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RetroMagazine World

future days are back

Kathleen Booth, the First Lady of Assembly

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THE OLD DAYS ARE OVER, YAY FOR THE OLD DAYS!

I was at Como Fun event just a few days ago; you can find a short report of my day there later in this issue of RMW. Thanks to the presence of several booths I was able to relive, along with many others, the joy of the arcade games. At the end of the day I began to reflect on what arcade, and more generally video games, were for those like me who lived through that wonderful period. For me that magical time went from the mid-1980s to the late 1990s, corresponding to my childhood and then adolescence. But as memories mixed with reflections in my mind, I began to think about some speeches that I regularly hear or read, sentences often said or written by those who usually "attend" the great world of retrogaming and I don't understand them. The whole thing can be summed up with a phrase like "THESE were good games, not the ones that are out there now," and it is a rather common thought among those who frequently visit places, almost always virtual places,, populated by "old" retrogamers. Everyone thinks what he wants, that is obvious and sacred, but there is no doubt that this way of reasoning is a bit dull but above all very self-limiting.

At a very young age I loved (and still love), among many things, hip hop music and horror movies. To my father it was junk, in that order, unlistenable and unwatchable (my mother, on the other hand, liked horror movies quite a bit and we used to watch them together, thanks mom!). The music he listened to when he was young, that was music. And the movies? Westerns, those were the right one, yes...Although on the movie side, like him, I always loved Bud Spencer, Bruce Lee, and anything where there were people fighting, a common territory if nothing else was there. It's normal, I understand that, what reminds us of our young age will always be better than anything that existed before and came after. Nor do I mean to say that you have to like anything, that you just don't. It is, however, a form of closure, let's call it that way, that I find among many "fellow" video gamers who love the good old days. Ladies and gentlemen, sorry to say but those days are gone, over. We have lived through others since, we are living through several today, and I hope we will live through several more in the future.

What I mean is: let us dive whenever we feel like it into the wonderful games on which we spent much of our youth. Let's listen to that record that immediately takes us back to that precise moment we want to relive, let's watch the movie we could easily recite from memory line by line.

However, let us not stop listening to new music, watching new movies, reading new books. Let's always remain curious, keep our minds wide open and ready for new ideas. Let's do this even with the video games we love so much.

We have been blessed with incredible times for the video game industry, such significant and rapid evolution perhaps never to be seen again. Just think of the decade 1980/1990, for example, we went from Pac-Man to Monkey Island. Let us treasure this and try not to make it our own limitation.

It may seem an unsuitable topic for these pages. After all, we have that "Retro" in the name of our favorite magazine. Mine is only meant to be an invitation not to cling hand and foot to the times that were, preventing us from seeing beyond. Let us hold on to our retro-passions but not stop looking around, there would be too many wonders we could miss without even realizing it and that would be a great pity. The memories and feelings that Turrican 2 made (and still makes) me feel will all always remain there, in my heart and mind, where they will always have a special and untouchable place for me, but how beautiful and absurdly amazing is Doom Eternal?

That's all for this month friends and girlfriends, goodbye to you and see you next month again around here.

In the meantime, be good and play hard!

Giuseppe Rinella

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Philips Videopac (Magnavox Odyssey²)

by Leonardo Miliani

We began our series of articles devoted to gaming consoles by starting with the one that, back in 1972, literally created an industry that was not there before, that of home gaming systems: we are talking about the Magnavox Odyssey, the grandmother of all consoles. For this article I decided to go and see how that distant machine evolved and, therefore, today we will talk about the... "Philips Videopac" (fig. 1)! No, this is not a typo: this was the name under which the "Odyssey2" produced and marketed by the U.S.-based Magnavox was distributed in Europe (fig. 2).

Retrospective

We have already covered the history of Magnavox and its Odyssey, but let's go over it quickly, for those who missed the dedicated article, because it will serve as a basis for understanding the birth of Videopac. In short, the Odyssey was the fruit of the insights and creative genius of Ralph Baer. A German engineer naturalized American, in the late 1960s he designs the "Brown Box," a device that can be connected to an ordinary home TV that allows simple electronic games to be played. This device is purchased by Magnavox, then a major TV manufacturer, which sees its commercial potential: there are millions of TV sets in American homes, so there is a disproportionate number of potential customers for a gaming device that can be connected to these TV sets. In fact, the first console was a success, so much so that it prompted other names to enter the fray, as well as Magnavox itself to broaden its offerings by presenting a series of new consoles with fewer but more graphically curated built-in games. In the following years Magnavox's dominance was broken in 1975 by the arrival of Atari's "Pong" and all its clones to follow. In the end, the offering was always the same: "racket" games where two players hit a "ball" bouncing it from one side of the screen to the other. We should point out that these early (or primitive) consoles are technologically very simple: the first Odyssey is not based on any microprocessor, because at that time monolithic CPUs, born in 1971 with the arrival of the Intel 4004 on the market, are underpowered and still very expensive so consoles are designed using discrete components and a few CMOS integrated circuits. Given the popularity of Pong-style games, some integrated manufacturers make specific chips: all the games that the console itself offers are packed into a single integrated, which are often just simple variations of the main scheme. It is riding on this trend that Magnavox set to work to develop an improved version of the console: in the plans it is to offer as many as 24 integrated games with improved graphics and is to be called "Odyssey 2."

Fig. 1: Philips Videopac G7000

In the meantime, technological evolution advances and things change very radically within a short period of time: several manufacturers introduce a whole series of new, much more powerful CPUs on the market, with 8-bit computation capabilities and ever lower costs. Thanks to them, the first microcomputers are made, i.e., small but high-power electronic processors that can finally be purchased (or even built) even by ordinary people. This revolution takes place in the second half of the 1970s: at that time the first computers in kits, which can be assembled by anyone with a minimum of familiarity with a soldering iron and electronics, begin to spread initially, and then, from 1977, the first fully assembled and ready-to-use personal computers: the Apple II, TRS-80, Commodore PET, and so on. Console manufacturers are not to be outdone, indeed ahead of their time. In 1976 came the first of this new generation of consoles using a

Fig. 2 - Magnavox Odyssey² (photo: Evan-Amos)

CPU as the heart of the system: this was the Fairchild Channel F, followed in the same year by the Atari VCS (later 2600) and the Bally Astrocade. Alfred Di Scipio, the then-president of Magnavox, declared in early 1977 that by the end of the year his company, too, would introduce an electronic video game system based on a microprocessor. The now-defunct Odyssey 2 project is shelved and a fresh start is made with the study of a new "programmable" system based on the use of a CPU and code loadable from external cartridges, which will later come to the market as "Odyssey2," the twin of the console under our analysis. Yes, because the console is originally developed by Magnavox but, as this company is part of the Philips group (it was bought in 1978), the parent company also presents it in other markets but under a different name: in Europe it will arrive as "Philips Videopac G7000" (fig. 1).

The working group is stationed in Fort Wayne, a small town in Indiana, and is under the supervision of John Helmes. In the interest of cost containment, the choice is made to use not a microprocessor but a microcontroller, in this case the new Intel 8048 introduced in 1976. A microcontroller is much more than a CPU: in addition to it, it contains other components that normally reside on external chips such as memories and various peripherals. In addition to this, the development group also decides to use ROM and RAM, also from Intel. At Intel's top management is not blind and understands that if Magnavox makes a "best-seller" with this new project as the first Odyssey was then money will flow copiously into its coffers as well because every console sold will contain a lot of Intel integrals. At that time they developed a still-secret chip in the Santa Clara company, an integrated that could not only generate a graphic image but also handle "flying figures," what would later be known as "sprites." The company's top management is undecided whether to offer this chip to Atari or to Magnavox: they are opting for the latter precisely because of the fact that Magnavox is literally shopping from Intel to make its console. The integrated chip in question is initialed 8244 (for the NTSC version, while the PAL version is initialed 8245) and is capable not only of handling a 100x200-pixel resolution image with 8 colors, 4 sprites and other predefined figures, but also of generating sound. At Magnavox they assembled it all into a prototype which, in the early summer of '77, was shown to Ralph Baer, the "daddy" of the first Odyssey. At the same time, however, rumors circulate in the company that the parent company Philips does not seem to approve of the console project, deeming it unprofitable, probably due to the fact that in Europe game consoles and personal computers have not yet had that boom as they have in the U.S. Baer, however, studied the prototype and thought it was very interesting, so much so that he was willing to speak at a company meeting in August at which the very issue of whether or not to discontinue the Odyssey2 would be discussed. Legend has it that it was Baer's intervention that saved the console from cancellation and allowed its development to continue. In September the project based on the 8048 and the 8244 graphics chip was finally approved. Development takes longer than expected, however, and the Christmas '77 date is fast approaching. Along with the console, Magnavox executives also want at least a dozen games available at launch: since they have only one programmer at Magnavox who is working on the Odyssey2, the firm where Baer works, Sanders Associates, also takes over the development of some of the titles to be offered at launch.

Development of the console ends in December, and Philips decides to launch it on the European market as Videopac G7000 during the holiday season. After selling about 7,500 units, a defect in the power cord is discovered: this causes the marketing of the console to be temporarily halted, which resumes after the problem is fixed. Instead, in the United States the console is unveiled in January at the Winter Consumer Electronics Show in Las Vegas and put on the market the following month at $179. The console is subsequently launched both in Japan (1982), at an initial price of 49,800 yen, and in Brazil (in early 1983).

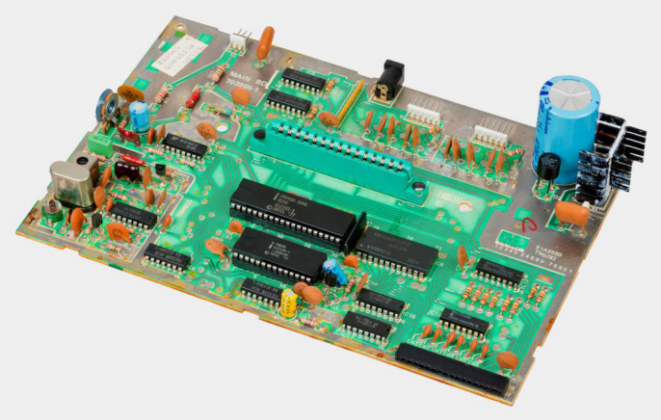


Fig. 3 - the console's motherboard. The large chip in the center is the Intel 8048 microcontroller while just below is the 8244 audio/video chip

Technical characteristics

Technically, the console is really quite a step up from its progenitor. Like the other systems that came out the year before (Fairchild Channel F, Atari VCS, and Bally Astrocade), the Odyssey2 belongs to the second generation of game consoles: it is in fact based on an integrated computing unit that runs externally loaded code from cartridges containing ROM memories. Unlike its competitors, however, the Odyssey2 is based as mentioned not on a microprocessor but a microcontroller (fig. 3). The Intel 8048 can be envisioned as a microcomputer in a chip: inside a classic 40-pin plastic case house, in addition to an 8-bit CPU, a small 64-byte RAM memory used as system memory for program execution (e.g., to store game variables), 1 KB of ROM containing the machine's BIOS (the set of instructions that, when turned on, instruct the console on what to do to start a game) as well as 64 predefined graphic characters usable by programs on cartridges. Added to these features are a timer, an oscillator for generating the internal clock from the external signal (5.37 MHz in NTSC systems and 5.91 MHz in PAL systems), and as many as 27 input/output lines with which the 8048 can access the ROM of cartridges and drive accessory chips with which to read, for example, joysticks or the built-in keyboard. The latter feature is one of the distinguishing points with respect to other consoles: the Odyssey2 in fact features a membrane keyboard (Sinclair ZX81 style to understand each other) with 49 keys (letters, numbers and other symbols) with which to give additional commands to games but also, according to initial plans, to allow the user to program via special cartridges. Both of these features will be used very little because there will be few games requiring additional input from the keyboard as well as cartridges to allow programming, at least in the original version of the system (only one cartridge to program in assembly). In addition to the memories contained in the microcontroller, the console contains another 256 bytes of additional RAM, 128 of which are used as system memory and the other 128 by the 8244/8245.

The latter, as mentioned, handles both graphics and sound and is capable of generating a video image with a resolution of 100x200 pixels even though the graphics area is only 128x64 pixels, certainly a bit limited when compared with that of competitors, especially Atari's much more widely used VSC, which allows it to handle images of 160x192 pixels. There are 16 colors offered (8 of which can be used on screen): black, blue, green, cyan, red, magenta, yellow, white and corresponding half-brightness variants. The chip is capable of generating 4 monochrome sprites (here the colors are selectable only from the 8 basic ones) of 8x8 pixels and also handles their collisions. It also allows it to handle 12 freely positionable static characters, read from the default 64 in the console ROM: unlike sprites, these characters are not stackable with each other. In addition, the chip can also handle a background grid of 9x8 objects, such as lines, blocks or dots: these elements can be turned on or off to create combinations of elements for maze-like games. As mentioned, the 8244/8245 is also responsible for sound generation but its capabilities are very limited: it handles a single channel (mono output) whose audio is generated from a slide register that can be driven by 2 unique frequencies. What comes out are simple tones or white noise.

Joysticks are 8-way with a single action/fire button. On most of the first consoles marketed these are permanently attached to the main body and cannot be detached in case they fail: only later are they modified and fitted with a plug for connection. The power supply is integrated: on the American version it has a switch while on the European version there is no power button: the console is turned on by simply plugging it into the power outlet. The curious thing is that to start a game you have to turn on the console, insert the cartridge (you can do this even with the console turned on) and then press the reset button on the keyboard. The cartridges do not have an easy retention or release system: they have to be forcefully inserted and pulled out just as hard. Not very practical...

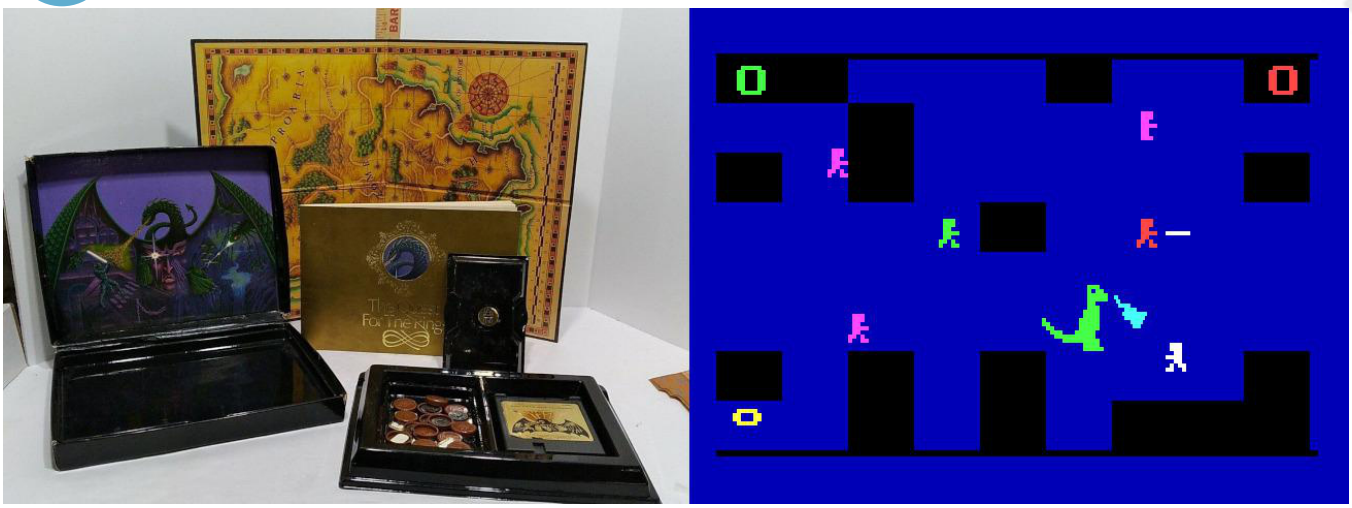


Fig. 4 - Left, the package of "Quest for the Rings" with the game board and accessories to play*(photo: made2reclaim) and, right, a screenshot of the game (photo: winterdrake.com)

The capacity of the first cartridges is 2 KB of ROM, rising later to 4 and then 8 KB of memory (the latter denomination is also the maximum addressable by the console).

Sales, derivatives and games

To understand whether the console has been a success or not we have to analyze market by market because it has not done well in all countries. In the US it managed to sell initially well. Technically it plays it with the VCS: on the graphics side Atari's console is superior (higher resolution) but the Odyssey2 can offer a more powerful processor and, above all, the unique integrated keyboard. Magnavox pushes hard on this feature by hinting that its Odyssey2 is a system somewhere between a console and a computer, with slogans like "The Ultimate Computer Video Game System." The rise of the VCS first and the arrival of Mattel's Intellivision later undermine the reputation of the Odyssey2, which falls to the bottom rung of the sales podium, far behind its 2 rivals. Atari can count on many exclusive titles as well as a very large software park while Intellivision is on a higher plane in terms of technical features (superior graphics and sound quality). Nevertheless, Magnavox records, until 1983, about 1 million consoles sold, a respectable figure. What limits the spread of the Odyssey2 is the availability of games: Magnavox decides to create a closed system by not licensing third parties to develop games for it and relies on in-house production of titles. Because of this there are only a few dozen titles available. In addition to this, the strength of the VCS, despite being inferior, is based on the reputation of the Atari name, thanks to which the company manages to obtain licenses to convert for its console the major arcade titles of the time: Space Invaders, Pac-Man and others are nice calling card to attract buyers. Magnavox, for its part, offers reasonably nice and sometimes very playable clones--but still clones. To remedy this, attempts are being made to exploit the console's strong point, which is also the built-in keyboard, by bringing out titles somewhere between electronic and board games, complete with scoreboards and accessories and where the console shows the various stages of the action and key presses are used to perform certain functions or to give a variety of inputs to the machine, such as "Quest for the Rings" (fig. 4). Interestingly, many of the games is written by a single programmer, Ed Averett, a former Intel employee who oversaw the development of the 8244/8245, and who therefore knows very well how to exploit it: 24 titles of the 50 or so were developed by him. This happens in part because Philips has never funded the development of the console very much, and in-house programmers are in short supply. The console's low uptake did not stimulate game makers even when Magnavox decided to open the console to third-party titles in 1983: only a couple of games signed by Imagic appeared. But that year also saw the famous video game crisis in the U.S. market, forcing many companies to revise their business plans. Philips decides that the console has had its day, and the Odyssey2 is officially withdrawn from the market in early 1984.

In Europe, however, the Videopac achieves good commercial success. Sold primarily as the Philips Videopac G7000, to take advantage of Philips' brand awareness, the console is also marketed as the Philips Videopac C52, Radiola Jet 25, Schneider 7000, and Siera G7000, depending on the

Fig. 5 - Philips Videopac G7200 (photo: Fernando Saenz)

subsidiaries used in the various countries where it is sold. The widespread popularity of the Videopac led Philips to focus on the development of the console. The first development is a special version called the G7200: compared to the original, it differs in having a 9-inch black-and-white monitor integrated into a new camera body (fig. 5). In addition to this, Philips also develops a new version of the console, the "Videopac+ G7400," unveiled in mid-1983 (fig. 7). This new console is still based on the 8048 microcontroller at 5.91 MHz but offers improved graphics thanks to a new graphics chipset from Thomson (consisting of the EF9340+EF9341 graphics chips) capable of generating a high-resolution image of 320x238 pixels with 16 colors, with a usable graphics area of 256x192 pixels. The jump in graphics performance is remarkable, but this resolution is exploitable only by games developed specifically for the G7400: however, the console is capable of running games for the earlier G7000/G7200 model due to the fact that it also integrates the original 8245 graphics chip (fig. 6). There are thus 3 types of cartridges in circulation: the original ones for G7000/7200, which can also run on the G7400 but in low resolution; the "hybrid" cartridges valid for G7000/G7200 and G7400, which adapt the graphics to the type of system they are running on; and the cartridges specific to the G7400, which run only in high resolution and therefore only on the new console. Memory is also increased: external RAM increases to 6 KB and the maximum addressable ROM in the cartridges increases from 8 to 16 KB. Philips plans to market the Videopac+ G7400 in the U.S. as well, so much so that it is officially unveiled at the Summer Consumer Electronic Show in mid-1983 as the "Odyssey3 Command Center," but the video game crisis of that year cancels all plans and the G7400 remains limited to Europe alone. Overall, the console is more successful in the Old Continent than in the U.S., thanks in part to the greater push from the parent company and less fierce competition, and it remains on the market for several more months, seeing the birth of several exclusive games produced only for the European console editions and never reaching the U.S. market.

