivers the performance, power, and configurability that designers need to build reliable, high performance communications systems. The Tsi568A and Tsi564A are ideal solutions for a broad spectrum of telecom, video, imaging, and networking applications and incorporate SerDes functionality, error recovery, priority-based fabric routing, high payload efficiency, and table-based fabric packet routing.



FEATURES:

- Industry-leading Serial RapidIO switches supporting 80 Gbps and 40 Gbps aggregate bandwidth
- Provides more processing power per watt through distributed processing
- Configurability provides more product variants per development dollar
- Low power consumption enables more power budget for processing
- Up to eight 4x links and up to sixteen 1x links
- Compliant to RapidIO Interconnect Specification

For more information, contact: sales@tundra.com.

RSC #6802 @ www.compactpci-systems.com/catalogrsc

AMCC

215 Moffett Park Drive • Sunnyvale, CA 94089

Tel: 858-450-9333 • Fax: 858-450-9885

www.amcc.com**PRS40G-ATCA Switch**

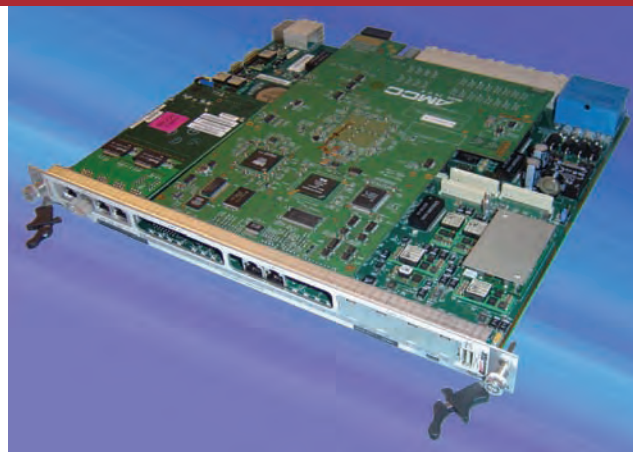
The PRS40G-ATCA is a 40 Gbps AdvancedTCA switch blade providing switched Gigabit Ethernet for up to 14 payload slots over the base interface (control plane) and cell switching for up to 12 payload slots over the fabric interface (data plane). It supports 2.5 Gbps user bandwidth per payload slot. Four additional cell switch ports are available for chassis interconnection.

Featuring the carrier class capabilities of the PICMG 3.6 Cell Switching Draft Specification, the blade brings critical QoS features to the AdvancedTCA standards-based platforms. It addresses the needs of a wide range of demanding applications that handle any mix of real-time and best effort traffic in the WAN multiservices, Wireless Infrastructure, Metro Ethernet, Enterprise, and TDM spaces.

The PRS40G-ATCA provides multiple traffic scheduling QoS options: strict traffic priority scheduling, configurable credit table (to guarantee bandwidth to lower priority traffic), credit table with fully pre-emptive highest traffic priority. It supports full bandwidth utilization of the media connected to the payload blades: end-to-end flow control mechanisms through the switch fabric enable 100 percent utilization of the media bandwidth while maintaining QoS performance (low jitter). To address the growing needs of video and audio distribution applications, powerful multicast mechanisms enable full bandwidth multicast, again with high QoS (low switching delay).

The blade addresses the technical challenges (latency, jitter) of merging real-time traffic with other traffic types over a single communication infrastructure: guaranteed precedence of time sensitive traffic over other traffic types, deterministic low latency, typically a few μ s transit delay for high priority traffic under worst case conditions (100% traffic load).

To address the high availability requirements of 5-nines applications, the PRS40G-ATCA is designed to operate in redundant switch blade configurations: hot stand-by or traffic load sharing mode with automatic takeover of the traffic of the failing blade and maintenance switchover between switch blades without any service interruption.

**FEATURES:**

- Single slot AdvancedTCA PICMG 3.0/3.6 switch blade supporting twelve 2.5 Gbps payload slots and four 2.5 Gbps ports on rear connector
- Non-blocking, single-stage, shared-buffer AMCC PRS 80G Cell Switch device providing 80 Gbps aggregate switching capacity
- QoS enforcement at media speed
- Real-time traffic support, for example TDM (guaranteed precedence of time sensitive traffic over other traffic types)
- Multicast and broadcast full bandwidth support while preserving low switching delay
- Deterministic low latency, typically a few μ s for high priority traffic under worst case conditions (100% traffic load)
- Traffic scheduling QoS options: strict priority scheduling, credit table (weighted round-robin), exhaustive highest priority first
- End-to-end, in-band flow control mechanisms through the switch fabric and programmable flow control thresholds, including multicast
- Redundant switch blade operations: hot stand-by mode, load sharing mode, maintenance switchover (cell lossless)
- AMCC PowerPC control processor with AMCC SSC software for configuration, monitoring and control of the cell switch board
- AMCC SWICC software, a PC tool for local/remote console access to control processor: operational and test functions (such as traffic generation)
- PMC/PTMC site for an industry standard board (for example, system control processor, memory, storage, and so on)

TeraChip, Inc.

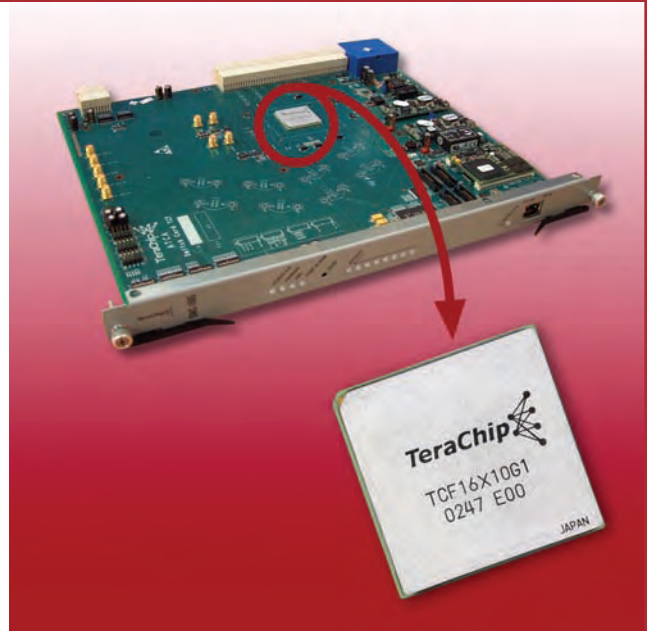
2479 East Bayshore Road, Suite 700 • Palo Alto, CA 94303
 Tel: 650-320-8148 • Fax: 650-320-8149
www.terachip.com

**TeraChip TCF16X10**

TeraChip's 160 Gbps switch fabric solution is fully compliant with the AdvancedTCA chassis specifications. Offering low risk, simplicity, and scalability, the solution is designed for access products, optical transport systems, wireless infrastructure, and server blades. TeraChip's solution, which provides 160 Gbps switching capacity in a single 15 W chip, helps system vendors shorten development cycles, reduce design costs, and accelerate time to market. The TeraChip solution is scalable up to 320 Gbps in an AdvancedTCA chassis.

Using a shared memory architecture, high-efficiency flow control, and variable cell size, the TCF16X10 reduces the need for overspeed in the fabric. This enables highly efficient use of fast backplane serial links while reducing power consumption and overall system cost. Employing XAUI channels of 4 SerDes each, the device supports 16 ports of 10 Gbps full duplex traffic per port, resulting in 160 Gbps aggregate switching throughput capacity. The fully non-blocking architecture allows switching of full data rate 10 Gbps data streams (OC-192 and 10G Ethernet). Eight Class of Service (CoS) queues per port with advanced congestion management and flow control mechanisms support Triple Play voice, video, and data services and ensure compliance with Service Level Agreements. The TCF16X10 is fully compliant with the connectivity specifications of the AdvancedTCA standard.

The TC11X2 line card incorporates end-to-end dynamic load balancing, enabling 1:1 and 1+1 concurrent redundancy between multiple TCF16X10 based switch cards. The TC11X2 line card interface supports industry-standard 10 Gbps interface options to the NPU or TM including CSIX-L1, CSIX over LVDS, SPI4.2, and NPSI. To further reduce the development process TeraChip offers the TSC-160XUI-A1 160 Gbps AdvancedTCA switch fabric card and a complementary management suite.

**FEATURES:**

- AdvancedTCA compliant 160 Gbps solution
- Single chip-based solution with low power consumption of only 15 W
- Scalable up to 320 Gbps in an AdvancedTCA chassis
- Switch card redundancy of 1:1 and 1+1
- Line card protection
- Directed end-to-end Flow Control (FC) by slot and CoS
- Dynamic load balancing
- Dynamic cell size
- Eight CoS queuing on ingress and egress with WRR and Strict Priority

Kontron

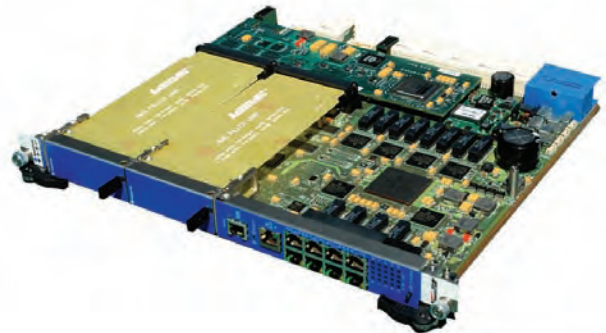
14118 Stowe Drive • Poway, CA 92064-7147

Tel: 888-294-4558 • Fax: 858-677-0898

www.kontron.com**AT8902 B/F Switch**

The Kontron AT8902 is a highly versatile AdvancedTCA Base and Fabric (1 x GbE, 2 x GbE) switch board that supports two AdvancedMC modules and multiple GbE switch fabric options. This PICMG 3.0/3.1 compliant and hot swappable switch board offers support for full redundancy and Layer 2 protocols run by a powerful control processor. The AT8902 employs leading-edge switching technology to provide full wire-speed throughput during all load conditions for any network topology (star, dual star, full mesh).

A significant design feature that delivers tremendous flexibility and cost benefits is the availability of two slots for any two AdvancedMC modules, such as for processing (acting as the system controller, which saves one AdvancedTCA slot), HDD as mass storage device, I/O modules, and a 2x 10 GbE fabric interlink to enable multishelf AdvancedTCA systems. The AT8902 is easily adaptable to customer requirements, thus minimizing time-to-market for new wireless and wireline applications. Options for the fabric interface include using Ethernet, Ethernet + Fibre Channel, and PCI Express. Management may be conducted via SNMP, TELNET, or CLI, either in-band or out of band via 10/100 Ethernet or RS-232 management ports. The AT8902 switch board features an intelligent hardware management system, based on the Intelligent Platform Management Interface Specification (IPMI) 1.5. The hardware management system provides the ability to manage the power, cooling, and interconnect needs of intelligent devices to monitor and log events to a central repository.

**FEATURES:**

- PICMG 3.0/3.1 compliant base and fabric interface switch
- Two AdvancedMC module slots for customization
- Non-blocking layer 2 switching with VLANs
- Dual GbE services to redundant switch board
- Dual GbE services to payload slots 2-5
- Gigabit Ethernet service to payload slots 6-14
- Versatile front/RTM uplinks (base/fabric, 4xGbE each)
- Dual 10 GbE connection to one AdvancedMC slot

Chomerics, division of Parker Hannifin Corporation

77 Dragon Court • Woburn, MA 01888-4014

Tel: 781-935-4850 • Fax: 781-933-4318

www.chomerics.com/premier**CHOMERICS PREMIER**

PREMIER™ is a unique EMI shielding thermoplastic for volume production of electronics and related components. PREMIER is composed of a unique blend of PC/ABS thermoplastic polymer alloys and conductive fillers engineered for stable electrical, mechanical, and physical performance. PREMIER molded parts require no secondary operations such as machining, plating, painting, vacuum coating, or similar steps, thus reducing costs by up to 50 percent compared with comparable die castings, bent formed metal or machined extrusions, and plastic plated parts. Injection molded PREMIER parts exhibit durability against vibration and shock, similar to performance of composites employed in the aircraft industry. With shielding effectiveness greater than 85 dB, low weight, and UL94 flammability rating of V-O, PREMIER conductive thermoplastic performs far greater than carbon-filled Electrostatic Discharge (ESD) plastics.

Combined with standard injection molding processes, PREMIER technology delivers evenly dispersed filler throughout a part's geometry. PREMIER parts have no resin rich areas prone to EMI leaks, and no brittle, resin poor areas that can break under mechanical stress. PREMIER provides world class shielding effectiveness, requires no machining, plating, painting, vacuum coating, or other added processing steps. PREMIER parts provide shielding effectiveness greater than 85 dB to meet global commercial EMC requirements. The parts provide the electrical conductivity, EMI absorption, and mechanical durability to replace aluminum and plastic housings that have been metallized or conductively coated. PREMIER complies with worldwide directives for ecological compatibility, such as the European Union Restriction on Hazardous Substances (EU-RoHS), TCO (Swedish Confederation of Professional Employees), and U.S. Environmental Protection Agency standards.

**FEATURES:**

- **SHIELDING:** Greater than 85 dB shielding effectiveness; low through resistance down to 30 mΩ; highly conductive; high permeability (6.5)
- **MECHANICAL/PHYSICAL:** High tensile strength and modulus; high flexural strength and modulus; low density for weight reduction up to 75 percent
- **ENVIRONMENTAL:** Recyclable – conforms to WEEE EoVL TCO; RoHS- and EPA-compliant and halogen free; up to 105c RTI; corrosion-free for long life
- **ECONOMICS:** Lower total cost of ownership by eliminating secondary operations; six sigma processing; waste elimination; global supply
- PREMIER shortens the supply chain, saving packaging and shipment costs to specialized coaters or suppliers and Work In Process (WIP)
- Customers routinely enjoy significant cost savings and convenience using Chomerics as a single point of contact
- PREMIER molded parts can be produced worldwide at Parker locations in the Americas, Asia, and Europe
- Chomerics provides PREMIER pellets to allow injection molders to offer true shielding parts to their customer

XTech

80 Trim Way • Randolph, MA 02368
 Tel: 781-963-7200 • Fax: 781-963-7203
www.xtech-outside.com

**Face Plates-AMCs**

XTech is a full service, on-demand supplier of mechanical assemblies for circuit boards, offering a comprehensive line of AdvancedTCA face plates, AdvancedMCs, MicroTCA, carrier boards, and other mechanical accessories. All products are available in both standard and customized profiles to support all of your design requirements. XTech operations support all your production needs – from prototype, to pre-production, through full production – anywhere in the world. Not only is XTech your single, convenient source for AdvancedTCA face plates, but we also offer an extensive range of value added services, including:

- In-house design assistance for custom assemblies
- Component kitting and full assembly
- Personalized, professional customer support to help you complete your project on time and on budget

XTech is 100 percent committed to serving the AdvancedTCA needs of the telecommunications and electronic systems industry and complying with PICMG standards. With over 50 years of experience, XTech brings extensive skill and knowledge across a wide variety of industries around the world.

Contact XTech today!

Visit www.xtech-outside.com or you can e-mail us at inquiry@xtech-outside.com for more information, and contact us any time for your AdvancedTCA application engineering support.

**FEATURES:**

- Lighter than stainless steel
- Extruded aluminum assures a strong rigid face plate, eliminates costly post-process bending
- Variable wall thickness from 0.050" to 0.100" to accommodate connectors
- Full support for other mechanical components – sheet metal, castings, or plastic
- Fast turnaround for prototypes, production pieces, and custom orders
- Design assistance, finishing, labeling, and assembly
- An unlimited variety of customized profiles to integrate with all AdvancedTCA platforms
- Recessed face plate gallery area for label protects edges and assures alignment
- Extruded channel for EMI gasket prevents foam roll-over and protects gasket
- Unsurpassed EMI and RFI shielding
- Excellent heat dissipation
- Manufacturing support in the United States or Asia

F9 Systems, Inc.

P.O. Box 2902 • Acton, MA 01720

Tel: 781-248-9155 or 978-549-3868 • Fax: 781-837-9156

www.F9-Systems.com**F9 Systems, Inc.**

Standard Systems Testing Solutions

Tx/Rx BenchBlade

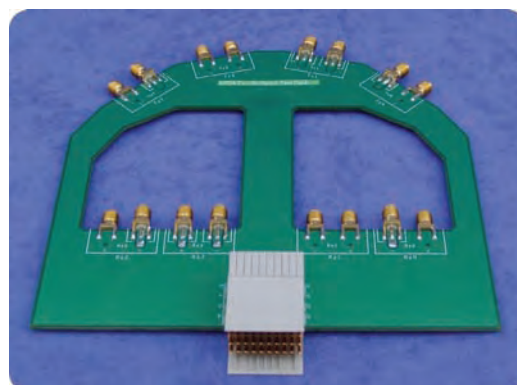
The F9 Systems Tx/Rx BenchBlade test card offers the flexibility to verify the performance of AdvancedTCA fabric and base channels. The set of four Transmit pairs and four Receive pairs allows access to a full channel's eight pairs for complete logic card characterization.

The card includes a HM-Zd male connector segment for access to the Zone 2 connectors of a switch fabric or node card. Edge-launch SMA connectors are utilized for ease of test cable attachment. SMT pads are included on the Receive pairs.

The Tx/Rx BenchBlade is a diagnostic and validation tool powerhouse. This test card completely eliminates the dependency on logic card availability to validate a backplane design. The Tx/Rx BenchBlade also provides engineers with a tool to analyze and optimize their node and line card designs long before fabrication takes place. The many F9 Systems Tx/Rx BenchBlade analyses options include:

- Verify design compliance with AdvancedTCA
- Skew and connectivity (TDT)
- Signal impedance (TDR)
- Sample SerDes signals across a backplane
- Investigate alternatives for design optimization
- Probe, observe, and measure eye-openings

The Tx/Rx BenchBlade is not restricted to only AdvancedTCA design validation. It can also be used to analyze any HM-Zd based design.

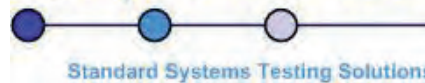
**FEATURES:**

- AdvancedTCA compatible design that uses a right angle male HM-Zd connector for bench testing AdvancedTCA hub and node cards
- Provides four Transmit and four Receive pairs to test a complete AdvancedTCA channel
- Edge-launch SMAs for superior bandwidth and ease of test cable attachment
- SMT pads provided on Receive channels
- Receive channels capable of utilizing high bandwidth coaxial blocking capacitors
- Cut-outs for cable access to Receive pairs and ease of card insertion and removal
- Flexible connector alignment (connector guides are removed) allows all signals to be easily probed
- Differential impedance of 100 ohms ± 5 percent
- Eliminate dependency on logic card availability for system evaluation
- Verify and evaluate design compliance with AdvancedTCA guidelines

F9 Systems, Inc.

P.O. Box 2902 • Acton, MA 01720

Tel: 781-248-9155 or 978-549-3868 • Fax: 781-837-9156

www.F9-Systems.com**F9 Systems, Inc.****Tx/Rx SignalBlade**

The F9 Systems Tx/Rx SignalBlade test card offers the flexibility to verify the performance of AdvancedTCA fabric and base channels.

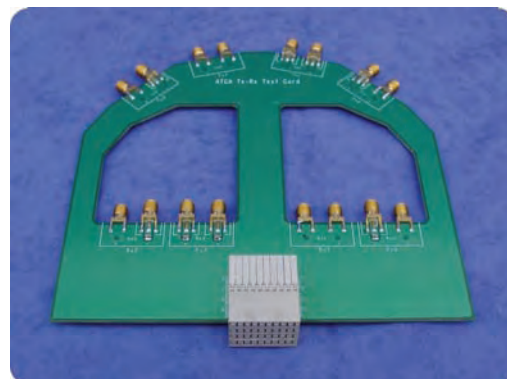
The set of four (4) Transmit pairs and four (4) Receive pairs allows access to a full channel's eight (8) pairs for complete backplane path characterization. The card includes a HM-Zd connector segment for access to the backplane and edge-launch SMA connectors for ease of test cable attachment. DC blocking capacitors are included on the receive pairs as required by AdvancedTCA.

The Tx/Rx SignalBlade is a diagnostic and validation tool powerhouse. The Tx/Rx SignalBlade provides engineers with a tool to analyze and optimize their backplane and logic cards long before fabrication takes place. Engineers can emulate a backplane by using two SignalBlades attached through cable, eliminating the need to wait for a backplane to test logic card design and performance.

There are many F9 Systems Tx/Rx SignalBlade analyses options that can be performed, such as:

- Skew and connectivity (TDT)
- Signal impedance (TDR)
- Sample SERDES signals from node and line cards
- Perform clock verification of your system
- Access signals to evaluate bus termination
- Investigate alternatives for optimized designs
- Probe, observe, and measure eye-openings

The Tx/Rx SignalBlade is not restricted to only AdvancedTCA design validation, but can be used to analyze any HM-Zd based design.

**FEATURES:**

- Eliminate the dependency on backplane availability to analyze logic card designs
- Verify design compliance with AdvancedTCA standard
- Flexible connector alignment allows all signals to be easily probed
- Provides four (4) Transmit and four (4) Receive pairs to test a complete AdvancedTCA channel
- DC blocking capacitors can be included on Receive channels
- Edge-launch SMAs for superior bandwidth and ease of test cable attachment
- Differential impedance of 100 ohms \pm 5 percent
- The Tx/Rx SignalBlade is fabricated using proven high-performance design rules and low loss Nelco 4000-13SI PCB material to ensure the highest levels of signal integrity and measurement performance

Tyco Electronics Power Systems, Inc.

3000 Skyline Drive • Mesquite, TX 75149

Tel: 800-526-7819 • Fax: 972-284-2900

power.tycoelectronics.com**PIM200**

Tyco Electronics Power Systems, Inc. introduces the industry's first power input management solution for AdvancedTCA boards. PIM200, designed in collaboration with industry leading AdvancedTCA board manufacturers, incorporates all of the features required by the AdvancedTCA PICMG 3.0 specification, including inrush current protection, ORing functionality with MOSFETs, EMI filtering meeting Class B CISPR Limits, input undervoltage and overvoltage protections, auxiliary power supply for IPMI, and feed alarm. In addition, PIM200 has 72 Vdc regulated supply for charging external bulk/holdup capacitors, resulting in significant savings in board real estate and cost.

When using PIM200, very few external components are needed, resulting in significantly reduced design-in time compared to discrete implementation that requires extensive design, layout, debugging, and qualification. Critical EMI component selection and placement can be verified on a component level rather than waiting for the board design completion, allowing for early corrective actions. In addition, the separation of the energy storage bulk capacitors from filter capacitors reduces stress on the hot swap FET during startup. Thermal derating curves and recommended layout provided in the data sheet enable designers to optimize their board layout and component placement. In short, PIM200 enables designers to save valuable board space and reduce overall cost and time to market compared to discrete solutions.

**FEATURES:**

- 200 W of rated power (per PICMG 3.0)
- Inrush control protection
- Integrated EMI filter designed to meet CISPR Class B Limits
- Lead-free (Directive 2002/95/EC) compliant
- 8 W of isolated auxiliary power supply for IPMI (3.3 V or 5 V)
- ORing FETs for A&B feeds
- A/B feed loss alarm
- 72 V auxiliary supply for external holdup/bulk capacitors
- Through-hole version
- Input undervoltage and overvoltage protections
- Overcurrent and thermal protections
- UL/CSA/CE/VDE approved

Pinnacle Data Systems, Inc.

6600 Port Road • Groveport, OH 43125
 Tel: 614-748-1150 • Fax: 614-748-1209
www.pinnacle.com

**ATCA Product Line**

PDSi offers a full line of AdvancedTCA systems, from 2U to 12U, supplying a standards based architecture for central office grade equipment and providing the latest trends in high speed interconnect technologies, next generation processors, and improved reliability and serviceability. PDSi has a team of system architects available to select best of breed AdvancedTCA chassis and components for the desired client solution.

PDSi also offers board level products and leverages currently available COTS hardware and software components to create integrated product sets tailored to Telco OEMs. These offerings enable consolidation of proprietary network components into a single open-standard platform, lowering total cost of ownership and providing quicker time to market.

**FEATURES:**

- Fully telco grade PICMG 3.x compliant: Meets NEBS requirements including cooling, noise, and shielding
- A platform for building carrier grade telecom applications supporting 5-nines (99.999%) availability
- High density/high performance computing environment
- Entry level to advanced product choices
- Complete systems integration and support services
- AC and DC power options

For more information, contact: info@pinnacle.com.

RSC #7701 @ www.compactpci-systems.com/catalogrsc

Carlo Gavazzi Computing Solutions

10 Mupac Drive • Brockton, MA 02301
 Tel: 508-588-6110 • Fax: 508-588-0498
www.gavazzi-computing.com

**544 Series Systems**

Carlo Gavazzi's 544 Series of 5U AdvancedTCA systems meets the high reliability, robust power requirements, thermal management demands, and NEBS needs of the telecom, enterprise, and datacom markets. The 544 Series supports five slots at 30 mm pitch front and rear with a 5-slot high performance backplane configured as a 3X replicated full mesh extended fabric topology to maximize bandwidth. Dual redundant Shelf Management modules featuring Pigeon Point System or Motorola technology are available. These Shelf Management modules reside in a dedicated front panel slot, allowing the chassis and backplane to accommodate five slots of full size AdvancedTCA boards and their RTMs. All field replaceable units are intelligent devices and communicate to the Shelf Managers through the IPMI.

**FEATURES:**

- 8.75" (5U) (H) x 17.5" (W) x 16.4" (D)
- 5-slot 3X replicated full mesh extended fabric backplane
- Front and rear removable push pull intelligent cooling system that provides redundant cooling
- Front replaceable dual redundant Shelf Management modules
- 5-slot, 8U x 280 mm, 6HP (30 mm) sub-rack and 5-slot, 6U x 100 mm, 6HP (30 mm) rear transition rack
- Dual redundant 48 V input intelligent power entry modules

For more information, contact: info@gavazzi-computing.com.

RSC #7702 @ www.compactpci-systems.com/catalogrsc

Sanmina-SCI

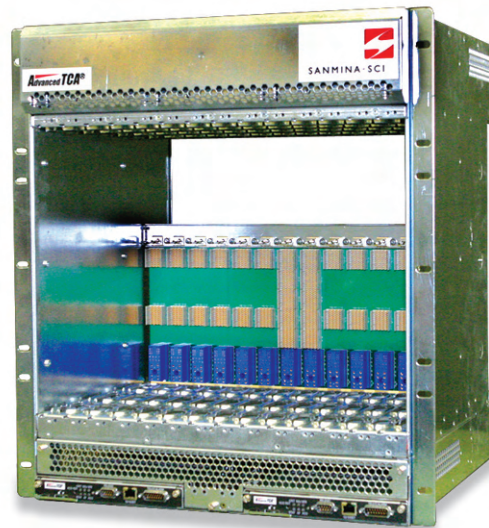
2700 N. First Street • San Jose, CA 95134

Tel: 408-964-3555 • Fax: 408-964-3636

www.sanmina-sci.com**SANMINA-SCI****SC6000 Series ATCA-12U Shelves**

Sanmina-SCI offers two base-model PICMG 3.0 compliant SC6000 Series ATCA-12U shelves for use in very high end, very high performance central office in a box computing applications. These shelves can be populated with a mix of off-the-shelf boards, including server, network processor, DSP, and I/O functions to provide a standard platform for building advanced computing systems. Each shelf features a high performance switch fabric backplane to enable reliable performance at high computing speeds, increased interoperability, and reduced equipment costs. The major components of the SC6000 Series ATCA-12U shelves are fully field-replaceable, saving time and costs.

Sanmina-SCI leverages its AdvancedTCA design know-how with world-class global manufacturing capabilities. Sanmina-SCI also manufactures AdvancedTCA compliant front boards, RTMs, and shelf FRUs for worldwide delivery through our global logistics network.

**FEATURES:**

- One sheet-metal enclosure
- One AdvancedTCA compliant fabric backplane
- Three fan trays for the 14-slot shelf
- Four fan trays for the 16-slot shelf
- Two PPS ShMM-500-based shelf-management controllers
- Two filtered power entry modules for the 14-slot and 16-slot standard shelves
- Slot filler cards (as required)
- Three filtered power entry modules for the 16-slot extended-power shelf
- Two shelf ID modules
- One shelf rack-mounting kit
- One air filter
- Service offerings include innovative product design and engineering, test solutions, logistics, and repair/warranty services

Carlo Gavazzi Computing Solutions

10 Mupac Drive • Brockton, MA 02301
 Tel: 508-588-6110 • Fax: 508-588-0498
www.gavazzi-computing.com

**533 Series Systems**

Carlo Gavazzi's 533 Series of 13U AdvancedTCA systems meets the high reliability, robust power requirements, thermal management demands, and NEBS needs of the telecom, enterprise, and datacom markets. This system supports up to 14 slots at 30 mm pitch front and rear with either a dual star or full mesh backplane topology. Dual redundant Shelf Management modules featuring Pigeon Point System or Motorola technology are available in the 533 Series. These Shelf Management modules reside in a dedicated rear panel slot, allowing the chassis and backplane to accommodate 14 slots of full size AdvancedTCA boards and their RTMs. All field replaceable units are intelligent devices and communicate to the Shelf Managers through the IPMI.

**FEATURES:**

- 22.75" (13U) (H) x 17.2" (W) x 17.7" (D)
- Available with a 14-slot dual star or full mesh backplane
- Front removable push pull intelligent cooling system that provides redundant cooling
- Dual Shelf Management modules
- 14-slot, 8U x 280 mm, 6HP (30 mm) sub-rack and 14-slot, 6U x 100 mm, 6HP (30 mm) rear transition rack
- Dual redundant 48 V input intelligent power entry modules

For more information, contact: info@gavazzi-computing.com.

RSC #7901 @ www.compactpci-systems.com/catalogrsc

Ardence, Inc.

266 2nd Avenue • Waltham, MA 02451
 Tel: 800-334-8649 • Fax: 781-647-3999
www.Ardence.com/Embedded/ETS.htm

**Phar Lap ETS**

The Phar Lap ETS real-time operating system provides system designers with the most reliable, highest performing, and easy-to-deploy hard real-time development environment. Based on x86 architectures, ETS offers a comprehensive suite of tools that smoothly integrate into the well-known Microsoft Visual Studio IDE – minimizing development and debugging time.

With support for all standard BIOS implementations and the industry's smallest operational footprint, the Win32 API compliant Phar Lap ETS RTOS enables developers to install, configure, and start developing within two to four hours. ETS has proven itself in thousands of demanding environments, such as multimedia streaming solutions, ocean vessel location systems, submicron scanning systems, and RFID products.

**FEATURES:**

- Real-time file system: High speed media access with FAT16 and FAT32 support
- Fully Win32 compliant: No need to use code wrappers for API mapping
- Complete IA32 x86 support: 386, 486, Pentium I, II, III, 4, Multicore, M, Xenon, as well as AMD CPUs
- Smallest operational footprint: < 500 KB with I/O graphics and TCP/IP
- Support for all standard BIOS implementations: Support includes ACPI compliant PIC and uniprocessor APIC
- Integrated WinSock compliant real time TCP/IP stack: Fully Windows independent

For more information, contact: info@ardence.com.

RSC #7902 @ www.compactpci-systems.com/catalogrsc

COMMETREX

1225 Northmeadow Pkwy, Suite 120 • Roswell, GA 30076
 Tel: 770-449-7775 • Fax: 770-242-7353
www.commetrex.com

**BladeWare**

BladeWare is telephony middleware that relieves the user of CompactPCI and AdvancedTCA hardware of the burden of developing the software framework required in all digital-media telephony systems. There are six major components of systems such as media servers and gateways: (1) The application software, (2) The telephony middleware, which exposes an API to the top-level application, (3) The streams framework, which supports the various media-processing algorithms, (4) The media-processing technologies, (5) Signaling entities, and (6) The hardware.

With BladeWare and Commetrex or third-party media technologies, the OEM need only add the application, server blades, and possibly DSP resources if host MIPS do not provide the necessary density, to have a market-ready product.

**FEATURES:**

- Distributed client-server architecture supports functional extensibility and scalability to 1000s of ports
- Portable multi-environment media framework supports host-based and embedded signal processing
- Dispatchable media-processing resources promote resource sharing and inherent high availability
- Browser-based system administration for control, configuration, parameter management, and diagnostics
- Extensible multiswitch fabric support now with TDM and IP
- Applications: Media server, media gateway, mediation gateway, PBX, conferencing server, and many more

For more information, contact: sales@commetrex.com.

RSC #8001 @ www.compactpci-systems.com/catalogrsc

SANBlaze Technology, Inc.

2 Clock Tower Place, Suite 550 • Maynard, MA 01754
 Tel: 978-897-1888 • Fax: 978-897-3171
www.sanblaze.com

**SB-AMC-HD**

The SB-AMC-HD module is an AdvancedMC Drive Carrier Module for AdvancedTCA or MicroTCA systems. The module is configured with either one 2.5" SATA or one Small Form Factor (SFF) SAS drive. The form factor of the SB-AMC-HD is a single-width (SW), full-height (FH), AdvancedMC card and uses the serial storage signaling defined in AMC.3. The SB-AMC-HD is available with either SATA or SAS drive technology options. A version with a 2.5" SATA drive is available as a lower cost storage solution. Support for Extended Duty SATA drives allows for more robust requirements. The SAS version uses an SFF SAS drive, providing more robust, enterprise class storage options.

**FEATURES:**

- AMC.0, AMC.3 compliant
- Support for a single SAS or SATA drive
- SAS storage options of 36 GB or 73 GB
- SATA storage options up to 100 GB
- Integrated IPMI support
- RoHS compliant

For more information, contact: info@sanblaze.com.

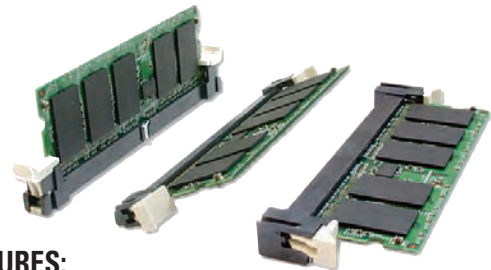
RSC #8002 @ www.compactpci-systems.com/catalogrsc

SMART Modular Technologies, Inc.

4211 Starboard Drive • Fremont, CA 94538
 Tel: 800-956-7627/510-623-1231 • Fax: 510-623-1424
www.smartm.com

**DDR2 Mini-DIMMs****244-pin Mini-DIMM**

Unbuffered ECC and Registered DDR2 Mini-DIMMs are an ideal memory solution for a wide variety of single board computer and AdvancedTCA and server blade applications. The small 244-pin module form factor is offered in a standard 1.18" height and a Very Low Profile height of 0.72". SMART's Mini-DIMMs can use robust vertical, angled (22.5°), and right-angle connectors. The right-angle connector option meets tight vertical clearance constraints while offering the additional advantage of board space underneath for passive devices.