In September 1982 the console is also launched in Japan as "Odessei 2," a name derived from the translation of the original Odyssey into Japanese using katakana characters. The games are not translated: only a new cartridge label is printed with the titles in katakana characters, but in the games the texts remain in English. The console does not receive the widespread popularity hoped for, and as early as May 1983 its selling price is reduced by 40 percent: the distributor estimates that about 3,000 units have been sold since the start of marketing. The console's adventure in the Land of the

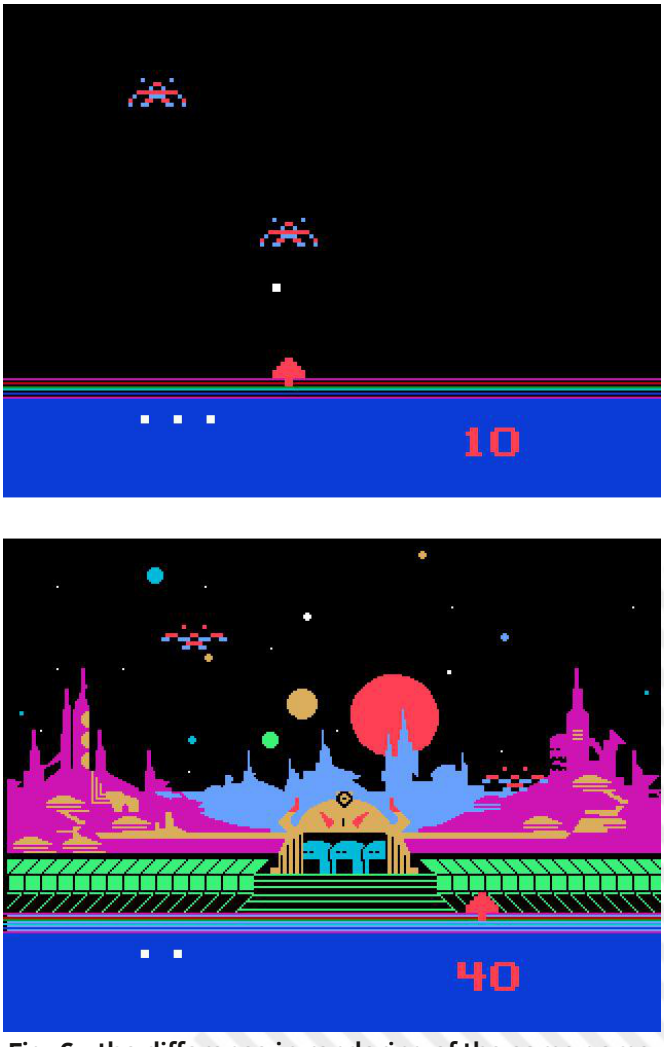


Fig. 6 - the difference in rendering of the same game, "Demon Attack," in G7000 version (top) and in G7400 version (bottom) (photo: the nextlevel.com)

Fig. 7 - Philips Videopac+ G7400

Rising Sun ceases a few months later.

In early 1983 Philips also introduced the console in Brazil. Here the situation is a bit more complex. The then military regime had closed its borders to imports of many products from abroad, and everything related to computers, consoles and games could not be introduced into Brazil. This had been decided in order to stimulate Brazilian technological development and industrial production. Philips, which already had factories in that country to produce its products locally, took advantage of these factories and began the distribution of the console, which was launched on the market as "Philips Odyssey," without the "2" in the name since the first version turns out to be almost completely unknown: it had, a few years earlier, only had a very small circulation thanks to a small distributor who imported it for a few months. As in the case of Japan, the games here are distributed with only the translation of the title in Portuguese and the texts appearing on the screen in English. Compounded by the little competition resulting from the import blockades, sales of the console are doing really well, outperforming those recorded in the U.S. Overall, the Brazilian market proves to be one of the most profitable for Philips. Units sold in Brazil and Europe total about 1 million, which, when added to U.S. sales, brings the total number of units sold to 2 million.

Expansion modules

Through the cartridge port, a number of modules made to expand the capabilities of the console also connect to the system: "The Voice," to add voice capabilities to games; "Chess," to be able to play chess; and "VideoPac+," to turn the G7400 into a real computer.

The former is a module based on a sound chip manufactured by General Instruments capable of speech synthesis in games that support it: for example, in "K.C.'s Crazy Chase!" the module utters words such as "run," "go," "incredible," and "oh, no!" The module can also generate additional sound effects, as in "Killer Bees!", or background music, as in "Turtles!". If the module is not present, the game still works: the player simply does not hear the additional sounds. A special feature of the module is that audio playback is not through the TV speaker but through its own speaker: for this reason it has an independent volume control.

Chess, as the name implies, is a module used to play chess. Since the console is not powerful enough for a chess game (either because of the small amount of

Fig. 8 - the "Chess Module" mounted on the console (photo: boffy_b)

Fig. 9 - BASIC Microsoft Module C7420

memory available or the insufficient computational capacity of the microcontroller) the module contains a Zilog Z80A CPU with an additional 2 KB of RAM to maintain the variables needed to handle the chess game. Like The Voice module, it also connects to the console via a cartridge that simply acts as a connection to the system (fig. 8).

Musician is a module dedicated to music. It comes with a small musical keyboard to be affixed above the console keyboard. It allows not only to "play" by learning musical notes but also to compose small songs that can be stored and played independently.

The last module, on the other hand, is dedicated exclusively to Videopac+: it is the "BASIC Microsoft Module," code C7420 (fig. 9), based on a Z80A CPU, 18 KB of ROM containing a BASIC interpreter derived from Microsoft BASIC, 16 KB of RAM (of which about 14 KB is available for user programs) and an over-keyboard to be attached to the original one to indicate to the user shortcuts for entering commands in BASIC. The module also offers at the rear a connector to be able to use a cassette recorder for loading and saving games but no other ports, so neither disk drives nor other peripherals such as a printer can be connected: the module's non-expandability and relatively high cost (almost equal to the purchase price of the console) limit its widespread use.

Lawsuit with Atari

In 1980 one of the world's video game icons, namely Pac-Man, was put on the market in Japan by Namco. It is an immediate success and the company, by the end of the year, exports it internationally. The game also arrives in the U.S. and immediately begins to grind out box office: millions of dollars are swallowed monthly by the arcade, reaching 150 million after just one year in bars and arcades. Atari, which has held the rights for home electronic gaming system conversions of Namco video games since the late 1970s, plans the conversion for its VCS console. Meanwhile, many companies, seeing the success of Pac-Man, try to produce clones for the other consoles and computers out there. Magnavox is not to be outdone and decides to develop its own clone, which it puts out in late 1981 as "K.C. Munchkin!" (fig. 10) (little trivia: K.C. Munchkin comes from the name of the then president of Philips' consumer electronics division, Kenneth C. Menkin). To try not to completely clone the game, minor changes are made, dictated in part by the Odyssey2/Videopac's inferiority to the arcade machine, thus trying to replicate Pac-Man's game mode more than its graphical appearance: the walls become square; the screen becomes horizontal; the pills (here called "munchies") are only 12 and move randomly around the maze; the ghosts are called "munchers" and are only 3; and the main character is called Munchkin. Other than that, the ghosts are indeed reminiscent of those in Pac-Man, and Munchkin is also very reminiscent of Namco's iconic muncher. As in the original game, then, there are super-munchies that temporarily weaken opponents by allowing them to eat them. Atari protects its exclusivity by filing suit against anyone who puts out a clone of the game, and so it does with Philips America. Initially, however, the first court to review the case agrees with Philips, declaring that the game contains original code and dismissing Atari's appeal. The latter, however, appeals the ruling and, in early 1982, wins the new case: the appeals court approached declares that the game "K.C. Munchkin!" deliberately replicates the look and gameplay of Pac-Man to attract potential buyers, and thus forces Philips to withdraw the game from the market. This ruling is very important because it will later become case law, as it is one of the first to punish copying the "look & feel" of software: thus, for the purposes of copyright infringement, it is no longer necessary to go so far as to clone, copy, completely a game or software but it is also sufficient to try to replicate its look or feel.

A short time later, Philips, in response to the ruling, published a new game called "K.C.'s Krazy Chase!" in which Munchkin again moves through a maze but this time, in addition to avoiding monsters, he must eat the body segments of a worm that explicitly recalls that of Atari's "Centipede" game (fig. 11). Also as a callback to

Fig. 10 - K.C. Munchkin, a Pac-Man clone but with distinctive elements (photo: Retro Games Fan)

this game, trees/mushrooms reminiscent of Centipede's obstacle mushrooms also occur in the maze. Obviously these are all elements inserted into the game on purpose as "payback" against Atari and the lawsuit it filed because of the Pac-Man copy.

Conclusions

Ultimately the Videopac/Odyssey2 was a decent console with good potential that was badly exploited. The stubbornness in keeping the system closed and not issuing licenses to develop games by third parties was a boomerang that came back against Magnavox/Philips: in fact, only about fifty games were published for the console in the U.S., to which were added those developed exclusively for the European market and for Videopac+. By the time Philips realized this and opened up to outside developers the damage was irreversible and only a few games were submitted by companies other than Magnavox/Philips. In America it then suffered from competition from the Atari VCS and the Mattel Intellivision: it is true that it remained in third place in the sales charts but still far behind the numbers that the first two recorded. The video game crisis of 1983 dealt the death blow to a console that Philips management never really understood or fully supported: Baer himself said that there were rumors in the secret rooms of Magnavox that every month was the decisive one for the console's retirement, and that they only went ahead because every month all the new Odyssey2 production was sold. The fact that the video game crisis reached Europe late gave Philips an opportunity to rejuvenate and upgrade the machine with the Videopac+ model, which was quite successful in the Old World. In Brazil, too, the absence of real competition allowed the console to establish itself. But in Japan, where the

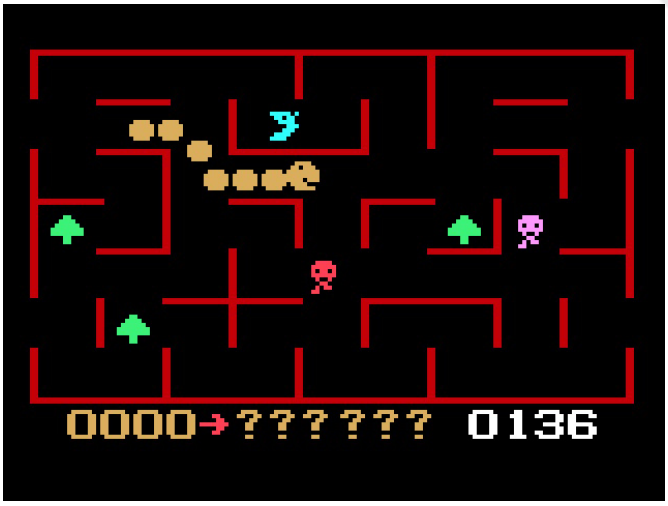


Fig. 11 - K.C. Krazy Chase, Philips' "revenge" against Atari. Here Munchkin eats Centipede's worm! (photo: The Nextlevel.com)

alternatives were there, it fell mercilessly, a victim of the technological inferiority it displayed compared to the competition. Even the BASIC module to turn the console into a computer was an unfinished business: with a language absolutely far from the standard, with illogical construction choices such as the absence of expansion ports, and with a price tag almost equal to the cost of the central unit, the module was not very successful.

Noteworthy are the games: developed to make up for the absence of exclusives, many improved on the gameplay of the games they were inspired by, such as "Space Monster," the imitation of Space Invaders, which introduces some unique elements that enrich the action, or the aforementioned Pac-Man clone, which turned out to be a respectable title and certainly far above the absurd conversion made by Atari for its VCS. In short, if you take it out of the box once in a while, dust it off and have a little game, surely a little healthy fun will always be able to give you.

GameCube - the (un)protections

by Dr. Andrea Q. - www.retrofixer.it

Youtube: https://www.youtube.com/channel/UCEw0CQ8LKyA9jVvWXkEwp4Q

After a hellish 48 hours related to mud shoveling due to flooding (September 15 was a really bad day for the Marche region...) we're back to talking about the things we enjoy and that lift (my) spirits. The Nintendo Game Cube protections!

The console was developed by Nintendo under the internal name "Project Dolphin" and was released in 2001 with product code DOL-001. It was the first big N console to make use of disk-type storage media. Perhaps not everyone knows that towards the end of 2001, Panasonic had the opportunity to rework the console with DVD support and media playing by producing the Panasonic Q, a major commercial failure, which you can see below:

PROTECTIONS:

PROPRIETARY DISK FORMAT

GC discs are 8 cm miniDVDs with a capacity of about 1.5 GB; they are called "GOD" which stands for "Gamecube Optical Discs" and were manufactured by Matsushita (future Panasonic).

This format was chosen for:

- Reduce piracy;
- Reduce production costs through Nintendo's partnership with Matsushita;
- allow the storage of in-game movies/animations, since N64 cartridges had very limited space (a miniDVD still allows twice the space of a regular CD which were depopulated in other consoles);
- to avoid using the console as a regular DVD player for the (hardly credible) official reason enshrined in an interview by Nintendo of America's CEO Howard Lincoln: "you will not be able to play audio CDs on Nintendo's machine, and you will not be able to play movies."

....

"that's exactly what our device will do - play the best videogames around."

The real reason probably lies in the fact that in order to sell a device that can read DVDs, one has to pay royalties to the DVD Forum, which at the time amounted, as far as I could find from reading on the Web, to about $20 per unit/console.

STANDARD QUASI-DVD

The data on these discs are stored according to a standard very similar to that of DVDs but with some proprietary differences that do not make GODs fully compatible with regular (mini)DVDs:

1 - the data section of these disks uses a scrambling method different from the standard described in the ECMA DVD Specifications document thus producing an "obfuscation" of the stored data;

2 - the Data Frame Layout is different from the standard one;

These 2 stratagems protect against "brutal" copying by ordinary users but with professional hardware it would still be possible to reproduce a 1:1 copy. Here is where the real "physical" protection of these extraordinary media comes in.

COPY PROTECTION BCA... OWNERSHIP

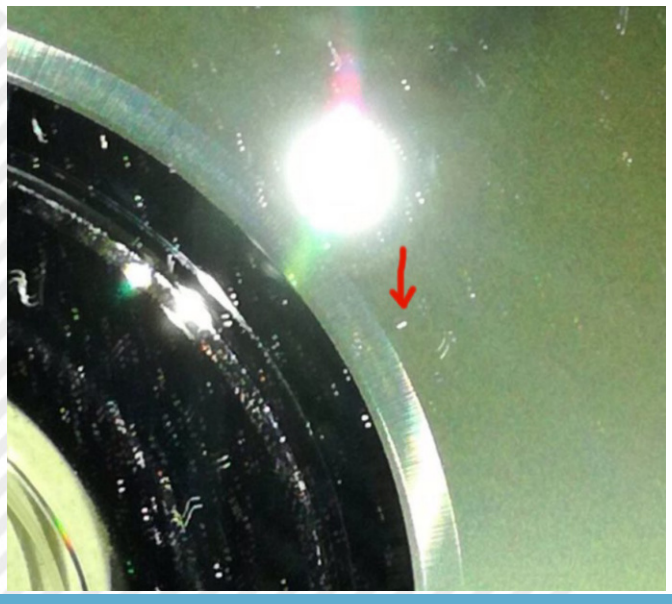
The Burst Cutting Area (BCA) is that area of any disc, visible to the naked eye, between radius 22.3±0.4 mm and radius 23.5±0.5 mm that can optionally contain

information engraved by dedicated hardware (a YAG laser) and readable by normal player lasers which, however, not all DVD players can access because they require dedicated circuitry. This area of 188 bytes in GC discs contains 2 parts:
- an encrypted table of 124 bytes used in the protection (read a little more below)
- 64 bytes unencrypted

The data in the encrypted table are decrypted directly from the firmware of the optical drive and once in the clear we get something in my opinion amazing: 6 precise values that, if analyzed in the right way, we discover represent the physical location in the disk of something... and if we go to snoop in those very locations what do we find ? Just as many "cuts" written presumably by the same method as the BCA but this time within the data area ! These small "cuts" are clearly visible if the disk is held in front of a strong light source as you can see in the image below (taken from a Wii disk : it works the same way) with relative detail enlargement on one of these 6 "notches" (another one is visible in the upper left portion of the image not zoomed in):

This one, on the other hand, is taken from a Game record:

This in my opinion is ART ! And to understand art it takes a genius, that of tmbinc, a very talented reverser able to produce this admirable article where are explained the smallest details of the protection that in a few and dreary words I tried in vain to explain a little further (unfortunately he seems never to have completed part 2 and 3 related to the linked article); for those who do not know this monster of skill we will find him later in the ranks of team Twiizers (future team FailOverflow) !



REGION CHECK

Reversing the .iso produced by a region-editing tool, I noticed that this is stored in 2 places on the disk:

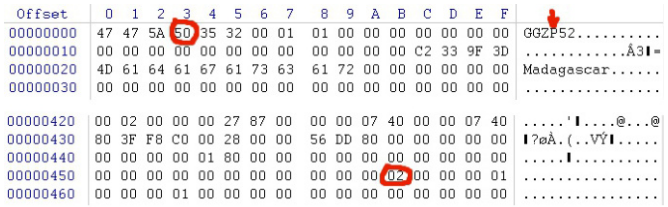
At offset 0x003 we have the game ID containing the region letter:

45 - E (USA)

4A - J (JAP)

50 - P (PAL)

At offset 0x45B of the disk, the country code/region code is stored instead:



Offset	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
00000000	47	47	5A	50	35	32	00	01	01	00	00	00	00	00	00	00	GGZP52.....
00000010	00	00	00	00	00	00	00	00	00	00	00	00	C2	33	9F	3D	.....
00000020	4D	61	64	61	67	61	73	63	61	72	00	00	00	00	00	00	Madagascar.....
00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	.....
00000420	00	02	00	00	00	27	87	00	00	00	07	40	00	00	07	40	.....'.....@...@
00000430	80	3F	F8	C0	00	28	00	00	56	DD	80	00	00	00	00	00	.?øÀ.(..VÝ.....
00000440	00	00	00	00	01	80	00	00	00	00	00	00	00	00	00	00	.....|.....
00000450	00	00	00	00	00	00	00	00	00	00	00	02	00	00	00	01	.....
00000460	00	00	00	01	00	00	00	00	00	00	00	00	00	00	00	00	.....

00 - JAP

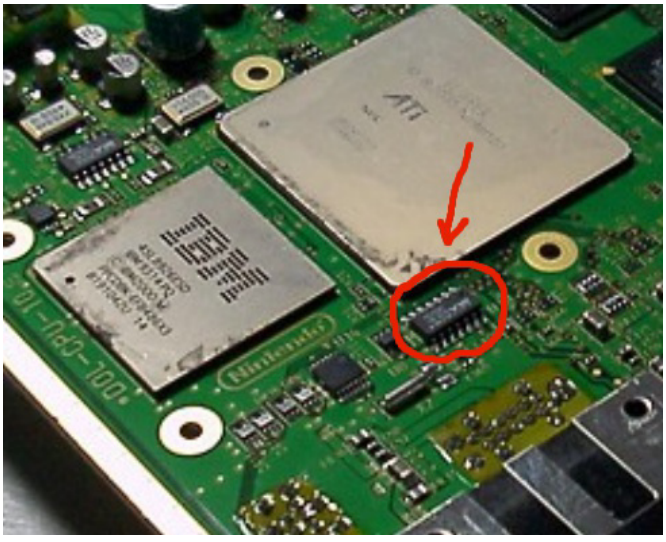
01 - USA

02 - PAL

To patch the region both need to be modified with, for example, software called GC-Tool.