**FEATURES:**

- PC2-3200, 4200, 5300
- Standard height: 256 MB to 2 GB
- Very Low Profile: 256 MB to 1 GB
- Unbuffered ECC or registered
- Low power
- RoHS compliant

For more information, contact: info@smartm.com.

RSC #8101 @ www.compactpci-systems.com/catalogrsc

Advanet Inc.
EdMS COMPANY Full service EdMS company
 (Electronic design/development & Manufacturing Service)
 design & development

CompactPCI

Visit our site for a complete line of PowerPC and Pentium based processor boards. We also offer a vast line of PMC modules and I/O boards for your applications.

www.advanet.co.jp

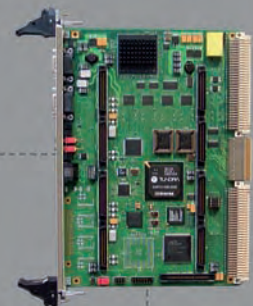
Partnership with **RADIC** Technology
 URL www.radictech.com
 Contact us Sales@radictech.com

1141 Ringwood Court, Suite 170 San Jose, CA 95131 USA Phone: 408.263.6500 Fax: 408.273.6360

Embedded I/O Solutions for:

IndustryPack®, PMC, CompactPCI, PCI with Outstanding Software Support.

- CPU Carriers
- IP and PMC Carriers
- Ethernet
- Communication
- CAN Bus
- Field Bus
- Digital I/O
- Analog I/O
- PC Card/CardBus
- Motion Control
- Memory
- User-programmable FPGA



- VxWorks
- OS-9
- pSOS+
- QNX
- LynxOS
- Windows
- Linux

www.tews.com

TEWS TECHNOLOGIES

TEWS TECHNOLOGIES LLC: 1 E. Liberty Street, Sixth Floor • Reno, Nevada 89504/USA
 Phone: +1 (775) 686 6077 • Fax: +1 (775) 686 6024 • E-mail: usasales@tews.com

TEWS TECHNOLOGIES GmbH: Am Bahnhof 7 • 25469 Halstenbek/Germany
 Phone: +49 (0)4101-4058-0 • Fax: +49 (0)4101-4058-19 • E-mail: info@tews.com

RSC# 8102 @ www.compactpci-systems.com/rsc

RSC# 8103 @ www.compactpci-systems.com/rsc

Adtron

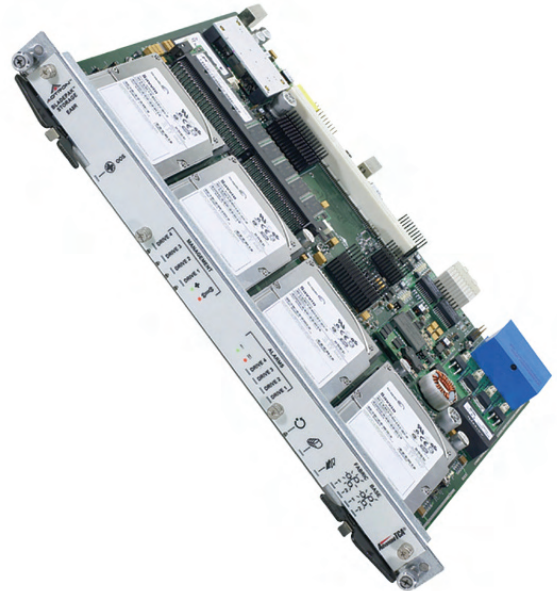
4415 E. Cotton Center Blvd. • Phoenix, AZ 85040
 Tel: 602-735-0300 • Fax: 602-735-0359
www.adtron.com

**EA8R Bladepak™**

First in its class of carrier grade high availability storage blades, the Adtron™ EA8R Bladepak is a self-contained storage node for iSCSI SAN networks. The EA8R provides sophisticated Adtron SmartStorage™ framework with Adtron ActiveRAID™ technology in a standard AdvancedTCA form factor providing individual disk hot swap in Redundant Array of Independent Disks (RAID) configurations. For in-chassis storage, the EA8R sets the standard for reliability and simplicity of operation. The EA8R is a key building block for NEPs and TEMs creating high availability AdvancedTCA platforms.

With Adtron ActiveRAID, the RAID-5 array is managed and maintained with no host or external controller intervention, simplifying RAID-5 management in the SAN environment. Individual drive hot swap is key to achieving high availability by eliminating the impact of a single disk failure on overall system availability. Equipped with interfaces to the base and fabric, each with redundant Gigabit Ethernet channels, the EA8R easily integrates into a dual star topology. Using iSCSI over Ethernet provides state-of-the-art storage functionality over the AdvancedTCA backplane.

For increased storage capacity, the EA8R is available in RAID-0 configurations, while RAID-5 configurations address the needs of error correction and high availability. These configuration attributes, coupled with Adtron patented and patent-pending technologies, make the Adtron EA8R the storage solution for next generation telecommunication platforms.

**FEATURES:**

- Adtron ActiveRAID technology provides RAID-5 high availability and capacities up to 219 GB
- Optional RAID-0 capacities up to 290 GB as one or multiple Logical Units (LUNs)
- Individual disk hot swap maximizes system availability
- Enterprise class 2.5-inch Small Form Factor (SFF) disk drives provide high performance, 100 percent duty cycles in RAID operations
- Dual GbE interface enables shelf redundancy; redundant ports on the backplane provide two paths to the storage blade
- Access to storage by multiple hosts via iSCSI
- Intelligent Peripheral Management Interface (IPMI) compliance
- Removable front panel provides easy access to each individual drive in event of a drive failure
- Board level hot swap: Out-of-service storage blade can be removed and replaced without impacting shelf operation
- iSCSI over high speed GbE interface with SCSI commands permits managing data storage and retrieval with support for multiple hosts
- AdvancedTCA form factor (8U x 6HP) providing the de facto next generation telecommunications platform
- Dual IPMB connections and redundant power connections

Renesas Technology

450 Holger Way • San Jose, CA 95134
 Tel: 408-382-7500 • Fax: 408-382-7501
www.renesas.com



Everywhere you imagine

H8S/2168 Series Microcontrollers

Renesas' H8S/2168 series microcontrollers (MCUs) are widely acknowledged to be the best design choices for implementing IPMI-compliant solutions in server and telecommunication applications. The popular devices provide a wide variety of on-chip peripherals, including six independent multimaster or slave I²C bus controllers, to ensure complete coverage of the IPMI requirements.

On-chip single-cycle flash and SRAM memory, in combination with low power 3.3 V operation and three flash memory size options, enable high performance and low cost IPMI solutions. All major suppliers of IPMI firmware for AdvancedTCA applications support proven H8S/2168 series microcontrollers.

For more information on this or other Renesas products, contact webmaster.america@renesas.com.

Or visit our website, www.renesas.com.

H8S/2000 CPU Core	Serial Interface (3 ch)	
	I ² C (6 ch)	
Flash 256KB/384KB/512KB	H-UDI	
	16-bit FRT x1	
RAM 40KB	8-bit Timer x4	16-bit Timer x1
3-channel LPC	Watchdog Timer (2 ch)	
85-channel DTC	PWM (16-channel x 8-bit)	
PWM (4-channel x 14-bit)	D/A (2-channel x 8-bit)	
A/D (8-channel x 10-bit)	115 I/O ports	

FEATURES:

- High performance with low power; typical dissipation is 60 mW operating at 33 MHz and 3.3 V
- Pin-compatible versions with 256 KB, 384 KB, or 512 KB of on-chip, single-cycle-access flash-enabled design flexibility
- On-chip 40 KB single-cycle-access SRAM enables optimum performance
- Six independent 400 kHz I²C (multimaster/slave) bus controllers can automatically generate start/stop conditions
- Three low-pin-count channels support I/O read/write mode and have independently programmable 16-bit addresses
- LPC Channel 3 has independent 64-byte transmit and receive buffers and supports KCS, BT, and SMIC modes
- Three channels of async or synchronous serial communication controllers, each with built-in baud rate generators
- Eight channels of 10-bit A/D and two channels of 8-bit D/A enable monitoring and controlling of system variables
- Two watchdog timers and 8-, 14-, and 16-bit general purpose timers permit control of time-critical system functions
- External 16-bit bus expansion can be used to access or interface to off-chip memory or peripheral functions
- Built-in, high-level User Debug Interface (UDI) eases system debugging and integration in complex systems
- JTAG boundary scan capability facilitates testing for high reliability

Mercury Computer Systems, Inc

199 Riverneck Road • Chelmsford, MA 01824

Tel: 866-627-6951 • Fax: 978-256-0052

www.mc.com/ensemble**Ensemble2 Platform**

The Ensemble2™ Application Platform is a standards-based system for developing, prototyping, and deploying applications. Ensemble2 allows developers to evaluate and deploy their applications on the same platform. Built around the power, functionality, and scalability of serial RapidIO, AdvancedTCA, and AdvancedMC the platform supports a variety of I/O sources and heterogeneous processing, thereby reducing project costs, improving resource efficiency, and minimizing the design and deployment risks of next generation communications systems.

The Ensemble2 platform scales to 14- or 16-slot configurations, supports hot swappable AdvancedMC modules, and delivers 10 Gbps of serial RapidIO capacity to every processing component in the heterogeneous platform. This critical functionality facilitates application-level evaluations in the lab and deployments in the field, and the system management software delivered with Ensemble2 reduces development and porting time. A fully configured Ensemble2 chassis can encompass up to 56 AdvancedMC modules per system. This scalability and flexibility is essential to support application benchmarking tasks, with the backplane delivering as much as 150 Gbps of low latency and efficient data messaging capacity. Multichassis support is available via serial RapidIO fiber mezzanine modules.

As communications system developers migrate to Commercial Off-The-Shelf (COTS) alternatives, they need open standards-based system-level solutions with the support of tier one ecosystems. They are increasingly relying on these integrated solutions to make the evaluation of their applications easier over a broad range of vendor technologies. The Ensemble2 platform is architected to help OEMs leverage the RapidIO standard and its rich ecosystem, allowing them to manipulate and tune the embedded fabric for specific application requirements.

The Ensemble2 platform supports either a heterogeneous or a homogeneous OS environment, such as Linux and OSE, among others. The software suite allows Ensemble2 systems to exploit RapidIO's rich configuration and run-time features.

**FEATURES:**

- Completely integrated 10 Gbps AdvancedTCA system solution
- Early access to latest serial RapidIO silicon
- Modular configurations based on AdvancedMC form factor
- Scales to 14- or 16-slot configurations
- Supports hot swappable AdvancedMC modules
- Ideal for application development
- Facilitates application-level evaluations in the lab and deployments in the field
- System management software reduces development and porting time
- High performance and broad interoperability among platform components
- RapidIO hub card has 80 Gbps of bisectional communication and support for interchassis and intershelf bridging
- Configuration options support heterogeneous processing: AdvancedMC carrier, RapidIO Ethernet, interchassis AdvancedMC, DSP farm, FPGA, or NP
- Production ready, quick to market

Elma Electronic Inc.

44350 Grimmer Blvd. • Fremont, CA 94538

Tel: 510-656-3400 • Fax: 510-656-3783

www.elma.com**AdvancedTCA 12U System**

The new 12U AdvancedTCA is fully redundant from top to bottom. Three plug removable fan trays offer a total of six high volumetric 130 CFM fans, three in the top/rear and three below the card cage. This includes coverage of the rear I/O card cage and the top fans are angled slightly to direct exhaust out. The rear top of the chassis is also angled, allowing more airflow exhaust to escape when multiple chassis are stacked on top of each other in a rack.

With Elma's thermal simulation engineering, the chassis has been optimized for maximized cooling capability. The simulation enabled the company to perfect the ideal intake and exhaust areas, determine the best fans and fan configuration, and optimize the air baffles to redirect airflow. Moreover, Elma can make further adjustments after simulating the chassis along with system cooling for a specific application. Testing performed on the Elma 12U chassis verifies the chassis meets the 200 W/slot cooling required for AdvancedTCA.

With "pluggability and redundancy everywhere," the 12U AdvancedTCA offers dual Power Entry Modules (PEMs), dual shelf management modules, dual fabric slots, and more. The PEMs allow pluggable 48 DC feeds with I2C shelf manager interfacing. They can handle 100 A per module. The optional IPM Sentry Shelf Managers come in dual redundant pluggable units, which are located below the bottom fan tray and are recessed.

The chassis features a special 7U AdvancedTCA backplane inside with a 14-slot dual star topology. It has headers below the card cage area for pluggable fan trays, shelf managers, power entry modules, and so on. Compliant to the PICMG 3.0 specifications, the 12U AdvancedTCA chassis also has rear I/O options.

**FEATURES:**

- 19" rack-mount, fully compliant to PICMG 3.0
- 12U (H) x 444 mm (W) x 385 mm (D)
- NEBS ready, STP-compliant construction
- 14-slot dual star backplane, 2HMB, 12 node slots
- Cooling front to rear
- 200 W per slot (30 W per slot, rear I/O)
- Three plug removable dual fan trays below cards
- Three plug removable dual fan trays above cards
- Dual 48 Vdc input PEMs (100 amps)
- Dual plug removable shelf managers
- 500 LFM per slot (40 CFM)
- 15 °C maximum temperature rise

Motorola

2900 S. Diablo Way • Tempe, AZ 85282

Tel: 800-759-1107 or 602-438-5720 • Fax: 602-438-3195

www.motorola.com/computing



MOTOROLA

Avantellis™ 3000

The Motorola Avantellis 3000 Communications Server series are AdvancedTCA based Open Application-Enabling Platforms. Open Application-Enabling Platforms are pre-integrated and verified communications servers architected to support a wide range of communications computing applications. Equipment manufacturers can focus on adding application-specific value, reducing the time, cost, and risk involved in deploying new revenue-generating applications. They also can improve operating deficiencies by consolidating more of their product portfolio onto a common platform based on open standards.

The Avantellis 3405 series of AdvancedTCA based communications servers represent the highest level of hardware and software integration/verification to date within Motorola's Open Application-Enabling Platforms family of products. It is built upon the Centellis 3405 hardware platform, fully integrated AdvancedTCA shelves, which include redundant shelf manager and alarm modules, redundant Power Entry Modules (PEMs), and an N+1 cooling architecture. A variety of blades are also integrated and verified for the Centellis 3405 platform.

The Avantellis 3405, R2 uses the proven Centellis platforms and integrates NetPlane® Core Services and Motorola's Service Availability Forum (SA Forum) compliant HA middleware, to create a complete service availability platform for customers to use as a basis for their value-added applications.

**FEATURES:**

- Pre-integrated and verified AdvancedTCA communications server
- Integrated SA Forum compliant HA middleware
- Architected to support a wide range of communications computing applications
- Reduced time, cost, and risk when deploying new applications
- Common platform improves operating efficiencies
- 14-slot, 19-inch, 12U AdvancedTCA shelf
- NetPlane Core Services software compliant to SA Forum HPI and AIS specifications
- OSDL 2.0 compliant Carrier Grade Linux (CGL) distribution included
- Variety of payload blades available
- Designed for NEBS/ETSI compliance

Motorola

2900 S. Diablo Way • Tempe, AZ 85282

Tel: 800-759-1107 or 602-438-5720 • Fax: 602-438-3195

www.motorola.com/computing**MOTOROLA****Centellis™ 3000**

The Motorola Centellis 3000 Communications Server series are AdvancedTCA based Open Application-Enabling Platforms. Open Application-Enabling Platforms represent a quantum leap forward in platform outsourcing by providing highly integrated and verified hardware and software components, reducing development costs, and accelerating time-to-market. This allows Telecommunications Equipment Manufacturers (TEMs) to focus their development efforts on critical, differentiating features that provide a competitive advantage.

All Centellis 3000 series AdvancedTCA platforms are specifically designed to address the unique carrier grade requirements of the telecommunications industry. Application examples include wireless infrastructure, packetized voice, wireline data, and cable network head-end equipment.

The heart of the Centellis 3405 platform is the AXP1405 shelf, which includes redundant shelf manager and alarm modules, redundant Power Entry Modules (PEMs), and an N+1 cooling architecture. Also included are redundant system controller and switching blades and Basic Blade Services (BBS) software to create an integrated and verified platform – ready for customer applications. A variety of AdvancedTCA payload blades are available for the Centellis 3000 series of AdvancedTCA based Communications Servers:

- ATCA-7221 processor blade with dual Intel Nacona processors
- ATCA-717 processor blade with Intel Pentium M processor and four PMC sites
- ATCA-S100 Fibre Channel based storage blade (9,300 GB)

**FEATURES:**

- Optimized for legacy applications that may be based on proprietary high availability software
- Telecom equipment manufacturers can deploy existing middleware and applications with confidence
- Fully integrated and verified AdvancedTCA platform
- Includes CGL, comprehensive centralized platform hardware management, HA fabric management, and HA link support
- Verified thermal, power and mechanical characteristics
- 14-slot, 19-inch, 12U AdvancedTCA shelf with redundant shelf management, fan trays, and Power Entry Modules
- Redundant PICMG 3.0 and 3.1 base/fabric switching blades
- Redundant processor complexes for HA middleware or user applications
- Variety of payload blades available
- Designed for NEBS/ETSI compliance

Performance Technologies

205 Indigo Creek Drive • Rochester, NY 14626
Tel: 585-256-0200 • Fax: 585-256-0791
www.pt.com



Advanced Managed Platforms™

The Advanced Managed Platform™ (AMP) offering, comprised of Performance Technologies' embedded packet products, offers the most complete set of high availability, system management, switching, power, cooling, software, and slot functionality available. This enhanced platform line gains its strength from a basis on AdvancedTCA, PICMG 2.16, and PICMG 2.9 standards. Its components are designed to work together and lower integration time. Equipment manufacturers can develop applications sooner and get to market before competitors.

The platform architecture, equipped with an Intelligent Platform Management Interface (IPMI)-compliant intelligent shelf manager, can manage all AMP chassis elements and third-party PICMG 2.16 or AdvancedTCA based components. The Advanced Managed Platform is bundled with the industry's broadest line of 10/100 Gigabit Ethernet switches and high-density power supplies, allowing equipment manufacturers and system integrators to go beyond 5-nines availability while handling the high-performance requirements of next-generation, packet-based systems.

This flexible, scalable offering supports a wide range of communications and embedded applications by delivering reliable, intelligent and comprehensive management throughout all active platform components. It is designed specifically for high availability solutions, including wireless applications (3G mobile switching center, GGSN), IP telephony (gateways, switches, server clusters), Wi-Fi gateway/switches, and various communications, defense and homeland security, and commercial applications.

Speeds Integration and Time-to-Market



FEATURES:

- Speeds integration and time-to-market
- Designed specifically for high availability solutions
- Based on the AdvancedTCA, PICMG 2.16, and PICMG 2.9 (IPMI) standards
- World-class switching (Layer 2/3, load sharing, secure)
- Intelligent and comprehensive shelf management throughout all active components in the platform
- Redundancy and fault tolerance built into active components and power architecture
- Power and cooling for next-generation high-performance computing

RadiSys

5445 N.E. Dawson Creek Drive • Hillsboro, OR 97124

Tel: 800-950-0044 • Fax: 503-615-1115

www.radisys.com

Promentum Family

The RadiSys Promentum™ Family is a portfolio of carrier grade platforms addressing data-, control-, and services-plane applications. RadiSys' system engineering and integration experience ensures customers a complete validated platform that can be confidently and quickly deployed in networking systems. These platforms, common for multiple applications, eliminate costly redesign issues and help TEMs reduce costs and development time, realizing economies of scale and flexibility while offering the highest link and compute densities and necessary modularity.

RadiSys Promentum SYS-6010: The SYS-6010 is highly configurable, application-ready platform for such next-generation applications as RNC/BSC, media gateways, and IMS.

Promentum ATCA-1000: Universal PMC Module, flexibility of PMCs in different configurations with multiple applications

Promentum ATCA-2100: Switch/control module, GbE and Fibre Channel switch fabric for control, services, and management applications

Promentum ATCA-2200: Switch and Control Module with 10 GbE fabric capability

Promentum ATCA-3000: Disk Storage Module, high performance Fibre Channel storage

Promentum ATCA-3100: Disk Storage Module

Promentum AMC-3202: SAS hard disk AdvancedMC

Promentum ATCA-4000: Compute Processing Module, high performance through dual Intel Xeon CPUs

Promentum ATCA-4300: Compute Processing Module with single or dual Intel Sossoman processors

Promentum ATCA-6000: 12 chassis, industry-leading density enabling three chassis in a standard 42U telco rack

Promentum ATCA-7010: 10 Gbps Packet Processing Module

Promentum ATCA-7400: STM-1/OC-3 line card consisting of an AdvancedMC carrier card and four port STM-1/OC-3 AdvancedMCs

Promentum ATCA-7800: Asymmetric multiprocessing line card consisting of an AdvancedMC carrier card with up to four dual-core PowerPC processor AdvancedMCs, including two 1 GbE interfaces per AdvancedMC

**FEATURES:**

- Fully integrated application-ready platform
- Validated configurations with a variety of building blocks for various applications
- 10 GbE Switch and Control Module enables highest bandwidth node connectivity.
- Platform incorporates dual-core processing for both IA and PPC to enable highest processing density per slot
- Platform includes NPU based line cards for highest link density for STM-1/OC-3 and 10 GbE
- Uses AdvancedMC to provide modular line interfaces and compute modules allowing for pay as you grow capability
- Data path software
- Robust architecture enables multitude of applications in wireless and wireline

F9 Systems, Inc.

P.O. Box 2902 • Acton, MA 01720

Tel: 781-248-9155 or 978-549-3868 • Fax: 781-837-9156

www.F9-Systems.com**F9 Systems, Inc.**

Standard Systems Testing Solutions

ThermalBlade

The F9 Systems, Inc. ThermalBlade offers the flexibility to verify the airflow, power load, and thermal characteristics of your AdvancedTCA chassis, logic cards, and backplane designs. It emulates typical application component heights and features to enable airflow and thermal analysis. A variety of independently controlled power conditions are provided for in-depth power management analysis.

The ThermalBlade helps avoid expensive AdvancedTCA chassis and logic card redesigns.

**FEATURES:**

- Test airflow, power load, and thermal performance of your chassis, logic cards, and backplane
- Provides a thermal load of up to 200 W per slot from a redundant AdvancedTCA -48 Vdc backplane
- User switchable variable thermal load choices of zero, 1/3, 2/3, and full load are provided
- Provision for up to 50 W connection to the RTM ThermalBlade (available separately)
- Nine on-card thermal measurement points with nine thermocouple (J type) output points
- All UL and IEC safety design features are incorporated

For more information, contact: info@f9-systems.com.RSC #9001 @ www.compactpci-systems.com/catalogrsc**F9 Systems, Inc.**

P.O. Box 2902 • Acton, MA 01720

Tel: 781-248-9155 or 978-549-3868 • Fax: 781-837-9156

www.F9-Systems.com**F9 Systems, Inc.**

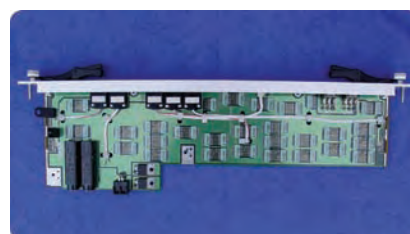
Standard Systems Testing Solutions

RTM ThermalBlade

The F9 Systems, Inc. RTM ThermalBlade offers the flexibility to verify the airflow, power load, and thermal characteristics of your AdvancedTCA chassis, logic cards, and backplane designs. Used in conjunction with the ThermalBlade the RTM emulates a typical rear mounted logic card.

The RTM ThermalBlade helps avoid expensive AdvancedTCA chassis and logic card redesigns.

- Verify that your vendor's AdvancedTCA devices meet advertised specifications by checking the thermal and power dissipation of your AdvancedTCA chassis, logic cards, and backplane.
- Use in the lab to validate design ideas, troubleshoot, and perform "what-if" design experiments.

**FEATURES:**

- Test airflow, power load, and thermal performance of your chassis, logic cards, and backplane
- Powered from the companion ThermalBlade, providing thermal load of up to 50 W per slot
- Operates over the entire -36 to -72 Vdc voltage range without damage to the RTM ThermalBlade
- User switchable variable thermal load choices of no load, 1/2, and full load are provided
- On-card thermal measurement in five areas with five Thermocouple (type J) output measurement points
- All UL and IEC safety design features are incorporated

For more information, contact: info@f9-systems.com.RSC #9002 @ www.compactpci-systems.com/catalogrsc

Interactive Circuits and Systems Ltd.**(A member of Radstone Embedded Computing)**

296-300 Concord Road, Corporate Center, Suite 120 • Billerica, MA 01821

Tel: 613-749-9241 • Fax: 613-749-9461

www.ics-ltd.com**ICS-710**

The ICS-710 provides a complete data acquisition solution. It offers 32 differential input channels, on-board programmable anti-aliasing filter and gain, 24-bit sigma-delta ADCs, simultaneous sampling at rates of up to 216 kHz/ch., and a signal-to-noise ratio close to 90 dB. The product features an FPDP II 400 MBps front panel interface in addition to a 64-bit/66 MHz CompactPCI PICMG 2.0 R3.0 hot swap interface.

The ICS-710 is an ideal choice for complex data acquisition applications such as sonar, vibration analysis, digital audio, and precision test and measurement. As many as 32 ICS-710 boards can be operated synchronously to ensure simultaneous sampling of up to 1,024 channels.

For more information, download Tech Note #49 from www.ics-ltd.com.

**FEATURES:**

- 66 MHz, 64-bit hot swap master/slave 6U CompactPCI board
- Up to 32 differential input channels with a FPDP II 400 MBps interface
- A programmable frequency anti-aliasing filter
- Programmable input level from 0.6-10 Vpp
- Built-in overvoltage protection
- 24-bit sigma-delta A/D converters and simultaneous sampling at rates up to 216 kHz/ch.

For more information, contact: sales@ics-ltd.com.RSC #9101 @ www.compactpci-systems.com/catalogrsc**Interactive Circuits and Systems Ltd.****(A member of Radstone Embedded Computing)**

296-300 Concord Road, Corporate Center, Suite 120 • Billerica, MA 01821

Tel: 613-749-9241 • Fax: 613-749-9461

www.ics-ltd.com**ICS-725**

The ICS-725 is a 32-channel, 24-bit, 288 kHz/ch. DAC board. It uses one of a new generation of multibit delta-sigma DAC chips (Analog Devices AD1852) that offers very high precision sampling over a wide bandwidth.

The product features an FPDP II 400 MBps front panel interface in addition to a 64-bit/66 MHz CompactPCI PICMG 2.0 R3.0 hot swap interface.

The ICS-725 provides differential outputs with high current drivers, allowing the board to directly drive large capacitive output loads (which can optionally be configured as single-ended signals). Eight-pole programmable reconstruction filters are provided at the outputs so that no external filtering is required.

For more information, download Tech Note #50 from www.ics-ltd.com.

**FEATURES:**

- Up to 32 separate 24-bit DACs with 64-bit, 66 MHz CompactPCI PICMG 2.0, Rev.3.0 hot swappable
- Programmable reconstruction filter included
- Simultaneous sampling across all channels on single or multiple boards
- Up to 140 kHz signal bandwidth (up to 288 kHz update rate)
- External or programmable internal clock and trigger
- 4 MB on-board buffer and 16 MB option available

For more information, contact: sales@ics-ltd.com.RSC #9102 @ www.compactpci-systems.com/catalogrsc

KineticSystems Company, LLC

900 North State Street • Lockport, IL 60441
 Tel: 815-838-0005 • Fax: 815-838-4424
www.kscorp.com

**128-Ch, 16-bit ADC**

The CP213 is a single-width, 6U, CompactPCI/PXI module with 32 or 64 differential analog input channels that can be configured as 64 or 128 single-ended analog input channels. A 16-bit ADC scans each channel at a user-selected scan rate. Scans may be triggered from the internal clock, 1 of 8 PXI backplane triggers, the PXI star trigger bus, or an external SMB connector.

The CP213 also has programmable gain, and channels 1 and 33 may be configured as isothermal reference channels for temperature measurement applications.

The CP213 also includes 16 digital I/O channels that may be configured as digital I/O or attached to a frequency in, counter in, or timer out channel. KineticSystems also offers other CompactPCI/PXI cards such as digital I/O, analog output, and high speed digitizers.

**FEATURES:**

- CP213: 6U, 32, 64, or 128 channels of analog input with 16-bit resolution and programmable gain per channel
- CP213: 16 channels of multifunction digital I/O (TTL); two 32-bit counter/timer or frequency
- C387: 6U, 256-ch digital I/O supports TTL, isolated I/O, relay output, AC switch output, differential I/O
- C266: 6U, 32- or 64-channel, 16-bit D/A Converter ideal for automotive test cells, industrial control, and ATE
- 6U, high-speed digitizers with up to 2 GSps sampling, up to 16-bit resolution, and up to 2 GB on-board memory
- CP199: Rugged 14-slot, 3U/6U dual stack 800 W PXI system with high pressure 220 CFM cooling

For more information, contact: mkt-info@kscorp.com.

RSC #9201 @ www.compactpci-systems.com/catalogrsc

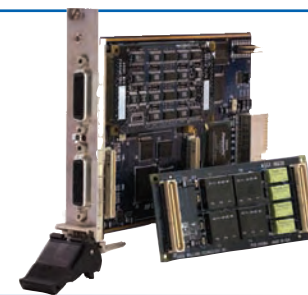
Ballard Technology

3229A Pine Street • Everett, WA 98201
 Tel: 425-339-0281 • Fax: 425-339-0915
www.ballardtech.com

**OmniBus cPCI**

Ballard's OmniBus cPCI avionics databus interface sets a new standard for flexibility and power. It is available with up to 32 ARINC 429 channels or with a mix of protocols (such as MIL-STD-1553, AFDX, ARINC 429/708/717, and serial RS-422) and is suitable for a broad range of applications, from simple to the most complex. Extensive simulation, monitoring, and testing capability are provided through our powerful CoPilot GUI software and easy-to-use APIs.

An onboard PowerPC processor can be programmed by the user to off-load or run independently of the host system processor. The OmniBus cPCI may be run locally through the backplane, or as a standalone device from user code embedded on the PowerPC.

**FEATURES:**

- Up to 32 ARINC 429 channels
- Parametric versions available
- IRIG time-tags and synchronization
- PowerPC user processor
- Also available in PCI, VME, or as an Ethernet/USB server

For more information, contact: sales@ballardtech.com.

RSC #9202 @ www.compactpci-systems.com/catalogrsc

Elma Electronic Inc.

44350 Grimmer Blvd. • Fremont, CA 94538

Tel: 510-656-3400 • Fax: 510-656-3783

www.elma.com**cPCI: PICMG 2.16 Backplane**

Elma Bustronic introduced one of the first cPSB backplanes in the market and hasn't slowed down since. With Elma Bustronic, you get extensive experience in PICMG 2.16 design. The company offers a wide range of standard configurations, including various slot sizes and Single Star and Dual Star topologies. Elma Bustronic's custom design services ensure that you get the highest performance cPSB backplane with creative design solutions.

Elma Bustronic's Signal Integrity Lab continues its simulation/characterization efforts for PICMG 2.16 and other high speed technologies.

For an optimized solution for PICMG 2.16, contact Elma Bustronic at www.elmabustronic.com or call 510-490-7388.

**FEATURES:**

- Conforms to PICMG 2.16 specification
- Conforms to PICMG basic specification 2.0 R3.0
- 6U height
- Power configurations optional
- Space saving low profile design
- Various slot sizes and configurations
- Simulation/characterization for optimal performance

Hartmann Elektronik GmbH

Motorstra. 43 • Stuttgart, D-70499 Germany
 Tel: 49-711-13989-0 • Fax: 49-711-866-1191
www.hartmann-elektronik.com

**CPCI to PCI Expansion**

The CPCI to PCI Expansion Unit enables you to run four PCI boards in a CompactPCI system. Now you can use up to four PCI cards in a modern and highly available CompactPCI System.

The expansion unit is inserted in a free device slot of a CompactPCI backplane. It is best used with a backplane that has the host on the right side. The unit is then inserted in the first slot on the left. No slots are lost in this manner, and even long PCI cards can be inserted. The BIOS used must be compatible with PCI Specification 2.1. The bridge will be recognized automatically by the plug-and-play BIOS.

Hartmann is a backplane manufacturer with a very big range of standard backplanes, as well as customized backplanes and accessories.

**FEATURES:**

- The expansion unit has an automatic signal voltage V (I/O) level adaptation feature for 5 V and 3.3 V
- Five LED displays indicate the present voltages: 3.3 V/5 V/V (I/O)/+12 V/-12 V
- Additional current injection by Fastons or rear I/O modules: +5 V-8 A, +3.3 V-10 A, +12 V-1 A, and -12 V-1 A
- JTAG connector can be activated by jumper, then the JTAG from the CompactPCI bus is connected to the PCI bus
- A polyswitch fuse (1.25 A) is integrated on the assembly between the primary (CompactPCI bus) and secondary (PCI bus)
- Also available: CompactPCI fabric board, PCI fabric board, PCI expansion unit, CompactPCI RapidIO fabric board, and fabric switch

For more information, contact: info@hartmann-elektronik.de.

RSC #9401 @ www.compactpci-systems.com/catalogrsc

Continuous Computing

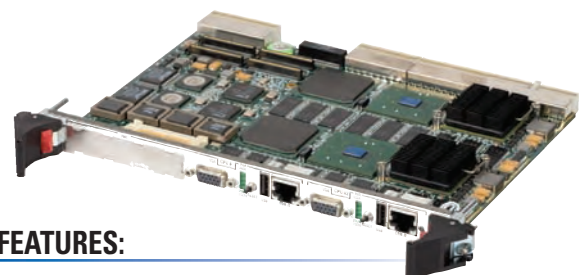
9380 Carroll Park Drive • San Diego, CA 92121
 Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com

**FlexCompute™ cPCI-PM2118**

Carrier class and PICMG 2.16 compliant PM2118 provides the ideal solution for TEMs seeking to maximize CompactPCI processing capabilities.

PM2118 offers two 1.8 GHz Intel Pentium M 745 processors with 2 MB of L2 cache each. These loosely coupled CPUs are connected via on-board Ethernet with separate controllers and memory. This architecture allows each CPU to appear as a logically separate single board computer, which essentially doubles the processing power of CompactPCI distributed applications.