BIOS/BootROM

The 2MB BIOS (or BootROM) is stored in a special chip made by Macronix (see photo above) and is encrypted using an XOR-based algorithm; this algorithm was discovered by the reverser Segher (you remember this name from previous installments, don't you ?) and is thus known.



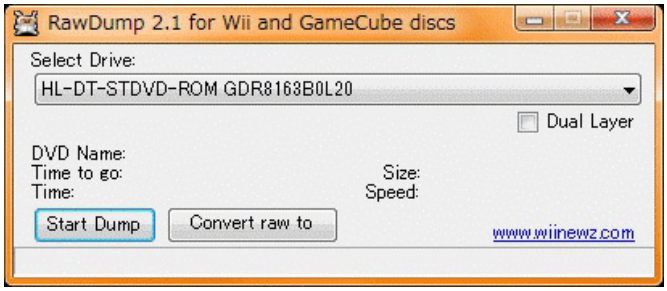
The bios is structured in 2 parts:

BS1: Bootstrap Stage 1 [BS1], written in ASM that initializes the hardware and loads BS2;
BS2: Bootstrap Stage 2 [BS2 or IPL], written in C like any other GC program;
Its reversing also led to the creation of a homebrew BIOS. If you got the question "but so can we modify the GameCube BIOS?" the answer is YES!

OVERCOME THE PROTECTIONS

As we have been able to understand GOD disks require particular DVD-ROM drives to be read, for example, on a PC; in particular they need to have inside them the Hitachi MN103 microcontroller because that chip supports specific debugging commands necessary to perform the "RAW DUMP," that is, the 1:1 reading, of these particular disks that are exploited by Windows applications such as RawDump to perform precisely a proper dump:

Specifically, the supported drives are those contained in the table below:
Optiarc DVD RW AD-7203A
PHILIPS DVD+RW SDVD8441 PA48 IDE (GC only)
GDR-3120L (inside some old xbox360)



GDR-8082N
GDR-8084N
GDR-8160B
GDR-8161B
GDR-8162B
GDR-8163B
GDR-8164B
GDR-H10N
HL-DT-STDVD-ROM GDR8082N0L03
HL-DT-STDVD-ROM GDR8082N0007
HL-DT-STDVD-ROM GDR8082N0010
HL-DT-STDVD-ROM GDR8082N0C07
HL-DT-STDVD-ROM GDR8082N0120
HL-DT-STDVD-ROM GDR8082N0106
HL-DT-STDVD-ROM GDR8161B0042
HL-DT-STDVD-ROM GDR8161B0043
HL-DT-STDVD-ROM GDR8161B0100
HL-DT-STDVD-ROM GDR8161B0102
HL-DT-STDVD-ROM GDR8162B0015
HL-DT-STDVD-ROM GDR8162B0018
HL-DT-STDVD-ROM GDR8163B0D20
HL-DT-STDVD-ROM GDR8163B0B26
HL-DT-STDVD-ROM GDR8163B0L23
HL-DT-STDVD-ROM GDR8164B0B07
HL-DT-STDVD-ROM GDR8164B0L06
HL-DT-STDVD-ROM GDR8164B0B10
HL-DT-STDVD-ROM GDRH10NB0B10
HL-DT-STDVD-ROM GDRH10NB0F03

Or another system is to dumpar them directly from Wii thanks to the CleanRip homebrew:

HOW TO START BACKUPPLIED TITLES

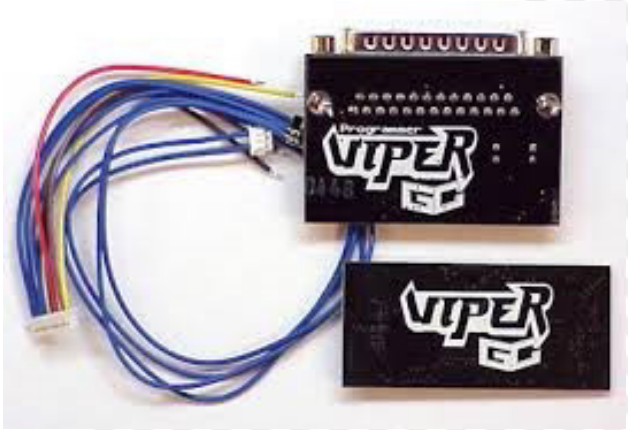
As in any self-respecting scene there are various methods:

MODCHIP

The most famous are:

VIPER

connects directly to the optical drive making it also possible to read "normal" miniDVDs and bypasses the protections mentioned above; it has dedicated management software started on the console.

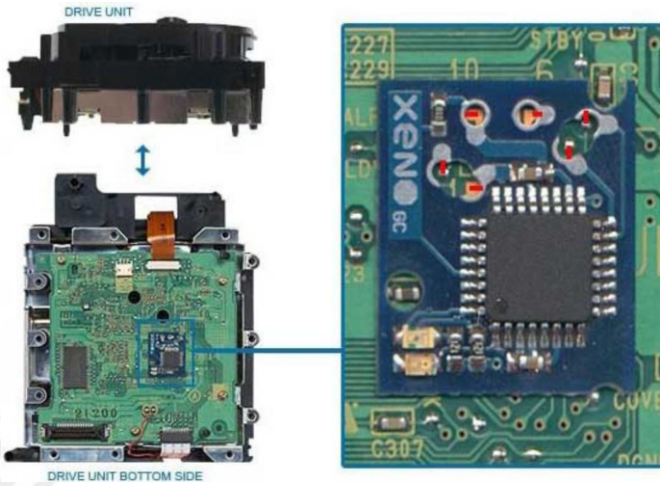


Someone was able to reverse-engineer it (producing a homemade modchip) and it turned out what it is capable of doing::

- Initialize the diskdrive into a reset state (by setting HW register cc003024)
- Unlock the drives' debug feature by sending two special commands named "ff 01 MATSHITA 02 00" and "ff 00 DVD-GAME 03 00"
- Sending some small codeblock into the drives' memory by using a command named "fe 01 01 00 "
- Starting this codeblock by hooking it into a system call within the drive
- Unlocking the drive by performing a ReadDiscID command (A8000040) to be able to read sectors
- Enable audio streaming depending on the setup of the DiscID
- Reading , parsing and starting the apploader of the swapped disc, resulting in booting the application on it

XENOGC

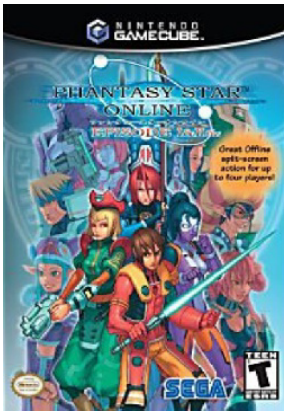
Simpler modchip that allows copies of backup disks to be made but has (at least in the description I studied) no dedicated management software.



Given the particular optics of the original player, these modchips do not guarantee full compatibility with all blank media and also do not have full compatibility with backsupped games regardless of the media used.

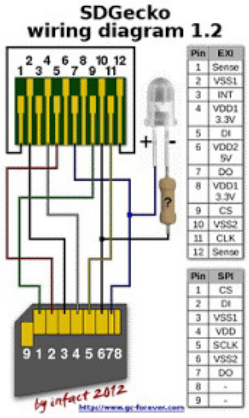
SOFTMOD

The very first "primitive" softmod required the use of a copy of the game Phantasy Star Online 1&2 (not 1&2plus nor 3) and a Broadband adapter (BBA):
the game allowed updates to be downloaded locally from the official server; the communication protocol used was the one chosen in the Dreamcast version of the game and had already been studied; the program called PSOload/ PSUL (latest version PSOloadV2.0a) emulated locally the

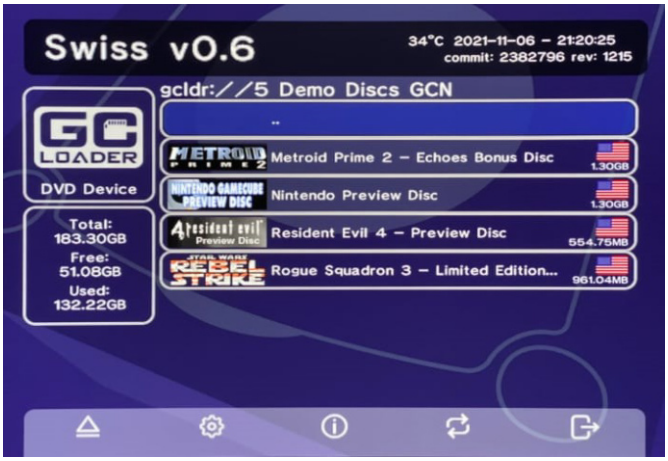


official server to which the game connected (DNS faking) and through it arbitrary code could be loaded and started in the console.

Instead, the later softmod involved the use of an SD->GC Memory Card adapter (SDGecko type - SD cards are natively compatible with the GC if the pins are connected in the correct way):



into which to copy the gamecube executable (extension .GCI) and possibly the files for exploits. The most widely used executable is undoubtedly Swiss, an all-in-one homebrew:



you also need a system to start such an executable; the 2 methods used to do this are:
1 - the use of a disk (Action Replay for GC, DATEL SD MEDIA LAUNCHER, etc.) for GC: once started it allows us to start (or select and start depending on the system used) the executable from the memory card:

2 - an exploited save of a game that starts the executable from the memory card. A list of the names of currently available game exploits:

007: Agent Under Fire
ac-exploit (Animal Crossing)
BMX HAX
fzero-hx
ghostrecon2
Home Bros.
pandoratomorrow
PokéLoad
Splinter Cell
Twilight hack (Zelda: Twilight Princess)
ww-hack (Wind Waker)

Since the GameCube does not have an internal writable memory where we can save what we are interested in the startup of the exploits must be rerun each time we power up. These systems are also capable of disabling region check. One curious thing is that these Datel disks have a system that makes it difficult to copy them; only in late 2019 was such copying made easily feasible (although it takes almost 3 hours to dump!) thanks to version 2.1.0 of the CleanRip homebrew.

ODE (Optica Drive Emulator)

In November 2019, the dansprojects website proposed an ODE named GC Loader that replaces the console's original optical drive (the connector of which will thus have to be desoldered) for the modest launch price of $80. This device can be installed rather easily by making prearranged solderings (not necessary with the later "PNP" version which already has a "PlugNPlay" connector) on the appropriate connector indefinitely preserving the console from breakage that may affect its DVD drive. The product works very well when combined with the aforementioned Swiss homebrew and loading times are even faster than with the original optical drive; it supports FAT32 formatted SD cards tested up to 512GB into which to copy ISOs of titles (the boot.iso file you will copy to the root of the SD is automatically launched - it is recommended to use the Swiss ISO to work smoothly).

CURIOSITY

There was also the possibility of replacing the plastic shell so that it would also accept the size of regular DVDs:

If you, too, were amazed when you read about the features of the proprietary BCA, it means that you might also enjoy the next article concerning a console that is unknown to most and has not yet been reversed given its very low popularity but that bridges the gap with future protection systems.

This will probably be a short but curious article: in fact, iQue will be discussed.

WARNING: Disclaimer

The information contained in this article is for informational purposes only. This documentation is not guaranteed to be error-free. If this information is used to modify your hardware, it is your responsibility to take all necessary emergency, backup, redundancy, and other measures to ensure its safe use. RetroMagazine World disclaims all liability for any damages caused by the use of the information in this article.

Galaksija, the socialism's forgotten computer

by Guido Cauli

Those of us who were born in the 1980s, or perhaps earlier, belong to that generation that experienced with our own eyes and much excitement the historic advent of computers in homes: we called them "home computers," or "microcomputers," partly because before that time processors were as big as closets, or even bigger.
From then on, however, everyone could have their own office, or perhaps their own game room, right in the home. Vic-20, Commodore 64, ZX Spectrum appeared in our Italian homes, and the world of us kids was never the same again.

But it was not like that everywhere.
Just outside our window, the whole world was conspicuously divided in two: on one side was capitalism and NATO, the United States and the Western countries, while on the other side was socialist ideology and the bloc of the Soviet Union. In the latter, free trade practically did not exist: every idea and product of the ingenuity of its inhabitants was the property of the central state.
In fact, technology in Soviet countries was at least ten years behind its Western counterpart, and it was so at least until the dissolution of the USSR in the early 1990s.

In neighboring Yugoslavia, which was then still united under Josif Tito's "soft" socialist model, import duties did not allow people to buy Western computers; locally, microcomputers existed, but they were very expensive and the average Balkan worker could not afford anything like that.

From necessity, however, the art of making do was honed: in 1983, the then 30-year-old Vojislav "Voja" Antonić, an electronics enthusiast, given his inability to afford to buy a computer, decided to make one all by himself. The machine would be based on the Z80 processor (produced by our Federico Faggin's Italian-American ZiLog, but of which there were several clones in the Soviet world) and inexpensive components, readily available on the local electronics market.
After making working prototypes, the time had come to disseminate this information: rather than selling these machines directly, he first had the happy idea of publishing the hardware schematics and software listings in a magazine, for the benefit of all those who had the same needs as him: in practice, he applied the principles of Open Source before the term itself had actually been coined: before Stallman, the Free Software Foundation and long before Torvalds and Linux.

Thanks to the help of a journalist and great expert in technology, Dejan Ristanović, young Voja Antonić was able to publish the results of his work in the local magazine "Galaksija," for which Ristanović was an article writer, and which dealt with topics of Yugoslav science and culture: and thus, in the January 1984 special Računari u vašoj kući, i.e. literally "Computers in your home," he was able to publish schematics and software of the computer, which shortly took the name of the magazine itself, i.e. just Galaksija.

In addition to the Z80 processor clocked at 3.5MHz, at publication the hardware side included a BASIC interpreter in a 4KB ROM, 2 to 6 KB of RAM and a slot for an optional ROM, which was later published, called ROM B and which contained additional BASIC commands and the ability to also work directly in Assembly from the command prompt. The computer could load and save data via tones with the help of a cassette recorder, and had no circuitry for sound or colors on the screen. In the absence of dedicated processors, the Z80 itself devoted much (70%!) of its processing time to handling video signal generation routines, much like what an Atari 2600 did.
The on-screen resolution was 32x16 characters, or 64x48 pixels, but there was no dedicated graphics mode.

It was therefore a truly minimalist computer, but for that very reason inexpensive and fairly simple to assemble.

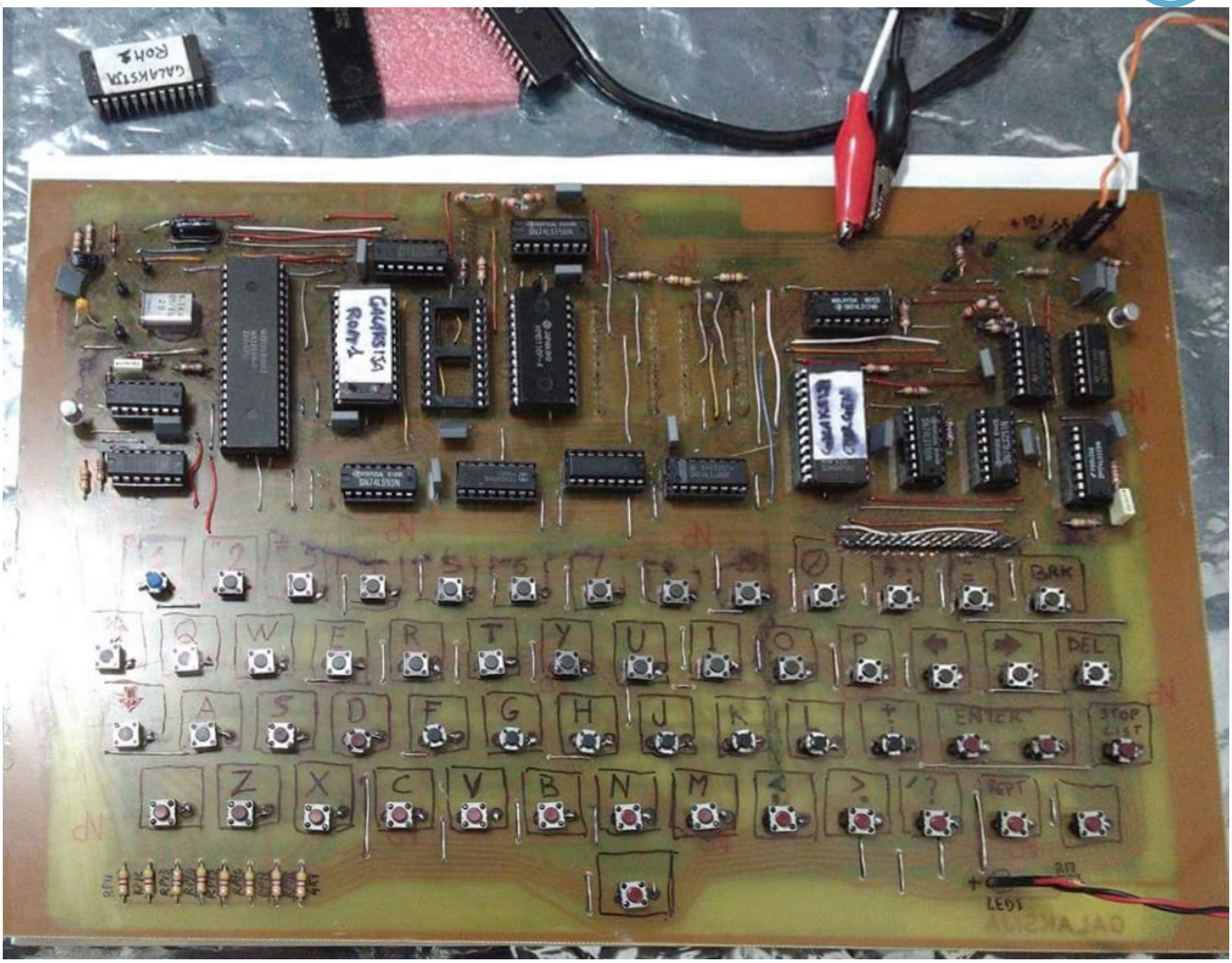


Fig. 1 - Courtesy of Antonio Caradonna

As a result, it was a great success: the magazine had to run as many as four reprints to meet the demand, and a large number of people managed to build Antonić's microcomputer themselves-the alternative, after all, would have been to own no computer at all.
In fact, the Galaksija was the computer that first brought computers into Yugoslav homes.

It was so successful that the Belgrade Radio station began to devote time to the computer world, and in the "Ventilator 202" broadcast it even implemented a system that today we might call "file sharing," long before Napster or eMule: since the Galaksija interpreted the data on audiocassettes as tones (just as the C64, Spectrum, Apple II and other computers of the same era did), it was possible to broadcast programs by transmitting them over the radio, so that listeners (who were notified in advance), could record them on cassette and use them on their machines. Lots of Ventilator 202 listeners in the mid-1980s would write programs or games and send them to the radio, so that it could broadcast them and disseminate them to all other users.

With the advent of the 1990s, the dissolution of the Soviet regime and the subsequent fragmentation of Yugoslavia (also as a result of Milošević's election), but especially with the introduction of IBM-compatible PCs on the new market, led Antonić to no longer take an interest in his creation, which slowly became obsolete and forgotten by many.

In 2017, however, rediscovery occurred.
The Italian volunteer organization Apulia Retrocomputing, having come into possession of a copy of "Galaksija" magazine, learned about the mysterious and fascinating history of this machine: after a long reconstruction work, starting from low-resolution scans, it managed to first reconstruct the prototype, and later to manufacture some boards corresponding to the original version of Galaksija. These boards were populated and Galaksija, albeit in very

Fig. 2 - © Guido Cauli

few copies, was reborn in Italy, where before at the physical machine level it was virtually unknown.

To date, it is possible to emulate Galaksija in several ways: the most functional is probably the very Italian MAME project, which allows you to emulate Galaksija by adding its ROM dumps (i.e., the A, B, and character ROMs) into a subdirectory; other emulators are Galaxy for MS-DOS and GalaxyWin, its conversion to a Win32 environment, but they have less functionality.

Original programs written in the 1980s are available on several websites, although most are written in Serbian. As of today, a small Italian community that originated from Apulia Retrocomputing is devoting itself to the Galaksija Project, which includes writing new software also in English and creating new hardware for the Galaksija, including a memory expansion-which was also published decades ago on Računari-to increase RAM to 48KB.

In short, if it is true that a computer "lives" as long as it is remembered, and as long as new software is produced and used, then today retrocomputing enthusiasts can see the birth-nay, "rebirth"-of this fascinating computer full of history, which had been in danger of being forgotten forever.

“Deep Learning”? The C64 is there too!

by Eugenio Rapella

This article is dedicated to Bianca, my partner,
Who was in a little too much of a hurry to get to Heaven.

"Artificial Intelligence," "Deep Learning," "Machine Learning" are in the vogue. Could our beloved C64 stand by and watch? Of course not!

This article takes up a proposal of mine that appeared in "Super Bit," an attachment to No. 49 of Bit magazine from April ... hear, hear, ... 1984! (Interestingly, the attachment can be found from the archive.org site where you can really find a little bit of everything); the code at the time was for the Vic 20, but ... we're still in the family.

In the game "Even or Odd?" two players, A and B, show the fingers of one hand at the same time: they can show 1, 2, 3, 4, 5 or no fingers. If the total number of fingers shown is even A wins, if it is odd B wins. The game cannot end in a tie, the game is "fair" (the rules do not benefit either player) and there is no winning strategy.
Suppose A and B play many games; it is obvious that if A decides to always play "even," B notices and always plays "odd" winning repeatedly. The same happens if A decides to systematically alternate between "even" and "odd" or if he repeatedly plays the same simple sequence, for example, twice "even" and three times "odd." The best strategy is to play unpredictably, for example, tossing a coin then playing "even" if "Heads" comes up, "odd" if "Tails" comes up.

Are you ready to challenge your beloved C64 to a series of games of "Odd or Even?" ? The Commodore will try to learn your "style of play," analyze your plays and ... play accordingly.
The C64 needs only about twenty instructions in Basic; I used CBM Prg Studio and the VICE emulator (two software programs never incensed enough):

```
100 poke 53280,4:poke 53281,4:print
chr$(5),chr$(147)
110 print:print" ** even or odd **":print
120 print" even sum: c64 wins"
130 print" odd sum: player wins"
140 print:print" press '1' for 'odd'"
150 print" press '0' for 'even'"
160 g1=1:g3=1:dim a(1,1,1,1):n=1
170 if a(g1,g2,g3,0)>a(g1,g2,g3,1) then
x=0:goto 190
180 x=1
190 get g$:if g$="" then 190
200 if g$<>"0" and g$<>"1" then 190
210 y=val(g$)
220 if y=x then m$=chr$(18)+" won the
c64!"+chr$(146):tc=tc+1:goto 240
230 m$=" you won!":you=you+1
240 a(g1,g2,g3,y)=a(g1,g2,g3,y)+1
250 g1=g2:g2=g3:g3=y
260 print:print" match n. ";n;m$:print
270 print "victories c64 ";tc;" (about
";int(100*tc/n+0.5);" %)"
280 print "victories play. ";tu;" (about
";int(100*tu/n+0.5);" %)"
290
print:print"********************************
***"
300 n=n+1:goto 170
```

The first six instructions take care of the presentation (background and border coloring and very brief explanation); the actual program begins at 160 where the A-matrix

A scene from the 1978 Italian movie "Pari e Dispari" with our beloved Bud Spencer and Terence Hill

comes into play: each of the four indices can take value 0 or 1 so DIM A(1,1,1,1) reserves a space for 16 elements. The task of the A-matrix is to keep up to date the number of times a certain sequence of four consecutive plays has been performed by the "human" player (player B; player A will instead be impersonated by C64). The position of indices 1,2,3,4 indicates the fourth-last, third-last, second-last, and last play, respectively; their value - 0 or 1 - indicates EQUAL or DISPARATE, respectively. Suppose you are in the 100th game of a competition and your last three plays, the 97th, 98th, and 99th, have been, in order, "Odd" - "Even" - "Even."

In order to decide what to play, the C64 compares A(1,0,0,0) with A(1,0,0,1): instr. 170. If, for example, it is A(1,0,0) = 10 and A(1,0,0,1) = 7, it means that, in the 99 games played so far, you have followed the sequence DPP with an EQUAL 10 times, an DISPARATE 7 times. So, after DPP, it is "easier" to see you play P (or, at least, that is what past history suggests), so the C64 will also play P i.e. X = 0 in the 170. Things are reversed in the other case, and the variable X, representing the C64's play, is raised to 1 in instruction 180.

Only now, AFTER deciding what to play, does the C64 take your play into consideration (as you see, the C64 does not cheat, it does not give a peek-these are things it would never do! It has its own dignity!).

To request your play, it is unthinkable to use an INPUT (the learning process is rather slow: it takes many plays for the C64 to begin to understand your play style so the single play must be ... instantaneous); at 190 the GET G$ instruction takes charge of "hearing" what you have entered. To play numerous games you must quickly "drum" the "0" and "1" keys (different characters will be ignored, see instr. 200); from time to time, pause to allow the C64 to process the queued plays in the keyboard buffer (we know that the C64 interpreter is not a ... sprinter).

At 210 the G$ character is transformed into a numerical value: Y is 0 or 1 and is your play while X is that of the C64. If X=Y the variables are both zero or both one, so the sum is even and the game is won by the C64, its win total (variable TC) is updated; otherwise B wins and it is your win total (variable TU) that is increased.

At 240 the A-matrix is updated according to your last play while at 250 the indices of the A-matrix are "rotated to the left": the last play (Y) becomes the new penultimate (G3), the current penultimate (G3) becomes the third last (G2) and so on.

The last instructions are in charge of printing the winner

of the current game and the status of wins in the games played.

At 300, the number of matches (variable N) is increased and we return to 170 for a new match.

Having launched the program, place your fingers on the 0 and 1 keys and begin rapidly tapping the two keys, trying to skillfully mix even and uneven. If, more or less consciously, you have a tendency to repeat some sequence ... the C64 notices and ... that's pain!

Some observations:

- The C64 chooses its move based on your latest play. Of course, at first, there is nothing to rely on. The G1=1:G3=1 assignments in the 160 are for entering a couple of "Odd" plays ... just to get started.

- There is no RND instruction (which generates a pseudo-random number) in the program: the behavior of the C64 is strictly determined and there is a sequence of 16 plays that, repeated, would make you win systematically (but it is more fun to try to fool the C64). Of course, by increasing the number of indices in the A matrix (e.g., with DIM A(1,1,1,1,1,1)), by varying the program appropriately, the C64 could take more than the last four plays into account. The "winning sequence" for player B would be longer (as many as 128 plays in the example) and more difficult to find, but it would take the C64 longer to "learn" ... four is an acceptable value for our purposes.

- Even if it only looks at the last four plays, the C64 always considers the entire sequence of games, so if you play a hundred games (it takes just over a minute), the C64's next play is the result of analyzing the hundred "quaterns": 1st, 2nd, 3rd 4th; 2nd, 3rd, 4th, 5th; ...; 97th, 98th, 99th, 100th. If this is not "deeeeeep learning"!

- If you mix P and D a little cunningly, you put the C64 through its paces: if after 100 or 200 games the C64's win rate is even a little over 50%, you have to give kudos to your Commodore: it's learning great!

- Your play, 0 or 1, is contained in the variable Y of instruction 210. If you modify 210 like this: Y=INT(RND(1)+0.5) and eliminate (or REM-ate) the 190 and 200, the C64 will take your place by playing with equal probability P or D. Do some experimentation and each time let 100, 200 games be played, automatically: sometimes the C64 will win, sometimes it will be your turn. If, on the other hand, you change 210 to Y=INT(RND(1)+0.8), you will simulate a player B playing randomly, but with a strong tendency to play "odd" (with probability 80%), which, after a while, will not escape your C64...

If you change the 210 to Y=0 or to Y=1, the C64 notices that you always play EQUAL or always DISPARENT and ... it's pain.

More interesting is the 210 Y=1-Y modification by which player B systematically alternates between P and D. After the first few skirmishes you can imagine what happens.

In terms of the law, I would like to remind you that the game "Odd or Even?" can cause pathological addiction: play in moderation (for the C64 there is nothing to be done: it has been in the gaming tunnel since birth and I really don't think it will come out).

An operating system for Nintendo NES?

Let's find out about the NESOS project

by Carlo Nithaiah Del Mar Pirazzini

NESOS is a curious experiment. A project made by Inkbox to bring a graphical operating system to the Nintendo NES/FAMICOM.

The development house is not new to programming on the NES and has made several experiments in the past years. Among these we can point out, for example, several Super Mario Bros Rom Hacks (such as the Halloween-themed one) or a Word Processor called THE CHINESE Word Processor for Apple II.

Of course on NESOS we are still in an embryonic and rudimentary stage but it is interesting to understand what we are facing.

The system presents us with two main applications: the word processor and the settings panel.

The processor allows users to write text, process it, and then save the data. Put simply, it sounds simple, but on a console it is singular. It is compatible with the Family Basic keyboard but also works through the use of the gamepad by using the A button to type a character.

Fig. 1 - The NESOS desktop

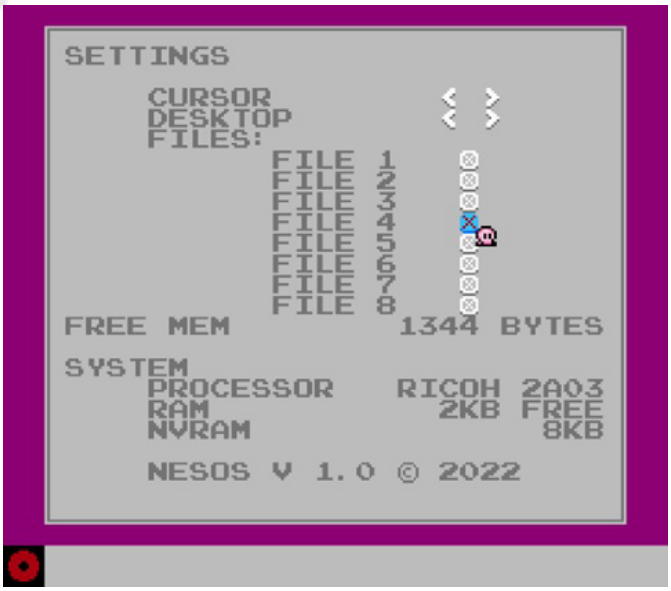


Fig. 2 - The setting menu

Fig. 3 - The word processor at work

NESOS uses 2K of NVRAM to save up to 8 files between usage sessions. Users can open the saved files.
Working on the NES gave the Inkbox guys two 256-slot sprite memory grids to work with, one for the foreground and one for the background, although the system can only display 64 sprites at a time.

However, it is possible to combine 8x8 sprites into larger OS and UI shapes.
Inkbox has made a nice video tutorial explaining the functionality which you can find here:
https://www.youtube.com/watch?v=UTWK_bIJf1U&ab_channel=Inkbox

Although it may seem limited to those of us living in the modern era, NESOS makes almost full use of the processing power and memory available in this 1980s system that, we recall, was best known for Super Mario Bros and Duck Hunt.

It is an interesting build that dives into the limitations of the small 8bit.

Sources: https://notin.tokyo/nesos/

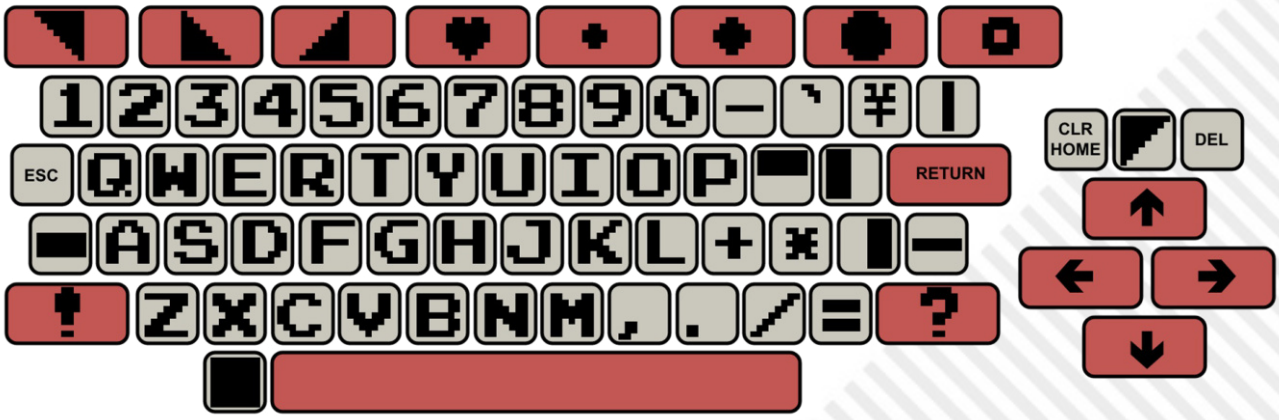


Fig. 4 - The Family Basic Keyboard

How to install Mac OS with SHEEPSHAVER

by Simone Petrucci

This guide, published by Simone Petrucci on October 6, 2022 on the RetroComputer Planet Facebook group (https://www.facebook.com/groups/2643999585815805), is really well done and it would have been a shame not to share it with our readers. With Simone's permission, whom I thank for his willingness, we therefore decided to publish it in the magazine.
Enjoy your Mac OS installation and the discovery of all the abandonware software available for that platform.
Francesco Fiorentini

Mac OS versions 7.5.2 through 9.0.4 can be installed with the SheepShaver emulator, which is available for Linux, Solaris, FreeBSD, IRIX, Mac OS, Windows, BeOS R4, and Amiga 3.x.
The tests were done with Mac OS versions 8.5 and 9.0.4 and the Windows release of SheepShaver.

REQUIREMENTS
- SheepShaver:
 Linux → https://www.emaculation.com/forum/viewtopic.php?t=6553
 Mac OS → https://www.emaculation.com/forum/viewtopic.php?t=7360
 Windows → https://www.emaculation.com/forum/viewtopic.php?t=5325
- the Mac OS operating system: https://winworldpc.com/library/operating-systems
- a compatible ROM: https://tinyurl.com/49cj3pmv
- keyboard layout: https://ronaldpr.home.xs4all.nl/keycodes/Keycodes_January_2022.zip

THE ROM
In order to run the operating system, a ROM compatible first with the emulator, then with the system itself, is required. In fact, if such a ROM is not compatible, the emulator will show an error message and shut down. To see if it is fully compatible with the system the only thing to do is to test it and see if it crashes by starting a particular program. From the tests done a non-compatible ROM will crash the system during the initial setup procedure that opens when the system is first started.
At the indicated site there are two files: Old_World_Mac_Roms.zipper and New_World_Mac_Roms.zipper.
The former contains ROMs for operating systems ranging from version 1.0 to 8.1, the latter for systems ranging from version 8.5 to 9.x. It cannot be ruled out that some ROMs in the "Old World" series will also work with systems that would normally require a "New World" ROM. The only way to find out is to try them all. For example, in the tests we have done, the 1998-12-03 - Mac OS ROM 1.2.rom and 1999-05-14 - Mac OS ROM 1.6.rom present in the "New_World_Mac_Roms.zipper" file manage to run Mac OS 8.5 and 9.0.4.
The ROM is unique for all emulated systems, so it must be chosen well to avoid problems.

CONFIGURATION
First, you must set the operating system ISO to read-only to prevent the installation from being interrupted by the Mac OS's anticopy system.

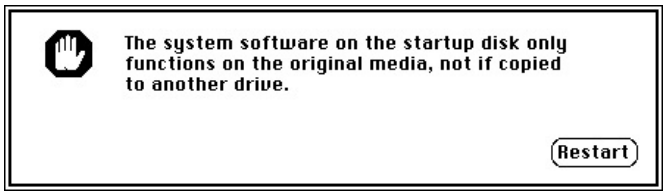


Fig. 1 - The Mac OS's anticopy system

When this is done, start SheepShaver and, under the "Volumes" tab, click on "Create..." to create the hard disk image file on which Mac OS is to be installed. The disk should have a maximum size of 2 GB.

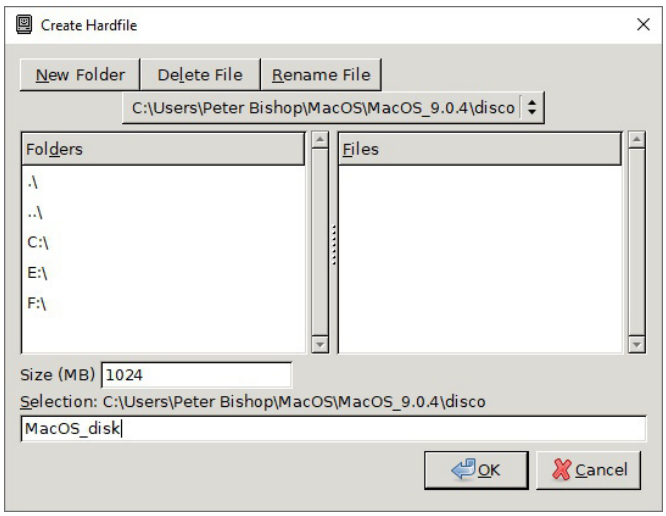


Fig. 2 - The window for creating the disk image file

Once the disk is created, its entry will automatically be added to the list of volumes to boot.

Now you need to add the system ISO image by clicking on "Add..." and drag it to the top of the list so that it launches first. To share files between Mac OS and the host system select "Enable "My Computer" icon on your Mac desktop (external file system)" and specify the drive letter to be shared under "Mount drives." This will cause the "This PC" icon to appear on the Mac OS desktop from which the disk on the host system can be accessed.

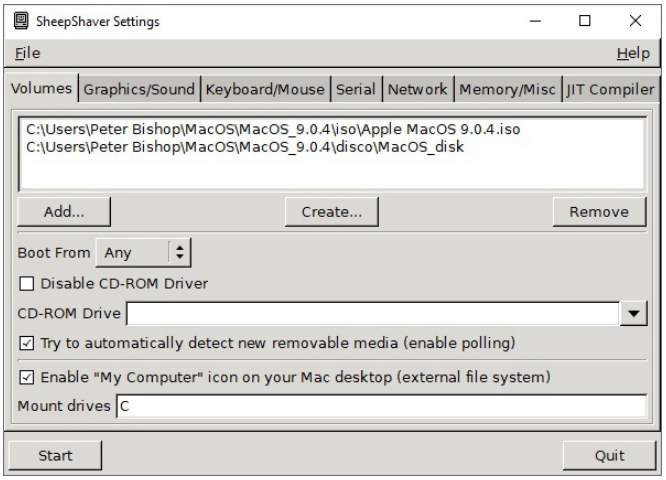


Fig. 3 - "Volumes" tab, from which you can create the connection between host and guest systems

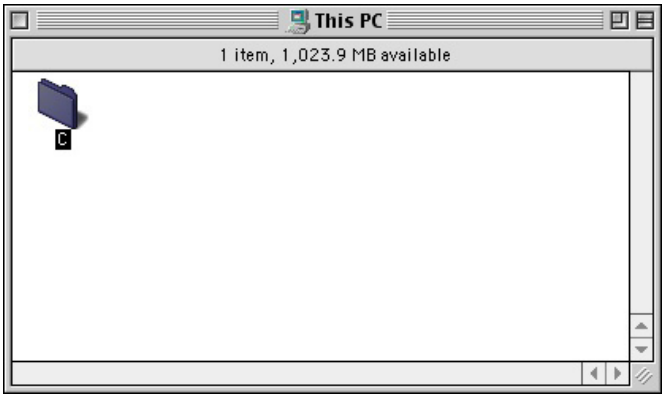


Fig. 4 - From this window you have direct access to all files on the host PC

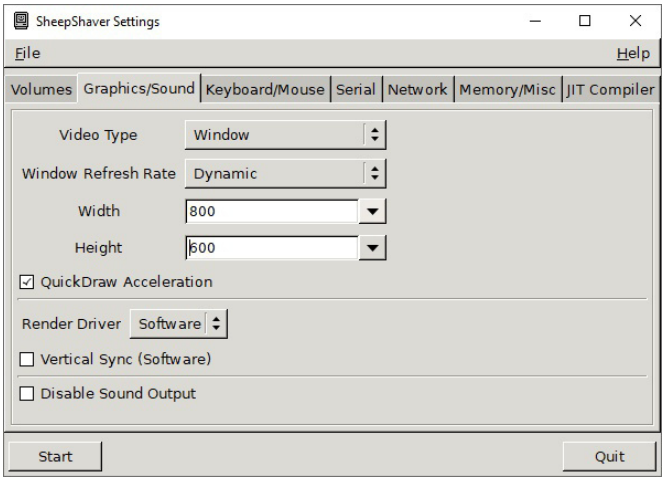


Fig. 5 - The settings for the resolution of the guest system window.