PM2118 combines the performance of the Intel 855GME memory controller with a 400 MHz processor bus and the I/O capabilities of the Intel 6300ESB controller. PM2118 also includes a 32/64-bit 33/66 MHz PMC site for I/O expansion.

**FEATURES:**

- Two loosely coupled 1.8 GHz Intel Pentium M processors in a single slot
- Memory controller, I/O controller, firmware hubs, and 1 GB of DDR333 SDRAM with ECC for each processor
- On-board Gigabit Ethernet switch provides connectivity between processors and the PICMG 2.16 midplane
- 32/64-bit PMC site with rear I/O support; three front panel user LEDs for each processor
- Uses same rear transition module as FlexCompute cPCI-PM1116; support for Linux, Solaris x86, and VxWorks
- Optional front panel accessible CompactFlash; optional rear panel accessible Ultra160 SCSI

For more information, contact: info@ccpu.com.

RSC #9402 @ www.compactpci-systems.com/catalogrsc

Continuous Computing

9380 Carroll Park Drive • San Diego, CA 92121
 Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com

**FlexCompute™ cPCI-PM1116**

Carrier class and PICMG 2.16 compliant PM1116 offers a 1.6 GHz Intel Pentium M processor and a single PMC site in a single slot. The blade incorporates the Intel 855GME memory controller with a 400 MHz processor bus while an Intel 6300ESB I/O controller hub handles the extensive I/O capability.

PM1116 provides a wide range of I/O and storage interfaces through the front panel as well as the backplane via the RTM. A 64-bit 33/66 MHz PMC site is included for on-board I/O expansion. A 32-bit 33 MHz PCI interface is also included for rear I/O expansion via the RTM. An IDE header supports on-board 2.5" IDE disk storage while a Type I/II CompactFlash socket on the front panel provides removable, solid-state storage.

**FEATURES:**

- High performance 1.6 GHz Pentium M processor with 400 MHz system bus
- Up to 1 GB of memory with 2.667 Gbps peak bandwidth for memory-intensive applications
- Storage options for on-board IDE disk and removable CompactFlash; PMC site for easy I/O expansion
- Packet Switched Backplane support at gigabit speeds; supports standards-based IPMI management
- Support for Red Hat Advanced Server, MontaVista Carrier Grade Edition, and Solaris x86 version 8 and later
- Helps provide the fastest path from application development to deployment revenue

For more information, contact: info@ccpu.com.

RSC #9501 @ www.compactpci-systems.com/catalogrsc

GE Fanuc Embedded Systems

12090 South Memorial Parkway • Huntsville, AL 35803
 Tel: 1-800-GE Fanuc • Fax: 256-882-0859
www.gefanuc.com/embedded



Embedded Systems

CPCI-7055

The CPCI-7055 is a single-slot CompactPCI Single Board Computer (SBC) offering exceptional processing performance via the IBM 750FX or 750GX PowerPC processor. The CPCI-7055 delivers the robustness, reliability, flexibility, and system features required for your most demanding embedded computing applications. The CPCI-7055 features the next generation Marvell® Discovery™ III MV64460 chipset and offers up to 2 GB Double Data Rate (DDR) 400 SDRAM with ECC.

In addition, the CPCI-7055 also features dual PMC sites (64-bit/100 MHz PCI-X, backward compatible to 5 V, 33 MHz PCI), up to 2 GB CompactFlash option, two high performance serial ports, and three 10/100/1000 Ethernet ports.

**FEATURES:**

- High performance IBM 750FX or 750GX PowerPC up to 1.0 GHz
- 6U single-slot SBC with up to 2 GB of DDR 400 SDRAM with ECC
- Dual PCI-X (64-bit/100 MHz) PMC expansion sites
- Three Gigabit Ethernet connections, two serial ports, and up to 2 GB of optional CompactFlash
- PICMG 2.16 (CompactPCI Packet Switching Backplane) and PICMG 2.9 (IPMI) compliant
- VxWorks and Linux operating system support

For more information, contact: sales.embeddedsystems@gefanuc.com.

RSC #9502 @ www.compactpci-systems.com/catalogrsc

GE Fanuc Embedded Systems

12090 South Memorial Parkway • Huntsville, AL 35803
 Tel: 1-800-GE Fanuc • Fax: 256-882-0859
www.gefanuc.com/embedded



Embedded Systems

CPCI-7808

GE Fanuc Embedded Systems' CPCI-7808 is a single-slot CompactPCI Single Board Computer (SBC) that offers low power consumption via Intel Pentium M and Celeron M processors, but still delivers a solution with the robustness, reliability, and high performance required for the most demanding embedded computing applications. The CPCI-7808 features a 400 MHz system bus and incorporates Intel's 855GME graphics memory controller with up to 2 GB Dual Data Rate (DDR) SDRAM. The CPCI-7808 is ideal for I/O intensive applications, offering dual PMC sites, (64-bit/66 MHz PCI and 32-bit/33 MHz PCI), parallel and serial ATA, CompactFlash option (available on rear transition utility board), dual integrated serial ports, and three USB ports.

**FEATURES:**

- Intel Pentium M processor up to 1.8 GHz or Intel Celeron M processor at 1.3 GHz
- 6U single-slot universal controller with up to 2 GB of DDR SDRAM
- Dual PMC sites (one 3.3 V for 64-bit/66 MHz PCI, and one 5.0 V for 32-bit/33 MHz PCI)
- Dual Gigabit Ethernet, two serial ports, three USB 2.0 ports, and two serial ATA
- PICMG 2.16 (CompactPCI Packet Switching Backplane) and PICMG 2.9 (IPMI) compliant
- Windows 2000, Windows XP, QNX, Linux, and VxWorks operating system support

For more information, contact: sales.embeddedsystems@gefanuc.com.

RSC #9601 @ www.compactpci-systems.com/catalogrsc

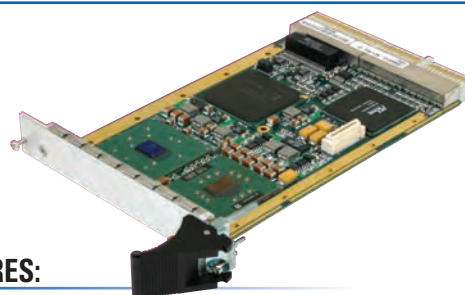
SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**CR4 Pentium M SBC**

The rugged 3U CompactPCI Single Board Computer (SBC) with an Intel Pentium M LV 738, 512 MB DDR SDRAM, 512 kB firmware HUB, and two Gigabit Ethernet, is available in convection- or conduction-cooled configurations and can operate as system controller or peripheral card. The CR4 features:

- Intel Pentium M LV738 processor 1.4 GHz
- 512 MB DDR SDRAM
- Type I CompactFlash on daughter card
- Two Gigabit Ethernet ports
- Two USB 2.0 ports
- Two serial I/O (RS-232, RS-422) ports
- Serial ATA port
- Eight GPIO ports
- Convection- or conduction-cooled
- System controller or peripheral card

**FEATURES:**

- Rugged 3U CompactPCI SBC with an Intel Pentium M processor
- 512 MB DDR SDRAM
- Two Gigabit Ethernet ports, two USB 2.0 ports, two serial I/O (RS-232, RS-422) ports, and Serial ATA port
- Type I CompactFlash on daughter card
- Convection- or conduction-cooled
- System controller or peripheral card

For more information, contact: info@sbs.com.

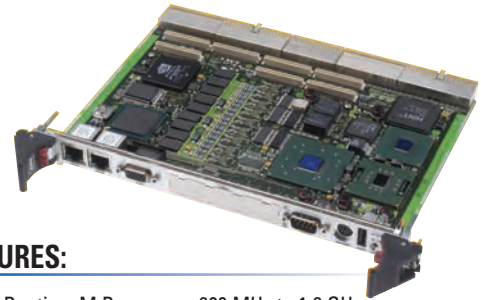
RSC #9602 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**CT9 - Server Blade**

The SBS CT9 single board computer is a 6U CompactPCI all-in-one CPU board with integrated low power Intel Pentium M processor and dual Gigabit Ethernet channels. The CT9 supports full hot swap and is capable of being used in a system or nonsystem (peripheral) slot. Adhering to the PICMG 2.16 dual Ethernet specification, the CT9 supports the 64-bit/66 MHz CompactPCI bus. It is ideal as a PICMG 2.16 compliant server blade and is optimized for telecommunications applications.

**FEATURES:**

- Intel Pentium M Processor, 600 MHz to 1.8 GHz
- Optimized for telecom applications
- Ultra Compact, one slot
- Hot swap (full) PICMG 2.1 compliant

For more information, contact: info@sbs.com.

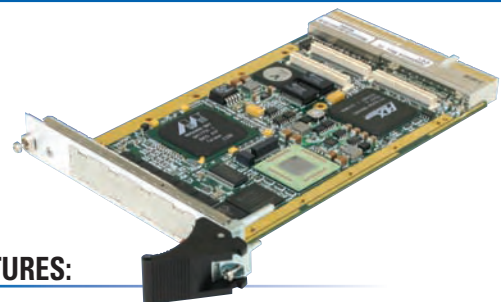
RSC #9701 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**CV1 - 3U PPC SBC**

The CV1 is a rugged 3U CompactPCI PowerPC single board computer with 1 GHz MPC7447A G4 processor. The CV1 features 256 MB DDR SDRAM, 128 MB flash, and two Gigabit Ethernet ports. It can be used as a system controller or peripheral card. The CV1 also features a 32-bit PMC site with I/O lines to the backplane. Additional I/O include RS-232 and RS-422/485 serial ports and 10 general purpose I/O ports to the backplane. The CV1 is ideal for environments that require the power of a G4 processor in a compact, 3U form factor. Its integrated PMC site provides maximum flexibility and conserves system slots.

**FEATURES:**

- MPC7447A/7448 G4 PowerPC processor
- 256 MB DDR SDRAM and 128 MB flash memory
- System or peripheral slot operation
- Convection- or conduction-cooled configurations
- On-board PMC site for additional I/O
- Two Gigabit Ethernet ports, plus RS-232 and RS-422/485 serial ports

For more information, contact: info@sbs.com.

RSC #9702 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**VXS1**

The VXS1 Rugged 6U VME PowerPC Single Board Computer works with other SBS products to bring 10 GBps InfiniBand switched fabric technology to VME systems. The VXS1 hosts the G4 PowerPC processor with core processor speeds from 500 MHz to 1 GHz and a 167 MHz system bus. It includes two independent InfiniBand 4x links through VME_P0 and provides InfiniBand and system control traffic termination. The VXS1 also provides two Gigabit Ethernet ports to the backplane, one 64-bit 66 MHz PCI bus interface, and one 64-bit 66/133 MHz PCI-X interface, as well as two MPSC ports that provide RS-232 (COM1) and RS-422 (COM2) rear I/O ports.

**FEATURES:**

- MPC7447A G4 host PowerPC 1 GHz processor with 512 kB on-chip L2 cache
- MV64460 PowerPC System controller (Discovery III) bridge chip
- MT23108 InfiniBand Host Channel Adapter with 128 MB of control memory
- 2eSST VMEbus: Tsi148 VME Bus bridge
- Two Ethernet 10/100/1000BASE-TX ports at rear I/O (third port to front panel RJ-45 connector on convection-cooled version)
- Conduction- or convection-cooled with extended temperature range (-40 °C to +85 °C)

For more information, contact: info@sbs.com.

RSC #9801 @ www.compactpci-systems.com/catalogrsc

Quality Extenders since 1990

Visit www.az-com.com for a full line of

Extenders
 Prototyping boards
 Adapters

AZ-COM Inc
sales@az-com.com www.az-com.com
 Ph. 925-947-1000 Fax 925-947-1900

AdvancedTCA
AdvancedTCA300
CompactPCI
CompactPCI Express
Serial Mesh
COM Express
SHB Express
Advanced Mezzanine Card
PMC
PCI Express
PCI
Custom

Advantech Corporation Network Computing

2717 Loker Avenue West, Suite A • Carlsbad, CA 92010-6601
 Tel: 800-557-6813 • Fax: 760-929-9221
www.advantech.com/network

*Trusted ePlatform Services***ADVANTECH****MIC-3390**

MIC-3390 is the newest CompactPCI-based high-performance Intel Pentium M single board computer with PCI Express (PCIe) and IPMI 2.0-compliant interface. It is perfectly matched for mission critical telecom and data communication applications where high availability is essential. Moreover, the MIC-3390 CompactPCI 6U CPU board provides Telecom Equipment Manufacturers (TEMs) with increased throughput and improved call-handling capabilities for applications at the edge of the network such as application servers, media gateway controllers, and home location registers.

High speed, low power computing

The MIC-3390 offers high speed, low power computing with support for the latest Intel Pentium M processors. Combined with the Intel I/O Controller Hub ICH6-M, this SBC supplies unprecedented performance, connectivity, and throughput without compromising system thermal design. The MIC-3390 also supports up to 2 GB of DDR2 system memory on dual-channel SODIMMs. High speed data transfer across the 400/533 MHz system bus provides 3.2 GBps peak memory bandwidth. The first SBC from Advantech to use the Mobile Intel 915GM Express chipset, the MIC-3390 offers an integrated memory, graphics, and I/O solution.

IPMI 2.0 enhances multivendor system management

With an optional mezzanine card, the MIC-3390 provides an Intelligent Platform Management Interface (IPMI) fully compliant with the IPMI 2.0 specification. The data is sent to the management interface via LAN or local console. The management system uses side-band and out-of-band communications to check the operational status of the SBC. In addition, PCI Express provides better data throughput and higher scalability for Gigabit LAN.

The MIC-3390 maximizes I/O throughput by taking full advantage of the ICH6-M's PCIe root ports. Adding to this array of I/O features, the Serial ATA Controller in the ICH6-M has two ports for high speed data transfers up to 150 MBps for a greater choice of connectivity. Dual Gigabit Ethernet interface to the PICMG 2.16 Packet Switched Backplane provides reliable Gigabit speed switched-fabric interconnection between blades.

**FEATURES:**

- Supports Intel Pentium M (Dothan & LV Dothan)
- PCI Express Dual Gigabit Ethernet on board
- Dual channel DDR2 400/533 MHz SDRAM up to 2 GB
- Intel 915GM chipset supports 400/533 MHz FSB
- PICMG 2.16 (Packet Switched Backplane) compliance
- PICMG 2.9 (Secondary System Management) (IPMI 2.0) compliance
- PICMG 2.1 Specification (Hot Swap) compliance
- On-board SATA 2.5" HDD and CompactFlash
- Selectable Master/Drone mode

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
 Tel: 608-831-5500 • Fax: 608-831-4249
www.artesyncp.com

**Katana3752**

Artesyn's Katana3752 is a real-time processing blade in a standard single-slot CompactPCI Packet Switched Backplane (cPSB) form factor. It's powered by three IBM 750GX processor complexes, which deliver exceptional performance for complex real-time tasks. To optimize overall performance, the board uses Ethernet for the data plane and PCI as a control plane.

Communications applications are rapidly converging on packet-based architectures. The Katana3752's design is ideally suited to this paradigm. Its data plane features packet-based communication both on-card between the processors and off-card to other blades. It is fully compliant with the PICMG 2.16 cPSB specification.

To facilitate efficient management of the packet interfaces, it features an advanced managed Gigabit Ethernet (GbE) switch. This offloads packet processing from other subsystem elements, greatly increasing the throughput of the entire system. Using the on-card GbE switch completely eliminates the packet routing processor overhead of traditional architectures.

Using an off-the-shelf processor blade saves you time-to-market by allowing you to focus your engineering efforts on the key value-added portions of the system without spending time and effort on the processor design and testing. A processor subsystem blade also lowers your lifetime cost of ownership by providing an easy upgrade path, and protecting you from obsolescence issues.

For quality in real time, choose the performance, reliability and responsiveness of Artesyn Communication Products. Our customer support group is available to answer your questions. Please call 1-800-356-9602 or submit a product information request for more details.

**FEATURES:**

- Three independent IBM 750GX processor complexes running up to 1 GHz
- cPSB Node (PICMG 2.16, Dual 1000BASE-T)
- Managed Gigabit Ethernet switch
- System Management Bus (PICMG 2.9) with IPMI controller
- Up to 1 GB DDR ECC SDRAM in SODIMM package per processor
- Up to 64 MB linear flash per processor
- 10/100/1000BASE-T Ethernet with front access
- Console SIO, E2PROM, and RTC per processor
- VxWorks and Linux support

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
 Tel: 608-831-5500 • Fax: 608-831-4249
www.artesynpc.com

**Katana752i**

Artesyn's Katana752i is a real-time processing blade in a standard single-slot CompactPCI Packet Switching Backplane (cPSB) form factor. It is powered by a PowerPC 750GX processor and a full complement of I/O for communications applications. The combination of this powerful on-card functionality with the flexibility of dual PMC/PTMC sites makes the board ideal for a variety of functions including signaling blade, media gateway blade, real-time control blade, traffic processor, or line-card.

Communications applications are rapidly converging on packet-based switch fabric system architectures. Katana752i's design is ideally suited to the packet paradigm. To support this paradigm, the blade is fully compliant with the PICMG 2.16 cPSB specification. While technology is rapidly converging on packet networks for the majority of data transport, many applications require systems to link more traditional TDM-based networks to the packet networks. To help facilitate this, the Katana752i supports an optional timeslot interchanger to interconnect the PTMC expansion sites with a local CTbus as well as provide an interface to the H.110 system backplane CTbus.

As systems designs become more complex, system management becomes more important. Katana752i implements a System Management Bus (SMB). It also fully supports the Intelligent Platform Management Interface (IPMI or PICMG 2.9) for standards-based system management.

Using an off-the-shelf processor blade saves you time-to-market by allowing you to focus your engineering efforts on the key value-add portions of the system without spending time and effort on the processor design and testing. A processor subsystem blade also lowers your lifetime cost of ownership by providing an easy upgrade path and protecting you from obsolescence issues. Katana is a Japanese word for sword. Artesyn's Katana family of processor blades embodies the power and swiftness of this sword.

For quality in real time, choose the performance, reliability, and responsiveness of Artesyn Communication Products.

**FEATURES:**

- PowerPC 750GX processor running at up to 1 GHz
- cPSB Node (PICMG 2.16, dual 1000BASE-T)
- CompactPCI peripheral functionality
- Dual PMC/PTMC expansion sites
- System Management Bus (PICMG 2.9) with IPMI peripheral controller
- Up to 2 GB DDR ECC SDRAM in SODIMM package
- Up to 128 MB Linear flash
- Real-time clock with supercap backup
- Dual 10/100/1000BASE-T Ethernet with front bezel access
- VxWorks and CG Linux support
- Quality assured by over 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Dynatem, Inc.

23263 Madero, Suite C • Mission Viejo, CA 92691

Tel: 800-543-3830 • Fax: 949-770-3481

www.dynatem.com**CPM1**

The CPM1 is a 6U single-slot CompactPCI (PICMG 2.16 compatible) platform based on the Intel low-power Pentium M (Dothan) processor. The DPM takes advantage of the Pentium M's low-power consumption as a rugged Single Board Computer (SBC) and it is optionally available as a conduction-cooled CompactPCI module with wedge locks and a full-board heat sink for high shock/vibration environments and temperature extremes.

The 855GME Graphics Memory Controller Hub (GMCH) and 6300ESB I/O Controller Hub (ICH) chipset supports PCI-X expansion and integrated VGA/DVO interface. COM1/2, mouse/keyboard, and one 10/100/1000BASE-TX port are all accessible from the front panel. I/O interfaces available from rear I/O board include IDE, COM3/4, floppy, dual SATA, four USB 2.0 ports, and DVI-I integrated digital/analog graphics. On-board CompactFlash permits single-slot booting. Two on-board PMC sites allow additional I/O capabilities in a single 6U slot.

**FEATURES:**

- CompactPCI and PICMG 2.16 compatible
- Available with the Ultra Low Voltage 1.0 GHz @ 5.5 W , the Low Voltage at 1.4 GHz @ 10 W or 1.8 GHz @ 21 W
- Two PMC sites in a single slot
- 1 GB DDR-267
- Bootable CompactFlash
- Also available in rugged, conduction-cooled versions

Motorola

2900 S. Diablo Way • Tempe, AZ 85282
 Tel: 800-759-1107 or 602-438-5720 • Fax: 602-438-3195
www.motorola.com/computing

**MOTOROLA****CompactPCI Blades**

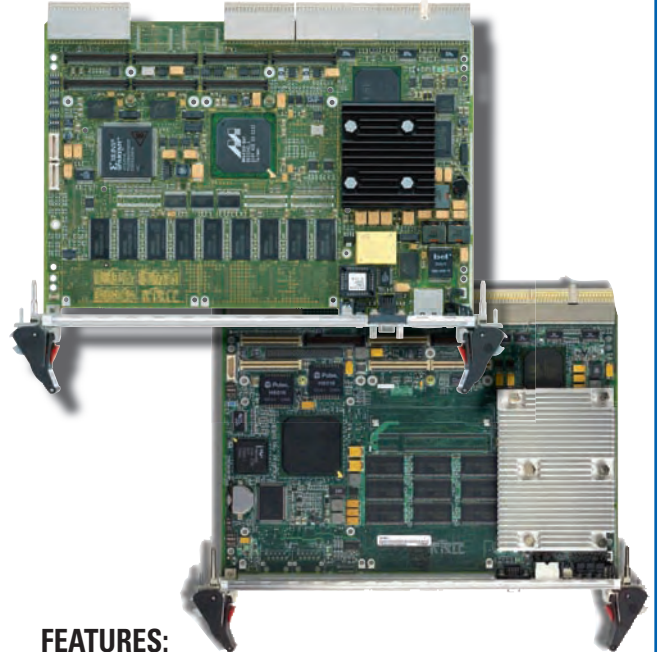
Motorola offers an array of open standards-based, state-of-the-art CompactPCI blades featuring Intel and PowerPC processors. Designed for telecommunications, data communications, real-time imaging, industrial control, and other OEM applications, all Motorola single board computers are designed for maximum reliability, scalability, and serviceability. Motorola provides support for Linux, VxWorks, and other real-time operating systems to maximize productivity and reduce time to market for system architects and developers.

Intel architecture processor blades

The Motorola CPCI-74x family of single board computers provides a range of performance and features for demanding control plane and packet switching applications. Breakthrough performance is delivered using the latest Intel Pentium M processors matched with significant memory and I/O capabilities. Standard board features include dual Gigabit Ethernet interfaces, 64-bit universal system- or peripheral-slot functionality, and a variety of rear transition modules for platforms based on CompactPCI and CompactPCI Packet Switching Backplane specifications.

PowerPC processor blades

The Motorola PowerCore CPCI-69x family of high performance PowerPC processor blades are designed for applications that require high bandwidth, fast memory access, and excellent networking capabilities. Board features include three Gigabit Ethernet (or Fast Ethernet) interfaces, dual high performance 64-bit PMC slots, watchdog timers and universal system- or peripheral-slot functionality.

**FEATURES:**

- Intel architecture and PowerPC processor blades optimized for performance, power, and features
- Universal mode system- or peripheral-slot functionality
- IPMI system management support (PICMG 2.9)
- CompactPCI Packet Switching Backplane compliant (PICMG 2.16)
- Application flexibility with Linux, VxWorks, and other real-time operating systems
- Control plane and data plane solutions for next generation platforms and network devices

Kaparel

97 Randall Drive, Unit B • Waterloo, ON N2V 1C5 Canada
 Tel: 519-725-0101 ext 208 • Fax: 519-725-0414
www.kaparel.com

**AdvancedTCA Enclosure Family****Rittal Electronic Systems – the complete know-how.**

What really counts is reliability. Rittal Shelf Management Concepts incorporates innovative components to produce reliably systems available up to Level 5 for AdvancedTCA and MicroTCA. Everything is fully assembled, ready to run, and individually configured. The same naturally applies equally for CompactPCI, VME, and VME64x. One supplier, one manufacturer, one quality standard. As the leading system supplier, Rittal is your one-stop partner for electronic know-how and a reliable promise of all-inclusive competence – worldwide.

Case solutions in 5U, 12U, 13U, or cube design. Climate control concepts up to 200 W/board and more. High speed backplanes up to 10 Gbps.

**FEATURES:**

- Rittal Electronic Systems – the complete know-how. What really counts is reliability.
- Case solutions in 5U, 12U, 13U, or cube design; climate control concepts up to 200 W/board and more
- High speed backplanes up to 10 Gbps – Variable Shelf Management Concepts – Rittal incorporates innovative components to produce reliably systems available up to Level 5 for AdvancedTCA and MicroTCA
- Fully assembled, ready to run, and individually configured for CompactPCI, VME, and VME64x
- One supplier, one manufacturer, one quality standard: Rittal, your one-stop partner for electronic know-how

For more information, contact: pkuepfer@kaparel.com.

RSC #10401 @ www.compactpci-systems.com/catalogrsc

Think COTS even for the most demanding applications

- PowerPC-based SBCs
MPC74xx/PowerQUICC I, II, III
DSP-PowerPC Gateway...



- GIGA and FAST Embedded Ethernet Switches
Layer2-3, PICMG2.16, VITA31.1,
Managed/lightly managed



- Communication Boards
Single or Multiprocessor
(PowerQUICC), fast and giga ethernet
channels, serial channels...

Standard, extended and conduction-cooled

ADVANCED ELECTRONIC SOLUTIONS

www.interfaceconcept.com

Tel : +33 (0)2 98 57 30 30

CompactPCI
and **AdvancedTCA** Systems

NOW AVAILABLE!

Digital Download

Now you can print and read *CompactPCI Systems* anytime, anywhere in the world.



www.compactpci-systems.com/digital/

Performance Technologies

205 Indigo Creek Drive • Rochester, NY 14626

Tel: 585-256-0200 • Fax: 585-256-0791

www.pt.com



**PERFORMANCE
TECHNOLOGIES**

Advanced Managed Platforms™

The Advanced Managed Platform™ (AMP) offering, comprised of Performance Technologies' embedded packet products, offers the most complete set of high availability, system management, switching, power, cooling, software, and slot functionality available. This enhanced platform line gains its strength from a basis on AdvancedTCA, PICMG 2.16, and PICMG 2.9 standards. Its components are designed to work together and lower integration time. Equipment manufacturers can develop applications sooner and get to market before competitors.

The platform architecture, equipped with an Intelligent Platform Management Interface (IPMI)-compliant intelligent shelf manager, can manage all AMP chassis elements and third-party PICMG 2.16 or AdvancedTCA based components. The Advanced Managed Platform is bundled with the industry's broadest line of 10/100 Gigabit Ethernet switches and high-density power supplies, allowing equipment manufacturers and system integrators to go beyond 5-nines availability while handling the high-performance requirements of next-generation, packet-based systems.

This flexible, scalable offering supports a wide range of communications and embedded applications by delivering reliable, intelligent and comprehensive management throughout all active platform components. It is designed specifically for high availability solutions, including wireless applications (3G mobile switching center, GGSN), IP telephony (gateways, switches, server clusters), Wi-Fi gateway/switches, and various communications, defense and homeland security, and commercial applications.

Speeds Integration and Time-to-Market



FEATURES:

- Speeds integration and time-to-market
- Designed specifically for high availability solutions
- Based on the AdvancedTCA, PICMG 2.16, and PICMG 2.9 (IPMI) standards
- World-class switching (Layer 2/3, load sharing, secure)
- Intelligent and comprehensive shelf management throughout all active components in the platform
- Redundancy and fault tolerance built into active components and power architecture
- Power and cooling for next-generation high-performance computing

Hypertronics Corporation

16 Brent Drive • Hudson, MA 01749

Tel: 978-568-0451 • Fax: 978-568-0680

www.hypertronics.com



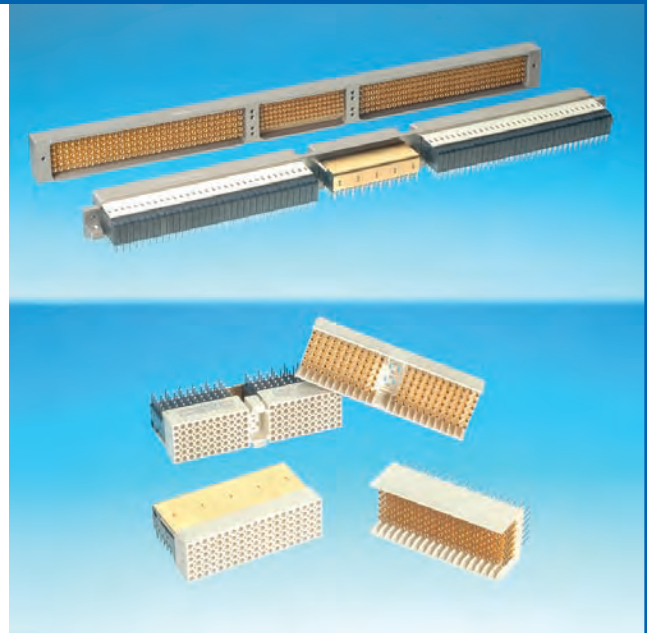
Hypertronics COTS

Robust 2 mm CompactPCI and ruggedized VME64x connectors overcome the challenges of harsh environments. The Hypertronics 2 mm connector system is based on the legendary Hypertac® contact, providing immunity to shock and vibration fretting. Tested to military standards, the Hypertronics 2 mm connector delivers high performance in a ruggedized CompactPCI format for mission critical applications such as military land systems, shipboard, and aerospace. Configured on a 2 mm center-line with six rows, the Hypertronics 2 mm connector uses 0.4 mm Hypertac contacts that feature less than 8 milliohms of contact resistance and a current rating of 1.0 A. Hypertronics optimized contact lead traces provide superior performance in high speed signal applications, and the connectors are compatible with standard reflow soldering processes.

The 2 mm connector is now available as a product family in both keyed and unkeyed configurations. Modular in design, the connector is variable in length and can be changed in increments of five contacts. Other benefits include: Standard 2 mm footprint; keying to ensure correct mating; and a high temperature LCP insulator that meets NASA outgassing requirements. The connectors are interchangeable with the board layout on COTS systems and are reverse gender to commercial 2 mm products. Adapters are also available to mate with COTS 2 mm connectors.

The Hypertronics' ruggedized VME64x interconnect solution benefits from the same highly successful Hypertac contact technology as the 2 mm CompactPCI. Hypertac contact technology features a hyperboloid-shaped basket of individual spring wires that deliver the highest level of reliability. VME64x connectors are mechanically compliant with IEEE 1101.2-1992, supporting the premier embedded bus architecture. Aluminum frames provide ruggedness and conduction cooling, and keying features ensure proper mating.

Hypertronics offers both standard and customizable VME64x footprints. With the VME64x connectors, manufacturers with the most demanding applications are guaranteed a connector solution for situations in which the cost of failure is incalculable.



FEATURES:

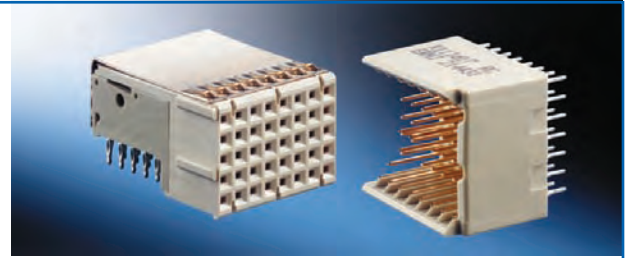
- Immune to shock and vibration, which can cause fretting
- Standard 2 mm footprint
- Reverse gender to commercial 2 mm products
- Single shielding
- Variable in length and can be changed in increments of five contacts (one wafer) due to the modular wafer length
- Hypertronics optimized contact lead traces provide superior performance in high speed signal applications
- Hypertac contacts with up to 100,000 mating cycles and low mating forces
- Mechanically compliant with IEEE 1101.2 -1992
- Keying feature guarantees proper mating
- Aluminum frames for ruggedness and conduction cooling
- COTS and custom applications
- Configure and download 3D connector models or 2D drawings for these products

ERNI Electronics

3005 East Boundary Terrace • Midlothian, VA 23112
 Tel: 804-228-4100 • Fax: 804-228-4099
www.erni.com

ERNI**ERmet 2mm HM EXP.0/eHM**

The PICMG EXP.0 specification was developed to incorporate the PCI Express technology into the popular PICMG 2.0 CompactPCI form factor. This specification was intended for 3U CompactPCI, military, PXI, and aerospace markets. The specification makes use of legacy CompactPCI connectors (ERmet 2mm HM), high speed differential connectors (ERmet ZD), and a new "mini" Hard Metric connector. This "mini" HM connector is defined as a 5 row by 8 column connector. ERNI offers a 3-pair/10-wafer ERmet ZD as well as the ERmet 2mm HM connector type B8 with integrated coding elements for preventing incompatible board/slot configurations (for example, an RIO card in a PXI slot).

**FEATURES:**

- Designed around the popular CompactPCI form factor
- Integrated coding elements for preventing incompatible board/slot configurations
- 40 signal pins in a 5 row by 8 column configuration

For more information, contact: info.usa@erni.com.

RSC #10701 @ www.compactpci-systems.com/catalogrsc

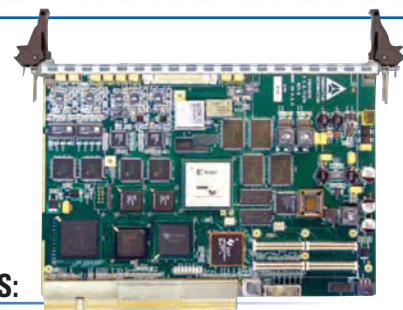
Innovative Integration

2390-A Ward Avenue • Simi Valley, CA 93065
 Tel: 805-578-4260 • Fax: 805-578-4225
www.innovative-dsp.com

**Innovative
Integration**
... real time solutions!

Quixote**Quixote – A complete SDR platform on one powerful CompactPCI card**

Combining 105 MHz 14-bit dual analog I/O, the C6416 DSP, a 6 million gate Virtex-II FPGA, and high speed digital ports, Quixote merges the best of all worlds with unprecedented levels of integration. Quixote is the perfect platform for Software-Defined Radio, signal intelligence, advanced RADAR, electronic warfare, and high speed physics. With upcoming support of PMC site and PICMG 2.17 StarFabric interconnects, Quixote is a powerful and compact design that redefines integration, performance, and flexibility. Complete software development suite and logic framework accelerate custom application development.

**FEATURES:**

- 600 MHz TMS320C6416 DSP; 2-6 MGate Virtex-II FPGA
- 32 MB SDRAM, 8 MB ZBT SBSRAM; 64/32-bit CompactPCI, 66 MHz, 5 V/3.3 V
- AD6645 and AD9764 converters
- Complex triggering modes with HW event logging
- PMC site with Jn4 to FPGA DIO
- PICMG 2.17 StarFabric compliant

For more information, contact: sales@innovative-dsp.com.