In the "Graphics/Sound" tab, set "Window Refresh Rate" to "Dynamic "for optimal performance and set the window resolution. Choosing "Maximum" will cause the window to occupy the entire screen (Figure 5).

Under the "Keyboard/Mouse" tab, enable the "Use Raw Keycodes" box and select the "keycodes" file downloaded earlier and placed in the SheepShaver folder. This will allow you to choose layouts other than the American one.

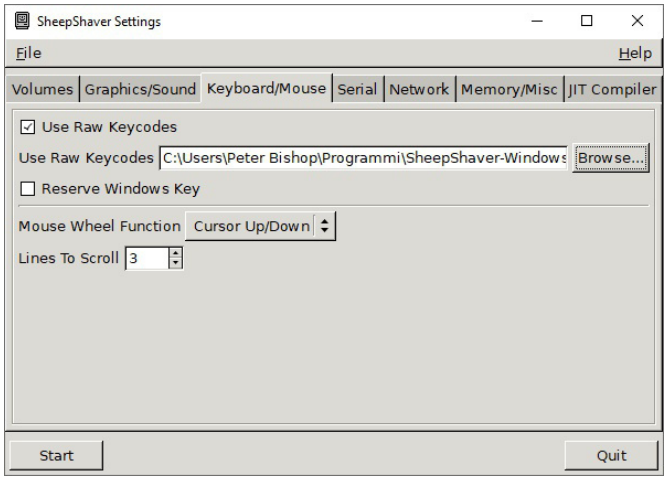


Fig. 6 - The "keycodes" file allows for other keyboard layouts besides the American one

On the "Serial" tab, you can route the output of the Mac OS modem or printer port to various Windows ports or to a file. Select the desired port or write the output to a file.

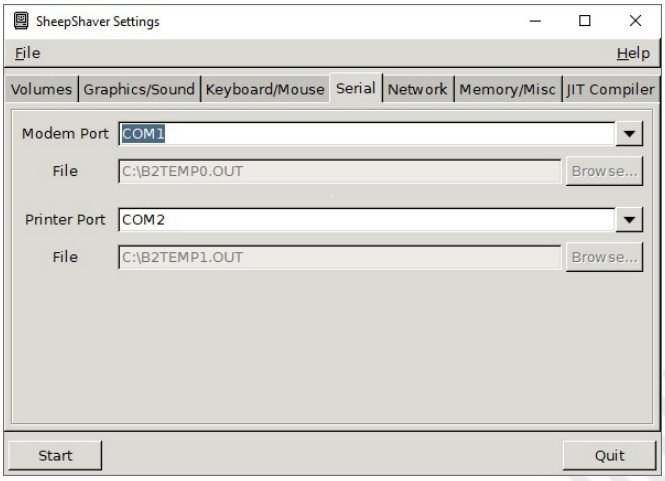


Fig. 7 - You can choose whether to route the output to Windows ports or to a file

Under the "Network" tab, choose "Basilisk II Slirp" to allow Mac OS to access the Internet (Figure 8).

In the "Memory/Misc" tab choose the amount of RAM memory to be allocated to the guest system taking into account the RAM actually used in the original PCs, and the file with the ROM downloaded earlier. Always leave the "Ignore Illegal Memory Accesses" item selected to prevent some programs from crashing the emulator. The

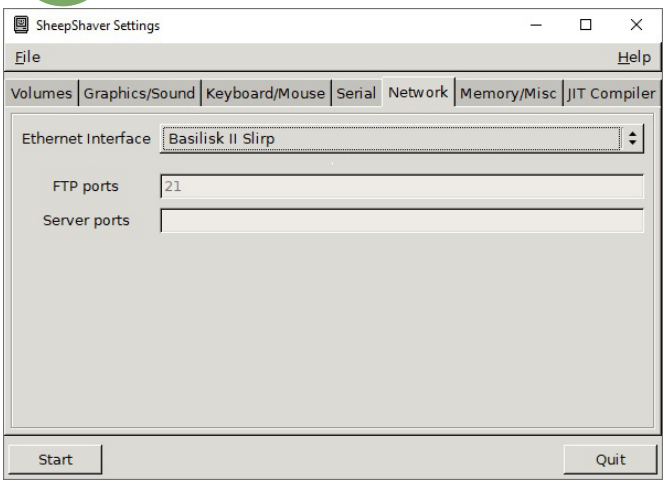


Fig. 8 - Choosing "Basilisk II Slirp" provides access to the Internet

"Don't Use CPU When Idle" item is to pause SheepShaver when it is not active.

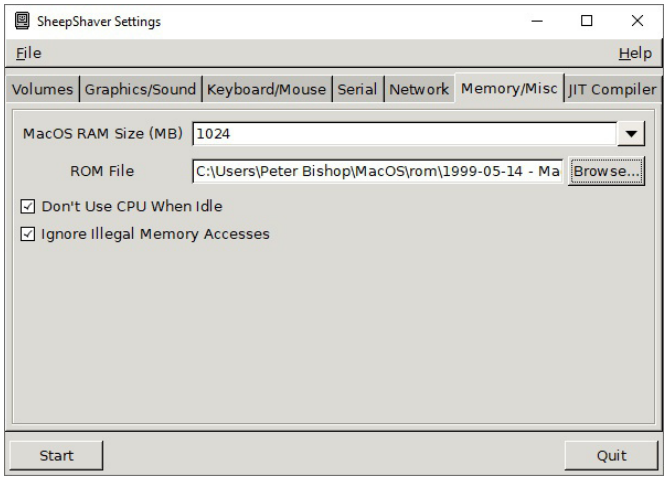


Fig. 9 - Select the desired amount of RAM and the ROM file

Enabling the JIT compiler greatly improves performance. However, it may cause some sporadic crashes, so it is possible to disable it. Since the Mac PPCs contained a Mac 68k emulator, the option to enable it is provided.

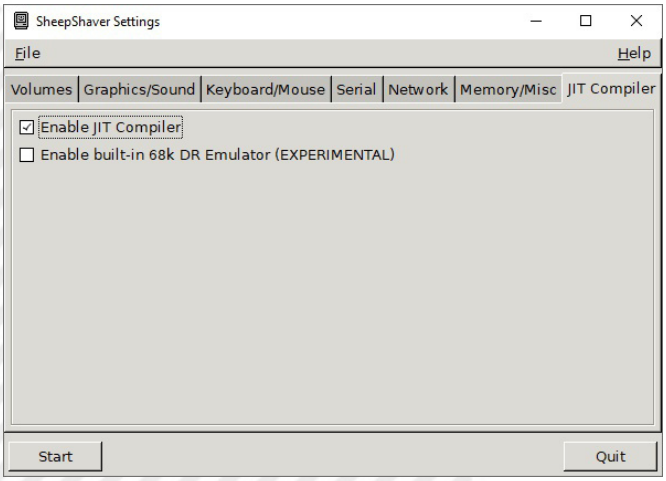


Fig. 10 - The JIT compiler can improve emulator performance

SYSTEM INSTALLATION

Press the "Start" button to start the installation of Mac OS. After the logo, a window will appear asking you to name the disk and initialize it.

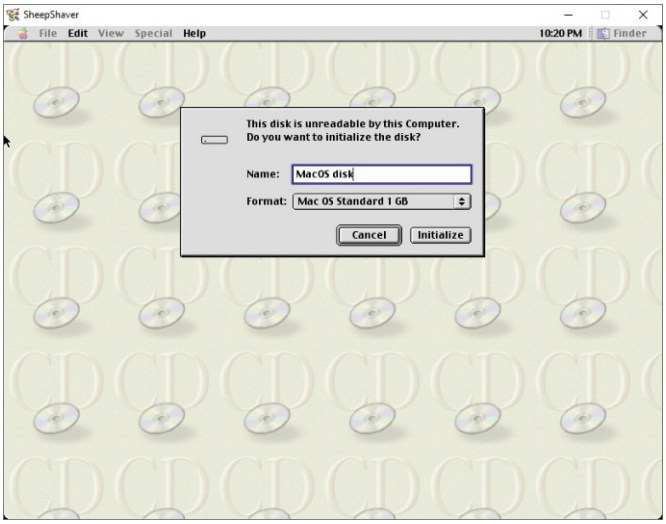


Fig. 11 - In order to install the system you must first initialize the disk

Now you can follow the wizard to install the system. When the installation is finished, click on "Quit" and shut down the system by choosing "Special → Shut Down."

To start Mac OS you need to restart SheepShaver, remove the ISO file from the list of bootable volumes, and click "Start."

On first startup, "Mac OS Setup Assistant" will open to configure the system. The wizard will crash once it gets to step 8, where the settings for network configuration are. You must then close it in step 7 by clicking on the little square in the upper left corner and manually configure the system through the various control panels in the apple → Control Panels menu.

Fig. 12 - The wizard for initial system configuration

INTERNET CONNECTION

You can connect Mac OS to the Internet by the settings made in the "Network" tab of SheepShaver. Start the

system by going to apple → Control Panels → TCP/IP and set the panel as follows:
- Connect via: Ethernet
- Configure: Manually
- IP Address: 10.0.2.15
- Subnet mask: 255.255.255.0
- Router address: 10.0.2.2
- Name server address: 10.0.2.3

Close the window and click "Save" at the prompt to save the data.

For advanced settings refer to "Internet access / Networking" in the official SheepShaver guide: https://www.emaculation.com/doku.php/sheepshaver_setup

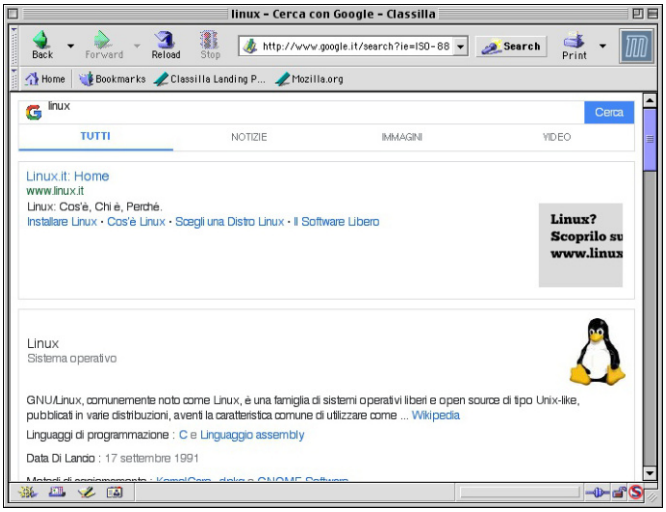


Fig. 13 - Mac OS connected to the Internet with the Classilla browser

DEFECTIVE OR MALFUNCTIONING PANELS

During the tests, one control panel was found to be defective causing the system to freeze, while others brought up error messages due to the physical lack of the devices to which they relate. It should not be ruled out that the faulty panel may work normally by trying ROMs other than those mentioned at the beginning and/or other settings in the emulator.

Below is a list of panels to disable from the window apple → Control Panels → Extensions Manager:
- Infrared
- Password Security
- PowerBook Display
- PowerBook SCSI Disk Mode
- PowerBook SCSI Disk Setup
- Screen
- Startup Disk *defective
- Trackpad

ENABLE SYSTEM SOUNDS

To enable system sounds and also be able to use the speech synthesizer ("Speech" panel) go to the "Sound" panel and click "Built-in" under "Output."

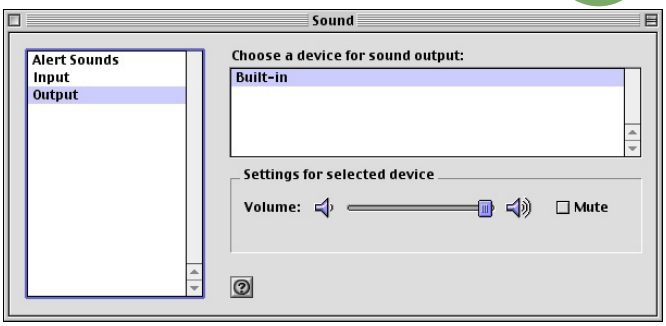


Fig. 14 - The "Sound" panel

SOUND AT STARTUP

To have a sound at system startup copy an audio file called "startup.wav" to the SheepShaver folder.

FILE SHARING

You can share files from the host system to the guest system and vice versa. To do this, click on the "This PC" icon on the Mac OS desktop and choose the folder from which to take or to which to copy files.

Caution: files from the host system will be physically moved to the guest system. In contrast, files created in Mac OS only copied to the host system.

In each open host system folder, Mac OS will create a folder called ".finf."

PRINT

It is possible to print documents produced in Mac OS. In this regard, read the official guide:
https://www.emaculation.com/doku.php/sheepshaver_basilisk_printing

RESOURCES

Official guide for Linux:
https://www.emaculation.com/doku.php/sheepshaver_basiliskii_linux

Official Guide for Mac OS X:
https://www.emaculation.com/doku.php/sheepshaver_mac_os_x_setup

Official Guide for Windows:
https://www.emaculation.com/doku.php/sheepshaver_setup

Forum: https://www.emaculation.com/forum/

Software: https://www.macintoshrepository.org/
https://winworldpc.com/library/operating-systems

Graphics... What a passion!

Part III - Multicolor bitmaps comparing C64 and C128

by Gianluca Girelli, with contribution of Marco Pistorio

When Marco decided in February and April 2019, respectively, to publish his introductory articles on 8-bit graphics, he perhaps never expected to proselytize not only among the readers of RetroMagazineWorld but also among its own editors.

At the time, to be honest, yours truly was not yet part of the editorial staff (I only joined later, starting with issue 16) but, among the many articles then available in the magazine, those on graphics immediately made an impression on me to the point of wanting to understand more about them. For obvious reasons, which were also covered in the C64's 40th anniversary special, many of RMW's articles were generally focused on the "cookie," but I, who had never owned one, was nonetheless and more interested than ever in making a comparative analysis with my knowledge of the C128, a computer that has instead always been my machine of choice and that has endured in my studio, still fully functional, since 1986. At the time, since I was attending ITIS, I was much more interested in using BASIC 7.0 than the "big brother" (far more powerful and refined than the C64's 2.0) but, since the latter was far more widespread, there were always some gap areas that I carried with me all these years, also complicit in the fact that the course of study was mostly geared to the industrial use of the computer and, consequently, graphics was only a minority part of the whole. Well, thanks in part to the help of my co-editors, things are finally improving.

For those who may have missed the two articles just mentioned (moreover, they are always available free of charge on our website), I present below a brief summary. Basically, Marco had been asked how it was possible nowadays to make greater use of high-resolution graphics [on the C64] than in the past, since the reference retro-systems (C64, C128 etc.) have never undergone such upgrades to their hardware or software as to justify results that, in some cases, are true works of art. The answer lies in the fact that today, unlike in the past, there are extremely powerful tools for the creation and manipulation of graphic images that, mimicking to perfection the mechanics of bitmap management according to Commodore specifications, allow one to create redefined character sets, sprites and figures on one's PC in a simple, intuitive way and with a modern approach. In addition, thanks to the continuous study and work of many enthusiasts, a huge amount of documents is now available that shed light on even the most technical and obscure aspects of our beloved retro-hardwares. To illustrate these concepts, in 2019 Marco wrote two simple but extremely useful programs (find the references at the bottom of the article) capable of extracting significant data from monochrome or polychrome images and converting them to the formats required by "hi-res" or "multicolor" bitmap graphics, respectively.

Before getting into the heart of the article, and for the benefit of less experienced readers, I will briefly take up what I wrote in issue 21 about the C128's graphics modes, which are essentially identical to those of the C64 except for a few but significant peculiarities.
On Commodore 8-bit computers, graphics were of two types: "high resolution" ("hi-res," also called "standard bitmap mode") and "multicolor" (also called "multicolor bitmap mode"). In the mid-1980s these modes meant two things:
the first, 320x200 pixels resolution with 2 colors; the second, 160x200 pixels resolution with 4 colors. We will return to the true meaning of the 160x200 definition in a moment, but to begin with let us address the "color" issue. Technically, each of the 64,000 pixels of the screen (320x200=64,000) can be on/off and have its own color, chosen from a palette of 16. In fact, as far as color management is concerned, the screen is not seen as a sequence of individual dots but as a sequence of grids of size 8x8 pixels. Why this approach, which is closely intertwined with how fonts are handled on the text screen and the use of certain registers, is beyond the scope of this article and will perhaps be addressed again later. For the moment it is enough for you to know that if the screen is set to hi-res mode the entire grid can only take on one

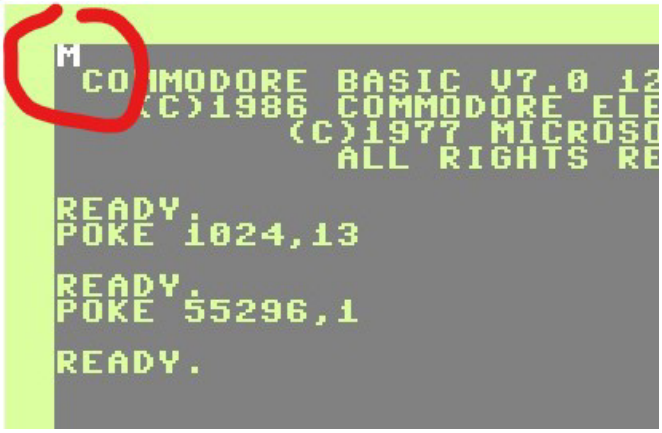


Fig. 1

color (plus that of the background if the bit is off). In fact, therefore, hi-res is limited to one color for the foreground and one for the background; if the selected setting is multicolor instead, the pixels in the grid can be 4 different colors (foreground, multicolor1, multicolor2, and background) at the "price" of binding the pixels to a 2x1 size, however. This is why the horizontal resolution of the drawing, for the same effective size on the screen, is reduced to half.

In more detail, image data, whether standard bitmap or multicolor bitmap, are kept in different parts of the computer's memory: some of them are devoted to storing the data that "builds" the image (the actual "on" or "off" pixels); others are used for color management. Before studying color, let us take a further step back to a paradoxically complementary aspect: the operation of text mode.

On the C64/128 the text that is shown on the screen depends on what is stored between the memory locations existing between 1024 and 2023 (inclusive). This 1000 bytes area has a "1 to 1" correspondence with that which handles the color attributes located at locations 55296 through 56295 in the sense that memory cell 55296 contains the color attribute of location 1024, that 55297 of 1025 etc. In other words, for example, the sequence:

```
POKE 1024.13
POKE 55296.1
```

will cause a white "M" to appear in the upper left corner of the screen (fig. 1).