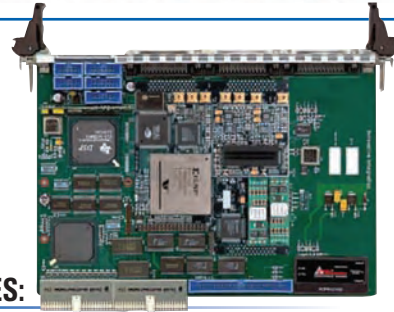
RSC #10702 @ www.compactpci-systems.com/catalogrsc

Innovative Integration

2390-A Ward Avenue • Simi Valley, CA 93065
 Tel: 805-578-4260 • Fax: 805-578-4225
www.innovative-dsp.com

**CompactConejo**

CompactConejo is a performance-oriented DSP card for CompactPCI/PXI-based data acquisition, playback, and coprocessing with four analog I/O channels at up to 10 MSps input and up to 50 MSps output. It uses the acclaimed C6713 processor from Texas Instruments as the heart of data movement and processing functions. CompactConejo provides four simultaneous analog inputs, four analog outputs, a logic architecture that supports extremely flexible trigger mechanisms, a choice of timebase sources, and a valuable real-time event log. With Innovative Integration's multiboard support features, CompactConejo is a truly complete solution for a wide array of applications like RADAR, advanced medical imaging, physics research, video processing, semiconductor testing, transient capture, arbitrary waveform generation, industrial scanners, wireless development, precision instruments, etc.

**FEATURES:**

- 150 MHz TMS320C6713 DSP (floating point); 32 MB SDRAM
- Four channels 10 MHz, 14-bit input
- Four channels 15 MHz, 2/30 or 1/50, 16-bit output
- 64/32-bit PCI, 33 MHz, 5 V/3.3 V, hot swappable
- Supports complex trigger modes with HW event logging
- Multiboard synchronization (PXI bus)

For more information, contact: sales@innovative-dsp.com.

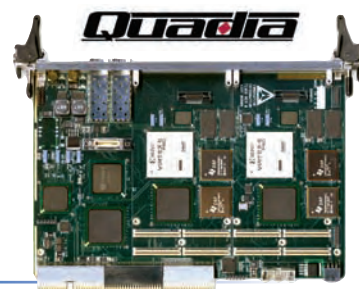
RSC #10801 @ www.compactpci-systems.com/catalogrsc

Innovative Integration

2390-A Ward Avenue • Simi Valley, CA 93065
 Tel: 805-578-4260 • Fax: 805-578-4225
www.innovative-dsp.com

**Quadia**

Quadia is a quad-DSP, dual FPGA, dual PMC site, CompactPCI board with an advanced architecture that provides the best interprocessor connectivity and access to the finest external interfaces available today to deliver blazing performance and extreme flexibility for advanced signal capture and real-time processing applications. The board features four C6416 DSPs split in two independent clusters, each hosting a PMC site and one large FPGA for end-user code, a central FPGA routing interprocessor communication, end-user FPGA communication, external port serial I/O for PCI Express or other private link, global memory, and PCI interface.

**FEATURES:**

- 720 MHz TMS320C6416 DSP (x4)
- 64 MB SDRAM per processor
- Flexible internal/external communication mesh
- 64-bit/66 MHz CompactPCI
- Two PMC sites with Jn4 to FPGA
- External data port, up to 12 Gbps

For more information, contact: sales@innovative-dsp.com.

RSC #10802 @ www.compactpci-systems.com/catalogrsc

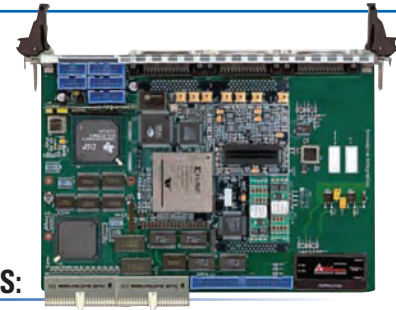
Innovative Integration

2390-A Ward Avenue • Simi Valley, CA 93065
 Tel: 805-578-4260 • Fax: 805-578-4225
www.innovative-dsp.com

**CompactToro**

The CompactToro board is ideally suited for servo control and data acquisition applications requiring high performance DSP with precision 16-bit analog. Its high performance 32-bit floating point DSP controls up to 16 simultaneous channels of independent A/D and D/A conversion with flexible trigger modes. The CompactToro's high performance 32/64-bit PCI interface is capable of up to 264 MBps data bursts, making it ideal for data-intensive applications. The CompactToro board shares many features with other boards in the Matador product line.

Applications include: High-channel vibro/acoustic monitoring, high-channel servo controller, state-space control, optical switch control, and complex data acquisition schemes.

**FEATURES:**

- 150 MHz TMS320C6713 DSP (floating point)
- 16 independent analog I/O channels to 250 KSpS
- 64 bits digital I/O
- CompactPCI 64/32-bit, 33 MHz, 5 V/3.3 V
- Complex trigger modes with hardware event logging
- Multiboard synchronization (PXI)

For more information, contact: sales@innovative-dsp.com.

RSC #10901 @ www.compactpci-systems.com/catalogrsc

SMA Computers

9550 Warner Avenue #250 • Fountain Valley, CA 92708
 Tel: 714-593-2338 • Fax: 714-593-2368
www.SMAcomputers.com

**Industrial I/O**

SMA has many I/O modules to choose from. The 40-ch. multifunction CMIO36 has 16 DI, 8 DO, 12-ch. 12-bit AI, 4-ch. 12-bit AO, and two ultrafast counters. Digital modules include the 16 DI and 16 DO CCIO32 with current limiting, short-proof and fail-safe outputs, and the CDI32 32-ch. DI with change-of-state detection, current limiting, and a -36 to +36 Vdc range. SMA has any interface you need. The CSER8 provides up to eight channels of independently configurable serial ports. Fieldbus options include CAN, DeviceNet, Profibus, Interbus, MVB, and ASI. Other modules include a PC/104 carrier card, PCMCIA carrier, sound card, and a 32-bit multichannel universal encoder/counter/timer with digital I/O. Custom and standard enclosures available.

**FEATURES:**

- 3U CompactPCI analog and digital industrial I/O all electrically separated; CCIO – 16 DI, 16 DO
- CDI32 – 32-ch. DI, change-of-state detectors, current limiting; CMIO36 – 40-ch. multifunction I/O
- Serial communication: CICP – four piggyback sites; CSER8 – two, four, eight piggyback sites
- Piggybacks: RS-232/422/485, TTY, CANopen, EnDat, Interbus; CLAN7 – Fast Ethernet port for CompactPCI
- Fieldbus interfaces for CANopen, DeviceNet, Profibus, Interbus, Multifunction Vehicle Bus (MVB)
- Industrial grade enclosures, 19-inch and customized rack-mount, panel-mount, or wall-mount, small form factor, CD/DVD

For more information, contact: info@SMAcomputers.com.

RSC #10902 @ www.compactpci-systems.com/catalogrsc

AP Labs

10864 Thornmint Road • San Diego, CA 92127
 Tel: 858-674-2850 • Fax: 858-674-2869
www.aplabs.com

AP Labs**FS-1280 Rackmount Enclosure**

The AP Labs FS-1280 is a 9U ruggedized CompactPCI enclosure designed for 6U CompactPCI boards.

Highly serviceable and maintainable, this chassis provides easy access to front loading boards and utilizes a single 400 W plug-in style power supply. It has a removable peripheral carrier, and can accommodate up to four 5.75" removable drive carriers. The FS-1280 is designed to meet MIL-S-901D in an isolated rack, and MIL-STD-810 and MIL-STD-167 shock and vibration specifications for severe environments. Optionally, it can be upgraded to meet MIL-STD-108E for drip proof requirements. Versatile and reliable, the AP Labs family of CompactPCI and VME enclosures are especially designed to meeting the needs of embedded, development, testing, and military applications.

**FEATURES:**

- Front-load, rugged, hard-mount chassis single or dual 8-slot – 19" (W) x 15.75" (H) x 18" (D); weight 85 lbs
- Shock: MIL-STD-810, MIL-S-901D, Vibration: MIL-STD-167, EMI/RFI: MIL-STD-461
- Hinged front door for easy card access; removable peripheral carrier in 8-slot single backplane version
- Available with CompactPCI backplanes
- Front-to-rear airflow

For more information, contact: sales@aplabs.com.

RSC #11001 @ www.compactpci-systems.com/catalogrsc

**2U ATCA™ Chassis**

THE PERFECT SLIM ATCA® SHELF
 YOU WERE WAITING FOR

**AdvancedTCA®**

asis pro
 Quality Enclosures from a Reliable Source

www.asis-pro.com

- ➔ 200W PER SLOT PLUS 15W PER RTM.
- ➔ FRONT ACCESSED, FIELD REPLACEABLE FILTER, FAN TRAY AND SHELF MANAGEMENT BOARD.
- ➔ REDUNDANT FRU PEMS.
- ➔ N+1 FAN REDUNDANCY.
- ➔ HIGH AVAILABILITY.
- ➔ 5GBPS PER DIFFERENTIAL PAIR.
- ➔ PICMG 3.X COMPLIANT.
- ➔ NEBS READY: COOLING, NOISE AND SHIELDING.

For details contact: salesa@asis.co.il

Gompf Brackets, Inc.

12426 Mukilteo Speedway, Suite C • Mukilteo, WA 98275
 Tel: 425-348-5002 • Fax: 425-348-5150
www.bracket.com/pmcbezels.htm

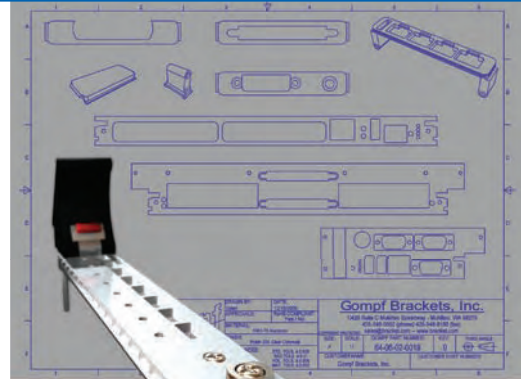
**CompactPCI, PMC, PC-MIP**

Gompf Brackets is a specialist with more than 18 years of experience serving more than 2,000 customers. This focus allows us to provide services that other vendors cannot – services designed to streamline your operations and reduce your inventory and production costs.

We have established ourselves as one of the leading suppliers of brackets, and we are now supplying CompactPCI front panels and PMC bezels, fully compliant with IEEE standards.

We specialize in prototype design and production – whether you require a standard bracket, custom solution, or single prototype.

Gompf Brackets offers our customers the same craftsmanship, attention to detail, and uncompromising quality.

**FEATURES:**

- CompactPCI, PMC, PC-MIP, and PCI/ISA panels and hardware
- Custom cutouts and finishes
- Silk screening/pad printing
- Multiple EMI shielding options
- Multiple ejector handle options
- Competitive pricing and lead times

For more information, contact: sales@bracket.com.

RSC #11101 @ www.compactpci-systems.com/catalogrsc

Gompf Brackets, Inc.

12426 Mukilteo Speedway, Suite C • Mukilteo, WA 98275
 Tel: 425-348-5002 • Fax: 425-348-5150
www.bracket.com/compactpci.htm

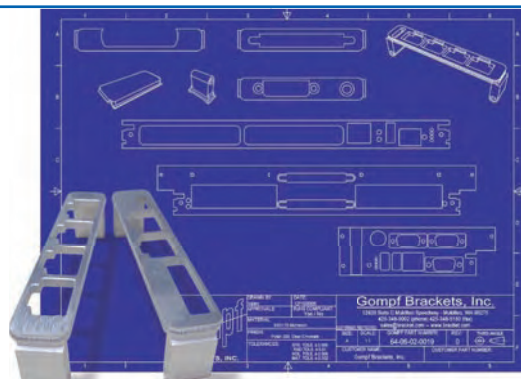
**CompactPCI, PMC, PC-MIP**

Gompf Brackets is a specialist with more than 18 years of experience serving more than 2,000 customers. This focus allows us to provide services that other vendors cannot – services designed to streamline your operations and reduce your inventory and production costs.

We have established ourselves as one of the leading suppliers of brackets, and we are now supplying CompactPCI front panels and PMC bezels, fully compliant with IEEE standards.

We specialize in prototype design and production – whether you require a standard bracket, custom solution, or single prototype.

Gompf Brackets offers our customers the same craftsmanship, attention to detail, and uncompromising quality.

**FEATURES:**

- CompactPCI, PMC, PC-MIP, and PCI/ISA panels and hardware
- Custom cutouts and finishes
- Silk screening/pad printing
- Multiple EMI shielding options
- Multiple ejector handle options
- Competitive pricing and lead times

For more information, contact: sales@bracket.com.

RSC #11102 @ www.compactpci-systems.com/catalogrsc

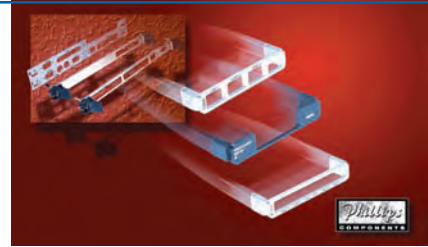
Phillips Components, Inc.

23142 Alcalde Drive, Suite A • Laguna Hills, CA 92653
 Tel: 800-899-4263 • Fax: 949-583-9337
www.phillipscomponents.net



VME, CompactPCI Panels, PMC

Phillips Components has been in business since 1976 and is a leader in the fabrication of VME, PMC, PCI, and CompactPCI panels as well as a large line of ejectors, extractors, pullers, and card guides. We are a one-stop shop. We customize, grain, plate, silk-screen, and assemble the entire panel for you. We have great lead times and customer service!

**FEATURES:**

- VME panels and hardware
- CompactPCI panels and hardware
- PMC bezels
- PCI brackets
- Ejectors – card guides
- Custom molding

For more information, contact: info@phillipscomponents.net.

RSC #11201 @ www.compactpci-systems.com/catalogrsc



Edge of technology in Backplanes & Systems solutions




CompactPCI, PXI
Backplanes & Systems



**VME, VME64x,
VXI, VXS**
Backplanes & Systems



**Signal Integrity &
Thermal Simulation**



RSC# 112 @ www.compactpci-systems.com/rsc

Products

- AdvancedTCA
- CompactPCI
- PXI
- VME
- VNE64x
- VXI
- VXS
- Custom Backplanes & Systems

Services

- Backplane Design
- Signal Integrity
- High Speed Simulation
- Thermal Simulation



COMTEL
ELECTRONICS

www.comtel-online.com

Aculab

197 First Avenue, Suite 130 • Needham, MA 02494
 Tel: 781-433-6000 • Fax: 781-433-6099
www.aculab.com

**Prosody CompactPCI**

Prosody CompactPCI presents integrators with the highest density and widest range of media processing functions. One Prosody card occupying a single slot delivers up to 256 channels of media processing resources and up to 124 E1/T1 bearer channels – hot swappable. Digital network access support and Aculab's range of protocols and approvals make solutions ideal for international deployment.

Media processing resources include: Group 3 fax, record/playback, matrix conferencing, echo cancellation, DTMF tone handling, live speaker detection, isolated word speech recognition, and data transmission protocols – all accessible via a single, generic API, allowing the development of feature rich, carrier grade solutions.

**FEATURES:**

- Prosody digital signal processor (DSP) options on base card
- Comprehensive range of media processing resources under a cost-free license
- Optional trunk module; 4 E1/T1 (software selectable); up to 124 speech channels
- Wide range of approvals and protocol coverage including: ETS300, Q.SIG, T1 PRI, SS7, and many variants of CAS
- NEBS Level 3 compliance
- Passive rear transition module (4 RJ-45/RJ-48C) via J5 connector

For more information, contact: info@aculab.com.

RSC #11301 @ www.compactpci-systems.com/catalogrsc

www.a-tca.com

New perspectives. New possibilities.

AdvancedTCA™

- For fast data transfer, particularly in the telecommunications area
- Total reliability through redundant systems architecture and hotswap capability

AdvancedMC™

- Mezzanine boards for AdvancedTCA systems for increased functionality
- Availability of the entire AdvancedMC mechanics as standard

μTCA™

- The modular standard for cost effective applications of AdvancedMC modules
- For the most demanding performance applications, not only in the telecommunications area

Schroff® : Enclosures for high Performance Networks of tomorrow

New developments, references and further information: www.a-tca.com

Motorola

2900 S. Diablo Way • Tempe, AZ 85282

Tel: 800-759-1107 or 602-438-5720 • Fax: 602-438-3195

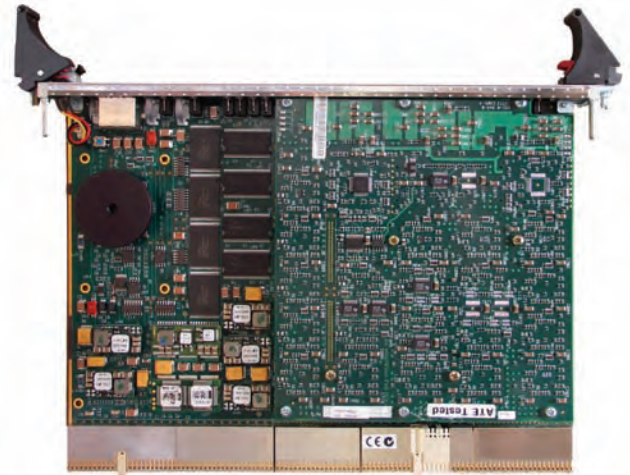
www.motorola.com/computing**MOTOROLA****VoIP Resource Boards**

The Packet Voice Resource Board (PVRB) product line from Motorola is a family of CompactPCI/PICMG 2.16 products that are targeted at the Enterprise and Access Voice over IP (VoIP) gateway market. The PVRB series provides the functionality required for implementing a VoIP gateway and includes three products: CPCI-8200 with channel density of 384 premium voice channels; CPCI-8205 with channel density of 672 premium voice channels; and CPCI-8220/1 with channel density of up to 2,016 premium voice channels. A premium voice channel assumes compressed audio (G.729AB) with 128 ms echo cancellation and tone detection enabled.

Based on the latest generation DSP technology from Texas Instruments, the PVRB range offers high performance with a low power requirement of as little as 27 mW per premium voice channel. Multiple PVRBs can be located in a single CompactPCI chassis to provide solution densities from 384 channels up to 20,000+ channels with support for redundancy and failover.

All PVRB products are supported by a deployment grade software environment called FACT-SERVER that includes a wide range of voice codecs (from the ITU-T G.7xx series with essential patent indemnification right through to the latest mobile codecs such as EVRC and SMV). The voice channels can be managed using the default simple FACT-SERVER IP-based call control protocol or via FACT-SIP, which includes a SIP user agent.

The PVRB offers an extensive range of off-board I/O capability via its associated Rear Transition Module (RTM) and the CompactPCI/PICMG 2.16 backplane. These include in-shelf or external Gigabit Ethernet ports, multiple T1/E1 and DS3 line termination options, plus a full H.110 implementation for additional voice traffic. Local configuration and management are executed on an embedded PowerPC® processor while an additional embedded network processor provides interworking functionality between the internal and external network connections.

**FEATURES:**

- From 384 to 2,016 full Voice over IP (VoIP) channels per board
- High-level software environment simplifies integration, reducing time to market and risk
- Network options for T1/E1, DS3, Gigabit Ethernet, and PICMG 2.16
- Indemnification option for essential patent protection on wireline codecs
- Field proven voice processing resources including carrier class echo cancellation and tone generation/detection
- SIP based call control option

Ballard Technology

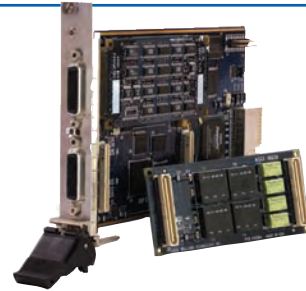
3229A Pine Street • Everett, WA 98201
 Tel: 425-339-0281 • Fax: 425-339-0915
www.ballardtech.com

Ballard 
Technology

OmniBus cPCI

Ballard's OmniBus cPCI avionics databus interface sets a new standard for both flexibility and power. The OmniBus cPCI is available with multiple dual-redundant MIL-STD-1553 databuses (up to four) or with a mix of protocols (such as 1553, AFDX, ARINC 429/708/717, and serial RS-422) and is suitable for a broad range of applications, from simple to complex. Extensive simulation, monitoring, and testing capabilities are provided through our powerful CoPilot GUI software and easy-to-use APIs.

An on-board PowerPC processor can be programmed by the user to off-load or run independently of the host system processor. The OmniBus cPCI can run locally through the backplane, or as a standalone device from user code embedded on the PowerPC.

**FEATURES:**

- Up to four dual-redundant MIL-STD-1553 buses
- Single and multiterminal modes
- BC, 32 RTs, bus monitor, advanced error injection
- IRIG time-tags and synchronization
- PowerPC user processor
- Also available in PCI, VME, or as an Ethernet/USB server

For more information, contact: sales@ballardtech.com.

RSC #11501 @ www.compactpci-systems.com/catalogrsc

X-Midas Applications for Small Spaces and Harsh Environments

Featuring the PowerStream[®] 3000 3U Multicomputer System



- Open Linux[®] with X-Midas DSP tools
- Integrated RF, FPGA, and DSP computing and I/O
- Conduction-cooled and ruggedized

Find out more at our webcast
 May 3, 2006 – 11:00 a.m. EST

To register:
www.opensystems-publishing.com/mercury.html

www.mc.com | 866-627-6951

Computer Systems, Inc.
MERCURY
 Challenges Drive Innovation™

Condor Engineering

101 West Anapamu Street • Santa Barbara, CA 93101

Tel: 805-965-8000 • Fax: 805-963-9630

www.condoreng.com



QCP-1553 – MIL-STD-1553 cPCI Interface

Condor's QCP-1553 provides new levels of performance and flexibility for MIL-STD-1553A/B Notice II in a CompactPCI form factor. Available in commercial, ruggedized, and 3U conductively cooled versions with one, two, or four dual-redundant channels, the QCP-1553 includes advanced Application Programming Interface (API) software that reduces application development time. Standard features include selectable transformer or direct coupling, 1 MB of RAM per channel, 45-bit message time-tagging, triggers, extensive BC and RT link-list structures, error injection/detection, avionics-level discretes, automatic/manual RT Status Bit and Mode Code responses, along with advanced BC functionality. Variable output voltage is standard on multifunction boards. An IRIG-B signal Receiver/Generator is optionally available. With the highest speed encoder/decoder in the industry, the QCP-1553 Bus Monitor provides unparalleled error detection and 100 percent monitoring of fully loaded buses.

Multifunction interfaces

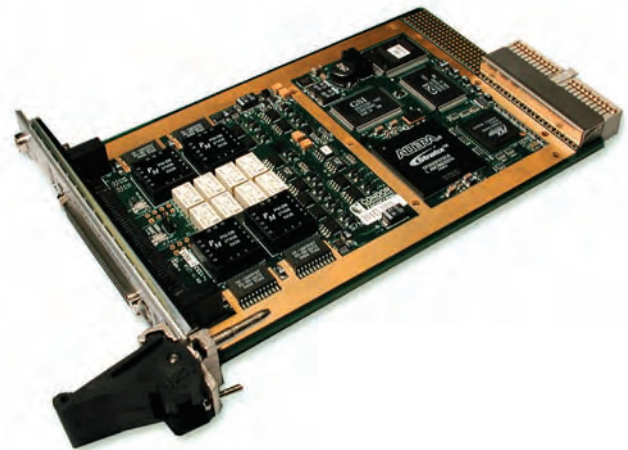
QCP-1553 multifunction interfaces are easily configured to operate with a simultaneous bus controller, 31 remote terminals, and bus monitor functionality.

Single-function interfaces

Single-function QCP-1553 interfaces have all the features and functionality of the multifunction versions, but only one major operational mode is enabled at a time. Each interface can emulate either a bus controller or 31 remote terminals or bus monitor.

Software

Condor provides our advanced 1553 API in source code, along with support for Windows XP, 2000, Me, NT, 98, 95, VxWorks, Integrity, Linux, Visual Basic, LabWindows/CVI, and other operating systems. To access 1553 functionality without software development, BusTools/1553, Condor's MIL-STD-1553 bus analyzer, LabVIEW, and LabVIEW Real-Time support is optionally available.



FEATURES:

- One, two, or four independent MIL-STD-1553 dual-redundant channels
- Simultaneous bus controller, 31 remote terminals, and bus monitor
- High-level API for Windows XP, 2000, Me, NT, 98, 95, VxWorks, Integrity, Linux, Visual Basic, and LabWindows/CVI included
- Optional LabVIEW and LabVIEW Real-Time support
- 66/33 MHz PCI bus operation and IRIG-B Rec (AM or DC/TTL) and/or Gen (DC) included
- Multifunction and single-function versions
- 45-bit, microsecond time-tagging and 1 MB RAM per channel
- I/O triggering and error injection/detection
- Selective real-time playback and multiple RT buffers
- RT map monitoring and full error detection
- 18 avionics-level discretes and universal voltage
- Programmable response time

Pro-Dex / Oregon Micro Systems

1800 N.W. 169th Place, Suite C100 • Beaverton, OR 97006
 Tel: 503-629-8081 • Fax: 503-629-0688
www.pro-dex.com

**MAXp**

The MAXp 1-to-8-axes motion controller is compatible with current 5.0 V PCI configurations and the 3.3 V/5 V Universal PCI bus. MAXp is built on a PowerPC 32-bit RISC processor running at 266 MHz. The use of this processor delivers exceptional servo control, capabilities, quality, and application performance on multi-axis requirements. All signals, data points, and the PID loop update every 122 μ s on all 8 axes. The MAXp also features 64 kB of shared memory permitting near real-time data transfer between the application program and the controller. Each axis of the MAXp controller can be configured as a servo, open loop stepper, or a closed loop stepper. The advantages for you are: application performance, future expandability, and robust design. The MAXp was developed with a surplus of capability, allowing MAXp to be customized to your individual request. Because most applications have unique requirements the MAXp is the optimal choice to bring about creativity to motion.

Applications requiring multi-axis motion control, including virtually any robot or automated machine, should use the MAXp controller.

**FEATURES:**

- PID update rate of 122 μ s on all 8 axes
- 266 MHz, 32-bit RISC processor
- 64 kB shared memory
- PCI Universal Bus – 3.3 V or 5.0 V
- 8 MB system memory
- Four channels of general purpose analog input, with 16-bit, 0-10 Vdc input
- Support Quadrature Encoder feedback up to 8 MHz
- Backlash compensation, custom, parabolic, "S"-curve, and linear trajectory profiles
- Real-time encoder position capture: "S"-curve with 4-quadrant jerk parameters
- Firmware upgrades and enhancements
- Field upgradable firmware
- Opto-isolated Digital I/O: High density shielded 120-pin connector

Tundra Semiconductor

603 March Road • Ottawa, ON K2K 2M5 Canada
 Tel: 613-592-0714 • Fax: 613-592-1320
www.tundra.com

**Tundra Tsi109™**

The Tundra Tsi109 is a high performance host bridge for PowerPC® that offers DDR2 memory, integrated clock generation, and advanced I/O such as PCI-X and Gigabit Ethernet. With dual processor support and 200 MHz bus speeds, the Tsi109 is the ideal companion chip for both Freescale MPC74xx and IBM PPC750xx PowerPC processors. System performance is enhanced through the Tsi109's advanced switch fabric and system cost is minimized through an array of integrated functionality. The Tsi109 simplifies system design through flexible configuration options and provides effective power management through DDR2 memory support. Customers are offered the best system performance-per-watt as well as the best system performance-per-dollar by choosing the Tsi109.

**FEATURES:**

- 200 MHz 60x/MPX processor bus with dual CPU support and advanced pipeline architecture
- DDR2 Memory Controller: Up to 50 percent memory power savings compared to DDR
- Integrated Clock Generator with optional Spread Spectrum capability
- Designed for 200 MHz operation with only 8 PCB layers
- Low latency non-blocking internal switch fabric
- Pin compatible with Tsi108™

For more information, contact: sales@tundra.com.

RSC #11801 @ www.compactpci-systems.com/catalogrsc

Tundra Semiconductor

603 March Road • Ottawa, ON K2K 2M5 Canada
 Tel: 613-592-0714 • Fax: 613-592-1320
www.tundra.com

**Tundra Tsi148™**

The Tsi148 is the industry's leading PCI/X to VMEbus bridge and the successful next generation offering to the Universe™ II, the leading VMEbus bridge for embedded systems customers. Fully compliant with VMEbus standards, the Tsi148 implements the 2eSST protocol that allows the VMEbus to run at a bandwidth up to 320 MBps. The Tsi148 is a full featured master, slave, and system controller that can be used in any VME application and provides an increase in overall processing capability on legacy backplanes, while transparently enabling the high performance distributed processing that new applications demand.

**FEATURES:**

- Industry's best sustained transfer rate of 305 MC/x in 2eSST – higher system bandwidth
- Multithreading – capable of a number of simultaneous transactions while optimizing bus utilization
- Full-featured master, slave, and system controller – can be used in any VME application
- PCI-X local bus supports two loads at 133 MHz – reducing component count
- Small device footprint – saves board space
- Proven VME backwards compatibility – preserves legacy investment

For more information, contact: sales@tundra.com.

RSC #11802 @ www.compactpci-systems.com/catalogrsc

C&D Technologies

3400 E. Britannia Drive • Tucson, AZ 85706

Tel: 800-547-2537 • Fax: 520-741-4598

www.cd4power.com/cpci**cPCI200A-1**

The cPCI200A-1 is supplied in a compact 3U x 4HP package, allowing designers of CompactPCI systems to achieve new levels of space efficiency in their chassis. The efficient cPCI200A-1 is optimized for use in high availability enterprise applications and operates from a global input range of 90-264 Vac with active power factor correction to EN61000-3-2. Developed to support hot swap, redundant operation, the cPCI200A-1 complies with the PICMG 2.11 R1.0 Power Interface Specification with 47-pin I/O connector, as well as the underlying CompactPCI standards. Overload protection, overvoltage protection, thermal protection, current sharing, internal ORing diodes, and N+1 redundant configuration reinforce its suitability for use in the most demanding applications.

**FEATURES:**

- Active power correction – complies with EN61000-3-2
- 90-264 Vac global input operating range
- 200 W of power in a 3U x 4HP package
- PICMG 2.11 compliant, with 47-pin connector option
- Low airflow – requires as little as 300 LFM of airflow
- Fault tolerant N+1 configuration – output fault isolation

For more information, contact: sales@cdtechno.com.RSC #11901 @ www.compactpci-systems.com/catalogrsc**C&D Technologies**

3400 E. Britannia Drive • Tucson, AZ 85706

Tel: 800-547-2537 • Fax: 520-741-4598

www.cd4power.com/cpci**cPCI500DC**

The cPCI500DC is a series of 500 W, CompactPCI hot-swap supplies designed for compliance with the PICMG 2.11 D1.0 CompactPCI Power Interface Specification in a 6U x 4HP package. The 4HP package affords customers more space for application boards and 500 W of power to support them. Current sharing and internal ORing diodes are included to support High Availability (HA) applications requiring hot-swap performance and N+1 redundant configuration. An optional IPMI interface provides for reporting of critical events and routine status as well as control functions over the I2C SMBus. The cPCI500DC was designed for globally deployed High Availability telecom systems that require EMI compliance to Telcordia (formerly Bellcore) NEBS and ETSI EN 300 386 limits.

**FEATURES:**

- 6U x 4HP package
- IPMI capability: Full reporting of output voltages and currents as well as FRU data
- 500 W of power
- 36-72 Vdc input range
- Complies with PICMG 2.11 R1.0 with 47-pin I/O connector
- Hot-swap, N+1 redundant operation

For more information, contact: sales@cdtechno.com.RSC #11902 @ www.compactpci-systems.com/catalogrsc

C&D Technologies

3400 E. Britannia Drive • Tucson, AZ 85706
 Tel: 800-547-2537 • Fax: 520-741-4598
www.cd4power.com/cpci

**cPCI200DC**

The cPCI200DC is a family of high reliability, 200 W power supplies for 3U CompactPCI systems. This series is designed for compliance with PICMG 2.11 R1.0 Power Interface Specification with 47-pin I/O connector, as well as the underlying CompactPCI standards. Targeting high availability telecom applications, these models operate from 36-72 Vdc and comply with the conducted emissions requirements of ETS 300 386 and Telcordia GR-1089. An available IPMI/I2C interface option and internal ORing diodes are included to support such applications requiring hot-swap performance and N+1 redundant configuration. The 4HP package and complement of agency approvals provide for an advanced, high density, efficient power solution for your CompactPCI system requirements.

**FEATURES:**

- IPMI capability (available on part numbers cPCI200D-3 and cPCI200D-4)
- 3U x 4HP package
- 36-72 Vdc input range
- Two current configurations: 180 W and 225 W continuous output power
- Complies with PICMG 2.11 R1.0 with 47-pin I/O connector
- Hot-swap, N+1 redundant operation

For more information, contact: sales@cdtechno.com.

RSC #12001 @ www.compactpci-systems.com/catalogrsc

C&D Technologies, Inc.

3400 E. Britannia Drive • Tucson, AZ 85706
 Tel: 800-547-2537 • Fax: 520-741-4598
www.cd4power.com/cpci

**cPCI325D-1 with IPMI**

The cPCI325D-1 CompactPCI power supply combines fully featured IPMI functionality with the ability to operate with as little as 200 LFM of airflow to address the low airflow requirements of some CompactPCI chassis. A high efficiency topology coupled with a mechanically open architecture simplifies thermal management to permit the lowest airflow requirements of any CompactPCI power supply on the market. Built-in IPMI functionality includes the basic FRU reporting capabilities plus enhanced functionality for reporting output current, output voltage, and temperature. This feature provides for active management of the power subsystem with the ability to accomplish a firmware update in situ through the I2C interface.

**FEATURES:**

- IPMI for active management – monitors status and reports critical events
- 36-72 Vdc input range
- 325 W in a 3U x 8HP package
- PICMG 2.11 compliant – 47-pin connector option
- Low airflow – requires as little as 200 LFM of airflow (half that required by competing products)
- Active droop current sharing – large numbers of units can be accurately operated in parallel

For more information, contact: sales@cdtechno.com.

RSC #12002 @ www.compactpci-systems.com/catalogrsc

C&D Technologies, Inc.

3400 E. Britannia Drive • Tucson, AZ 85706
 Tel: 800-547-2537 • Fax: 520-741-4598
www.cd4power.com/cpci

**cPCI350DC**

Delivering 350 W of continuous output power, the cPCI350DC supports the CompactPCI system applications with no minimum load requirement. Active current sharing and internal ORing diodes are included to support High Availability (HA) applications requiring hot swap performance and N+1 redundant configuration. The cPCI350DC operates from 36-75 Vdc and is designed specifically for telecom systems that require Telcordia NEBS and ETSI compliance. The open design accommodates improved airflow that simplifies thermal management by minimally restricting airflow. This power supply is completely self-protecting with overload and OVP protection on all outputs, input power limit, as well as thermal switches for the "Degrade" (DEG) warning signal and thermal shutdown.

**FEATURES:**

- 6U x 8HP
- 36-75 Vdc input range
- 350 W continuous output power
- Complies with PICMG 2.11 R1.0 with 47-pin I/O connector
- Hot-swap capable
- Outputs individually protected against overloads

For more information, contact: sales@cdtechno.com.

RSC #12101 @ www.compactpci-systems.com/catalogrsc

MGV Stromversorgungen GmbH

Bayerwaldstrasse 27 • Munich, Germany D-81737
 Tel: +49-89-6780900 • Fax: +49-89-67809080
www.mgv.de

**P2070**

70 W CompactPCI economy power supply. The Munich-based specialist MGV Stromversorgungen has recently developed a compact, user-friendly CompactPCI power supply, designed especially for new CompactPCI minisystems, which features an extremely favorable cost-benefit ratio. The new range of power supplies (8HP/3U) includes two models, each with a different power connection. On the P2070F model, the mains feed is via an IEC320/C5 cold connector installed on the front, while the P2070 offers a familiar backplane 24/8-channel M-socket strip. Both models are also available for DC input (DG2070 series). In terms of output, the module supplies 5.1 V at 8 A and 3.3 V at 10 A. It requires free convection only, needing no forced cooling, and operates from -25° C to +70 °C.

**FEATURES:**

- 70 W
- Output voltages 5.1 V and 3.3 V
- 3U/8 HP
- No forced ventilation (free-convection cooling)
- Two different power connections (front or back)
- Also available with DC input (DG2070 series)
- Automatic switching 120/230VAC
- Operational from -25 °C to +70 °C
- Numerous electronic safeguards

For more information, contact: info@mgv.de.

RSC #12102 @ www.compactpci-systems.com/catalogrsc

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717

Tel: 608-831-5500 • Fax: 608-831-4249

www.artesynpc.com**PmPPC7447**

Artesyn's PmPPC7447 is a complete processor subsystem in a very compact, industry standard form factor. It is designed to allow communication equipment manufacturers to add modular and upgradable functionality to their I/O baseboards. It also provides the localized horsepower necessary for applications such as protocol processing, packet processing, data filtering, or I/O management.

Using an off-the-shelf processor subsystem saves you time to market by allowing you to focus your engineering efforts on the key value-add portions of the system without spending time and effort on the processor design and testing. A modular processor subsystem also lowers your lifetime cost of ownership by providing an easy upgrade path, and protecting you from obsolescence issues.

Considerable engineering effort has gone into ensuring maximum flexibility on the PmPPC7447. The module can be used in both Processor PMC monarch and non-monarch modes, acting as the host for the local PCI bus or as a peripheral on the local PCI bus, depending on the application or baseboard.

**FEATURES:**

- Up to 1.3 GHz Freescale PowerPC MPC7447A processor
- Up to 2 GB DDR SDRAM with ECC
- Up to 64 MB Flash
- Marvell Discovery III system controller
- Dual 1000BASE-T Ethernet with P14 access
- 10/100BASE-TX Ethernet on front bezel
- I2C and four GPIO ports with P14 access
- Real-time clock with supercap backup
- CG Linux and VxWorks BSPs available
- Quality assured by more than 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
Tel: 608-831-5500 • Fax: 608-831-4249
www.artesynpc.com

**PmPPC7448**

Artesyn's PmPPC7448 is a complete processor subsystem in a very compact, industry standard form factor. It is designed to allow communication equipment manufacturers to add modular and upgradeable functionality to their I/O baseboard. It also provides the localized horsepower necessary for applications such as protocol processing, packet processing, data filtering, or I/O management.

Using an off-the-shelf processor subsystem saves you time-to-market by allowing you to focus your engineering efforts on the key value-add portions of the system without spending time and effort on the processor design and testing. A modular processor subsystem also lowers your lifetime cost of ownership by providing an easy upgrade path, and protecting you from obsolescence issues.

Considerable engineering effort has gone into ensuring maximum flexibility on the PmPPC7448. The module can be used in both Processor PMC monarch and non-monarch modes, acting as the host for the local PCI bus or as a peripheral on the local PCI bus, depending on the application or baseboard. The SDRAM memory is contained in a SODIMM package – the same memory package widely used in laptops – so you can take advantage of the rapidly advancing memory capacity.

For quality in real time, choose the performance, reliability, and responsiveness of Artesyn Communication Products. Our customer support group is available to answer your questions. Please call 1-800-356-9602 or visit our website, www.artesynpc.com for more details.

**FEATURES:**

- Up to 1.4 GHz PowerPC MPC7448 processor
- Up to 2 GB SDRAM in SODIMM packaging
- Marvell Discovery III system controller
- Dual 10/100/1000 Ethernet with P14 access
- 10/100 Ethernet on front bezel
- I2C and 4 GPIO ports with P14 access
- Linux 2.4.22 and VxWorks 5.5 BSPs
- RoHS/WEEE compliant configuration available in 2006
- Quality assured by over 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717

Tel: 608-831-5500 • Fax: 608-831-4249

www.artesynpc.com**Pm8540**

For customers in the wireless and convergence market that need a cost-effective and high performance control subsystem, the Pm8540 provides a highly integrated processor and I/O to meet their system and blade control requirements.

Furthermore, the Pm8540 is designed for hardened telecom applications with Carrier Grade Linux support and long service life of 15 years.

Using an off-the-shelf processor subsystem saves you time-to-market by allowing you to focus your engineering efforts on the key value-add portions of the system without spending time and effort on the processor design and testing. A modular processor subsystem also lowers your lifetime cost of ownership by providing an easy upgrade path, protecting you from obsolescence issues.

Considerable engineering effort has gone into ensuring maximum flexibility on the Pm8540. The module can be used in both ProcessorPMC monarch and non-monarch modes, acting as the host for the local PCI bus or as a peripheral on the local PCI bus, depending on the application or baseboard.

For quality in real time, choose the performance, reliability, and responsiveness of Artesyn Communication Products. Our customer support group is available to answer your questions. Please call 1-800-356-9602 or visit our website at www.artesynpc.com for more details.

**FEATURES:**

- VITA 32 ProcessorPMC
- Freescale 8540 PowerQUICC III integrated processor
- 256 or 512 MB Dual Data Rate DRAM
- 32 MB flash
- 16 MB persistent memory
- Dual 10/100/1000 Ethernet ports with P14 access
- Single 10/100 Ethernet port with front bezel access
- Serial debug port
- Carrier Grade Linux
- RoHS/WEEE compliant
- Quality assured by over 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Artesyn Technologies

8310 Excelsior Drive • Madison, WI 53717
Tel: 608-831-5500 • Fax: 608-831-4249
www.artesynpc.com

**Pm8560**

A Processor PCI Mezzanine Card (ProcessorPMC) module, the Pm8560 has up to eight E1/T1/J1 interfaces.

The Pm8560 is ideal for 3G (UTMS & W-CDMA) and 2.5G (GPRS) data and signaling applications. The module is capable of supporting a wide variety of protocols including SS7 and SIGTRAN. Other applications include signaling gateways and softswitches as a signaling interface card.

The Pm8560 includes a Reduced Media-Independent Interface (RMII) on Pn3 for Ethernet PHYs and management interface.

Physical connectivity of E1/T1/J1 spans the Pm8560 via Rear Transition Modules (RTMs) that interface from either PICMG 2.16/cPSB blades or AdvancedTCA blades such as Artesyn's Katana product line.

For quality in real time, choose the performance, reliability, and responsiveness of Artesyn Communication Products. Our Customer Support group is available to answer your questions. Please visit our website www.artesynpc.com/support, or you can also e-mail us at support@artesynpc.com, or call 1-800-327-1251 for more details.

**FEATURES:**

- Processor PMC (VITA 32-2003) with up to eight software selectable E1/T1/J1 interfaces
- Freescale Semiconductor MPC8560 PowerQUICC III communication processor
- Up to 512 MB Double Data Rate SDRAM with ECC
- Up to 32 MB flash
- PCI bus operation of 32-bit/66 MHz
- 10/100/1000 Ethernet port
- Optional CTbus clock support
- Optional rear transition module for AdvancedTCA or PICMG 2.16/cPSB blades supporting E1/T1/J1 interfaces
- RoHS/WEEE compliant configuration available in 2006
- Quality assured by over 30 years of design experience and a TL-9000 and ISO 9001:2000 certified quality management system (FM 26789)

Creative Electronic Systems

38 Avenue Eugène-Lance • Grand-Lancy 1 / Geneva, Switzerland 1212

Tel: 41-22-884-51-00 • Fax: 41-22-794-74-30

www.ces.ch



Conduction Cooled RIOC 4070

Applications

The RIOC 4070 from CES is the first conduction-cooled version of the RIOC 4068. Compared with its ruggedized companion, it complies with extreme operating conditions (such as -40 °C to +85 °C, shocks, and vibrations) and offers additional real-time reconfiguration capabilities often required in UAVs and aircraft for real-time acquisition and processing.

Hardware specifications

Like most standard CompactPCI SBCs, the RIOC 4070 offers Ethernet, RS-232, JTAG, and the usual glue logic around a PowerPC core.

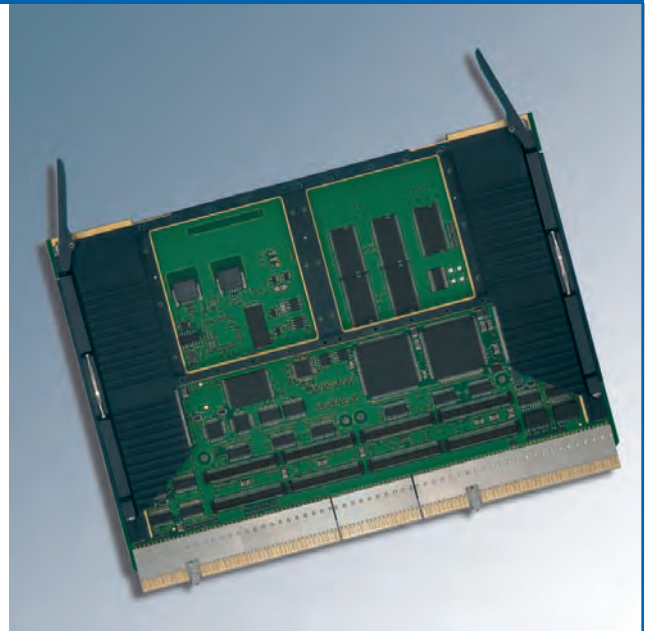
Where the RIOC 4070 differs concerns its extensive use of specific FPGAs to maximize the acquisition speed on CompactPCI as well as PCI buses. In addition, the RIOC 4070 offers seamless data transfer to the main memory through a multiport interface. The RIOC 4070 also provides real-time status monitoring sensors that relay information to the user software to take a variety of actions such as speed, control, partial disconnection of a faulty element, program reload, and so forth.

Both PCI and CompactPCI interfaces are equipped with a set of hardware and firmware building blocks to attach additional processors exchanging data at ultra-high speed (CES BP-Net logic).

Software specifications

CES, as a system company, designs in-house, both hardware and software elements (BSPs) and offers the package as a bundle, providing software support for all of the available hardware functions.

The RIOC 4070 is available with the general purpose Linux tool kit, as well as CES extended BSPs for VxWorks and Integrity. CES AE 653 BSPs are also available.



FEATURES:

- PowerPC 750Gx at maximum frequency
- 512 MB global memory SDRAM at 800 MBps peak
- CES-enhanced PowerPC-to-CompactPCI bridge
- 16 independent linked list DMA channel engine
- Two on-board PMC slots
- Power-on/power-off control logic per PMC slot
- High throughput DMA engine
- 32 MB NOR with compressor
- 256 MB NAND with high speed file system
- Multiple thermal sensors
- Transparent multiprocessor extension with up to six MFCC 8446 companion modules
- Extended BSPs for VxWorks 6.x and Integrity 5.x

Concurrent Technologies

3840 Packard Road • Ann Arbor, MI 48108
 Tel: 734-971-6309 • Fax: 734-971-6350
www.gocct.com

**Dual PMC, Pentium M SBC**

The PP 312/01x is an established high performance dual PMC CompactPCI board supporting a range of Intel Pentium M processors up to 2.0 GHz. As well as two 66 MHz PMC sites, it supports dual Gigabit Ethernet, PICMG 2.16, IPMI PICMG 2.9, and hot swap PICMG 2.1.

The PP 312/01x range of on-board features includes EIDE, graphics, keyboard, mouse, USB, RS-232, 64 MB application flash, 512 kB NVSRAM, and RTC, plus options for on-board CompactFlash drives or a 2.5" hard disk drive. The PP 312/01x is suitable for high performance applications for the telecom, industrial control, telemetry, scientific, and aerospace markets.

To simplify the board's integration, many popular operating systems are supported including Windows, Linux, VxWorks, and QNX.

**FEATURES:**

- Range of Intel Pentium M processors up to 2.0 GHz, with up to 2 MB L2 cache and up to 533 MHz FSB
- Up to 2 GB DDR ECC DRAM
- Dual PMC sites (via PCI 32/64-bit at 33/66 MHz bus), front and rear I/O, 3.3 V, or 5 V signaling
- PICMG 2.16 (dual Gigabit Ethernet interfaces via PCI 64-bit/66 MHz bus), IPMI PICMG 2.9 and Hot Swap PICMG 2.1
- Plus EIDE, two GbE, one USB, three RS-232, floppy disk, printer, graphics, and keyboard/mouse ports
- Optional extended operating temperature at 1.1 GHz: Operation over -25 °C to +70 °C

For more information, contact: info@gocct.com.

RSC #12701 @ www.compactpci-systems.com/catalogrsc

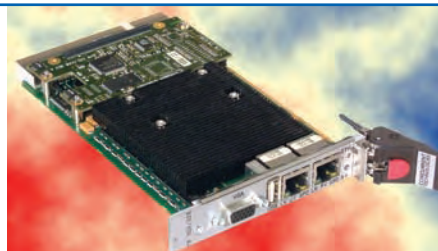
Concurrent Technologies

3840 Packard Road • Ann Arbor, MI 48108
 Tel: 734-971-6309 • Fax: 734-971-6350
www.gocct.com

**System Slot, 3U Pentium M SBC**

The TP 30x/32x is a high performance, low power, 3U CompactPCI system slot controller supporting the 1.8 GHz Intel Pentium M 745 or the 1.0 GHz Intel Celeron M processor ULV 373. The TP 30x/32x family combines Pentium M processor performance with the Intel 855GME GMCH chipset and up to 1 GB of soldered 333 MHz DDR SDRAM. Additional features include dual EIDE ATA100, dual Serial ATA150, dual Gigabit Ethernet, stereo audio, and front and rear graphics interfaces, plus options for on-board CompactFlash and 2.5" HDD.

The TP 30x/32x is ideally suited to applications within the transportation, industrial control, automation, scientific, telemetry, defense, security, and aerospace markets. For harsher applications extended temperature versions are available.

**FEATURES:**

- System slot controller plus peripheral hot swap support (PICMG 2.1 R2.0)
- 1.8 GHz Intel Pentium M processor 745 (2 MB L2 cache) or
- 1.0 GHz Intel Celeron M processor ULV 373 (512 kB L2 cache)
- 512 MB or 1 GB soldered DDR-333 DRAM, with the Intel 855GME and Intel 6300ESB ICH chipset
- Plus EIDE, two SATA150, two GbE, four USB 2.0, four RS-232, stereo audio, front/rear graphics and keyboard/mouse ports
- Optional extended operating temperatures at 1.0 GHz: Operation over -40 °C to +85 °C or -25 °C to +70 °C

For more information, contact: info@gocct.com.

RSC #12702 @ www.compactpci-systems.com/catalogrsc

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
 Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**CP306 Pentium M**

The CP306 3U CompactPCI system master CPU from Kontron demonstrates high CPU computing performance in a first-rate robust construction. Based on the Intel Pentium M processor the CP306 in its single slot/4HP width footprint at 2.0 GHz equals the performance of a Pentium 4 board at 2.8 GHz to 3.0 GHz. The CP306 is an ideal fit for applications with a low power budget or tight thermal constraints and is even offered in an extended temperature version (E2 range from -40 °C to +85 °C) with dedicated processor versions. The rear I/O versions enable access to all interfaces of the 4HP board from the back side of the housing. The 8HP version adds full PC connectivity (PS/2, COM1/2, on-board HDD, FDD, LPT and second IDE connector, reset button, LED).

**FEATURES:**

- Pentium M with 1 MB/2 MB L2 cache 1.1 GHz up to 1.8 GHz
- Up to 1 GB direct soldered DDR SDRAM/ECC at 333 MHz
- Intel 82855GME chipset with internal graphic controller, resolution 2048 x 1536 x 8-bit/60 Hz, max. shared memory
- One Gigabit Ethernet (front I/O), 1x Fast Ethernet (front or rear I/O)
- Four USB 2.0
- COM1/2 as rear I/O (4HP board), COM3/4 RS-232/422/485 as front I/O (8HP)

For more information, contact: sales@us.kontron.com.

RSC #12801 @ www.compactpci-systems.com/catalogrsc

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
 Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**CP306-Value**

The CP306-V supports the latest Intel Celeron M and Pentium M processor family up to speeds of 2.0 GHz. With its Intel Celeron M and Pentium M microprocessors, the CP306-V offers exceptional performance with low power consumption.

Industrial automation

Cost sensitivity plays a major role in industrial applications. To meet this market demand plus many customer technical requirements, Kontron offers a value line of products including the CP-Pocket, CP6000-V, and CP306-V. These are ideal for light industrial applications for many low cost operations in industrial, medical, and embedded control applications. The CP-Pocket chassis provides a very cost-effective solution for customers who require hot swappability, small 3U form factor, and an industrial computer standard.

**FEATURES:**

- Celeron 600 MHz/Celeron M 1.3 GHz (320) with passive cooling
- Flexibility with various 4HP/8HP options available
- CP306-V, Pentium M, 1.8 GHz, 2 MB, 8HP solution only
- Industry tailored with DVI, PS/2, CompactFlash access on front panel
- Up to 1 GB PC333 DDR SDRAM with or without ECC via SODIMM socket
- Combine with Kontron CP-Pocket chassis

For more information, contact: sales@us.kontron.com.

RSC #12802 @ www.compactpci-systems.com/catalogrsc

Kontron

14118 Stowe Drive • Poway, CA 92064-7147

Tel: 888-294-4558 • Fax: 858-677-0898

www.kontron.com**CP6000 Pentium M**

The Kontron CP6000 features a Pentium M up to 2.0 GHz (755), and combines the low power/high performance features of Intel's Mobile Pentium M processor with the 855GME chipset. Its compact design integrates Intel's latest I/O Controller Hub technology for lower levels of heat dissipation and lower system requirements and integration costs.

Medical

Whether it is for diagnosis or imaging, CompactPCI can offer the performance and reliability needed to gather and process large amounts of critical information. X-ray scanners and ultrasound imaging devices are just two examples of the potential use of CompactPCI in the medical market.

Communications

Solutions using packet switched backplanes (PICMG 2.16) are tremendously efficient for Media/VoIP gateways, routing devices, storage area networks, and clustering. CompactPCI has been well accepted in the comms industry, which also has supported the specification refinement process on industry-specific subspecification such as the H. 110 bus TDM traffic support. Typical application areas within the communications field are found both in datacom, with net management, routing, or security systems, and in telecom/VoIP, with telephony switches, IP PBXs, wireless basestations, signaling gateways, gateway controllers, and softswitches.

Aerospace

Kontron has long provided military and aerospace customers with reliable products that continue to work under extreme temperatures and high levels of physical stress that allow the mission to go on. For communications systems on the ground, in-flight systems for civil or military aircrafts, the requirements must be met without compromise. Commercial in-flight entertainment systems, military flight combat simulators, and on-board vehicle systems are examples of CompactPCI uses in these markets.

**FEATURES:**

- Pentium M up to 2.0 GHz (755), LV 1.1/1.4 GHz (passive cooling)
- Up to four Gigabit Ethernet ports (two at the front, two for full PICMG 2.16)
- Up to 2 GB PC333 SDRAM with ECC via two 200-pin SODIMM-sockets
- 64/66 PMC, on-board 2.5-inch HDD, CompactFlash – usable at the same time
- IPMI V1.5 compliant

Kontron

14118 Stowe Drive • Poway, CA 92064-7147

Tel: 888-294-4558 • Fax: 858-677-0898

www.kontron.com**CP6010 Dual Xeon**

The Kontron CP6010 features an Intel Dual Xeon Low Voltage System/Peripheral CPU up to 2.4 GHz, and is unquestionably the most powerful CompactPCI CPU engine you can build your application around. Combined with a large maximum memory capacity of 8 GB and a high I/O throughput chipset, this board is designed to meet the requirements of the most demanding applications.

Medical

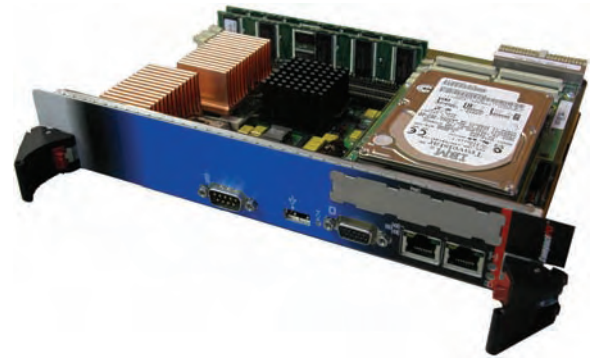
Whether it is for diagnosis or imaging, CompactPCI can offer the performance and reliability needed to gather and process large amounts of critical information. X-ray scanners and ultrasound imaging devices are just two examples of the potential use of CompactPCI in the medical market.

Communications

Solutions using packet switched backplanes (PICMG 2.16) are tremendously efficient for Media/VoIP gateways, routing devices, storage area networks, and clustering. CompactPCI has been well accepted in the comms industry, which also has supported the specification refinement process on industry-specific subspecification such as the H. 110 bus TDM traffic support. Typical application areas within the communications field are found both in datacom, with net management, routing, or security systems, and in telecom/VoIP, with telephony switches, IP PBXs, wireless basestations, signaling gateways, gateway controllers, and softswitches.

Aerospace

Kontron has long provided military and aerospace customers with reliable products that continue to work under extreme temperatures and high levels of physical stress that allow the mission to go on. For communications systems on the ground, in-flight systems for civil or military aircrafts, the requirements must be met without compromise. Commercial in-flight entertainment systems, military flight combat simulators, and on-board vehicle systems are examples of CompactPCI uses in these markets.

**FEATURES:**

- Dual Low Voltage Xeon at 1.6 GHz, 2.0 GHz, or 2.4 GHz
- External CompactPCI bus up to 64-bit/133 MHz
- PMC expansion slot at 64-bit/133 MHz
- Universal CompactPCI bridge (system/peripheral) with PCI-X support
- Optional Ultra160 SCSI
- Up to 8 GB of DDR SDRAM
- Dual Gigabit Ethernet (Fiber or Copper)
- IPMI support

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**CP6011 Pentium M**

The Kontron CP6011 features an Intel Pentium M up to 1.8 GHz System/Peripheral CPU, and is intended for applications calling for distributed high processing capabilities and tremendous I/O throughput supported by an Intel E7501 server chipset. Increase your flexibility with dual PMC slots with up to 64-bit/133 MHz PCI-X interface and PIM support.

Medical

Whether it is for diagnosis or imaging, CompactPCI can offer the performance and reliability needed to gather and process large amounts of critical information. X-ray scanners and ultrasound imaging devices are just two examples of the potential use of CompactPCI in the medical market.

Communications

Solutions using packet switched backplanes (PICMG 2.16) are tremendously efficient for Media/VoIP gateways, routing devices, storage area networks, and clustering. CompactPCI has been well accepted in the comms industry, which also has supported the specification refinement process on industry-specific subspecification such as the H. 110 bus TDM traffic support. Typical application areas within the communications field are found both in datacom, with net management, routing, or security systems, and in telecom/VoIP, with telephony switches, IP PBXs, wireless basestations, signaling gateways, gateway controllers, and softswitches.

Aerospace

Kontron has long provided military and aerospace customers with reliable products that continue to work under extreme temperatures and high levels of physical stress that allow the mission to go on. For communications systems on the ground, in-flight systems for civil or military aircrafts, the requirements must be met without compromise. Commercial in-flight entertainment systems, military flight combat simulators, and on-board vehicle systems are examples of CompactPCI uses in these markets.

**FEATURES:**

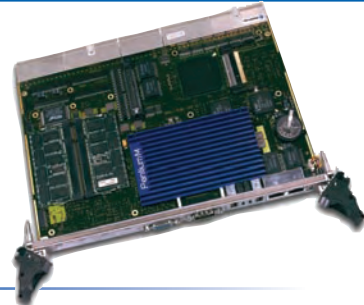
- Pentium M Processor up to 1.8 GHz and LV Pentium M up to 1.4 GHz
- Maximize I/O throughput with Intel E7501 server chipset
- Increase your flexibility with dual PMC slots with up to 64-bit/133 MHz PCI-X interface and PIM support
- Dual Gigabit Ethernet (PICMG 2.16) plus one Fast Ethernet
- PCI-X universal bridge (board can interface the CompactPCI bus in system, peripheral, or satellite mode) up to 133 MHz
- IPMI 1.5 compliant

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
 Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**CP6000-Value**

The CP6000-V is a cost/performance-optimized solution designed for demanding, cost-sensitive applications such as those found in automation technology. The CP6000-V can be equipped with an Intel Celeron processor up to 1 GHz. The hot swap-capable CPU board is equipped with a variety of interfaces, including four USB 2.0 ports and two GbE, which can be implemented so that they are accessible via the front panel or, alternatively, via the backplane in accordance with PICMG 2.16, which allows for wireless switched fabrics. In addition, there are two serial interfaces and the usual connections for keyboard, floppy, and graphics (VGA CRT with a resolution of 2048 x 1536 pixels), as well as a PMC slot, a CompactFlash socket, and the site for an on-board 2.5-inch HDD.

**FEATURES:**

- CompactPCI/PICMG 2.16 cost-optimized value-oriented design
- Low power Celeron up to 1 GHz
- Single slot 4HP CPU with passive cooling
- Scalable memory size up to 2 GB PC333 SDRAM
- Two GbE on FP (or PICMG 2.16) VGA, two USB
- PMC + on-board HDD + CompactFlash configuration possible simultaneously

For more information, contact: sales@us.kontron.com.

RSC #13201 @ www.compactpci-systems.com/catalogrsc

Printed Circuits Corp.

4467 Park Drive, Suite E • Norcross, GA 30093
 Tel: 770-638-8658 • Fax: 770-638-8659
www.pcc-i.com

**Customized Boards**

Printed Circuits Corp. (PCC) specializes in quick turn-around, both in prototype and production. We bring over 19 years of experience to printed circuit board manufacturing. Our services are personalized; we respond quickly to your needs at any stage of the partnership. We always stand ready to respond to your prototype or production requirements.

Products and services

Electromechanical-PCB design/layout and photoplot services; NPI concept-finish. EMS: Proto-Production; PTH/SMT; hand and auto assembly HD SMT. SS/DS and high density MLB to 12 layers; FR4; 4000 series laminates; SS/DS/MLB, LPI, SMOBC, Electroless Nickel/Immersion GoldBox build, repair and test services; data transfer via web/e-mail.

**FEATURES:**

- Design, layout, PCB fab, PCB assembly, turnkey, and box build services available
- High density multilayered boards; double-sided boards; single-sided boards; silk screening
- BGA and fine pitch surface mounts; immersion tin and white tin finish; flash and electrolytic gold plating
- LPI solder mask over bare copper; nickel and gold tab plating; electrical testing; photo plotting
- Data transfer via website, e-mail, or floppy disk; UL 94V-0 and UL 796 approved
- PCC is a minority owned business, filed for 8a/SDB and in process of ISO9000 certification

For more information, contact: joed@pcc-i.com.

RSC #13202 @ www.compactpci-systems.com/catalogrsc

NMS Communications

100 Crossing Blvd. • Framingham, MA 01702
 Tel: 508-271-1109 • Fax: 508-271-1470
www.nmscommunications.com/atca

**MG 7000A AdvancedTCA Media Processor****MG 7000A****High density media server and enhanced services platform**

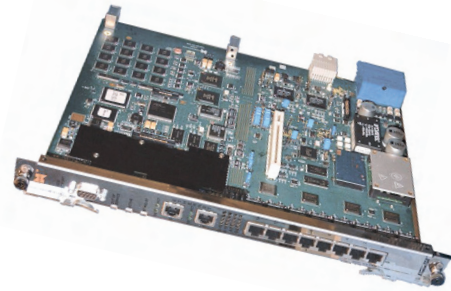
NMS Communications' MG 7000A is the ideal AdvancedTCA platform for flexible media processing in network-based telephony and video solutions. By combining built-in high speed IP packet handling, four Ethernet interfaces, high density DSP voice processing power, and a high speed processor with PSTN interfaces, the MG 7000A is the perfect choice for a wide variety of applications ranging from IP media servers and enhanced service platforms to mobile video gateways and servers. New solutions are rapidly implemented on the MG 7000A using the powerful Natural Access™ MX software development environment. As part of NMS's Open Access™ framework, the MG 7000A is the clear choice for next generation AdvancedTCA solutions.

Applications:

- IP media servers
- Enhanced service platforms
- IVR and conferencing engines
- VoIP gateways
- MRFP for 3G IMS
- Video gateway, video media server

Technical description

The architecture of the MG 7000A supports PSTN interfaces with up to 16 T1/E1 connections and CAS/ISDN support, voice and video media processing, and VoIP capability into a single-slot, highly available AdvancedTCA blade. The MG 7000A complies completely with PICMG 3.0 R1 and IPMI Version 1.5 specifications. Dual Gigabit Ethernet interfaces support the AdvancedTCA switch fabric and dual 1000BASE-T Ethernet ports support the AdvancedTCA base fabric. MG 7000A supports board-level hot swap and the AdvancedTCA shelf controller through the dual IPMI bus with on-board OAM software. This integration of capabilities results in a cost-effective and scalable platform for OEMs building next generation convergence solutions requiring capacities scaling from a few hundred to thousands of ports.

**FEATURES:**

- Single-slot AdvancedTCA solution for media servers and gateways
- 480 IVR, conferencing, VoIP, sessions
- 240 bidirectional 3G-324M video gateway sessions
- Autonomous operation
- Bootable from network or on-board flash memory
- Dual Gigabit Ethernet for AdvancedTCA switch fabric
- Dual 10/100/1000BASE-T Ethernet for AdvancedTCA base fabric
- Dual IPMI bus and shelf controller support
- Up to 17,000 MIPS DSP for media processing
- Craft port (RS-232) for troubleshooting
- Hot swap support
- SIP signaling support
- CAS/ISDN signaling support
- 16 T1/E1 ports
- Call control for CAS, ISDN, and SIP

SMA Computers

9550 Warner Avenue #250 • Fountain Valley, CA 92708

Tel: 714-593-2338 • Fax: 714-593-2368

www.SMAcomputers.com**CPU7.2**

The CPU7.2 has been designed for use with Intel's embedded line of processors. For the Pentium M 745 1.8 GHz, Intel has doubled the L2 cache to 2 MB and reduced the power dissipation. Now, a 1.8 GHz Pentium M achieves the same performance as past processors did with 2.8 GHz. The CPU7.2 combines maximum performance, long-term availability, and low power consumption and offers extensive rear I/O and mass storage options. The CPU7.2C offers all the essential functions of an industrial computer on 4HP: Powerful processor with CompactFlash, Gigabit Ethernet, efficient graphics, and four 2.0 USB ports as well as a serial interface that can be connected via rear I/O. Extensive additional functions are available on the 8HP CPU7.2M. Fanless, rugged versions available.

**FEATURES:**

- Pentium M 745 (1.8 GHz), Pentium M 738 (1.4 GHz) or ULV Celeron M (1.0 GHz), fanless versions available
- DVI-I SXGA graphic with 2D/3D hardware acceleration; dual screen system mode via front and rear VGA
- Ruggedized stereo audio ports; hot swap CompactFlash; Gigabit Ethernet (available on front and rear)
- Critical system data mirror; COM1 to COM3 as RS-232/422/TTY/CAN; four to six 2.0 USB ports
- Extensive line of compatible rear I/O and mass storage modules with many additional functions
- Extended temperature options available depending on processor and ventilation conditions

For more information, contact: info@SMAcomputers.com.RSC #13401 @ www.compactpci-systems.com/catalogrsc**Thales Computers**

rue Marcelin Berthelot BP244 • Toulon Cedex 9, France 83078

Tel: +33-139-455-976 • Fax: +33-139-455-858

www.thalescomputers.com**PowerEngineC7**

Designed to meet the requirements of compact, real-time systems for defense, aerospace, industrial, and transportation applications, this low power SBC is the first member of the growing family of 3U CompactPCI products from Thales Computers. The rugged conduction-cooled version of this board can withstand severe environmental conditions. It operates from -40 °C to +85 °C up to 50,000 feet and is designed to survive 40g shocks. This SBC is architected around the 750FX PowerPC with 256 MB DDR SDRAM, Dual Ethernet, and can host a PMC module.

**FEATURES:**

- 3U CompactPCI rugged PowerPC 750FX SBC with PMC slot
- Operating range: -40 °C to +85 °C, -1,000 to 50,000 feet, 40g shock
- 256 MB DDR SDRAM, 64 MB system flash, 128 MB user flash
- Dual Ethernet controller
- One slot to support CCPMC draft standard VITA 2.0
- Dual serial lines

For more information, contact: infocom@thalescomputers.fr.RSC #13402 @ www.compactpci-systems.com/catalogrsc

Trenton Technology Inc.