The reason why, in this article discussing graphics, we dwell on the text mode is as follows: on the C64 in "hi-res" mode (bitmap graphics), while the image data ("bitmap data") is stored in locations 8192 to 16191, the color attributes are kept in the part of memory that is usually used to display text (thus starting at location 1024) and not in the area located starting at 55296 (called "color RAM") which is not used in this mode. The detailed operation is explained in the aforementioned issue 13 but, for the benefit of readers, I am reporting a code snippet (used to load the image into memory and subsequently change its color attributes) from which it can be seen that, after "uploading," the bitmap graphics are activated (lines 10 and 20) and then the screen is colored white (line 40). The result will be as in Figure 2.

```
LOAD "hires.dat",8,1

10 poke 53272, peek(53272) or 8 :rem bitmap
at 8192
20 poke 53265, peek(53265) or 32: rem bitmap
on
30 :
40 for i=1024 to 2023: poke i,1:next
50 :
60 get a$: if a$=""then 60
70 poke 53272.21: poke53265.27
80 print chr$(147);
90 end
```

On the C128 things work almost identically, with the exception that for color the part of memory reserved for text is not used since there is a dedicated area with starting address 7168. In addition, BASIC 7.0, unlike the C64's v2.0, has dedicated graphics commands that make it easier to handle colors so, although it is possible to use a FOR-NEXT loop as in the previous example, to define the background color it will be sufficient here to use the command

```
COLOR 0.2
```

Fig. 2

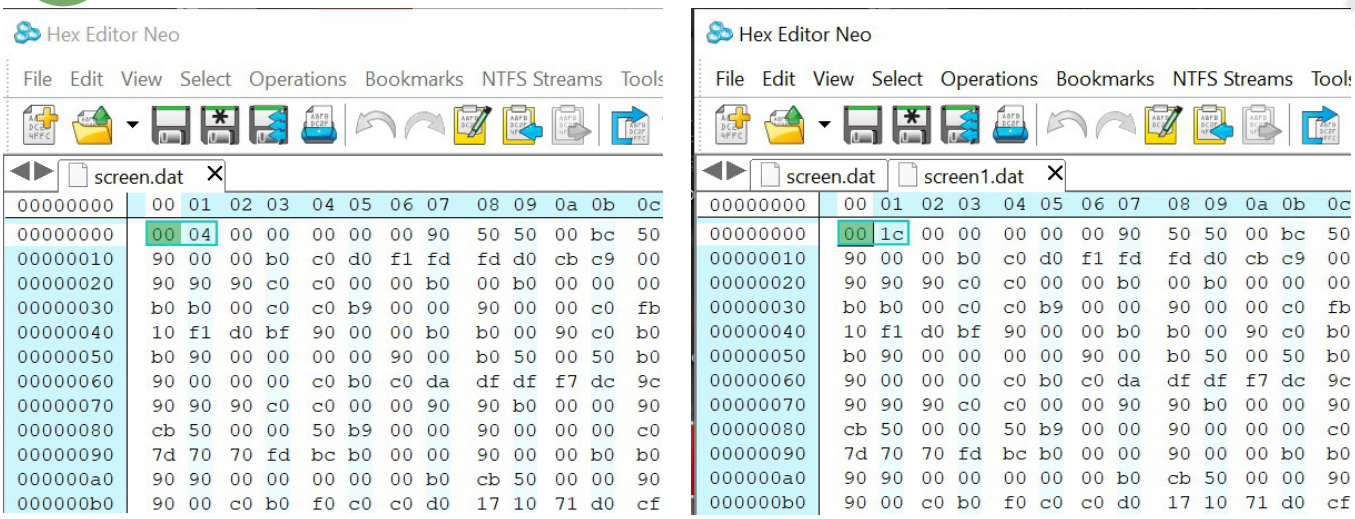


Fig. 3 e 4 - Screen C64 (left) and Screen C128 (right)

and then, after loading the image, switch to bitmap mode using the GRAPHIC command.

I also remind you that on both systems the background color can be changed for all cells at the same time with the BASIC command

```
POKE 53281,col
```

where "col" is a number from 0-15, corresponding to the standard Commodore 16-color palette. Note also that, unlike "POKE," "COLOR" accepts parameters in the range 1-16 instead of 0-15.

Let us now examine how multicolor graphics work. As we learned from Marco on #14, instead of just two colors (background and foreground), in this mode we can manage four colors, identified respectively as: background; foreground; multicolor1 and multicolor2. Given the memory limitations of the time, Commodore chose an "index" approach for this mode, meaning that the pixels in each individual 8x8 matrix of the graphics screen do not directly contain color information but represent a "pointer" to the area where the attributes are kept according to the following scheme:

```
BITS SOURCE OF COLOR INFORMATION
00 Background (screen color)
01 4 "high" bits of the "video matrix"
10 4 "low" bits of the "video matrix"
11 Color RAM
```

as you can see, the bits are considered in pairs, and that is why the horizontal resolution drops to 160 pixels (instead of 320).

To sum it up, while to handle a standard bitmap image we need two blocks of data, the first containing our bitmap information and the second containing color information, in the case of multicolor graphics we need as many as three sequences of information: "bitmap data," "video matrix data," and "color RAM." Those who have used Marco's program to generate an image already know that the result of the processing produces three files, "hires.dat," "screen.dat," and "colors.dat," which serve precisely this purpose on both the C64 and the C128. Even for multicolor

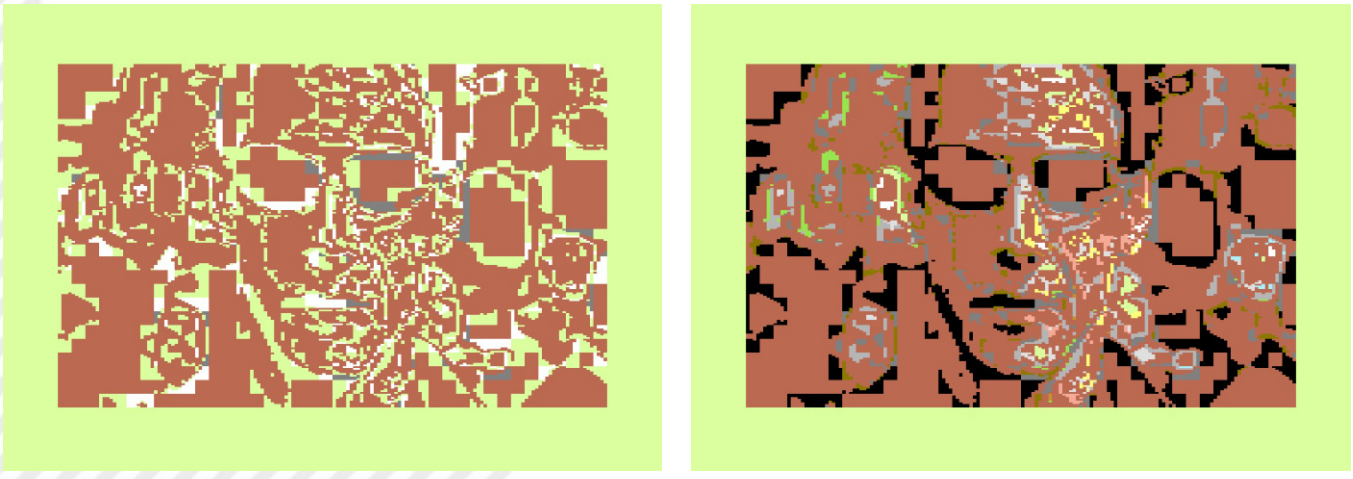


Fig. 5 e 6 - HiRes (left) and HiRes + Screen (right)

Fig. 7

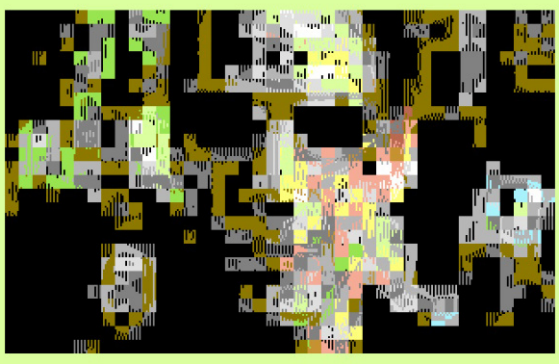
graphics, as for standard bitmap, however, there are differences as to where the two "brothers" store the data. Without going into too much detail, this difference is due to the fact that 8-bit computers handle a maximum of 64kbytes of memory at one time (via 16-bit addresses) so on the C128, which has far more memory, the concept of using "memory banks" was taken to extremes[Note 1]. Furthermore, if with the bitmap standard we could change the background with a simple FOR-NEXT loop (or with the COLOR instruction), in the case of multicolor it is actually necessary to load individual files into memory. The first problem is then the upload of "screen.dat," since the location of the "video matrix" is different for the two systems: starting at 1024 (hexadecimal $0400) for the C64 and 7168 (hexadecimal $1C00) for the C128. Since in a binary file the information about the address at which it is to be loaded is kept in the first two bytes of the file itself in "little endian" format [Note 2], the solution I adopted was to open the file with a hexadecimal editor and change its starting address. (Figs. 3 and 4). Having saved the file again I was at this point reasonably certain that I had finished the job, since the "color RAM" is the same for both systems. Unfortunately, while the loading of "hires.dat" and "screen.dat" (with the modified address) went smoothly (figs 5 and 6), the subsequent loading of "color.dat" provided an unexpected surprise (fig 7). No matter how much I racked my brains, I could not understand why, despite consulting multiple texts, even in English. After an initial, long, moment of discouragement, however, I noticed, loading only "color.dat," that it had a reflection on both the text screen (fig 8) and the bitmap standard screen (fig 9). I then guessed that somehow it was not a code problem but a memory management problem.

By dint of searching, I finally found an English-language site (link under "resources") that opened up a world to me, revealing that the problem originates from the fact that, unlike the C64 where the portion of memory used by the "color RAM" is a single one, in the C128 there are two 64K banks: one is used by text and the other by graphics! In other words, before loading "colors.dat" into memory, access to the VIC (the Video Interface Chip that handles screen management) by the kernal must be disabled! This function, not documented even in the specialized books of the time (let alone the system manual), is the key to the solution. Basically, since by default the VIC accesses the "color RAM" by considering it an attribute for the text screen, in case you want to write (upload files) or read (save files) data to handle a bitmap, you must first disable the IRQs in this way:

```
POKE 216,255:REM DISABLE KERNAL VIC CHANGES
POKE 1,PEEK(1)AND254:REM USE COLOR BANK 0
(MC-BITMAP)
```

When the process is finished, it will be necessary to restore the original situation through instruction:

```
POKE 216.0:REM ENABLE KERNAL IRQ / VIC TEXT
MODE
```



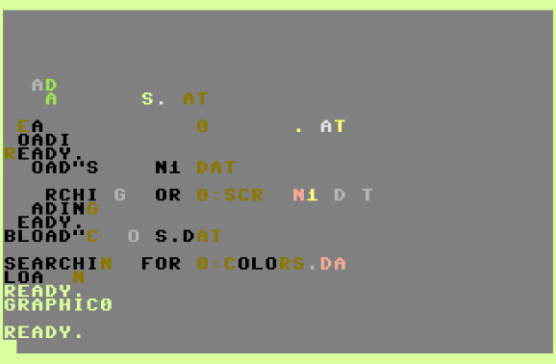


Fig. 8 e 9 - Schermo testo (left) and Graphic (right)

Fig. 10 - HiRes + Screen + Color

After much agonizing, I was therefore able to reconstruct on the C128 the situation exactly as Marco had envisioned it for the C64 (fig 10).

We have come to the end of this long comparison of two of the major systems of the time. As we have seen, conceptually they handle graphics in the same way: through the use of two memory blocks for the "standard bitmap" part ("bitmap data" and "video matrix data") and three memory blocks ("bitmap," "video," and "color "RAM") for "multicolor" graphics, where a third block is devoted to storing data related precisely to "multicolor" attributes 1 and 2. However, there are significant differences from the point of view of physical implementation.

They are:

Hi-res bitmap graphics: C64 and C128 work the same way, except that the color is allocated in screen memory for the C64 (1024 and up) and in a dedicated part for the C128 (7168 and up). In both cases this is a block of 1000 bytes.

Multicolor bitmap graphics: image data - identical for both systems (8192 and up); multicolor data 1 and 2 - same as for hi-res bitmap (1024 in one case and 7168 in the other); foreground color data - in both cases go into the color RAM (55296) but, while for the C64 this portion of memory is unique, in the C128 there are 2 banks of 64K: one is used by text and the other by graphics. Consequently, kernal access to the VIC must be disabled before loading the relevant file into memory.

There would be many other points to be made regarding the relocatability of memory banks, also used by the C64 for VIC management, but these will eventually be set forth in a dedicated article. Once again, we hope that the topic has been of interest to you. Let us know what you think on our social pages.

RESOURCES

https://github.com/marcus73/retromagazine_03
https://github.com/marcus73/retromagazine_04
http://commodore128.mirkosoft.sk/vic-iie.html

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NOTES

[1] The Commodore C128, like all 8-bit computers, cannot "see" more than 64kb simultaneously. To get around this limitation, the hardware team refined the concept of dividing the memory into segments (called "banks"), previously used on other computers. These banks can be selected as desired by the user through the "BANK num_bank" command. There are 16 memory banks on the C128 that are managed through the MMU (Memory Management Unit). One of the most important ones for the programmer is 14, where the character ROM resides (see also article on character redefinition on RMW No. 28).

[2]The processor is "little-endian" so the byte that is stored first in the locations designated as address is the least significant byte (least significant) and the byte that comes next is the most significant byte (most significant). Although visually to us humans it appears that the bytes are in reverse order, it actually makes sense that the least significant byte is at a lesser address and the most significant byte is at a greater address. In "big-endian" processors, the opposite happens. Source: Simone Bevilacqua, "The Basics of Programming.

Kathleen Booth, the First Lady of Assembly

by Alberto Apostolo

British scientist David Wheeler (1927.02.09 - 2004.12.13) is officially credited (by the IEEE Computer Society) as the creator of the first assembler in 1948. But in August 1947, British scientist Kathleen Britten (along with her future husband Andrew Booth) published a report in which she anticipated the concept of "assembly language," which she called "Contracted Notation," for coding programs on the ARC2 (Automatic Relay Calculator 2) computer.

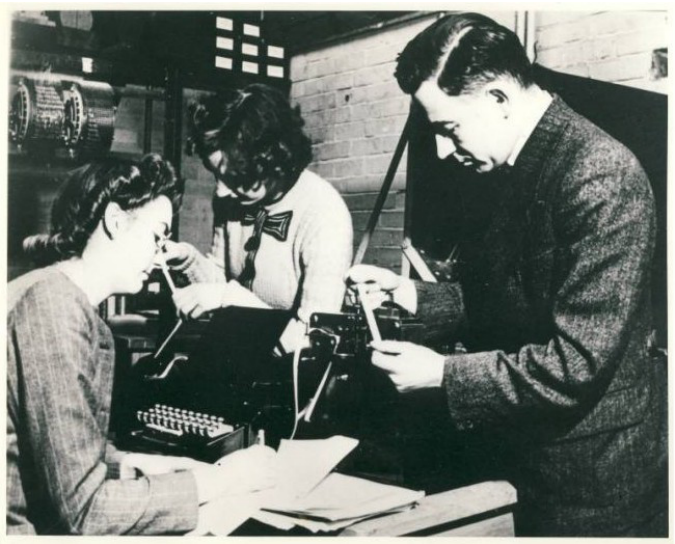

Fig. 1: from left to right: K. Booth, X. Sweeting, A. Booth

Kathleen Hylda Valerie Britten (later Booth) was born on July 9, 1922, in Stourbridge (Worcestershire, U.K.). She received a bachelor's degree in mathematics from the University of London in 1944 and a doctorate in applied mathematics in 1950 from the same institution. After university, from 1944 to 1946 he became Junior Scientific Officer at the Royal Aircraft Establishment in Farnborough, a British research institute. In 1946 he began working as a Research Assistant at Birkbeck College (where he later became a Lecturer and Research Fellow) and Reaserch Scientist at the British Rubber Producer's Research Association (BRPRA). During her time at BRPRA she met and later married, in 1950, Andrew Donald Booth, and had two children.

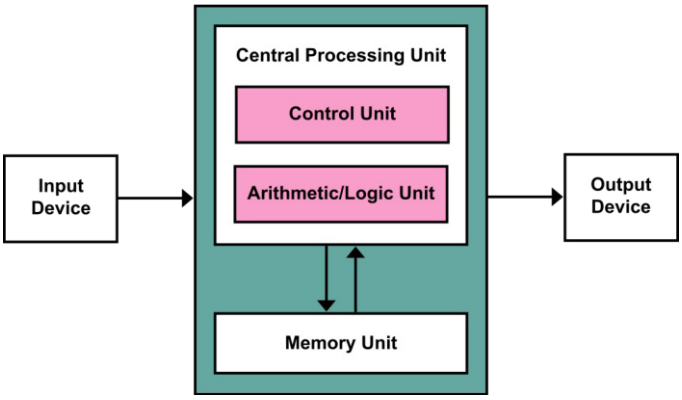

Fig. 2

Andrew Donald Booth was an electrical engineer, physicist, and computer scientist who had begun work on a computer called the Automatic Relay Computer, an early electromechanical computer. The ARC was built in Welwyn Garden City in close proximity to BRPRA. Together with Xenia Sweeting (another assistant), Kathleen collaborated in building most of the machine, which meant she also had deep knowledge of the hardware (Fig.1). The design included 600 relays and 100 vacuum tubes. The vacuum tubes controlled the flow of electric current through the computer.

In 1947, Kathleen and Andrew traveled to the United States. In Princeton (at the Institute for Advanced Study) they met John Von Neumann, author of "First Draft of a Report on the EDVAC" (published June 30, 1945) in which was set forth what would go down in History as "Von Neumann's Architecture" (Fig.2).

Fig. 3

After the trip, Andrew Booth decided to redesign the ARC

(renaming it ARC2) to incorporate Von Neumann's architecture. ARC2 used 800 relays versus 600, which allowed for more processing power, about 33 percent more. It also featured the world's first rotating electronic storage device, a magnetic drum invented by Andrew Booth himself (Fig.3). The computer officially went into operation on May 12, 1948.

In 1947 the future Mr. and Mrs. Booth published two reports. The first was "General considerations in the design of an all-purpose electronic digital computer" (published in August 1947) in which they described the requirements of a Von Neumann architecture, including different options for memory. In it Kathleen described her invention she called "Contracted Notation" a precursor to "assembly language" (Fig. 4), which arose to program computers without the need to give machine code instructions with explicit 1's and 0's. Surprisingly (Fig.5), in a section also written by Kathleen, the ability to perform synchronous or asynchronous operations was described (decades before the publications of others appeared only in the mid-1980s)[Pri19]. Apparently, a kind of parallel execution of multiple instructions in a program.

The second report was "Coding For A.R.C." (published in September 1947), containing the next step to "Contracted Notation," where a first detailed "assembly language" for ARC2 was described.

Three machines were built from 1946 to 1953: ARC (Automatic Realy Computer), SEC (Simple Electronic Computer), APE(X)C (All-Purpose Electronic (X) Computer). The "X" indicated a possible sponsor for the realization of the project. In 1951, the British Rayon Research Association sponsored the construction of the computer. Andrew Booth was in charge of the hardware while Kathleen was in charge of programming (Fig.6).

In 1953, the Booths published "Automatic Digital Calculators," which explained various topics such as the introduction to computing machines, the mechanical era of computing, the arrival of electronic techniques, and the design of a computing system. In the book, Kathleen explained the "Plannig and Coding" style ofprogramming. Also described in the chapter were some picturesque cutting-edge applications such as X-Ray Crystallography, computer language processing, strategy games, Machine Learning, and Artificial Intelligence (!!!).

In 1957, the Booths founded the School of Computer Science and Information Systems at Birkbeck College, together with J.C. Jennings. The following year (1958)

11) $M \times R \rightarrow cA$. Clear accumulator, multiply M by R and place L.H. 39 digits of answer in A and R.H. 39 digits in R.
12) $A \div M \rightarrow cR$. Clear register, divide A by M, leave quotient in R and remainder in A.
13) $C \rightarrow M_1$.
14) $C \rightarrow M_r$.
15) $Cc \rightarrow M_1$. If number in A ≥ 0 shift control to M_1.
16) $Cc \rightarrow M_r$.
17) $A \rightarrow M$.

Fig.4

3.10 Synchronous v. asynchronous operation.

Whereas delay line type machines must, of necessity, work on the basis of strict timing of operations, this restriction does not apply to a parallel operation machine of the kind considered in this report. It is therefore worth discussing the merits, or otherwise, of an internal timing cycle.