2350 Centennial Drive • Gainesville, GA 30504

Tel: 770-287-3100 • Fax: 770-287-3150

www.TrentonTechnology.com**CP16 CompactPCI Single Board Computer**

Trenton's CP16 uses the Intel Pentium M processor to provide maximum processing and thermal performance. The processor's micro-architecture and power management features like Enhanced Intel SpeedStep technology make this possible. Key features designed into the CP16 include a front access PMC slot, local storage options, dual Gigabit Ethernet ports, and support for up to 2 GB of DDR220/266 memory. A Rear Transition Module, RTM25, is available with or without dual Ultra320 SCSI interfaces and provides rear access to the SBC's I/O ports and status LEDs.

Versatility is one of the hallmarks of the CP16. The SBC complies with a variety of PCI Industrial Computer Manufacturers Group (PICMG) specifications, including Packet Switching Backplane (PICMG 2.16), Hot Swap (PICMG 2.1 and 2.12), and Intelligent Platform Management Interface (IPMI, PICMG 2.9). PICMG compliance and features like a local storage option and the ability to turn off the CompactPCI bus enable the CP16 to excel in a wide variety of either CompactPCI system board or server blade computing applications.

Like all products from Trenton Technology, the CP16 is backed by more than 25 years of embedded computer design experience, quality manufacturing, and fast product deliveries.

Trenton Technology: Dependable, always!

**FEATURES:**

- The Intel Pentium M processor provides improved performance with advanced power management features
- Optional plug-in CompactFlash or Microdrive storage
- PICMG 2.16 support
- Ability to turn off the CP16's CompactPCI bus interface
- Dual 10/100/1000BASE-T Ethernet ports
- Dual ATA/100 EIDE ports
- Four USB ports
- Optional Rear Transition Module, RTM25, with or without dual Ultra320 SCSI interfaces
- A front access PMC slot supports 32/64-bit, 33/66 MHz plug-in modules
- The ATI Mobility Radeon video memory controller (M6-C16H) provides 16 MB of integrated video DDR memory
- The Intel E7501 chipset unleashes the power of the Intel Pentium M processor's enhanced micro-architecture

Pinnacle Data Systems, Inc.

6600 Port Road • Groveport, OH 43125
 Tel: 614-748-1150 • Fax: 614-748-1209
www.pinnacle.com

**ComputeNode Line**

Pinnacle Data Systems, Inc. offers a complete line of NEBS tested and certified CompactPCI and CompactPSB ComputeNode chassis families. PDSi's CompactPCI/cPSB solutions are designed for high speed, high availability telecommunications and networking applications. Each solution is designed to meet the stringent requirements of the Central Office and is customizable for individual customer needs.

**FEATURES:**

- AC and DC power options
- Hot swappable fan trays for superior cooling and serviceability
- Hot swappable alarm card that does not occupy a node slot or RTM slot
- Telcordia NEBS GR-1089-CORE Level 3 and GR-63-CORE Level 3 tested and certified design
- Complete systems integration and support services
- Fully customizable

For more information, contact: info@pinnacle.com.

RSC #13601 @ www.compactpci-systems.com/catalogrsc

Interactive Circuits and Systems Ltd.

(A member of Radstone Embedded Computing)

296-300 Concord Road, Corporate Center, Suite 120 • Billerica, MA 01821
 Tel: 613-749-9241 • Fax: 613-749-9461

www.ics-ltd.com

**IMP1A-571 Blade**

The IMP1A-571 blade consists of a single PMC571 module integrated with the IMP1A fully ruggedized single board computer, occupying a single 3U CompactPCI slot based on the 500 MHz PowerPC 7410 processor. The PMC571 is a rugged transceiver with 1-ch. high speed ADC and DAC and a large user FPGA. Together, this blade combination of IMP1A and PMC571 provides system designers a rugged, high performance Software-Defined Radio (SDR) solution, ideally suited for space- and weight-constrained applications found in Unmanned Aerial Vehicles (UAVs), fast-jet aircraft nosecones, and all-terrain vehicles.

For more information, download Tech Note #53 from www.ics-ltd.com.

**FEATURES:**

- 3U CompactPCI system or peripheral slot ideal for size- and weight-constrained applications
- Single board computer and PMC combination
- 4 million gate Xilinx Virtex-II FPGA, and a 64-bit, 66 MHz PCI interface
- 500 MHz PowerPC 7410 processor
- Five air- or conduction-cooled ruggedization levels
- High speed ADC and DAC for SDR applications and VxWorks drivers and application code

For more information, contact: sales@ics-ltd.com.

RSC #13602 @ www.compactpci-systems.com/catalogrsc

Adtron

4415 E. Cotton Center Blvd. • Phoenix, AZ 85040
 Tel: 602-735-0300 • Fax: 602-735-0359
www.adtron.com

**SC6MB Bladepak™**

The Adtron SC6MB Bladepak storage blade delivers self-contained RAID-1 functionality on a 6U CompactPCI single-slot board appearing to the host CPU as a single-volume SCSI disk drive. Adtron SmartStorage™ framework mirrors two 2.5-inch IDE hard disk drives using Adtron ActiveRAID™ technology, provides failed drive hot swapping, and automatically initializes and rebuilds the replaced disk without stopping host access. This unique and advanced storage module delivers high availability storage to meet the demands of today's high performance telecommunications and server platforms.

**FEATURES:**

- Redundant disk storage, up to 80 GB, in a 6U CompactPCI single slot
- Configurations for either PCI or off-board SCSI connection
- Front panel hot swapping for replacement of a failed disk drive
- Automatic rebuild of a new disk drive after operator initiation
- Independent operation of redundant drives without host intervention featuring Adtron ActiveRAID technology
- No additional software drivers are required for operation as a SCSI boot and data storage system

For more information, contact: nasales@adtron.com.

RSC #13701 @ www.compactpci-systems.com/catalogrsc

Red Rock Technologies, Inc.

14429 N. 73rd Street • Scottsdale, AZ 85260
 Tel: 480-483-3777 • Fax: 480-483-8885
www.RedRockTech.com

**RRTC-1SHA-LW**

Red Rock Technologies' model RRTC-1SHA-LW provides a transparent interface from the Ultra Wide SCSI LVD bus to 2.5" ATA hard drives.

Capacities of up to 480 GB are available in a single 6U CompactPCI slot. Drives are addressable as one large disk or may be accessed as separate SCSI logical units. SCSI bus signals are available at J5 and front panel connectors. Only power is taken from the CompactPCI bus.

These modules provide a high capacity field replaceable unit capable of withstanding higher shock and vibration environments.

SCSI termination is provided with the unit. The SCSI interface is fully configurable for 8-bit, single-ended, and SCSI-2 compatibility.

**FEATURES:**

- Capacity of up to 480 GB
- CompactPCI form factor occupying one 6U slot
- Ultra Wide SCSI LVD interface available at front panel and J5 connectors
- Can be configured for 8-bit, single-ended, and/or SCSI-2 operation, thus supporting legacy systems
- Front panel status and activity LEDs
- Rear Transition Module available

For more information, contact: info@redrocktech.com.

RSC #13702 @ www.compactpci-systems.com/catalogrsc

SANBlaze Technology, Inc.

2 Clock Tower Place, Suite 550 • Maynard, MA 01754

Tel: 978-897-1888 • Fax: 978-897-3171

www.sanblaze.com**SB-SCSI Raid Blade****CompactPCI SCSI Raid Blade**

The SANBlaze SB-SCSI CompactPCI SCSI blade provides CompactPCI system designers the flexibility to add in-chassis storage options utilizing enterprise class storage technologies such as SCSI drives and Raid.

The SB-SCSI Raid Blade provides single or dual SCSI drives in a single- or dual-slot CompactPCI form factor. Multiple blades can be daisy-chained providing expandability and redundancy options previously unavailable to CompactPCI system designs.

When using a SANBlaze SB-PMC320 PMC SCSI adapter connected to two SB-SCSI blades, the system could build a mirrored set across two separate hot swappable boards, providing storage redundancy at both the disk and board level, for example.

**FEATURES:**

- Single or dual SCSI drive options with SCSI Ultra320 support
- In/out high density SCSI connectors support daisy chaining with auto-termination
- 36 GB to 146 GB of storage in a 6U, single- or dual-slot CompactPCI form factor
- Can provide Raid 0 (striping) and Raid 1 (mirroring) functionality
- Hot swappable, IPMI support
- Removable hot swap drive version available

For more information, contact: info@sanblaze.com.RSC #13801 @ www.compactpci-systems.com/catalogrsc**AMTELCO XDS**

4800 Curtin Drive • McFarland, WI 53558

Tel: 800-356-9224 • Fax: 608-838-8367

xds.amtelco.com**XDS TDM Boards**

AMTELCO XDS offers high-quality analog solutions for Loop Start business lines, Station Ports for operators or telephones, E&M boards for interfacing to trunked radios, high density conference boards, economical E1/T1 interfaces in four to eight trunks, and multichassis connections. AMTELCO XDS Boards are available in H.110 CompactPCI and H.100 PCI compatible formats.

**FEATURES:**

- Loop Start business lines
- Station ports for operators or telephones
- E&M boards for interfacing to trunked radios
- High density conference boards (with or without distortion)
- Economical E1/T1 interfaces in 4 to 8 trunks
- Multichassis connections

For more information, contact: xds@amtelco.com.RSC #13802 @ www.compactpci-systems.com/catalogrsc

Continuous Computing

9380 Carroll Park Drive • San Diego, CA 92121
 Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com



Continuous Computing
 Create | Deploy | Converge

FlexSwitch™ cPCI-24G

FlexSwitch 24G delivers Gigabit Ethernet service for up to 19 payload cards. It provides advanced packet transport services such as a full suite of Layer 2/Layer 3 protocols and also offers Layer 4-7 packet classification, VLAN, QOS/COS, NAT, RSTP, and port mirroring. 24G is PICMG 2.1 Hot Swap compliant and PICMG 2.9 IPMI compliant, while an RTM is available to route fabric-to-fabric and a pair of egress channels to the rear of the chassis. Flexible and powerful switch management provides a complete Linux networking environment that helps facilitate application development. An embedded Linux kernel enables the "reuse" of custom networking applications across multiple switching/routing devices for a cost-effective return on investment.

**FEATURES:**

- 24 Gigabit Ethernet ports using BCM5695's, dual Broadcom switch fabric, Rear Transition Module available
- Dynamic and static Layer 2 switching and Layer 3 routing, full suite of Layer 2/Layer 3 protocols
- Layer 4-7 packet classification, VLAN, QOS/COS, NAT, RSTP, and port mirroring
- Broad standards compliance: PICMG 2.16 (cPSB), 2.9 (IPMI), SNMP, FTP, TFTP, and TELNET
- Freescale MPC8245 PowerPC Processor, 266 MHz, 64 MB SDRAM, and 32 MB flash ROM
- Helps provide the fastest path from application development to deployment revenue

For more information, contact: info@ccpu.com.

RSC #13901 @ www.compactpci-systems.com/catalogrsc

Continuous Computing

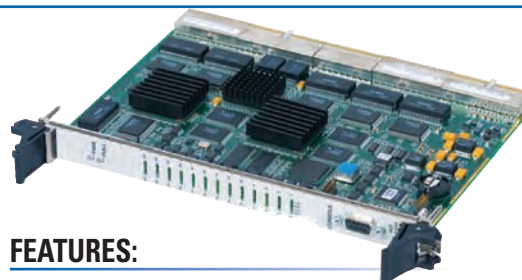
9380 Carroll Park Drive • San Diego, CA 92121
 Tel: 858-882-8800 • Fax: 858-777-3388
www.ccpu.com



Continuous Computing
 Create | Deploy | Converge

FlexSwitch™ cPCI-24+2R

FlexSwitch cPCI-24+2R is a 26-port, non-blocking, fully managed Ethernet switch with 24 10/100 autosensing Fast Ethernet ports, which can be accessed via the mid-plane for intra-chassis switching (PICMG 2.16 compliant) or via the RTM for external switching. The two Gigabit Ethernet ports can be accessed through the RTM. 24+2R provides full wire-speed Layer 2 switching support for up to 16K MAC addresses, 256 IEEE 802.1Q Virtual LANs, IP multicasting, full- and half-duplex flow control, and IEEE 802.1p/Q QoS. 24+2R enables high speed communications between elements in Continuous Computing's CompactPCI systems without external hubs that often block airflow. Its vertical, low power design increases system density, lowers cost, and provides seamless system integration.

**FEATURES:**

- High performance: Provides 24 100BASE-TX ports and dual 1000BASE-TX ports in a single-slot 6U CompactPCI card
- High density: Provides full wire-speed Layer 2 switching with true non-blocking architecture
- Flexible management: Supports SNMP management, web-based network management, TELNET, and RMON
- Rear I/O allows for clean system cabling and provides for easy card replacement
- Can operate in a CompactPCI slot or in an isolated backplane; supports TCP/IP and serial management interfaces
- Engineered for carrier class performance and designed as a modular switching blade for telecom deployment

For more information, contact: info@ccpu.com.

RSC #13902 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109

Tel: 505-875-0600 • Fax: 505-875-0400

www.sbs.com**SBS Rugged Systems – Designed to thrive in harsh environments**

Ruggedized systems from SBS Technologies include advanced vehicle computers, rugged chassis, and rugged electronic boards and components for use in military and space systems. Our advanced computing platforms are designed to meet the challenges of extreme temperatures, shock, vibration, EMI, and G-forces.

SBS Rugged Systems provide robust, yet highly flexible COTS computing platforms suited for a wide variety of avionic, vetronic, and navtronic applications where complete reliability and immunity to extreme environmental conditions are required.

Featuring ruggedized computing platforms in VME and CompactPCI formats, SBS systems are available in dozens of standardized configurations. These systems include ruggedized chassis with integrated processor, I/O, and signal processing subsystems, as well as expansion slots and rugged power supplies.

SBS also provides custom integration to quickly create a custom design based on our extensive product portfolio. A custom design might involve minor adjustments to standard systems and boards, or it could include customized interfaces, platforms, and configurations. We also offer development support and advance prototypes.

SBS ruggedized systems are based upon VME and CompactPCI backplanes.

AVC-3000 Series

Our AVC-CPCI-3000 Series systems are based around one to three CompactPCI 3U form factor single board computers and I/O boards. They feature casings that are both strong and lightweight. At their core, a robust COTS power supply and ruggedized single board computer integrate with other CompactPCI modules to deliver reliable, cost-effective performance.

AVC-6000 Series

Our AVC-6000 Series systems are based upon VME and CompactPCI 6U form factor single board computers and I/O boards. They feature rugged casings that are both strong and lightweight and are based upon ruggedized single board computers and I/O boards.

**FEATURES:**

- AVC-CPCI-3000 Series Advanced Vehicle Computers are based upon CompactPCI 3U systems:
 - 3-14 CompactPCI 3U slots
 - 65-300 W rugged power supply
 - PPC or Intel-based SBC(s)
 - Flexible I/O options
- The AVC-CPCI-6001 Advanced Vehicle Computer is based upon a CompactPCI 6U system:
 - Eight CompactPCI 6U slots
 - 450 W rugged power supply
 - PowerPC-based SBC
 - Flexible I/O options
- AVC-VME-6000 Series Advanced Vehicle Computers are based upon VME 6U systems:
 - Five VME 6U slots
 - 150-300 W rugged power supply
 - PPC or Intel-based SBC(s)
 - Flexible I/O options

GOPEL Electronics

9600 Great Hills Trail, Suite 150 W • Austin, TX 78759

Tel: 512-502-3010 • Fax: 512-502-3076

www.goepel.com**SCANFLEX family**

SCANFLEX® is a revolutionary new hardware platform, created to enable for extended JTAG/boundary-scan test and ISP solutions, taking full advantage of the technical potential provided by today's and tomorrow's standards. SCANFLEX excels when it comes to speed, flexibility, and modularity of a boundary-scan test system. But it does not stop there, adding new capabilities for analog and mixed-signal test not found in competitive products.

Created to extend boundary-scan tests beyond the capabilities embodied in the traditional IEEE 1149.1 standard, the SCANFLEX platform supports IEEE 1532 for in-circuit programming, IEEE 1149.4 for analog boundary-scan test, and IEEE 1149.6 for AC boundary-scan tests.

**FEATURES:**

- Modular platform consisting of SCANFLEX Controller, TAP-Transceiver, I/O modules for flexible configurations
- Modular expandable number of (up to 8) parallel, independent TAP and (up to 31) independent I/O modules
- Interchangeable TAP Interface Cards (TIC) support a variety of interface types and integration environments
- Flexible electrical signal termination (up to 8 per TAP programmable interface parameters); up to 80 MHz TCK
- Flexible distribution of individual TAP's and I/O modules with distances of up to 10 m/33 ft from controller
- Flexible analog and digital resources on every TAP-Transceiver as standard configuration; HYSCAN, SPACE II

For more information, contact: h.ehrenberg@goepel.com.RSC #14101 @ www.compactpci-systems.com/catalogrsc**ZTEC Instruments**

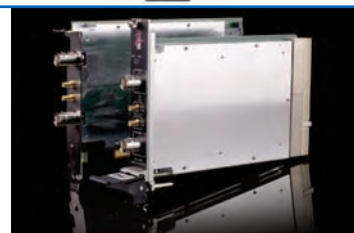
7715 Tiburon Street N.E. • Albuquerque, NM 87109

Tel: 505-342-0132 • Fax: 505-342-0222

www.ztec-inc.com**ZT410 DSO Family**

The ZT410 family combines traditional bench top oscilloscope features with high precision measurement capability. The instrument's low noise, distortion, and drift provide the dynamic range needed for even the most demanding measurement applications. Like all ZTEC modular instrument products, the ZT410 family is designed to include capabilities familiar to the bench top oscilloscope user. These capabilities include flexible signal conditioning, advanced triggering, multiple acquisition modes, on-board signal processing, and much more. Even features like auto-setup and auto-calibration are included.

All ZTEC modular oscilloscopes come with the ZScope soft front panel for complete interactive control. Open source software drivers are also included.

**FEATURES:**

- Two-channel (PCI, PXI) or four-channel (VXI), 14-bit (ZT410-20), or 16-bit (ZT410-50) 250 MHz analog bandwidth
- 500 MSps (ZT410-20) or 400 MSps (ZT410-50) max sample rates
- Two channels: Up to 16 MS memory per channel
- Programmable high performance analog signal conditioning; edge, pattern, pulse width, and video triggering
- Envelope, average, equivalent-time, and interpolated-time acquisition modes
- More than 35 high precision waveform measurements, including SNR, THD, and ENOB
- More than 10 waveform calculations, including FFT and IIR filtering; on-board limit and mask testing and much more!

For more information, contact: tsmith@ztec-inc.com.RSC #14102 @ www.compactpci-systems.com/catalogrsc

ZTEC Instruments

7715 Tiburon Street N.E. • Albuquerque, NM 87109

Tel: 505-342-0132 • Fax: 505-342-0222

www.ztec-inc.com**ZT450 DSO Family**

The ZT450 family is a series of 8-bit, software compatible, high speed, low power modular digital storage oscilloscopes for PCI, CompactPCI/PXI, and VXI. Built on state-of-the-art data conversion technology with deep waveform memory, the ZT450 family delivers the best bench top oscilloscope performance in a modular instrumentation form factor.

The ZT450 family is available in several models that are designed to meet your specific application and budget needs. Combined with its ease of use and familiar bench top instrument features, the low cost option is ideal for those looking to take quick laboratory measurements. High performance options are available for advanced users developing specialized automated test systems.

**FEATURES:**

- Two-channel (PCI, PXI) or four-channel (VXI), 8-bit resolution, 500 MSps to 2.5 GSps max sample rates; 250 MHz to 1 GHz
- 250 MHz to 1 GHz max analog bandwidth
- Up to 32 MS memory (PCI, PXI) or 64 MS memory (VXI)
- Programmable signal conditioning
- Real-time signal processing
- Envelope and averaging acquisition modes; powerful triggering and multiple waveform capture and more!

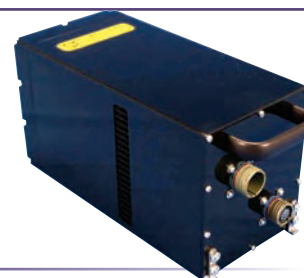
For more information, contact: tsmith@ztec-inc.com.RSC #14201 @ www.compactpci-systems.com/catalogrsc**AP Labs**

10864 Thornmint Road • San Diego, CA 92127

Tel: 858-674-2850 • Fax: 858-674-2869

www.aplabs.com**AP Labs****FS-5973 3U cPCI**

The FS-5973 is a forced-air, conduction-cooled chassis designed for use in avionics and other environments. Specifically, the FS-5973 chassis meets the environmental requirements of MIL-E-5400 for Class 1 equipment and will withstand extremes of temperature, vibration, shock, salt spray, sand, and chemical exposure while maintaining a sealed environment. The FS-5973 chassis is designed to adapt to existing ARINC style equipment mounting trays or it can be configured with a number of application driven mounting options, including hard and shock mounted.

**FEATURES:**

- ARINC 404A, 1/2 ATR CompactPCI rugged chassis 4.88" (W) x 5.59" (H) x 11.46" (D); weight 9 lbs (4.09 kg)
- Five conduction-cooled 3U slots to IEEE 1101.2, .8" pitch: System slot, four spare slots for I/O and peripherals
- Meets MIL-STD-5400 Class 1, Watertight MIL-STD-108E, Storage temp: -62 °C to -95 °C, Operating temp: -55 °C to +55 °C at SL
- Vibration: MIL-STD-810E, 0.1 g/Hz, 15-2 kHz, Shock: MIL-STD-810E 20 g, 6-9 ms, half sine wave
- EMC: Per MIL-STD-461C; CE01, CE03, CS02, CS06, RE02, RS01, RS02, RS03
- Input: 18 to 48 Vdc, Output: +5 V 9 A, 3.3 V 5 A, +12 V 0.5 A, -12 V 0.5 A, input protection to MIL-STD-704A, MIL-STD1275A

For more information, contact: sales@aplabs.com.RSC #14202 @ www.compactpci-systems.com/catalogrsc

MEN Micro, Inc.

P.O. Box 4160 • Lago Vista, TX 78465-4160

Tel: 512-267-8883 • Fax: 512-267-8803

www.menmicro.com**F14 CompactPCI SBC**

MEN Micro's F14 is a 32-bit/33 MHz system-slot or standalone Single Board Computer (SBC) for 3U CompactPCI systems. The F14 requires just a single slot on the CompactPCI bus. The F14 features a high performance Intel Pentium M processor with clock frequencies up to 2 GHz. Alternatively, the F14 can be equipped with the low-power Celeron M processor. With its passive heat sink, some versions of the F14 can be operated over the entire industrial temperature range (-40 °C to +85 °C). The F14's new 915GM chip set provides four PCI Express lanes for fast communication via high speed links like Gigabit Ethernet or for graphics. The F14 also includes two SATA interfaces. Standard I/O at the front panel is a VGA connector for graphics, two PCI Express-connected Gigabit Ethernet ports, and two USB 2.0 ports. The F14 offers a variety of I/O options by combining it with different expansion cards and some even enable the F14 to be deployed in 6U CompactPCI systems. Expansion functions include common UARTs, additional USB interfaces, audio, and two additional DVI connections to display identical or different contents on multiple screens. The F14 also supports rear panel I/O. In terms of memory, the F14 has up to 2 GB of fast DDR2 DRAM that is soldered to the circuit board for applications where shock and vibration are an issue. A CompactFlash slot can accommodate standard CompactFlash or a 1.8-inch hard disk.

The F14 also includes multiple watchdogs that monitor the operation of the processor and the board's temperature. Board support packages for Windows, Linux, VxWorks, and QNX are available for the F14. The F14 is suited for a wide range of industrial applications, such as monitoring, visualization or control, and test and measurement in target markets that include industrial automation, medical engineering, airplane and ship engineering, and transportation. MEN will ensure availability of the F14 at least until 2011. In addition, the F14 conforms to the European Union's lead-free restrictions (RoHS).

**FEATURES:**

- 3U CompactPCI system master or standalone
- Pentium 760 M up to 2 GHz or Celeron 373 M processor up to 1 GHz
- Fast connection via SATA and PCI Express
- Designed and qualified for harsh industrial environments
- Board support packages for Linux, Windows, VxWorks, QNX
- Up to 2 GB fast DDR2 DRAM soldered in place to mitigate shock and vibration
- CompactFlash slot for additional memory or a 1.8-inch hard disk
- New 915GM chip set provides four PCI Express lanes for fast communication
- Two SATA interfaces on the front panel in addition to VGA connector, two Gigabit Ethernet channels over PCI Express, and two USB 2.0 ports
- Expansion functions include additional UARTs, USB interfaces, audio, and two additional DVI connections
- Suitable for industrial applications, monitoring, visualization, control, test and measurement, medical engineering, and transportation

Inova Computers, Inc.

18275 North 59th Avenue, Suite 152 • Glendale, AZ 85308

Tel: 602-863-0726 • Fax: 602-863-0796

www.inova-computers.de/icpesyscexp.php**ICPe-SYSC-EXP**

Complete 3U and 4U *CompactPCI Express* systems and components make their debut for high-end rugged applications in industrial environments.

The **GoldNugget** is a 3U, 44 HP system complete with a 2 GHz, actively cooled Pentium M or conduction-cooled ULV Celeron M CPU board, five free 32-bit CompactPCI slots (of which three are "hybrid" and can be used for dedicated Express I/O boards), 100 W AC/DC PSU and translation board (CompactPCI Express to CompactPCI) with independent Gigabit Ethernet, provision for an on-board serial ATA hard disk and/or rear I/O based SATA RAID solutions.

For high-end industrial applications, a full-size, 84HP, 4U **GoldRush** enclosure is available with provision for either an ATX power supply or standard Inova 100 W CompactPCI Express PSU. The **GoldRush** enclosure may be open (ventilation holes) to allow the free passage of air, or closed, but still benefit from the airflow supplied by the supervised underslung removable fan tray unit.

The newly developed **GoldMine** CompactPCI Express CPUs for use in these systems are based on the i915 chipset and address up to 2 GB of 533 MHz DDR2 RAM. These CPUs provide legacy I/O support, USB 2.0, Gigabit Ethernet, graphic translation (LVDS, SDVO), and serial ATA or conventional EIDE mass storage interfacing. For true rugged deployment, application code and OS can be neatly accommodated in either μ DOC Flash, conventional CompactFlash, or the latest 1.8" hard disk medium.

Integrated into the BIOS Flash is a μ Linux kernel for total cost-of-ownership reduction (OS license), remote diagnostic and field servicing, rapid boot, and for robust applications where rotating parts cannot be tolerated.

An implementation of the Intelligent Platform Management Interface (IPMI) enables the boards to monitor, log, and control many of the CPU's functions for fast pre-boot diagnostics, OS self-repair, and life-time forecasting in harsh industrial environments.

Complete with the ULV Celeron M CPU, the **GoldNugget** system is available for rugged applications starting at \$2,990.00 for OEM volume.

**FEATURES:**

- **First complete 3U/4U CompactPCI Express system**

- 100 W CompactPCI Express 115 V/230 V AC/DC PSU
- Optional ATX power supply
- 6-slot CompactPCI Express backplane with legacy support
- Translation board with Gigabit Ethernet and HD interface
- Windows XP Embedded
- MTBF > 200,000 hours
- 0 °C to +60 °C operational temperature
- Conforms to EN50155 (DC PSU)

- **1 GHz ULV Celeron M/ 2.0 GHz Pentium M CPU**

- Intel 915GM chipset with DirectX 9 H/W support
- Up to 2 GB 533 MHz DDR2 RAM
- VGA/DVI/TFT supported video formats
- Up to 2048 x 1536 pixel video resolution
- Up to two independent Gigabit interfaces
- Up to eight USB 2.0 interfaces
- CPU extension with HD, COM, and PS-2 interfaces
- Single-slot, inline serial ATA interface
- μ DOC technology or CompactFlash
- μ Controller for System Management
- Intelligent Rear I/O

The conduction-cooled 1 GHz Celeron version is just 4HP wide and is suited to applications in harsh environments or extremes of temperature.

BittWare, Inc.

31B South Main Street • Concord, NH 03301

Tel: 603-226-0404 • Fax: 603-226-6667

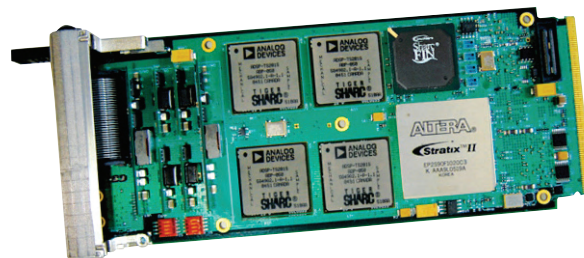
www.bittware.com**B2-AMC**

Featuring Analog Devices' ADSP-TS2015 TigerSHARC processor and Altera's Stratix II FPGA, BittWare's B2-AMC (B2AM) is an Advanced Mezzanine Card (AdvancedMC) that supports universal baseband processing for wireless communications infrastructure such as 2G, 2.5G, 3G, WiMAX, and SDR. A full-height, single-wide AdvancedMC, the B2AM attaches to AdvancedTCA carriers or other cards equipped with AdvancedMC bays and is completely hot swappable. The B2AM features a single cluster of four ADSP-TS2015 TigerSHARC DSPs from Analog Devices, providing a total of 14.4 GFLOPS floating point and 57.5 GOPS of 16-bit fixed point processing power. In addition to 24 Mb of on-chip RAM, each TigerSHARC also boasts four high speed LVDS link ports at 500 MBps each.

The Altera Stratix II FPGA facilitates off-board I/O and provides communications routing and processing via BittWare's ATLANTiS. ATLANTiS implements eight TigerSHARC link ports, supporting a variety of external I/O, flags, and interrupts, and can be configured to connect any I/O or link port to any other I/O or link port, allowing any combination of inputs and outputs to be routed together. Broadcast, multicast, and dynamic reconfigurability are also supported. ATLANTiS allows designers to route data to internal FPGA processing blocks for pre-, post-, or co-processing.

ATLANTiS interfaces to four ports in the AdvancedMC fat pipes via PMC Sierra's QuadPHY SerDes. The four ports provide a network data and control switch fabric interface on the AdvancedMC connector, configurable to support PCI Express, Advanced Switching Interconnect (ASI), Serial RapidIO, GbE, or XAUI. Alternatively, a single SerDes port can be run via a front panel fiber transceiver. BittWare's SharcFINE Bridge provides Gigabit Ethernet and PCI Express via the common options region. It also provides 10/100 Ethernet and RS-232 on the AdvancedMC front panel.

ATLANTiS provides 11 pairs of LVDS I/O (5 Rx, 1 Rx clk, 5 Tx) for proprietary antenna or network interfaces and 24 bits of general purpose digital I/O available on the AdvancedMC front panel. The B2AM implements the standard IPMI.

**FEATURES:**

- Full-height, single-wide AdvancedMC
- ADSP-TS201 DSP cluster of 4 ADSP-TS2015 TigerSHARC DSPs providing 57.5 GOPS 16-bit fixed point and 14.4 GFLOPS floating point processing power
- BittWare's ATLANTiS implemented in an Altera Stratix II FPGA for I/O, routing, and processing
- Fat pipes and common options interfaces for data and control providing the following:
 - Network interface configurable to support
 - Serial RapidIO
 - PCI Express and ASI
 - GbE, XAUI (10 GbE)
 - SharcFINE bridge providing GbE and PCI Express
 - Module Management Control implementing IPMI
 - Temperature monitoring
 - Hot swap support
 - System synchronization via AdvancedMC systems clocks
- Front panel I/O providing the following:
 - 10/100 Ethernet: LVDS I/O- general purpose digital I/O
 - RS-232: Optional 1x fiber transceiver (replaces AdvancedMC fat pipes)- JTAG port for debug support
- Booting of DSPs and FPGA via flash nonvolatile memory

Creative Electronic Systems

38 Avenue Eugène-Lance • Grand-Lancy 1 / Geneva, Switzerland 1212
Tel: 41-22-884-51-00 • Fax: 41-22-794-74-30
www.ces.ch



AdvancedMC Family

The AdvancedMCs have many applications in the 3G UMTS arena, although, in addition, they may support other access systems including Base Transceiver Stations (Node B), Radio Network Controller (RNC), Serving GPRS Support Node (SGSN), Mobile Switch Center for UMTS (MSC), media gateways (VoIP, circuit gateway, signaling gateway), and multiservice platforms.

Hardware specifications:

The PICMG Advanced Mezzanine Card (AdvancedMC) specification is the new standard for Advanced Telecom Computing Architecture (AdvancedTCA) systems. These cards use a PCI Express bus interface in order to communicate in an AdvancedTCA or MicroTCA platform.

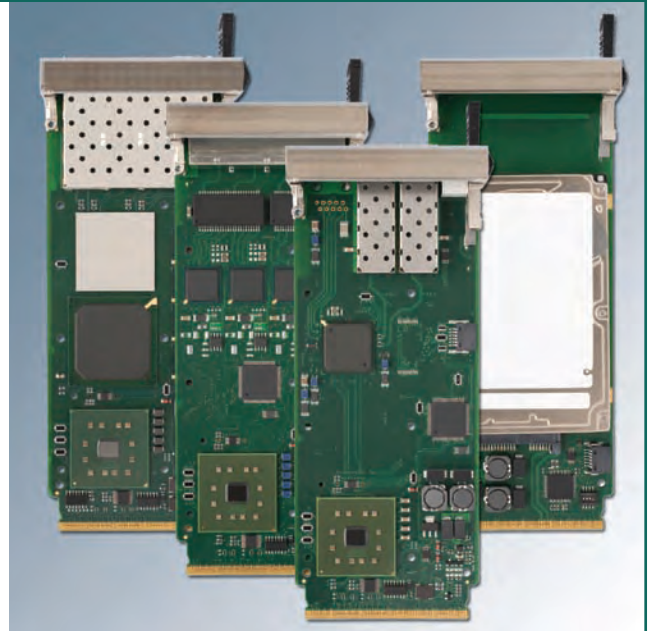
The first four AdvancedMCs offered by CES are:

ATM 9471 – Reliable high performance Asynchronous Transfer Mode (ATM) connectivity in telecommunications, multimedia, and industrial applications. It has SFP front panel housing for user-defined optical interface (short/long distance selection, multimode/single-mode fiber) to allow use of four full duplex SONET/SHD transports at 155.52 Mbps. It also supports external clock on the AdvancedMC connector for clock synchronization.
FETH 9478 – A full duplex quad 10/100BASE-TX Ethernet directly connected to the PCI Express (x4).
GETH 9479 – A full duplex twin Gigabit Ethernet directly connected to the PCI Express (x4).
DSK 9408 – A SATA 2.5-inch hard disk slot for an AdvancedTCA motherboard.

Module management:

These new AdvancedMCs support an Intelligent Platform Management Interface (IPMI), which is built around an onboard microcontroller. IPMI defines common interfaces to the "intelligent" hardware that is used to monitor several physical health characteristics, such as temperature, voltage, fans, power supplies, and chassis intrusion.

For more information, visit our website, www.ces.ch, or e-mail us: ces@ces.ch.



FEATURES:

- Single-width, full-height AdvancedMCs
- Full "Module Management" MMC support with blue LED, hot swap switch, and IPMI 1.5
- ATM 9471: Quad channel OC3 ATM
- FETH 9478: Quad channel embedded Ethernet MAC and PHY (full duplex 10/100BASE-TX Ethernet over RJ-45 with DSP support)
- GETH 9479: Dual channel Gigabit Ethernet (media selectable)
- DSK 9408: Slot for SATA 2.5-inch hard disk

Embedded Planet

4760 Richmond Road • Cleveland, OH 44128

Tel: 216-245-4180 • Fax: 216-292-0561

www.embeddedplanet.com



EP8548A

The EP8548A is the answer to rapidly developing and deploying high performance Serial RapidIO based AdvancedTCA and MicroTCA applications. You have a choice of operating systems and custom hardware diagnostics letting you focus on your application development and getting to market first.

The EP8548A is a single width, full height AdvancedMC processor board with a low power, high performance Freescale MPC8548E processor operating at up to 1.33 GHz and Serial RapidIO fabric connection. In addition to the AdvancedMC configuration the EP8548AMC can operate as a standalone module and boot from on-board flash allowing for rapid application development outside of the integrated AdvancedTCA or MicroTCA environment. For fabric connectivity the EP8548A is compliant with the AMC.4 specification for Serial RapidIO fabric interfaces, but is also built for flexibility. PCI Express and Gigabit Ethernet connections are also routed to the AdvancedMC connector to simplify testing and integration of additional SERDES interfaces.

At the heart of the EP8548AMC is a Freescale MPC8548E PowerQUICC III processor. The MPC8548E is a highly integrated System-on-Chip (SoC) platform that includes a PowerPC core, an integrated security engine, integrated Serial RapidIO, PCI Express and Gigabit Ethernet controllers, double precision floating point support, and a DDRII memory interface. The integrated security engine ensures that encryption doesn't slow down your application. The highly integrated SoC architecture improves system performance, simplifies board design, lowers power consumption, and reduces cost.

The EP8548A includes a Module Management Controller (MMC) built from a 32-bit Freescale ColdFire processor. The MMC supports the Intelligent Platform Management Interface (IPMI) and allows for independent management and monitoring of the EP8548AMC board. Embedded Planet also supports the EP8548A with PlanetCore hardware diagnostics, multiple OS options, and an open source bootloader and flash programmer, allowing you to focus on your application. Like all Embedded Planet products the EP8548A can be custom configured to meet your needs.



FEATURES:

- AMC.0 and AMC.4 compliant design for simple inclusion in Serial RapidIO fabric based AdvancedTCA systems
- Operates in standalone mode with included power supply to simplify and accelerate early application development
- Freescale PowerQUICC III MPC8548 operating at up to 1.33 GHz delivering an estimated 3065 MIPS (Dhrystone 2.1)
- Integrated security engine supporting DES, 3DES, MD-5, SHA-1/2, AES, RSA, RNG, Kasumi F8/F9, and ARC-4 encryption algorithms
- One Gigabit Ethernet to front RJ-45 connector and three Gigabit Ethernet connections to rear AdvancedMC connector for the AdvancedTCA base interface
- Configurable x4 and x8 PCI Express signals to Zone 3 of the AdvancedMC connector, allowing for simplified testing of PCI Express
- Single SODIMM slot with DDR2 interface for high-bandwidth RAM access and 16 MB of on-board flash
- Front panel RS-232 connection available for direct module management interface
- On-board JTAG connection to simplify development and debugging of software applications
- Software support includes: PlanetCore Hardware Diagnostics, U-Boot Bootloader, Linux, INTEGRITY, and VxWorks Board Support Packages
- Complete AdvancedTCA development systems available including AdvancedTCA carrier boards, chassis, and multiple AdvancedMC cards

Concurrent Technologies

3840 Packard Road • Ann Arbor, MI 48108
Tel: 734-971-6309 • Fax: 734-971-6350
www.gocct.com

**AMC, Pentium M**

The PR AMC/33x is a high performance, Pentium M based, Advanced Mezzanine Card (AdvancedMC) processor module suitable for AdvancedTCA and MicroTCA platforms. The PR AMC/33x supports the 2.0 GHz Intel Pentium M processor 760. To enhance overall memory and I/O performance, it utilizes the Intel E7520 server chipset. The E7520 interfaces with up to 2 GB soldered DDR2-400 ECC memory. The PR AMC/33x includes a PCI Express x8 link, as well as dual Gigabit Ethernet, dual Serial ATA150 ports, hot swap, and IPMI. The module also features USB and RS-232 ports plus 1 MB application flash. Applications include wireless basestations, security, test and measurement systems, Voice over IP, media servers, or blade servers. Plus it supports a variety of industry standard operating systems.

**FEATURES:**

- AdvancedMC processor module, single-width – full-height
- 2.0 GHz Intel Pentium M processor 760, with 2 MB L2 cache and 533 MHz FSB
- 1 GB or 2 GB soldered DDR2-400 ECC DRAM giving a peak memory bandwidth of 3.2 GBps
- PICMG AMC.0 base spec, AMC.1 Type 8 (PCI Express x8), AMC.2 Type E2 (two GbE), and AMC.3 Type S2 (two SATA150)
- Plus two USB 2.0, two RS-232, and 1 MB user programmable application flash
- Support for Linux, Windows 2000, Windows Server 2003, Windows XP, Windows XP Embedded, QNX, and VxWorks

For more information, contact: info@gocct.com.

RSC #14801 @ www.compactpci-systems.com/catalogrsc

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**AM4001 PrAdvancedMC**

The AM4001 is a hot-swappable, highly integrated CPU AdvancedMC module available as single-width, full-height, and extended full-height versions. The design is based on the low power, high performance Intel Celeron M and Pentium M processors combined with the high performance E7320 and 6300ESB server-class chipsets.

The board includes a dedicated memory module for up to 4 GB registered Double Data Rate (DDR2) memory with Error Checking and Correcting (ECC) running at 400 MHz. Via a dedicated Module Management Controller (MMC), the AM4001 can be replaced, monitored, and controlled without having to shut down the AdvancedTCA carrier board or the system. The AM4001 is targeted towards radio network controllers, storage control, routing, and switching.

**FEATURES:**

- AdvancedMC Processor Module, single-width half/full-height
- Intel Pentium M, scalable up to 2.0 GHz
- Max 4 GB memory
- Flexible Gigabit Ethernet and PCI Express fabric interface
- Superb monitoring features
- PICMG AMC.0/.1/.2/.3 compliance and IPMI v1.5 support

For more information, contact: sales@us.kontron.com.

RSC #14802 @ www.compactpci-systems.com/catalogrsc

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
 Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**AM4300 Quad GbE I/O**

AdvancedMC modules are the key extending the value of AdvancedTCA platforms designed for multiple applications in the wireless / wireline network infrastructure. The Kontron AM4300 Quad GbE module is the ideal AdvancedMC unit for network applications that require multiple ports directly from an AdvancedTCA processor blade. Available in full-height, single-width form factors, the AM4300 features four 10BASE-T/100BASE-Tx/1000BASE-T ports, supports PCIe x8, x4, x2, and x1 link, and supports remote management via IPMI v1.5. As a hot-swappable Field Replaceable Unit (FRU), the AM4300 also follows the same stringent carrier grade RASM feature set, namely – Reliability, Availability, Serviceability, Maintainability.

**FEATURES:**

- Full-height single-width per AMC.0 specification
- PCIe x8, x4, x2, and x1 link supported
- Internal RISC processor to manage transmit and receive data path
- Management through IPMI 1.5 implementation
- Multiple configurations available

For more information, contact: sales@us.kontron.com.

RSC #14901 @ www.compactpci-systems.com/catalogrsc

Kontron

14118 Stowe Drive • Poway, CA 92064-7147
 Tel: 888-294-4558 • Fax: 858-677-0898
www.kontron.com

**AM4500 SATA**

AdvancedMC modules are key to extending the value of AdvancedTCA platforms designed for multiple applications in the wireless / wireline network infrastructure. An ideal low-cost storage solution, the Kontron AM4500 module is available in full-height, single-width form factors, and offers up to 60 GB storage capacity. Built in accordance to the AMC.0 specification, the AM4500 is also AMC.3 compliant, features Native Command Queuing (NCQ) with up to 32 instructions to be queued and reordered, and is easily managed via IPMI v1.5. As a Field Replaceable Unit (FRU), the AM4500 also follows the same stringent carrier grade RASM feature set, namely – Reliability, Availability, Serviceability, Maintainability.

**FEATURES:**

- AMC.3 compliant in full-height, single-width (AMC.0)
- Up to 60 GB capacity
- 5,400 rpm, 12 ms average seek time (1.5 ms track to track)
- Supports 2 SATA ports with on-board selector
- S.M.A.R.T. technology
- Management through IPMI 1.5 implementation

For more information, contact: sales@us.kontron.com.

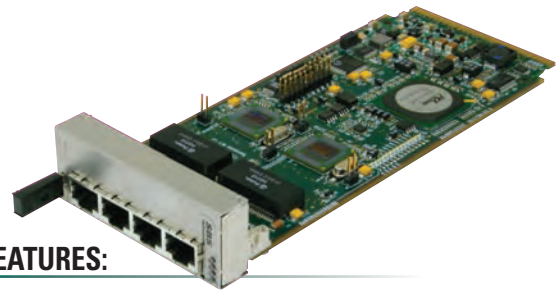
RSC #14902 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**Telum GE-QT**

The Telum GE-QT is a four-port Gigabit Ethernet AdvancedMC NIC providing high bandwidth and high port density. It is ideal for telecommunication platforms requiring additional Ethernet links and AdvancedMC form factor. This single-width, full-height AdvancedMC offers greater design flexibility and maximizes port density on the carrier card and host board. The card uses a x4 PCI Express bus as the data bus and conforms to the AMC.1 specification. To reduce host CPU utilization, the AdvancedMC Ethernet controller supports TCP CRC and segmentation offloading. The Ethernet network interface complies with IEEE 802.3 specification and supports 10BASE-T, 100BASE-TX, and 1000BASE-T modes over twisted pair cable. Software support available for Carrier Grade Linux.

**FEATURES:**

- Four-port Gigabit Ethernet AdvancedMC NIC
- Four Gigabit Ethernet ports accessible through the front panel
- AMC.1 design using x4 PCI Express bus
- IPMI controller fully compatible with the AdvancedMC specification
- TCP CRC calculation and segmentation offloading
- Single-width, full-height AdvancedMC form factor

For more information, contact: info@sbs.com.

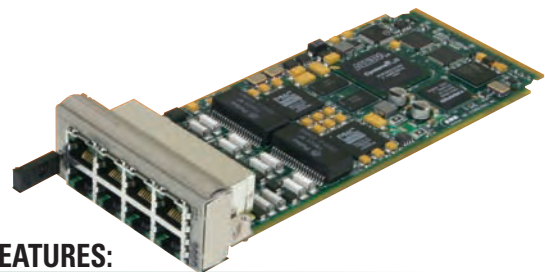
RSC #15001 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**Telum 624/628 TEJ**

The Telum 624/628-TEJ is a high performance and cost-effective, four-port (Telum 624-TEJ) or eight-port (Telum 628-TEJ) T1/E1/J1 AdvancedMC module designed for high availability telecom edge access applications. It features four or eight independent, fully protected, full duplex ports. The x4 PCI Express (PCIe) serial fabric interface is used as the central data/control transport medium. The Telum 624/628-TEJ supports the PICMG Internal Time Division Multiplexed (iTDM) specification. A TDM-to-IP Converter FPGA is used to provide TDM data encapsulation within IP packets for transport through two Gigabit Ethernet (GbE) GMII serial fabric interfaces. The HDLC communication controller supports up to 128/256 channels with an integrated 32-bit/66 MHz PCI Bus interface.

**FEATURES:**

- High performance four- or eight-port T1/E1/J1 AdvancedMC
- Four/eight ports T1/E1/J1, AMC.0 compliant extended full height
- 128/256 DSO channels
- AdvancedMC hot swap compliant
- TDM to IP converter
- Carrier Grade Linux software support available

For more information, contact: info@sbs.com.

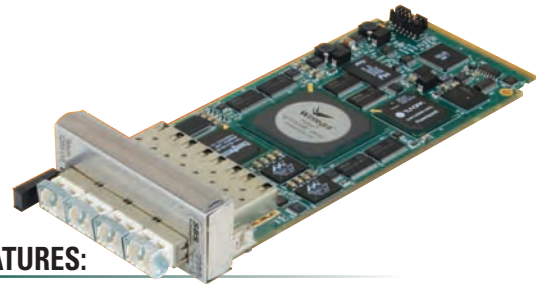
RSC #15002 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109
 Tel: 505-875-0600 • Fax: 505-875-0400
www.sbs.com

**Telum 1204-03**

Telum 1204-03 is the industry's first intelligent high performance, cost effective, AdvancedMC Module designed for high availability telecom edge access applications. This full height module supports four ports of ATM OC-3/STM1. The Telum 1204-03 offers high-end ATM and IP services based on a state-of-the-art Wintegra™ WinPath™ network processor. The Telum 1204-03 provides termination, switching, and interworking capabilities from any port to any port. In addition the Telum 1204-03 includes two lanes of Gigabit Ethernet (AMC.2 Type E2) to the common options region, and one lane of PCI Express (AMC.1 Type 1) to the fat pipes region for high speed communications. The Telum 1204-03 can terminate traffic for ATM (AAL0, AAL2, and AAL5) and Gigabit Ethernet.

**FEATURES:**

- Intelligent high performance multiservice four-port OC-3 AdvancedMC module
- Up to four ports of OC-3/STM1 (155 Mbps) to front panel
- Applications include: 3G RNC, MSC, SGSN • VoIP gateways • Video streaming • ATM to IP gateways • DSLAMs
- Bus connections: x1 PCI Express • 2 Gigabit Ethernet • AMC.1 Type 1, AMC.2 Type E2 compliant
- Operating temperature: 0 °C to +55 °C
- Support available for Carrier Grade Linux

For more information, contact: info@sbs.com.

RSC #15101 @ www.compactpci-systems.com/catalogrsc

Surf Communication Solutions, Ltd.

495 Old Connecticut Path, Suite 320 • Framingham, MA 01701
 Tel: 866-644-3379 • Fax: 508-405-4442
www.surf-com.com

**SurfRider/AMC**

The SurfRider/AMC is a fully integrated full-/half-height AdvancedMC DSP resource board providing heavy-duty processing capabilities for developers of telecom, military, medical, and other processing-intensive applications. Its unique modular design, which supports up to eight DSPs of various types, is coupled with Surf's patent-pending Open Framework design, which allows seamless integration of user-defined and proprietary algorithms. The SurfRider/AMC supports Surf's telecom-ready media processing software, which provides extensive audio, video, fax, and modem processing capabilities. These include transcoding, streaming, and conferencing.

The SurfRider/AMC has been preintegrated with leading carrier manufacturers' products, such as AdvancedTCA carrier boards and MicroTCA platforms.

**FEATURES:**

- Exceptional processing power: up to eight 32-bit fixed point DSPs, such as C6412 and C6455, running at up to 1 GHz
- Provides 64 MB SDRAM per DSP (64-bit access at 133 MHz) and enhanced DMA channels for peripherals
- Preintegrated with a number of leading carrier manufacturers products; can be mounted on AdvancedTCA and MicroTCA
- Integrates with Surf's telecom-ready media processing SW, with 3G-324M for 3G mobile network apps development
- Supports standards-based PICMG SFP iTDM protocol over GbE for transporting audio, video, and data signals
- Meets AMC.0; AMC.1; AMC.2; AMC.3; AMC.4, and all associated interfaces, plus iTDM

For more information, contact: surf@surf-com.com.

RSC #15102 @ www.compactpci-systems.com/catalogrsc

SBS Technologies, Inc.

7401 Snaproll N.E. • Albuquerque, NM 87109

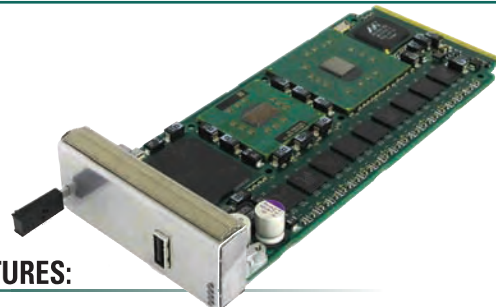
Tel: 505-875-0600 • Fax: 505-875-0400

www.sbs.com**ASLP10 AMC CPU**

The Telum ASLP10 from SBS Technologies is a powerful Processor AdvancedMC card featuring an Intel Pentium M Processor and advanced I/O capabilities.

Telum ASLP10 is a single-width full-height processor AdvancedMC board. It is designed in compliance to AdvancedMC specifications and includes a PCI Express x8 connection, two Gigabit Ethernet, and two SATA ports. The module supports Intel Pentium M processor starting from 600 MHz to 2 GHz with up to 2 GB soldered DDR2-400 memory. Using soldered memory avoids SODIMM connectors or memory piggy and results in better cooling and a higher MTBF.

The ASLP10 is ideal for telecom applications.

**FEATURES:**

- Intel Pentium M processor, 600 MHz to 2 GHz and Intel Celeron M processor 1 GHz
- Single-width, full-height AMC.0 form factor
- Up to 2 GB DDR2 SDRAM (400 MHz) with ECC
- Two Gigabit Ethernet ports (SerDes type) on rear I/O
- Two SATA on rear I/O AMC.3 Type S2 on ports 2 and 3
- Optional -40 °C/+55 °C

For more information, contact: info@sbs.com.

RSC #15201 @ www.compactpci-systems.com/catalogrsc

Dynamic Engineering

435 Park Drive • Ben Lomond, CA 95005

Tel: 831-336-8891 • Fax: 831-336-3840

www.dyneng.com**cPCI carriers**

Dynamic Engineering carries a complete line of CompactPCI cards and carriers, including the cPCI2PMC, cPCIBPMC, cPCI2IP, and the cPCI4IP. Our CompactPCI line includes 3U and 6U cards. The Dynamic Engineering product line includes CompactPCI, IndustryPack, PC/104-Plus, PC•MIP, PCI, PMC, VME, and custom designs. The cPCI2PMC – 3U 4HP CompactPCI design with one PMC slot. The cPCI2PMC (CompactPCI to PMC) adapter/carrier converter card provides the ability to install a PMC card into a standard CompactPCI slot. The cPCI2PMC has a PMC card slot mounted to a universal 3U 4HP CompactPCI card. Suitable for 32/64 with 33/66 MHz bus operation. The PMC user I/O connector Pn4 is optionally connected to J2 for rear panel I/O. The PMC bezel connector is mounted through the CompactPCI mounting bracket.

**FEATURES:**

- Size: 3U 4HP CompactPCI with one PMC slot
- Clocks: CompactPCI bus can operate at 66 or 33 MHz
- Standard CompactPCI byte lanes supported for byte/word/long access dependent on installed PMC; 64-/32-bit op. support
- Power: +5, +3.3, +12, -12V VIO supplied to PMC
- cPCI2PMC: With the cPCI2PMC direct connect to the PCI bus the latency to the PMC is optimized
- cPCIBPMC: With the bridged design (cPCIBPMC) the system speed is optimized

For more information, contact: dedra@dyneng.com.

RSC #15202 @ www.compactpci-systems.com/catalogrsc

SANBlaze Technology, Inc.

2 Clock Tower Place, Suite 550 • Maynard, MA 01754

Tel: 978-897-1888 • Fax: 978-897-3171

www.sanblaze.com**SANBlaze**
Technology, Inc.**PMC Fibre Channel HBA**

The SANBlaze SB PMC-FC Dual Channel, 2 Gb Fibre Channel PMC adapter provides maximum performance in addition to low latency Fibre Channel device connectivity to embedded systems based on VME or CompactPCI. The SB PMC-FC has two independent 2 Gb Fibre Channel ports.

The SB-PMC-FC family consists of front I/O capability with copper and optical Fibre Channel options and rear I/O capability. Dual and single port configurations are available.

The SB PMC-FC can auto-negotiate down to 1 Gb operation to assure backward compatibility with existing 1 Gb SAN infrastructures and meets the requirements of today's 2 Gb SANs.

Support is available for all major operating systems.

**FEATURES:**

- Two independent, 2 Gb Fibre Channel ports
- SFP based, supports multimode optics and copper options
- Auto-negotiation for legacy connect (1 or 2 Gb)
- Front and rear panel I/O options; PIM module available
- Software supports switch and loop (private and public) topologies
- 64-bit, 33/66 MHz PMC

For more information, contact: info@sanblaze.com.RSC #15301 @ www.compactpci-systems.com/catalogrsc**SANBlaze Technology, Inc.**

2 Clock Tower Place, Suite 550 • Maynard, MA 01754

Tel: 978-897-1888 • Fax: 978-897-3171

www.sanblaze.com**SANBlaze**
Technology, Inc.**PMC320 SCSI Adapter**

The SANBlaze SB-PMC320 Ultra320 SCSI PMC adapter provides industry-leading SCSI device connectivity for embedded systems designs. The SB-PMC320 has two independent Ultra320 SCSI channels, each allowing up to 320 MBps transfer rates. Each channel supports up to 15 SCSI devices.

The SB-PMC320 also provides Raid 0 (striping) and Raid 1 (mirroring) functionality on either channel.

The SB-PMC320 SCSI PMC adapters are available in three configurations: A dual channel version with either two front panel ports via 68-pin VHDCI connectors or one front panel and one rear I/O port via J/P 4, and a single channel version with one front port via VHDCI connector.

All major operating systems are supported.

**FEATURES:**

- Single or dual Ultra320 SCSI channels with front and rear panel I/O options
- Provides Raid 0 (striping) and Raid 1 (mirroring) functionality on either channel
- 133 MHz, 64-bit PCI-X interface
- Support for 32/64-bit and 33/66 MHz PCI bus
- Connects up to 30 devices
- PMC Ultra 160 SCSI adapter also available for slower and non-Raid applications

For more information, contact: info@sanblaze.com.RSC #15302 @ www.compactpci-systems.com/catalogrsc

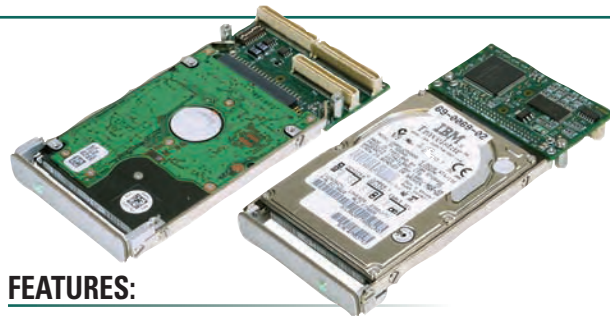
Technobox, Inc.

PMB 300, 4201 Church Road • Mount Laurel, NJ 08054

Tel: 609-267-8988 • Fax: 609-261-1011

www.technobox.com**Technobox, inc.**[®]**4170**

This PMC board, built around the Silicon Image 680, is designed to accept 2.5" ATA/IDE mass storage media, either a rotating hard disk drive or solid-state flash disk, using industry standard mounting. Media is normally installed by the end user.

**FEATURES:**

- Silicon Image 680 controller
- Accepts 2.5" ATA/IDE HD or solid-state disk
- Standard mounting
- Link activity LED
- Media optional

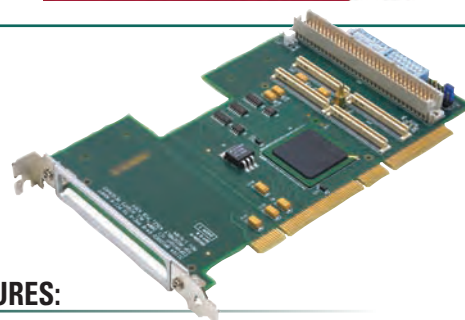
For more information, contact: info@technobox.com.RSC #15401 @ www.compactpci-systems.com/catalogrsc**Technobox, Inc.**

PMB 300, 4201 Church Road • Mount Laurel, NJ 08054

Tel: 609-267-8988 • Fax: 609-261-1011

www.technobox.com**Technobox, inc.**[®]**4352**

This adapter features an Intel 31154 PCI-X to PCI-X bridge that permits delivery of PMC-derived applications in a standard PCI or PCI-X environment. Both PMC and PMC-X boards of any signaling level, clock frequency, and bus width are supported. The bridge assures signal integrity even with multiple adapters plugged into a single PCI bus segment. PCI and PCI-X rates are supported on both the primary and secondary PCI buses. 32-bit and 64-bit transactions are supported. LEDs indicate status of power and key PCI bus signals. A 4-pin power connector permits application of external power (+5 V and +12 V). An optional fan assembly (P/N 3675) is available.

**FEATURES:**

- Adapts PMC or PMC-X modules to PCI or PCI-X
- Intel 31154 bridge
- Supports PCI (33/66 MHz) and PCI-X (66/100/133 MHz)
- Rear I/O support
- LEDs for key PCI bus signals and power
- Accommodates external power

For more information, contact: info@technobox.com.RSC #15402 @ www.compactpci-systems.com/catalogrsc

Zephyr Engineering

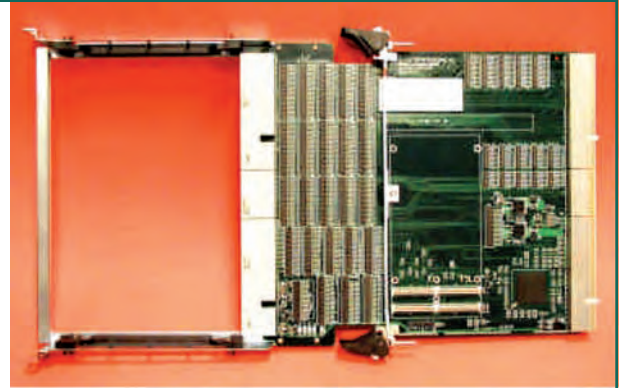
1620 West Fountainhead Parkway, Suite 303 • Tempe, AZ 85282
 Tel: 480-736-8714 • Fax: 480-736-8322
www.zpci.com

**ZPCI.2466 6U Active Extender**

The ZPCI.2466 Active Extender board from Zephyr Engineering, Inc., is the last word in CompactPCI extender design. It not only gets your board out in the clear for easy access, it also provides an on-board PMC slot for a PCI bus analyzer or PMC board debug.

The ZPCI.2466 is a 66 MHz version of the versatile ZPCI.2400, with all of the same valuable features you have come to rely on. The ZPCI.2466 uses a transparent PCI-to-PCI Bridge to extend CompactPCI bus signals without violating stub length restrictions, providing easy access to bus signal test points, user I/O test points, and both sides of your board under test. Plug in a PMC bus analyzer card and you have full access to your test board's CompactPCI bus. If you are developing a PMC card, you can use the slot for it instead and have access to all of your PMC card's signals. Clearly marked test points show all CompactPCI bus signal names. User I/O test points are marked with connector and pin numbers. Every CompactPCI and user I/O pin can be opened by removal of a 0-ohm resistor. Restoring the connection is easy; just plug on a 2 mm shunt! Each header has an adjacent pin for logic analyzer ground.

The ZPCI.2466's mechanical bracketry provides your test board with a one-slot virtual card cage; use your injectors just like normal. The ZPCI.2466 locks into the card cage with its own injectors. Foldback current limiting on the test board's +3.3 V, +5 V, +12 V, and -12 V supply rails prevents damage in case of short circuits.

**FEATURES:**

- On-board bridge maintains CompactPCI signal integrity
- On-board PMC slot for PCI logic analyzer/exerciser
- All CompactPCI and user I/O signals are individually isolatable
- Supports PMC user I/O on J3-J5
- Ideal for both CompactPCI and PMC board testing
- Test points for all CompactPCI signals
- Test points for all user I/O pins
- Power test points simplify current measurements
- Individual indicator LEDs show board power status at a glance
- Rigid frame mates and locks with injectors on test board
- 32-bit and 64-bit configurations available at 66 MHz
- Short circuit protection for +3.3 V, +5 V, +12 V, and -12 V supplies

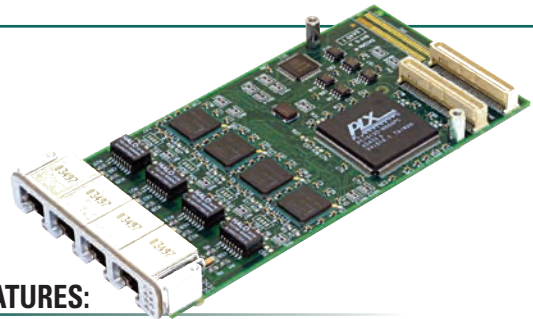
Technobox, Inc.

PMB 300, 4201 Church Road • Mount Laurel, NJ 08054

Tel: 609-267-8988 • Fax: 609-261-1011

www.technobox.com**Technobox, inc.**[®]**4435**

This Quad 10/100-TX Ethernet Adapter, which is built around Intel 82551ER Ethernet controllers, provides four Ethernet connections. The Quad's configuration options allow either front-panel connectivity via RJ-45 connectors or rear I/O accessibility using a VITA 36 PIM module (e.g., Technobox P/N 4516). The 82551ER Ethernet controllers feature an integrated MAC and PHY for operating at either 10 Mbps or 100 Mbps (full-duplex). Each controller connects to the 32-bit, 66 MHz PCI bus through a PLX 6150B bridge and appears as an independent device on the bus. A dual-color LED (one for each port) provides indication of link mode/status and activity.

**FEATURES:**

- Four 10/100-TX Ethernet ports, using Intel 82551ER Ethernet controllers
- Full-duplex operation at both 10 Mbps and 100 Mbps
- PLX 6150B PCI bridge (32/64-bit, 33/66 MHz)
- Front-panel I/O via RJ-45 interface
- Rear I/O access supported using PIM (e.g., Technobox P/N 4516)
- Dual-color LEDs provide indication of link mode/status and activity

For more information, contact: info@technobox.com.RSC #15601 @ www.compactpci-systems.com/catalogrsc**Embedded Planet**

4760 Richmond Road • Cleveland, OH 44128

Tel: 216-245-4180 • Fax: 216-292-0561

www.embeddedplanet.com**EP425M**

The EP425M uses the Intel XScale IXP425 to create a full featured PrPMC/Standalone card ready for you to design, develop, and deploy advanced networked devices. The IXP425 integrates three network processing engines and an XScale core to create a highly scalable computing platform.

The NPEs include the following interfaces: Two MIIs, one UTOPIA 2, two UARTs, two high speed serial, and an eight-channel HDLC. The EP425M gives you access to all of these interfaces via a direct connect expansion bus, greatly simplifying expansion and integration. Embedded Planet supports the EP425M with PlanetCore hardware diagnostics, multiple OS options, and an open source bootloader/flash programmer, allowing you to focus on your application. The EP425M can be custom configured to meet your needs.

**FEATURES:**

- Intel XScale IXP425 operating at up to 533 MHz with up to 32 MB of flash, 256 MB of SDRAM, and 512 kB of NVRAM
- Operating modes: Standalone or PrPMC/PT4MC monarch and non-monarch
- Connectivity: Two 10/100 Ethernet ports, two RS-232 ports, USB device, JTAG for debug
- Serial I2C Devices: EEPROM, temperature sensor, and real-time clock
- Expansion: Standard PMC connectors, 32-bit 33/66 MHz PCI bus, EPX425 bus for direct access to IXP425 signals
- Support: RedBoot Bootloader, PlanetCore Diagnostics, Linux, Green Hills INTEGRITY, and VxWorks BSPs

For more information, contact: info@embeddedplanet.com.RSC #15602 @ www.compactpci-systems.com/catalogrsc

Embedded Planet

4760 Richmond Road • Cleveland, OH 44128

Tel: 216-245-4180 • Fax: 216-292-0561

www.embeddedplanet.com



EP8343M

With the EP8343M you can have it your way. The EP8343M is a PrPMC/PT0MC board designed for ease of integration into standards-based CompactPCI systems. For simple software development, the EP8343M can be used in a standalone mode with a wall cube power supply when a full CompactPCI system is unnecessary or inconvenient. You have a choice of operating systems and custom hardware diagnostics letting you focus on your application development and getting to market first.

The EP8343M features a Freescale MPC8343E PowerQUICC II Pro processor that offers a cost-effective, high performance platform for developing advanced network enabled applications. The MPC8343E builds on the PowerQUICC II System-on-Chip (SoC) architecture including an e300 PowerPC core, an integrated security engine, a DDR memory interface, dual Gigabit Ethernet controllers, PCI and USB controllers. The highly integrated SoC architecture improves system performance, simplifies board design, lowers power consumption, and reduces cost.

Embedded Planet can custom configure several hardware options with low minimum build requirements ensuring that you can meet your desired price point. The EP8343M can have a maximum of 256 MB of DDR RAM with ECC, 256 MB of flash, and 1 MB of NVRAM. It includes two Gigabit Ethernet ports, one USB 2.0 Host/Device/On-The-Go port, and one RS-232 serial port. For a removable storage option the board supports up to 1 GB of TransFlash memory, a microSD format that is about 25 percent the size of an SD memory card.

The EP8343M is well supported by Embedded Planet's extensive software capabilities. Each board includes the open source U-Boot bootloader and flash programmer, PlanetCore hardware diagnostics, Linux, Green Hills INTEGRITY, and VxWorks board support packages. The complete system ensures that you can quickly move past basic board support and begin deploying your application.