The method of operation of such a timing mechanism is as follows. Suppose that a multiplication requires a time of (m) microseconds, then if a pulse from some central "clock" initiates the multiplication at time (t_0) a pulse from the same clock at time ($t_0 + m$) can initiate the next operation in the computing sequence with the assurance that the previous operation will be complete.

The alternative method is to have the multiplier signal the completion of its operation by emitting a pulse which advances the control to the next operation. Both methods have certain advantages. The method of clock synchronisation permits a calculation to be followed through step by step if the operation of the machine is suspect, by the simple expedient of having the operator insert the clock pulses manually. On the other hand, if any unit is malfunctioning so that its cycle of operation is not completed in the standard time, the synchronising pulse may order the commencement of the next operation too early.

On the whole, it seems best to combine both methods and arrange that the clock pulse, and the operation complete pulse, are both required to initiate the next operation. This affords an internal check on the functioning of the machine, so that in the event of the two pulses not occuring within a certain short time of each other, the operation could be automatically stopped and a visible indication given.

Fig.5

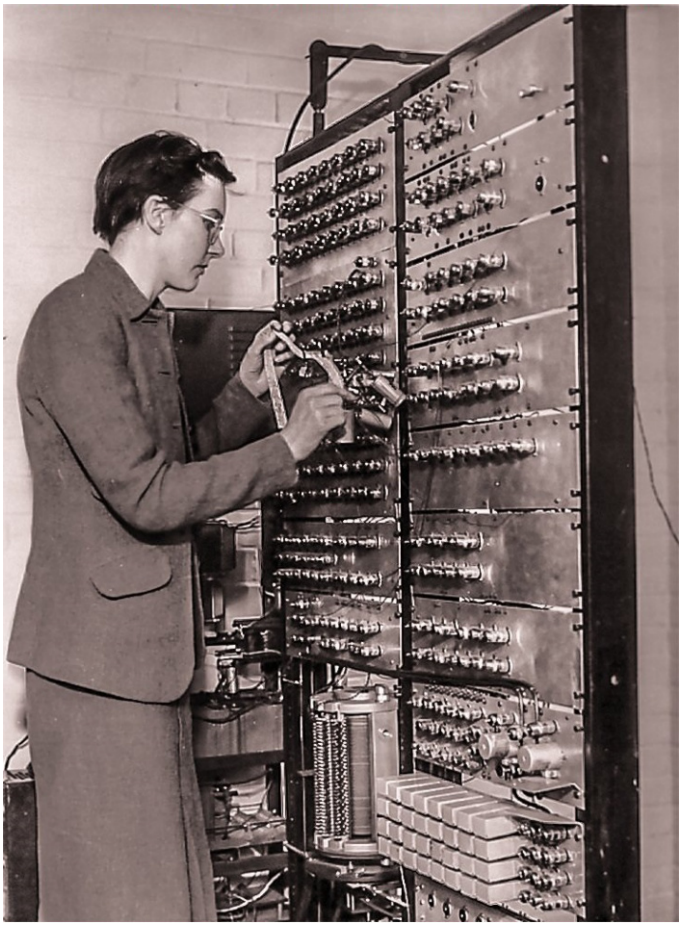

Fig.6: K.Booth working on the APE(X)C, 1953.

Kathleen Booth wrote a book on how to program the APE(X)C computer and taught a course on programming. In the 1958/59 biennium, Kathleen Booth worked on Neural Networks and brain simulation. In 1959/60 she designed a program of a neural network for character recognition. The work at Birkbeck college lasted from 1946 to 1962.

In 1962, due to Andrew Booth not being awarded tenure, Kathleen and Andrew resigned from Birkbeck College. The Booth family moved to Canada to work at the University of Saskatchewan and then at Lakehead University in 1972. Kathleen Booth retired from Lakehead in 1978. Her last work was published in 1993, at the age of 71. Entitled "Using neural nets to identify marine mammals," it was edited by her and one of her sons, Ian J. M. Booth. Kathleen remained forever linked to her husband Andrew (Fig.7), until his death on November 29, 2009.

Fig.7

Andrew Donald Booth was born in Weybridge (Surrey, U.K.) on Feb. 11, 1918. After a stint as a mathematics student at Cambridge in 1937/38 (without graduating), he earned a degree (as an extern) at the University of London while working in industry. During World War II, he worked in Coventry at a company in the aircraft industry and set up a department there for X-ray inspection of aircraft engine components. He later earned a doctorate from the University of Birmingham. In 1946 he was employed by the Physics Department at Birkbeck College, London, where he built several computers over more than a decade. He was a member of the first Council of British Computer Society when it was established in June 1957. In the same year he began teaching Numerical Automation at Birkbeck, one of the first calculus courses. He moved to Canada in 1962 and retired in 1978. He died on November 29, 2009. He is credited with the invention of the first rotating magnetic drum and an ingenious method for multiplying two binary numbers (Booth's multiplier) [Lav21].

Booth's multiplier [Lav21] follows the same usual method for long multiplication in base 10, adding up the partial products. However, it uses a "trick": to multiply with a string of "9's" you can move a number of positions and subtract the multiplier from the result. The approach works even better in binary, where it consists of a simple rule.

The procedure is as follows:
(1) Examine each digit pair in the multiplier, starting with the least significant and creating the first pair by adding a dummy zero to the least significant extreme. Then if the pair is 01 then add the multiplicand. Conversely, if the pair is 10 subtract the multiplicand. In the remaining cases do not do any operations.
(2) Move the partial product one place to the right and examine the next pair of digits.
(3) Repeat (1) and (2) for each digit of the multiplier.

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Japan part 20: the future will live in the past!

by Michele Ugolini

Dear Readers, In this brief review of the latest news in the Big "N" house, I will discuss how our beloved Nintendo is faring in relation to these complex times.

Thoughts such as "great changes are needed" echo among all of us, or "with courage and modernization we can surely return to the pinnacle of success," or even "progress and optimism are the fragrance of life." Are we sure that these advertising-flavored phrases are functional in these complex times?

Nintendo also perceives these reasonings and is devising a very sophisticated procedure through which it will be able to take confident and determined steps that will lead it to great success. Great changes? Great revolutions? No, far from it.

These big "N" steps consist of the famous technique of moving shrimp: backward.

Lo and behold, one fine day, Nintendo's management jumps out of bed with a quick leap and turning its gaze to its own past, begins to mull over its video games, so full of nudity and girls drawn with exaggeratedly ample breasts.

We know very well that the Japanese imagination of boys focuses so much on women's underwear: even girls' laundry, laid out outside the house, can become easy prey and end their days in the hands of perverts.

Prosperous breasts also seem to be an imperative ingredient in their male fantasy.

Finally, the "sailor-style" school uniform has become a ubiquitous symbol in the video game realm, in manga, and in the television environment to the point of deeply permeating the dreams of Japanese boys.

So, one fine day Nintendo decided that dreams and fantasies must have a limit.

The fateful day coincides with the year 2022 on the 30th day of September. "So, the bad news first: We received an answer from Nintendo and now we have a confirmation that they do not allow uncensored boobs on their consoles now." Translated, the Gamuzumi company, explains that they received an answer from Nintendo and confirmation that they now do not allow uncensored female breasts on their consoles.

Basically, obscene content could damage the brand and violate company policies.

This means that now all games, with breast nudity, will be censored and that is why Gamuzumi's "Hot Tentacles Shoot" game was rejected.

This is not the first time this has happened: Elves Christmas Hentai Puzzle, also created by them, was rejected because of the nudity shown. The team plans to seek approval again by submitting a version without nudity. Thus they hope to receive approval for eventual release on eShop.

Many quite spicy titles such as "Gal gun" or "Peach Ball: Senran Kagura" have been approved in the past. Should we also fear for the fate of Bayonetta 3? (Figure 1)

What answers will be provided? Which games will be

Figura 1

slowed down, overhauled, or eliminated? What future should we expect from now? Knowing Nintendo and its family-oriented style, it will probably be able to provide a reassuring answer without overemphasizing the terms of censorship or nudity.
As times change and the Japanese think in the opposite way to us Westerners, perhaps the time has really come for the company to refine and overhaul its symbol of sheer entertainment offered to families and children? Who would have thought that Bayonetta 3 might fear not being released?
Perhaps no one realized, however, that the dog in Duck hunt laughed when no gunshot went off. The dog surely knew something back in the 1980s about this strange censorship thing. We knew nothing about it. What's more, few of us knew that the second pad commanded the direction of the birds to escape rifle shots! Tough times with this news: not knowing fully who was in our childhood as Duck hunt and not even knowing one's fate without seeing a Bayonetta saga title released. Who knows what the fate of Hot Tentacles Shooter will be? Who knows the titles of Elves Fantasy Hentai Puzzle, Hentai Uni and Hentai: Make love not war, Prison Princess and Duel Princess? Nintendo and Japan are wont to move forward by looking back and retracing their steps to improve their path. Otherwise, there would not exist in the center of their capitals various skyscrapers surrounded by small ancient and historic buildings where one can enjoy idyllic ramen or go to pray in a creaky temple. Anyway, let's relax, all around us are the sweet images of Kirby, Zelda, Link, Mario, Luigi, Donkey Kong, the Pokemon. So we are neither alone nor in bad company.
Finally, the news that Nintendo and Denuvo are chatting may also relax piracy lovers and supporters in the sense that piracy will soon be "temporarily" quelled by a rather effective system. (Figure 2)
Denuvo, as we know, is the famous DRM company that has announced a new system to protect against video game emulation. Certainly effective in preserving day-one sales of video games. Unfortunately, however, it is a system that consumes a lot of resources, worsening the performance of games. In any case, it is clarified on the web that no agreement between Nintendo and Denuvo has been announced yet: it is simply a new service that the DRM company is offering to potentially interested developers but that, barring sudden news, should not be implemented by the Kyoto house's big exclusives. In any case, we are obliged to thank Nintendo for its plans and foresight. In fact, it is recent news: it has optimized the logistics for transporting its new Switch. It has basically reduced the size of the packaging without reducing hardware performance. By decreasing the size it will be able to distribute the different models of Nintendo Switch to the market in a more efficient timeframe, thus minimizing the possible shortage of stock. It is unclear whether this strategy will be adopted exclusively on the original models or also for Lite and OLED. It even seems that the price will remain the same as previous models.
That's all friends for the moment. Japan is also this: moving forward going backward, retracing one's steps, limiting the length of one's path, less nudity, fewer titles, less packaging, less piracy, more profit for Nintendo and more ecology for the planet. Who knows what will happen in the coming months? Until the next installment, see you soon!

Figura 2

COMO FUN 2022: welcome back ARCADE GAMES!

by Giuseppe Rinella

My friend Ivano writes to me "In Como there is an event on retrogames and there will be some booths, shall we go?", I don't need to know anything else, of course the answer is affirmative.
Brief introduction of Ivano: dear long-time friend with whom, on a more or less weekly basis, we challenge each other to video games. Among the titles that are chosen is a heavy presence of retrogames on various consoles (real or emulated) and arcades directly on his cabin cruiser. The quintessential game eternally present in our challenges remains Street Fighter 2 in the Champion edition, Turbo and Super versions (the HD Remix version on the PS3 is also excellent), on why I will come back to this clarification later.

The event the good Ivano tells me about I discover to be Como Fun, a fair dedicated to comics, manga, cosplay and more, in short, stuff for real nerds and yours truly, in these things, happily wallows. I have been numerous times to several similar fairs, where because of my passion for Action Figures and more, I could easily squander thousands of Euros in a few dozen meters. This time, however, there seems to be a lot of "pushing" on the retro-game, and it is this that exerts an irresistible attraction on me and my companion.

We arrive on the morning of the first of the two days, a choice that will turn out to be spot on.
The fair consists of three pavilions: the first, selling action figures, T-shirts and any other gadgets of true nerd/otaku, in short, the function of this pavilion is clearly to impoverish patrons.
The second pavilion is dedicated to video games, definitely interesting, there starts to be really remarkable "flab".
The very large space is divided into two: on one side retrogame, on the other side still game but without "retro."
We sashay into the "retro" part, which consists of four very long rows of tables where practically all the consoles released from Atari 2600 up to XBOX 360 are connected, strictly to Crt TVs.
The layout was done by dividing by sectors, one part devoted to gun games, from Duck Hunt on down, another part devoted to driving games equipped with a special steering wheel, and then everything else. A riot of NES,

Star Wars - exterior of the arcade

Star Wars - interior of the arcade

After Burner

SNES, Megadrive and so much more, something to send chills down your spine forever.

A little further on was a corner dedicated to the history of video gaming with the display of really interesting pieces that yours truly had never had the opportunity to appreciate.
Among the exhibits is a fantastic "Space War" dated 1976, two white rectangles/astronauts on a black screen, a knob with which to move them up or down, and a button to shoot in an attempt to destroy the opponent. In short, a (very fancy) space Pong. That's all my challenge partner and I needed to trigger violent competition, and so it was.
Only two moles of this historic corner: as first, the size. I would have liked to be able to see much more. Second, among the computers on display was a magnificent Amiga, but without joysticks attached unlike all the other consoles equipped with two controllers, precisely to encourage dual challenges. For me, a total worshipper of all things Amiga, a minor disappointment.

We spend a fair amount of time here, but Ivano keeps looking around for the booths; after all, that's what we're here for mostly. I in this regard, as a good chronic distrustful person, advance the doubt that perhaps the thing had been a bit "pumped up," that in fact the booths being talked about were that row of bartops stuffed with MAME.

But we miss the third and final pavilion where we head hopefully (I not too much actually), here we are and I can say that there are few times I have been so happy to be wrong.
In front of us are five rows of cabin cruisers, about sixty in all. Exhilaration mixed with a hint of emotion takes hold of us. Never did I think I would be able to admire such magnificence at forty plus years of age.
The first cabin cruiser we come across is Tron; it is beautiful but turned off. I express my displeasure at such a misfortune but soon after it is Antonio Nati himself, standing there next door, who provides the power, saying in the process that "Nobody plays it." Fools, how dare they? Antonio, we, on the other hand, are here (also) for this!
Small parenthesis about Antonio Nati, those who are fond

Tron

Amiga

of retrogames, arcades and old cabin cruisers surely know him, thanks also to the "Arcade Story" channel on Youtube. Antonio is in the business of importing old cabin cruisers from the United States, recovering them, restoring them and making them fully functional like not even in their best days, and then reselling or renting them out.
All the booths in Como Fun are his, and I will never stop thanking him for his magnificent work.
Find in this issue a small interview done with Antonio, who for the writer is as close to a superhero as it gets.

But back to us, it's time to get our hands on joysticks, buttons, knobs and all. I'll just start with Tron, a marvel. Never thought I would be playing it in 2022, a wonderful feeling.
And off we go with other titles, Atari's Tempest is exciting, Pac Man and Space Invader I had never before played in the original booths, as well as Mortal Kombat. After Burner with its ever-present cloche. They're really all there, Ghost'n Goblins and Ghouls'n Ghosts, Altered Beast and so much more.
It could not miss Street Fighter 2 of course, here in the Champion Edition version, and if you put me, Ivano and Street Fighter 2 in the same room, in a moment the "carrion" rises and the challenges start. I win, he wins, expletives of any kind (always being careful that there were no children in the area), in short, everything as usual with the added sensations that only a cabin cruiser can give back, priceless.
Then comes for me the authentic emotion/mootion/ genuflection moment in front of Atari's Star Wars, with its magnificent vector graphics but especially that cabin cruiser there, not the upright version but the cockpit version with seat.
I was lucky enough to play it when I was about six years old, mid-1980s, I always remembered it being huge with the really spacious cockpit. After more than thirty years obviously the space is definitely smaller, not because the cockpit has changed but because I have grown (at least physically). The excitement I felt to finally be able to play once again inside that cockpit that so impressed me so many years ago cannot be described in words, It was truly a mystical experience, a leap in time like not even the DeLorean launched at 88 mph. I will never stop thanking you Antonio.

We continue with our games, really trying everything, including a sensational "Quick & Crash" from Namco. Usual story, the challenge with my playmate starts and I immediately place a really not bad score winning the challenge.
I had never been lucky enough to try it before, and I admit I never even knew it existed until a few days ago. What have I been missing!

Lunch moment in the console pavilion, we eat our meal with the view of all that wonder before our eyes, and let me tell you: beautiful to be able to eat with a sea view, maybe at sunset, or in the mountains enjoying the view of verdant valleys, but even here the view is really not bad!

With our bellies full, we still get lost among consoles, guns, and steering wheels by casting an eye at retrogame retailers. You can really buy everything: consoles, controllers, games for any platform. My hands itch and my wallet too, what keeps me from the madness is the probable expulsion from the house should I show up with yet another absurd

Nimrod

Tempest

purchase.

It's back to the booths though, and that's when the real arcade moment is. Wandering around and fiddling here and there we again pass by the Street Fighter 2 CE booth that exerts an ever-powerful attraction in us. It's busy though. Until then, thanks to the excellent choice of our arrival time, we had hardly ever had to wait our turn. Two guys are playing, one of whom is what for me will be "the Cuban giant." Whether he is really Cuban, I don't know, but giant he really is. More importantly, he is good, very good. As in any self-respecting arcade, the age-old "winner stays" rule applies, and it seems the giant has been there for quite a while.

His opponent loses without ever having had any hope. I almost try but I let another guy go ahead, I want to watch some more first, he gets blown away too. It's my turn, me Chun Li, him Ken. The first round is mine, the second definitely not and when the big guy tells me "I studied you," I realize that this is definitely a complicated matter here. I lose the third round while still playing it, I shake hands convincingly with my opponent who has a big smile fixed on his face because yes, boy are we having fun!
It is Ivano's turn, who with Bison and not without effort, avenges my honor by deservedly ousting the giant. Triumph, joy and jubilation! We move further on, there is a "Street Fighter vs. X-Men" calling our name. Neither of us is very well versed in this title, which, however, is a joy to play. I lose and behind me is the Cuban giant who with his big grin asks, "Can I borrow this (referring to Ivano)? I have to get revenge!" but of course I do! The giant is definitely more practical and this time Ivano loses although not by much, making a very good impression.

Laughter and congratulations, for those who win and for those who lose, and that's where I see the point of it all. I reflect for a moment and realize, even more, what game rooms have been for us and how much they are missing. Video games as a (fun) excuse for aggregation, competition with more or less known people, challenges followed by huddles of onlookers who at the victory of one or the other cheer.
My remarks may sound like "everything was better in my day," but that is not what it is about. Video gaming and its enjoyment, like everything, has changed dramatically over the years, gradually making it something strictly home-grown. The arrival of more and more advanced technologies that allow the creation of truly spectacular games, the connection to the network, which is becoming faster and more powerful, giving the possibility to challenge anyone wherever they are. All very cool.
There is no doubt, however, that the social aspect has gradually been sacrificed until it disappeared altogether, human contact (often sweaty and smelly) has disappeared, the beauty of having one's challenger there in the flesh has unfortunately vanished over time. People used to meet people in the arcade, something that should be commonplace and taken for granted, but unfortunately is not at all, in the world of video games but not only.
Impossible for me not to feel a little bit of a pang thinking about this.

But it's just a moment, we are still surrounded by all those cabin cruisers, authentic pieces of video game history and more, so at least for now less thought and more fact, off to play and enjoy it while we can.

It was a really exciting day, for a few hours we were back in the arcade, but without the perennial fog made of cigarette smoke, a basic feature of any self-respecting arcade. I experienced moments that brought back to my mind beautiful childhood/adolescent memories all made of pixels, saw happy faces of over-40s with childlike eyes close to their children, who in front of those games so primitive compared to their standards, did not understand so much joy being however inevitably infected by them. Then you want to put winning against Ivano in Virtua Striker 2, which I had practically never played, unlike him?

In short, it was a really great fun day!

Arcade Story: a few words with Antonio Nati

by Giuseppe Rinella

I had the good fortune to meet Antonio Nati, if only in passing, at the Como Fun held on October 15 and 16. What I met definitely not in passing were his wonderful cabin cruisers, not only a source of great fun but pure excitement.