FEATURES:

- Freescale MPC8343E PowerQUICC II Pro processor at up to 400 MHz
- Integrated hardware security engine with support for DES, 3DES, MD-5, SHA-1, AES, and ARC-4 encryption algorithms
- Configurable memory options with up to 256 MB DDR RAM, 256 MB of flash, and 1 MB of NVRAM
- Dual Gigabit Ethernet connections using the MPC8343E's integrated controllers for high speed network applications
- High speed USB 2.0 Host/Device/On-The-Go port using the MPC8343E's integrated controller
- TransFlash connector supports up to 1 GB of removable storage in ultra small form factor
- RS-232 serial port connector for direct module management and access to the operating system console
- On-board JTAG connection to simplify development and debugging of software applications
- Software support includes: PlanetCore Hardware Diagnostics, U-Boot Bootloader, Linux, INTEGRITY, and VxWorks Board Support Packages
- I2C Bus devices fully supported in software include real-time clock, temperature sensor, and EEPROM
- Board can operate in both standalone mode and as a PrPMC for use in CompactPCI applications

Embedded Planet

4760 Richmond Road • Cleveland, OH 44128

Tel: 216-245-4180 • Fax: 216-292-0561

www.embeddedplanet.com**EP85xxM**

The EP85xxM uses the Freescale PowerQUICC III family to create a full featured PrPMC/Standalone card ready for you to design, develop, and deploy advanced networked devices. The PowerQUICC III family of processors features an integrated e500 PowerPC core and Communications Processor Module (CPM) to provide a scalable computing solution for networked devices. The PowerPC core provides control plane functionality, while the dedicated CPM offloads communications functions such as Gigabit Ethernet, HDLC protocols, and ATM. Embedded Planet supports the EP85xxM with PlanetCore hardware diagnostics, multiple OS options, and an open source bootloader/flash programmer, allowing you to focus on your application. The EP85xxM can be custom configured to meet your needs.

**FEATURES:**

- Freescale 85xx processor operating at up to 833 MHz with up to 256 MB of flash, 512 MB DDR SDRAM, 512 kB of NVRAM
- Operating Modes: Standalone or PrPMC/PT7MC monarch and non-monarch
- Connectivity: Two 10/100/1000 Ethernet Ports, RS-232 monitor port, JTAG for debug
- Serial I2C Devices: EEPROM, temperature sensor, and real-time clock
- Expansion: Standard PMC connectors, 133 MHz PCI-X Bus
- Support: PlanetCore Diagnostics, U-boot, Linux, Green Hills INTEGRITY, and VxWorks BSPs

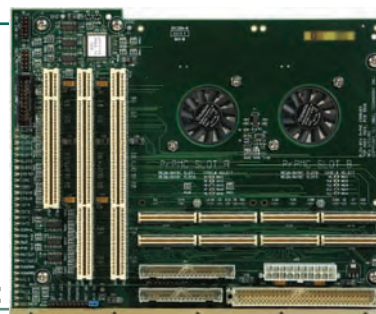
For more information, contact: info@embeddedplanet.com.RSC #15801 @ www.compactpci-systems.com/catalogrsc**Technobox, Inc.**

PMB 300, 4201 Church Road • Mount Laurel, NJ 08054

Tel: 609-267-8988 • Fax: 609-261-1011

www.technobox.com**3923 FlexATX Processor PMC (PrPMC)**

The 3923 is a FlexATX Processor PMC (PrPMC) carrier and development platform. This carrier board provides two PMC sites plus three PCI card slots (two 64-bit and one 32-bit). Using the 3923, a designer can work with a single PrPMC, dual PrPMCs, or a PrPMC and PMC for hardware and/or software development. All PCI slots are keyed for 3.3 V signaling. The PCI bus will run at 66 MHz, if all PCI cards assert 66 MHz enabled. At least one PMC site must be populated with a PrPMC running in Monarch mode. Site A's rear I/O is directed to connectors for a floppy disk and/or external IDE device. Each site has a fan to cool the mounted PrPMC or PMC.

**FEATURES:**

- FlexATX platform for PrPMC development and/or delivery
- Dual PMC sites enable various configurations with PrPMCs and PMCs
- Slots for three PCI cards (two 64-bit, one 32-bit), rear I/O access for external IDE or floppy drive
- Auxiliary cooling for PMC sites
- LED status for memory, configuration, I/O access, power, PCI interrupt, and bus mastering activity
- Site B rear I/O is directed to a DIN connector that emulates P2 of a VMEbus board

For more information, contact: info@technobox.com.RSC #15802 @ www.compactpci-systems.com/catalogrsc

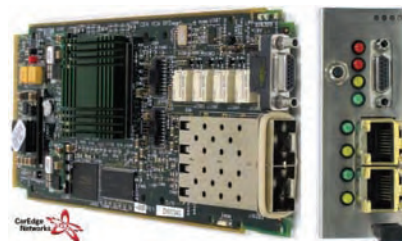
CorEdge Networks

50 Commonwealth Avenue, Suite 504 • Boston, MA 02116
Tel: 617-267-5205 • Fax: 617-262-7037
www.coredgenetworks.com

**CEN-MCH**

CorEdge Networks (www.coredgenetworks.com) introduced the first MicroTCA Carrier Hub (CEN-MCH) products at SUPERCOMM (June 2005) and continues to be the market leader in MicroTCA MCHs with the broadest and highest performance line of MicroTCA products.

The CEN-MCH is a crucial element required in the deployment of MicroTCA systems that: Manages multiple AdvancedMCs using IPMI in MicroTCA systems; provides a low latency, high performance base channel and fat pipe switch fabric for the AdvanceMCs; and supports various front panel options including Telco Alarms and Ethernet I/O. The CEN-MCH has demonstrated support for numerous third party AdvancedMCs, backplanes, and chassis at various industry-sponsored open interoperability sessions in MicroTCA systems.

**FEATURES:**

- Industry's first and leading MicroTCA Carrier Hub using CorEdge Networks technology
- Developed in conjunction with the PICMG MicroTCA Subcommittee that meets PICMG MicroTCA specifications
- Proven support for multivendor MicroTCA systems at numerous open interoperability workshops
- High performance IPMI management, clock, and multiprotocol networking support
- Flexible front panel I/O options including Telco Alarms, Ethernet, and various serial interfaces
- Aggressive pricing at high volumes

For more information, contact: sales@coredenetworks.com.

RSC #15901 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

P. O. Box 3608 • Harrisburg, PA 17105
Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca

**Half-height RJ-45s**

Tyco Electronics is developing a line of offset modular jacks that will support I/O for half-height AdvancedMC modules and can be used in MicroTCA and AdvancedTCA. The low profile and narrow width design will allow more ports to be packed into less space. The contacts are insert molded for positive connection throughout the life of the equipment. The half-height offset RJ-45 jack products from Tyco Electronics will be a press-fit design, have LED options, and will initially include 1x1 and 1x4 configurations with others available upon request.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

**FEATURES:**

- Performance exceeds Near End Crosstalk (NEXT) requirements of -40 dB on all pair combinations at 100 MHz per EIA/TIA 568A
- Designed for 1.6 mm thick PCB
- Meets or exceeds FCC Part 68 rules and regulations with typical RJ-45 PC board footprint
- Lead-free and RoHS compliant

For more information, contact: product.info@tycoelectronics.com.

RSC #15902 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca

**MicroTCA Power Connector**

Tyco Electronics' MicroTCA Power Connector is designed as the output connector for MicroTCA power modules. The combination of 2-row high conductivity hot swappable power contacts and an 8 x 9 grid of high density signal contacts in one molded housing sets a new standard for power and signal density. The 15 Amp blade-style contacts are based on the industry proven Universal Power Module and offer two mating lengths for power and ground circuits. The signal pins also offer two mating lengths including a "last-mate" pin.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

**FEATURES:**

- 24 individual 15 Amp power contacts
- 72 individual high density signal contacts
- All contacts stamped and formed – for cost effectiveness
- Multileg eye-of-needle compliant contacts – for improved current distribution to PCB
- No additional mounting screws required – reduces assembly costs
- Hot plug contact design – controls arc during hot mates/un-mate cycles

For more information, contact: info@tycoelectronics.com.

RSC #16001 @ www.compactpci-systems.com/catalogrsc

Tyco Electronics

P.O. Box 3608 • Harrisburg, PA 17105
 Tel: 800-522-6752 • Fax: 717-986-7575
www.tycoelectronics.com/products/atca

**Vertical AMC Connector**

Tyco Electronics has developed a Vertical AdvancedMC connector for MicroTCA applications. This connector is designed to meet the PICMG MicroTCA specification for use with AdvancedTCA carrier boards. The Vertical AdvancedMC product family from Tyco Electronics is a 170-position card edge connector with press-fit tails. A design for surface mount product has been proposed as well.

Contact product.info@tycoelectronics.com or visit www.tycoelectronics.com for more information.

**FEATURES:**

- Targeted for high speed differential applications (10+ Gbps)
 - Precision formed compliant pin reduces stub effect and offers excellent retention to ensure a reliable connection
 - Suitable for assembly processes using flat rock tooling
- Propagation delay < 2 ps
- Multi-aggressor noise
 - Near-end noise < 2 percent
 - Far-end noise < 2 percent

For more information, contact: info@tycoelectronics.com.

RSC #16002 @ www.compactpci-systems.com/catalogrsc

CARRIER BOARD: PMC

AcQ InduCom
 Website: www.acq.nl
 Model: ccPMC430 RSC No: 25189

A conduction-cooled storage PMC • Features one slot for CompactFlash (Type I and II) and one standard IDE interface on rear I/O • IDE controller implemented in an FPGA for maximum flexibility and implementation of the Secure Erase and Write Protect functions • Support for DMA transfers • 1 CF slot, Type I and II, 3.3 V, and 3.3 V/+5 V cards are supported (5 V-only cards not supported) • 1 IDE connection through rear I/O • Software support for VxWorks, QNX, and Linux • Compatible with a standard operating system IDE driver

Concurrent Technologies, Inc.
 Website: www.gocct.com
 Model: CC PMC/RS1 RSC No: 25201



Four asynchronous serial channels provided by four enhanced 16550 UARTs implemented by Oxford Semiconductor OXmPCI954 • Serial I/O via 68-way front panel connector and via rear I/O connector • RS-232 data rates up to 230 Kbps full duplex • RS-422/RS485 data rates up to 4 Mbps • Operates in RS-422 mode supporting: TXD, RXD, CTS, RTS, DCD, DSR, DTR, and RI • Operates in RS-485 mode supporting simplex or duplex bus • Selectable RXD resistor termination • Master/slave selection accessible via software per channel flow control selectable by DTR or RTS • Parallel communications: IEEE 1284 compatible parallel interface supporting: Standard Parallel Port (SPP); PS2 (Simple Bidirectional) Enhanced Parallel Port (EPP), Enhanced Capability Port (ECP) • PMC interface: Complies with PCI Protocol Specification 3.0; complies with PCI Electrical Specification 2.3; supports PCI clock rates up to 33 MHz; 3.3 V and 5 V compatible 32-bit PCI signaling interface base address software configurable • Software support: Windows 2000; Windows XP; Windows XP Embedded; Linux; QNX; VxWorks; and Solaris supported • Electrical specification: All voltages to be within $\pm 5\%$; 0.3 A (typical) current consumption at 5 V for RS-232; 0.7 A (typical) current consumption at 5 V for RS-422; 3.3 V, +12 V, and -12 V not utilized; Environmental specification: 0 °C to +55 °C (operating); 10% to 90% relative humidity (operating); -40 °C to +85 °C (storage) 10% to 90% relative humidity (storage) • Mechanical specification: Single size Common Mezzanine Card (CMC) 74 mm x 149 mm; 10 mm height stack module; IEEE 1386-2001 compliant

COMPONENT-LEVEL MODULES

WinSystems, Inc.
 Website: www.winsystems.com
 Model: CF Family RSC No: 24945

Family of industrial strength CompactFlash modules • Compatible with PC/104, EPIC Express, VME, and CompactPCI form factors • Designed for a -40 °C to +85 °C temperature range, the CF family is available in five densities from 128 MB up to 2 GB • Cards plug into a standard CF socket • Constructed using Samsung NAND-type Single-Level Cell (SLC) devices paired with a 32-bit RISC/DSP system controller, which facilitates wear leveling, error checking, and other flash management schemes • Supports ECC • 2 million program/erase endurance limit • Can transfer data up to 16.6 Mbps in burst mode

CONNECTOR: ADVANCEDMC

EPT, Inc. USA
 Website: www.ept.de
 Model: AdvancedMC Connector RSC No: 24942

12.5 Gbps press-fit connector • Card edge technology • Processing by flat-rock press-fit technology with pre-alignment (optional) • Quad routing possible

Yamaichi Electronics USA, Inc.
 Website: www.yeu.com
 Model: CN080 Series RSC No: 24954

GR-1217-CORE compliant • RoHS compliant • 200 mating cycles • Operating temperature range: -25 °C to +105 °C • In shelf replacement possible • Backplane contacts provide wiping action, which ensures high reliability • Highest speed performance beyond 12.5 Gbps

DATA ACQUISITION

Acqiris
 Website: www.acqiris.com
 Model: SC210 RSC No: 25268

A dual- and single-channel 6U CompactPCI streamer analyzer featuring an Optical Data Link (ODL), a high-speed optical data transceiver system that provides data streaming at rates of up to 25 Gbps • Incorporates Acqiris' XLFidelity and JetSpeed ADC chipset technology • Designed for use with mass storage devices or subsequent post-processing engines • Suitable for data streaming requirements encountered in advanced signal processing applications such as EW, SIGINT, ELINT, and Synthetic Aperture Radar (SAR), as well as in applications requiring scalable real-time data sampling and storage, including radio astronomy • Provides onboard high-performance data handling through an FPGA-based Data Processing Unit (DPU), a Virtex II Pro 70 FPGA

DEVELOPMENT PLATFORM

Carlo Gavazzi Computing Solutions
 Website: www.gavazzi-computing.com
 Model: 6862 Series 1U Platform RSC No: 25191

A complete AdvancedMC and MicroTCA development system that provides engineers with a cost-effective tool for the design, development,

and test of AdvancedMCs and MicroTCA systems • 1.75-inch (1U) (H) x 10.3-inch (W) x 7.7-inch (D) • MicroTCA backplane supports AMC.0, AMC.1, AMC.2, AMC.3, AMC.4 • IPMI system manager creates a MicroTCA-like environment • Integrated air filter, fan, and front replaceable fan tray • External 100-240 VAC to 48.0 Vdc power supply included • Utilizes CorEdge Networks technology

DSP RESOURCE BOARDS: FPGA

XILINX, Inc.
 Website: www.xilinx.com
 Model: XEVM642 RSC No: 24953

Video coprocessing Kit (Virtex-4 SX35) for Texas Instruments EVM642 • High-performance coprocessing daughter card for TI DM642 EVM features 77 GMACs of acceleration and allows TI DM642 EVM users to extend capability in image enhancement, multiple stream video encoding, and developing next generation codecs (H.264) • Allows immediate development of multichannel, multiformat digital video system • Suitable for applications such as AV professional broadcast, multichannel DVR, surveillance camera, IP-based video conferencing end-points and server, and medical imaging

ENCLOSURE

Triple E
 Website: www.tripleEase.com
 Model: 901 Series Cluster RSC No: 25322

A card guide cluster assembly for enclosure systems intended for use in harsh environment commercial, industrial, and military applications • Meets IEEE1101.10 and IEEE1101.11 specifications • Fully compliant with all Eurocage based systems including VME, VME64X, VXS, PXI, and CompactPCI standards • Features a patented all-extruded aluminum construction creating a monolithic card guide structure with exceptional stability and durability • Eliminates flexing and warping problems, provides flameproof protection and better heat transfer • Card guides in 1, 2, 3, or 4-slot clusters easily interchangeable with most plastic card guides for convenient replacement upgrades • Guide versions available to support VME board depths from 80 mm to 400 mm, all keying, ESD, and alignment pin features • For higher force applications, an optional stainless steel inject/eject plate upgrade provides additional strength achieving virtually unlimited insertion/extraction cycles • Backed with a full lifetime warranty against breakage

I/O: MULTIFUNCTION

Mercury Computer Systems, Inc.
 Website: www.mc.com
 Model: PowerStream 3000 RSC No: 24949

For SIGINT/COMINT deployments using standard 3U CompactPCI • Conduction-cooled and ruggedized • Sophisticated power management • Easy application migration using VxWorks • One source for RF, FPGA compute, I/O, and signal processing • Customized solutions when you want COTS – plus a bit more

POWER

Unipower Corporation
 Website: www.unipower-corp.com
 Model: Gravitax X75-48S RSC No: 25204

A fully integrated, 1RU-high DC power system • Houses up to three 1U by 2U hot swap rectifier modules combined with a DC battery load distribution section and monitor and control section • System contained in a 19" rack-mounted case • Can also be mounted in a 23" rack • 24 and 12 Vdc versions • Maximum base system output of 30.3 A • DC distribution section can be configured with up to five load circuits protected by circuit breakers or 10 load circuits protected by GMT fuses • One

battery string breaker and an optional low-voltage disconnect • Optional temperature-compensated battery charging available

PROCESSOR BLADES

SBE, Inc.
 Website: www.sbei.net
 Model: SAS iBlade RSC No: 25273

A scalable, high-performance, and fault tolerant CompactPCI blade • Eight 3 Gbps SAS/SATA ports with integrated iSCSI support (up to 16 ports optional) • IETF RFC 3270 compliant iSCSI with full error recovery (ERL2) • 6U CompactPCI blade with full Hot Swap (PICMG 2.1) • Dual node Gigabit

Ethernet (PICMG 2.16 cPSB) • System Management IPMI/IPMB (PICMG 2.9) • MPC7447A PowerPC processor, 1.0 GHz • Optional CT Bus enabled PTMC site (autosensing PMC, PT2MC, or PT5MC) • Front panel management via 10/100/1000 Ethernet

PROCESSOR: PENTIUM

Artesyn Communication Products, Inc.
 Website: www.artesynpc.com
 Model: Half-height KosaiPM RSC No: 24990



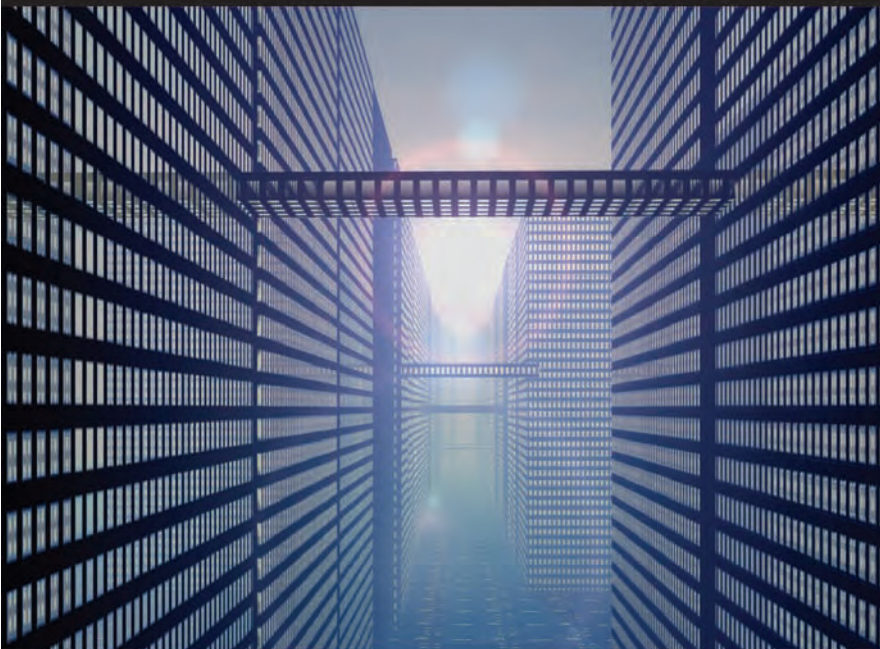
Pentium M processor operating at speeds of up to 1.8 GHz • Two MB of Level 2 cache • KosaiPM • Up to two GB of DDR SDRAM with ECC • USB 2.0 interface • Front panel RS-232 console interface • High speed AdvancedMC interface combines dual Gigabit Ethernet channels and a 1 x 8 or 2 x 4 PCI Express interface • I2C-based Intelligent Platform Management Interface (IPMI), which enables the module to be monitored and controlled by remote shelf management controllers • Mass storage support includes an on-board storage interface, which gives the KosaiPM access to Serial ATA (SATA) hard drives residing on either the carrier card or in other AdvancedMC bays • Software support for KosaiPM includes Carrier Grade Linux • RoHS-compliant

SYSTEM MANAGEMENT

Carlo Gavazzi Computing Solutions
 Website: www.gavazzi-computing.com
 Model: 544 Series 5U RSC No: 24359

AdvancedTCA Shelf System • Supports up to five slots at 30 mm pitch front and rear with a five slot high-performance backplane configured as a 3X replicated full mesh extended fabric topology to maximize the platform's bandwidth • Front accessible cooling modules to optimize power dissipation and height requirements while minimizing MTTR • High performance thermal management systems contained within the 544 Series are configured in push pull orientation, providing the required airflow to cool 200 watts front side and 30 watts back side • Front removable NEBS filtered intake and optional slot impedance modules • Dual redundant Shelf Management Modules, featuring either Pigeon Point System or Motorola technology • Shelf Management Modules reside in a dedicated slot, allowing the enclosure and backplane to accommodate 5 or 14 slots of full size AdvancedTCA boards and their RTMs • All Field Replaceable Units (FRU) are intelligent devices and communicate to the Shelf Managers through the IPMI • Designed to meet NEBS, FCC Class A/B, UL 60950, CSA 22.2, and CE

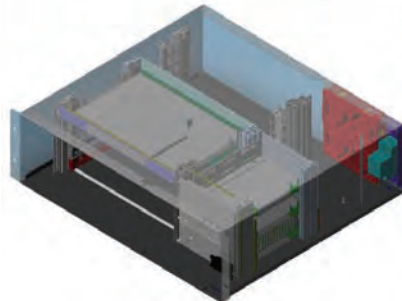
Is your cPCI system going end of life?



Look no further... Hybricon has the solutions !



Bridging the gap between legacy products and you..



- 3U high 5 Slots 6U x 160 mm cPCI
- N+1 redundant hot swap power supplies
- Slim line drive shuttle
- Hot swap fan tray
- Cools up to 60 W /slot
- Front to rear cooling
- Alarm panel (optional)
- Designed to meet NEBS level 3
- Available in AC or DC versions
- RoHS - 6 compliant

www.hybricon.com

Hybricon Corporation 12 Willow Road Ayer, MA 01432
 ISO 9001-2000 Certified

Call Today
1-877-HYBRICON

RSC# 162 @ www.compactpci-systems.com/rsc

For further information,
 enter the product's RSC# at
www.compactpci-systems.com/rsc

TRUE BLUE

AdvancedTCA® products are used in applications which require high reliability systems. The Zone 1 Power Connector Specification (appendix B of PICMG 3.0) was written with performance in mind.



Positronic Zone 1 connectors meet the **high performance** requirements of PICMG 3.0. This is only the beginning. **We support our customers with:**

- **Proven performance demonstrated in ATCA system qualification testing**
- **Multiple termination types, including female right angle pcb mount**
- **Worldwide factory direct sales support in your area**
- **One on one customer service by phone or email**
- **Easy-to-use web site support**
- **Delivery from stock**
- **Excellent value**



Zone 1 Compatibility Study Complete!

In the Spring of 2005 a Zone 1 compatibility study was initiated. The purpose of this study is to establish multi supplier compatibility through testing. The study is complete. Visit our website for details

RSC# 163 @ www.compactpci-systems.com/rsc



Positronic Industries

Springfield, Missouri USA • 800.641.4054 • info@connectpositronic.com



www.connectpositronic.com

Widest Variety of Power Connector Solutions

PICMG® and the PICMG® logo [and/or AdvancedTCA® and the AdvancedTCA® logo] are registered trademarks of the PCI Industrial Computers Manufacturers Group.

Celebrating
10 years of
transformation!

VON[®] SPRING 2006

SAN JOSE

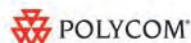
CONFERENCE & EXPO

Conference: March 14-17, 2006
Expo: March 15-17, 2006

Premier Sponsors



Platinum Sponsors



Premium Media Sponsors



Be part of the future of
IP communications. Don't be left behind!
Join the movers and shakers at
this year's Spring VON[®].

Explore the landscape of the new technologies and discover the impact they will have on your next-generation network communications infrastructure.

4 days, 5 tracks, 6 workshops, over 300 exhibitors demonstrating their latest products and services, hundreds of world thought leaders to network with, idea sharing, new businesses created and much more! Miss VON and you miss the future!

Speakers Include:



James Enck
European Telecom Analyst
Daiwa Securities



Dick Notebaert
CEO
Qwest



John "maddog" Hall
Executive Director
Linux International



Jeff Pulver
Founder and Chairman
pulvermedia



Louis Holder
EVP, Product Development
Vonage

Register by February 28th using
priority code **CPCFEB** to **Save up to**
\$600 or receive a **FREE VON[®] Expo Pass**
Register today at **WWW.VON.COM**
or call **631.961.8958**.

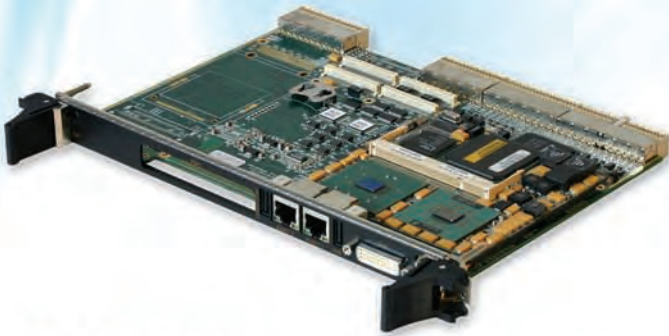
Produced by:

pulvermedia[™]

Visit **www.von.com** for the latest information.

ENGINEERED LIKE NO OTHER™

FROM CONCEPTS TO DEPLOYMENT



C265 "CONDOR"

High Performance, Upgradeable Pentium® M Processor

- Up to 2GHz Pentium® M processor with 2MB of L2 Cache
- Field upgradeable CPU module to deploy latest Pentium® M including the new Dual Core processors
- Ultra-low power requirements as low as 12W Max
- Highest performance per watt processor module available
- Up to 2GB of 266MHz DDR SDRAM via SODIMM module
- Dual Gigabit Ethernet ports to front panel, rear or PICMG 2.16 PSB
- Dual Video to support two DVI monitors or DVI & RGB together
- 2D/3D video acceleration with OpenGL® and Direct-X® support
- One PCI-X compliant PMC site with rear I/O
- Onboard support for one IDE HDD or Compact Flash
- One SAM™ I/O expansion module for Audio, 1394 or custom I/O
- Four USB-2.0 ports and two serial ports
- 1600 Gate user configurable CPLD, with 32 GPIO lines
- Up to 512KB of BIOS/user Flash
- RTC with field-replaceable battery
- CPU temperature and voltage monitoring for safe operation
- Fully Hot Swappable 64-bit/66MHz CPCI bus
- Available in standard 0°-55°C or extended temp. -40° to 85°C
- Support for Windows® XP/2000, VxWorks® and Linux®

*Also available in VME



S620 "HAWK"

Mini-ITX with Dual PMC Pentium® M System

- Ultra small footprint system, Only 2" x 7" x 10" and 4.5 lbs.
- Up to 2GHz+ Intel Pentium® M processor with up to 2MB of L2 Cache
- Field upgradeable CPU module to deploy latest Pentium® M processors
- Ultra-low power requirements as low as 10W max
- Up to 2GB of 266MHz DDR SDRAM
- Dual Gigabit Ethernet with TCP/IP Offloading Engine
- High performance dual video display (RGB and DVI) with 64MB RAM
- Dual Video to support two DVI monitors or DVI & RGB together
- 2D/3D video acceleration with OpenGL® and Direct-X® support
- Two PCI-Mezzanine-Carrier (PMC) sites for high-speed I/O expansion
- Dual channel Line-In/Out/Mic with CD audio for full Multi-Media support
- Dual 1394A and quad USB-2.0 ports via front/rear I/O panels
- Ultra quiet fan for Desktop applications
- Full power management control:
 - ACPI 1.0 compliant (suspend to memory/disk etc.)
 - Geyserville® III support (speed and voltage stepping)
 - Support for battery operation and standby power
- CPU, system temperature and voltage monitoring for safe operation
- Up to 100GB ATA HDD and CD-RW/DVD±RW Drive
- Support for Windows® XP/2000, VxWorks® and Linux®

LEADING THE EMBEDDED MARKET SINCE 1979.



GENERAL MICRO SYSTEMS, INC.
REGISTERED TO ISO9001
FILE NUMBER A8073

PERFORMANCE, RELIABILITY, LONGEVITY

GENERAL MICRO SYSTEMS, INC.

TEL(800) 307-4863 • gms4sbc.com

RSC# 165 @ www.compactpci-systems.com/rsc

CompactPCI[®] and AdvancedTCA[®] Systems



Advertising/Business Office

30233 Jefferson Avenue
St. Clair Shores, MI 48082
Tel: 586-415-6500 ■ Fax: 586-415-4882

Vice President Marketing & Sales

Patrick Hopper
phopper@opensystems-publishing.com

Business Manager

Karen Layman

Communications Group

Patrick Hopper
Vice President Marketing & Sales
phopper@opensystems-publishing.com

Christine Long
Print and Online Marketing Specialist
clong@opensystems-publishing.com

Embedded and Test & Analysis Group

Dennis Doyle
Senior Account Manager
ddoyle@opensystems-publishing.com

Doug Cordier
Account Manager
dcordier@opensystems-publishing.com

Military & Aerospace Group

Tom Varcie
Account Manager
tvarcie@opensystems-publishing.com

Andrea Stabile
Advertising/Marketing Coordinator
astabile@opensystems-publishing.com

International Sales

Stefan Baginski
European Bureau Chief
sbaginski@opensystems-publishing.com

Reprints and PDFs

Call the sales office: 586-415-6500

ADVERTISER INFORMATION

Page/RSC#	Advertiser/Product description
17	Acqiris – High Speed Digitizers
46	ACT/Technico – NAS RAIDStor Solution
8102	Advanet/Radic – PowerPC & Pentium Based Boards
32	Advantech – CompactPCI Computing Platform
9	Aitech Defense Systems – VME and CompactPCI Products
39	Alphi Technology – PowerQUICC III
20	Amtelco – TDM Specialists
40	APW – Electronic solutions
110	Asis-Pro – 2U AdvancedTCA Chassis
98	AZ-COM – Extenders, Prototyping Boards, Adapters
112	Comtel Electronics – Backplane and System Solutions
25	Concurrent Technologies – Single Board Computers
15	Diversified Technology – AdvancedTCA Blade Platforms
37	ELMA Bustronic – AdvancedTCA performance
11	ELMA Electronic – AdvancedTCA solutions
167	Embedded Planet – Embedded Controllers
12	EPT USA – AMC Connectors
19	Excalibur Systems – MIL-1553
165	General Micro Systems – C265 CONDOR
162	Hybricon – Legacy products
104	Interface Concept – PowerPC-based SBCs
48	Kontron – AdvancedTCA/AdvancedMC Modular Solutions
115	Mercury Computer Systems – PowerStream 3000 3U Multicomputer System
168	Mercury Computer Systems – Ensemble2
21	Micrel – Power Controllers
45	Motorola – AdvancedTCA, CompactPCI, Carrier Grade Linux
23	Moxa Technologies – PCI Express solutions for POS/ATM
13	National Instruments – Plug-and-Play Switching
6	Nextronics – LEANHandle I
24	One Stop Systems – CompactPCI/Max Express
35	Optima Electronic Packaging – Cabinets/Enclosures
7	Performance Technologies – NexusWare
163	Positronic Industries – Zone 1 Power Connectors
28	Radian Heatsink – EZ Snap Mounting Clips
3301	Red Rock Technologies – Mass Storage Modules
5	SBS Technologies – AdvancedMCs
113	Schroff – AdvancedTCA, AdvancedMC
2	SMA – 3U CompactPCI CPU7.2
27	Sundance – SMT3000
29	Sundance – SMT791
3302	Sundance – SMT6050
8103	TEWS – Embedded I/O Solutions
31	Vector Electronics – System Packaging
38	Visionpower Ltd. – Complete Power Supply Solutions
3	VMETRO – High Speed Data Recording
164	VON Conference & Expo – VON Conference & Expo Spring 2006
41	Winchester Electronics – AdvancedTCA Zone 1 Power Connectors
47	XTech – AdvancedTCA Solutions

www.compactpci-systems.com/rsc



d¹

design.

d²

develop.

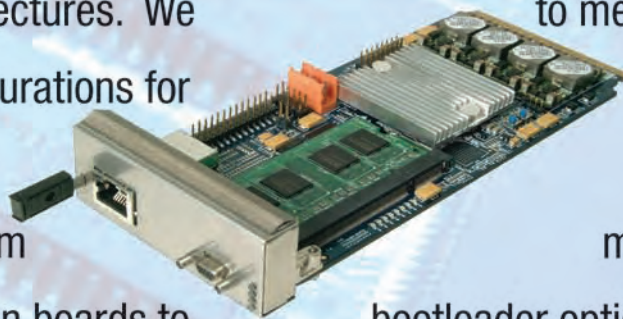
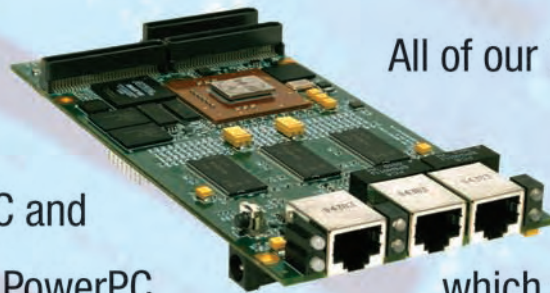
d³

deploy.

Delivering The Total Solution

Hardware

Embedded Planet manufactures a wide range of AMC and PrPMC boards for PowerPC and XScale architectures. We carry stock configurations for quick delivery and we can custom configure or design boards to meet specific cost and performance targets.



Software

All of our hardware solutions feature extensive software support which can be customized to meet your needs. You can choose from multiple OS and bootloader options, as well as diagnostics for built-in, power-on and manufacturing test.

design.
The next generation of connected devices.

develop.
Your products based on our platform.

deploy.
Your solution faster.

With the increasing functionality of embedded controllers and feature rich system software, it makes sense to entrust the controller design and implementation to an experienced, high-quality systems provider.

Embedded Planet is that provider.

Contact Embedded Planet Today at:
216.245.4180, info@embeddedplanet.com, www.embeddedplanet.com

RSC# 167 @ www.compactpci-systems.com/rsc



You define success.

We design solutions.

Mercury customers span multiple industries and face unique computing challenges – whether expanding network capacity for communication infrastructure systems, increasing throughput in medical imaging, rendering high-quality animation within a defined budget, or intercepting agile RF signals 10x faster. Why are we so driven to tackle these difficult computing problems? Because at Mercury your challenges drive our innovation.

Our Ensemble2™ AdvancedTCA® application-ready platform reduces project costs, improves resource efficiency, and minimizes the design and deployment risks of next-generation communications systems. Contact us to learn how our products and services can optimize your challenging applications.



Let us design an innovative solution for you.

www.mc.com/atca | 866-627-6951

Computer Systems, Inc.
MERCURY

Challenges Drive Innovation™