For those of you who don't know, Antonio with his Arcade Story is in the business of importing cabin cruisers from the United States, all of which are absolutely original and therefore in need of salvage and refurbishment work, and that is what he and his team do, so that they can then be resold, rented, and taken for a walk.

If you attend the various fairs devoted to comic books/manga/cosplay/videogames and all that is to say that real Nerds like so much (like the one here), or any other event that features absolutely original and refurbished booths, it is almost certainly thanks to Antonio. Look around and you will find him, if you stop and have a chat with him you will discover his enormous helpfulness.

Availability he also had with us at RMW, granting us this short interview.

Before leaving you to read, it is doverono to point out the unmissable Arcade Story Youtube channel, go and feast your eyes admiring the refurbished cabin cruisers and listening to stories and trivia told by Antonio and Mike.

Soon RWM will be paying a visit to the wonderland that is Arcade Story's workshop/showroom, so we will have a chance to explore further and I personally can't wait!

Before I leave you with the interview, I want to point out the next two events where you can get your hands on the Arcade Story jewels: Lucca Comics&Games 28/10 - 01/11, Gardacon 12/11 - 13/11.

Happy reading!

Let's start with a bit of history: in 2017 the Arcade Story project was born, tell us first about your of history and what leads to the creation of your project.

In truth there was no plan, no desire to create something like what I am doing today. What happened was that I discovered by chance that there were arcade video games still alive, and from there I absolutely started wanting one. At first it was a multigame, but it didn't give me the satisfaction of the ones I used to play with at Florida, an arcade in downtown Verona. So I went in search of the

original ones and found them only in America.

Arcade Story starts in 2017, but when was the idea, if not the need, born in your heads? And how long did its realization take?

It was June 2017 and I had brought home about 7 original cabin cruisers. I was reading Marco Montegmagno's book (Code Montemagno) and found several passages that inspired me, spurring me to create the Arcade Story page and share with ultra-homemade videos the cabin cruisers I had found. It took me a week to convince myself not to be ashamed to appear in videos, then everything went its way.

Coming to 2017, Arcade Story was born from your idea but also thanks to your team, would you like to introduce them?

The collaborators came some time later. I met Domenico Cervini through a mutual friend in Rome who goes by the name GL Star on the ArcadeItalia site with whom I bonded because of his preparation and passion about the originals. Without Domenico, Arcade Story could not exist because he can repair any board! Then I met Andrea Genovese and it was 2 years before I joined the team, where I subjected him to various reconstructions of furniture destroyed by time. Michele Colucci I met as soon as I opened the page and he bought a cabin cruiser from me that he still has in his house today. Just before the pandemic I asked him if he would like to be part of the group by curating the socials. Finally Andrea Vesnaver, a chance meeting and totally unexpected. She needed help after various personal vicissitudes and so she wind up living in Arcade Story's warehouse.

I read from your site that Arcade Story has over 400

cruisers, which is quite a number, how do you make your selection on what you import? Do you go looking for specific cruisers or do you choose based on what the market offers?
The choice is dictated by the heart. In fact many titles I like are completely unknown in Italy, this is because I always try to go in search of the piece that has a historical connection, a special history or just because it has a respectable cabinet.

Arcade rooms used to be places of gathering and sociability, for a long time now video gaming has been a home and often solitary activity, you opened one and we can consider it a big gamble, what has been the public response? Do you sense a demand, unmet except by you, for more sociability?
We opened it in July 2021 and immediately it was a great success. Then we had all the misfortunes in the world, from the pandemic with the advent of Greenpass, to the AAMS's doggedness toward gaming before 2001, to the decay of the mall that housed us. At the moment I cannot go out on a limb and say it was a failure. In my opinion to be able to respond adequately I should try to open in the old town along with a restaurant or a bar.

I was fortunate enough to be able to enjoy myself thanks to your booths at Como Fun, the average age of those who played was roughly my own, let's say between 40 and 50 years old, often with children in tow who, however, cannot understand what the arcade was.
You who an arcade created it and can experience it, what is the response of the generations who could not experience a world full of Arcade?
At Como Fun there were a lot of children, and there were a lot of children in the mall game room as well. It's the right combination of this period, the 40-year-olds all have young children and they take them to show how fun it used to be.

Is there a cabin cruiser you represent for the dream chased to yet unattained? Something you long to have but haven't found yet?
At the moment I found almost all the pieces I wanted to have in my collection. I started with Donkey Kong and worked my way up to Quantum. The last hit was the Star Trek sitting booth, it is called The Chair in American slang and it is the only video game in the series created for arcades with vector graphics. The last piece I would like to have is Food Fight, an Atari game built by some guys after making a court settlement with Nolan Bushnell's company.

An obvious question but one whose answer is tremendously interesting: what are Arcade Story's plans for the future?
I would love to know. So many things are boiling in the pot and so many things are being abandoned. Right now, my dream would be to figure out an arcade venue, but unfortunately, I have no experience in the restaurant business and I see it as very hard.

We close with a series of questions that require a dry answer: the first arcade you remember playing with.
He was an electromechanic from Model Racing and his name was Indy 400

The game in which you were/are very strong.
Ghouls'n Ghosts, finished with one credit

The game in which you were/are dreadfully bad at.
Nibler

The ugliest game.
Cristal Castle

The game in which you "threw" the most coins ever.
Moon Ridge

The game that apparently remembers no one but you.
Beautiful Atari game with a magnificent cabin cruiser. 720°

The most overrated and the most underrated game.
Super Sprint.
Underrated is difficult, tastes vary widely. In my opinion a beautiful game was Moon crest but few people know it.

Classic desert island (but equipped with power), you can bring three cabin cruisers, which ones do you choose?
Ghouls'n Ghosts
Kiki Kaikai
Atari Le Mans

We thank Antonio again for giving us his time.
And we thank him for the wonderful work he does, not only in the restoration work of the cabin cruisers but also for his outreach work, if there were more Antony and Arcade Story in this world we would all be a little happier!

Invincible

by Brandon Cobb - www.diskman.com

“Invincible” is an extremely generic title for a video game, even in Korean. So it didn't jar me in the least when countless unrelated hits came up in my search for information on a game thusly named. The next logical step would be to search for the company that produced the game. As bad luck would have it that company's name was Softry, which meant that, since the letters 'l' and 'r' are used interchangeably by Koreans, my searches yielded endless hits about the song “Killing me Softly.”

It should also be noted that information about video games produced in South Korea during the “golden age” of its software market — the '80s and early '90s — is extremely hard to come by, even within the country itself. Added to which the vast majority of Koreans have little to no interest in discussing titles they worked on “so long ago.” This means that even if one is lucky enough to actually come across the contact information for a particular developer, the likelihood of actually having a discussion with that person about an “ancient” video game they no longer care about, is low.

About this point most anyone would just say, “Screw it!” and move on. After all, Invincible isn't a particularly good game. In fact, it stinks. However a certain, stubborn young man wouldn't let a few search engine annoyances stop him from nabbing what he hoped would be at least a passively interesting story. No, sir! That's why, aided by my translator friend in Seoul, I set out to find someone actually willing to discuss this dreadful piece of software.

BACKGROUND

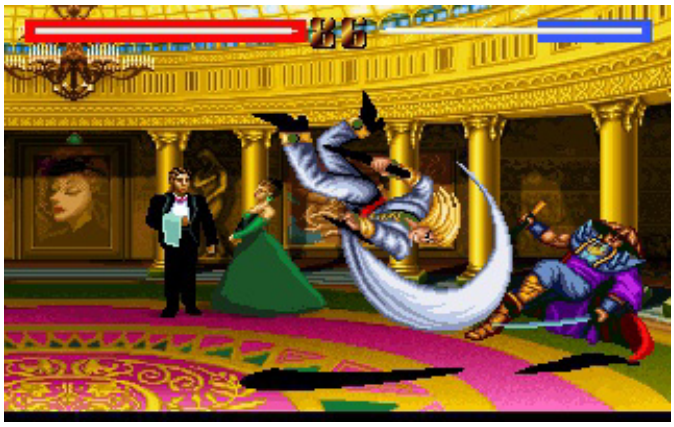
Softry started strong by producing Astonishia Story — a successful RPG for the PC — putting them in prime position to light up the South Korean software market. Sadly they wasted their chance by deciding to quickly slap together a completely unplayable Street Fighter II clone with ridiculous controls including very unorthodox button combinations to perform each character's special attacks. Heck, not even all of those attacks were listed in the manual! The author of said manual even mentions this, writing that the player, “will have more fun discovering them.” He was wrong.

By now you're probably wondering how such an abysmal product could have possibly interested me in the first place. The answer is simple: one of the fighters it features is a North Korean. Yes, you read that right. Invincible is the first, and so far only, fighting game to include a character from the Democratic People's Republic of Korea (DPRK), the South's estranged neighbor. That uniqueness in itself was enough for me to not only take interest, it also piqued my curiousity about the possible motives behind such a shocking choice.

DIGGING DEEPER

As luck would have it I was able, with the help of my translator friend, to locate a former Softry employee named Donghyun Chung, and squeeze a bit of info out of him. Though he himself did not work on Invincible, he was employed by the company at the time the game was developed.

According to Donghyun, Invincible was planned to be the first truly impressive fighting game for the PC. Trouble was, no one from the game's development team had ever had the chance to properly play a fighting game before, meaning there was a lot about the basic formula that they simply did not understand. This is what led to, for example the game's controls being completely different from those popularized by Street Fighter II, the standard at the time.



In addition the game featured no option to continue after a loss, meaning the already ridiculously difficult game became virtually impossible to complete. All in all, said Donghyun, Invincible was “the worst game Softry came up with.”

The only things that stood out to gamers were the unique character concepts, the fighter from North Korea being especially appealing. Turns out that fighter, named Ri Seong Il, had been introduced as a hopeful boon to the marketing campaign, which he was. Among the other characters are a mob boss's daughter who fights with a whip, a fat Japanese man who cries like a baby when he loses, and a modern-day viking.

TABLE SCRAPS

Many games that are rushed through to completion contain pieces of unused material, and Invincible is no exception. The back of the game box includes photos of two background stages that never made it into the final product. Sadly a full decompilation of the game data revealed no trace of their graphics, leaving the photos as perhaps the only remnants of their existence.

What I was able to fully uncover, however, were a rough set of graphics announcing the round numbers — in the final game only a “Fight” message is displayed at the start of each round — and a short animation of a young lady leaning in to deliver a kiss. Presumably, the amorous gal was originally meant to be delivering a smooch to a victorious Baron Balboa, as her graphics were contained in a data file related to this fighter's stage set. But we'll never know for sure.

DEATH BECOMES THEM

Though strong sales from Astonishia Story built up trust in Softry and helped create sales for

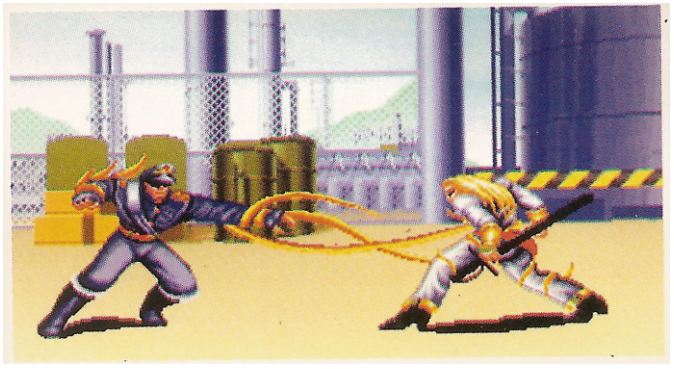
Invincible, the mediocre fighter left a bitter taste in many gamers' mouths. To make matters worse, following the completion of the game its development team quit Softry complaining of receiving low wages.

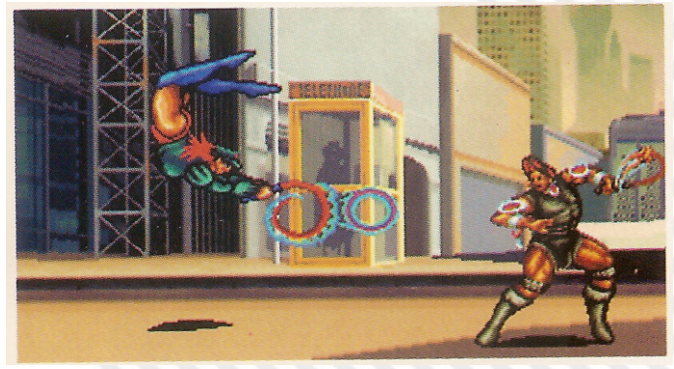
In the end Softry's reputation was ruined. Their future titles sold poorly by comparison, and even a 1996 name change could not absolve the company of its sins. Then perhaps it came as no surprise when, in 1998, the vincible Softry — by then named FEW — closed its doors for good.

INSPIRATION

But that's not the end of the story.

One lasting effect Invincible and its North Korean character had on me was to help reignite my childhood interest in the DPRK, the fascinating “hermit kingdom” the rest of the world knows so little about. I began reading every book I could find on the country, delving into its history,





culture, politics... any information I could get access to was eagerly digested.

My curiosity finally overwhelmed me: it was time for me to visit this strange, isolated nation. After comparing companies I booked a trip to the DPRK through the China-based Young Pioneer Tours, who were highly recommended for their fun, engaging, and detailed itineraries. The fact that they provided Western guides to supplement the state appointed Korean minders made me feel comfortable that someone with a familiar perspective would be at my disposal any time.

In June of 2014, I spent nearly ten days in North Korea, exploring several cities including Pyongyang, Hamhung and Wonsan. During my time in the country I hiked up beautiful mountains, visited stunning cultural sites and monuments, enjoyed a bonfire on the beach, experienced what may be the world's most impressive war history museum and so much more. But the moment that most closely tied in with Invincible was when I toured the Demilitarized Zone (DMZ) guided by an officer in the Korean People's Army, the country's military service in which the game character Ri Seong Il serves.

I also had the chance to give my Korean guides a demonstration of Sango Fighter 2 — one of my all time

favorites — in their native language, thanks to the Korean script we at Super Fighter Team implemented into our updated version of the game which we'd released in 2013. Both Koreans stated that the translation was of good quality, and that they found the game's story interesting. When I founded Super Fighter Team back in 2004, I never imagined that one day, one of the video games I worked on would be on display in the DPRK. It was a surreal experience.

My visit to the DPRK was an incredible adventure, my favorite overseas excursion to date. I learned a great many things about the country, making new friends along the way. It's possible that none of this would have happened at all were it not for a crappy old fighting game for the PC named Invincible: sure proof that a video game doesn't necessarily have to be any good in order to provide a great experience.

Maniac Mansion, 35 years in the legend

by Mic the Biker Novarina

PREFACE

To better understand what goes into the genesis of this legendary game, one must stop the time machine a couple of years before its market release date. The idea behind Maniac Mansion was born in 1985 from the minds of Ron Gilbert and Gary Winnick. They wanted to write a comic story based on the horror and B-movie clichés that have always littered the movie market. Initially they used pencil and paper, sketching out an actual board game, only later did the coding phase begin. The change that was coming was something momentous: previous adventures were based on textual command line input, and Gilbert did not like this way of playing. He began to think, for Maniac Mansion, of a more straightforward point-and-click interface, and, to speed up production, he created a game engine called SCUMM, which we are all familiar with and will briefly discuss later.

The protagonists of Maniac Mansion

Maniac Mansion is a graphic adventure in which we will be using a point-and-click interface to guide characters across the screen to solve puzzles and proceed through the plot. The game begins when the main character, Dave Miller, discovers that his girlfriend, Sandy Pantz, has been kidnapped by Dr. Fred Edison. He thus decides to go to rescue her with the help of two friends, chosen from the six who accompany him: Bernard, Jeff, Michael, Razor, Syd and Wendy. Each character possesses unique abilities: Bernard is the geek of the group, capable of taking apart electronic components of all kinds. Razor is a punkster capable of playing a variety of musical instruments, while Syd is a New wave musician with the same characteristics. Jeff Woodie is a surfer, his skill is phone repair, which Bernard can also do, and Wendy is a novelist.

The game can be completed with any combination of characters, but since many puzzles are solvable only by certain characters, the adventure will change depending on the composition of the group. When a character dies, the player must choose a replacement from the unselected characters. Because of this factor, the game has five possible endings; game over will come only when we have finished all the characters at our disposal.

The strange Edison family

The game takes place in the Edison family mansion, headed by Dr. Fred, the scientist driven mad by the influence of a strange meteor. The introductory sequence shows us that this meteor crashed near the mansion 20 years earlier. It brainwashed the Edisons and ordered Dr. Fred to search for human brains to use in experiments. If the professor is definitely out of his mind, no less so is the sadistic and nymphomaniacal Nurse Edna, his wife. She is a "politically scorrect" character for the time, famous for locking the unfortunate male characters in the play in the dungeon of the house, who knows with what intentions. Better luck will be had by the female characters: they will simply be warned of their good fortune not to have been men, in which case they would be "in BIG trouble now!" Weird Ed is the other member of the strange family, their son. An energetic man of imposing stature, he is always irascible and obsessed with his hamster.

Also living with the Edisons are two large tentacles, one purple and the other green, which have become genuine legends. The purple one, decidedly stinky, is considered the mad scientist's minion: going forward in the game it can only be put out of action by the characters' characteristic abilities. Different story for the green tentacle, which will become our friend after we feed it. One cannot forget Ted, the cousin of Edna, the mythical Mummy collector of porn magazines! A totally useless character for the purpose of completing the adventure, who falls into the list of ingenious follies of "useless objects," although he is not as useless as the chainsaw. This is found as soon as the game begins but we will never, during the development of the plot, find the fuel to make it work.

The genesis of Maniac Mansion

Ron Gilbert and Gary Winnick wrote and co-designed the game, Gilbert on programming and Winnick on graphics. Given their fondness for B-movies, they decided to make a horror-comedy-style plot set in a haunted house. They drew inspiration from a movie whose name Winnick could not remember, which he described as "a ridiculous teen horror movie." This movie, combined with clichés from famous horror films such as "Friday the 13th" and "A Nightmare on Elm Street," became the basis for the setting of the game. Character characterization was a concern for Gilbert and Winnick. The pair based the game's cast on friends, family members, acquaintances and stereotypes. For example, Winnick's girlfriend was the inspiration for Razor, while Dave and Wendy were based on Gilbert and a Lucasfilm colleague named Wendy, respectively. According to Winnick, characters from EC Comics and Warren Publishing magazines inspired the creation of the Edison family. Even the sentient meteor that brainwashes Dr. Fred has noble origins, being inspired by a segment from the movie Creepshow. And what about the man-eating plant, similar to the one featured in the cult movie The Little Shop of Horrors.

Maniac Mansion programming

Gilbert began programming Maniac Mansion in assembly language 6502, except he quickly realized that the project was too large and complex for this method. He decided that it would be necessary to create a new game engine. A dream began to arise in his mind, a "system that could be used in many adventure games, reducing the time to make them." Therefore he devoted the first nine months to the development of the engine, the heart of the game. The team wanted to include scrolling screens, but since it was normally impossible to "scrolling" bitmap graphics on the Commodore 64, they had to come to terms with the system. It was all about compromising and finding a middle ground between technical limitations and grandiose ideas. Among these was, by Winnick, the idea of giving each character a large head, composed of three stacked sprites, to make them instantly recognizable.

Ladies and gentlemen, here is the SCUMM

Gilbert planned a point-and-click graphical user interface showing every possible command, given his hatred for purely text-based adventures. Forty input commands were initially planned, but the whole thing was rather cumbersome to handle on the screen. Whereupon the number of them was gradually reduced to 12. Gilbert finished this great work after about a year, assisted by the ubiquitous Aric Wilmunder. They called it "Script Creation Utility for Maniac Mansion," which became most famous as SCUMM.

SCUMM follows the verb-object development paradigm, the now-famous "Use X with Y." In short we will use objects in our inventory, making them interact with other objects in the game scenario. We can also combine two objects together to create one useful for the purpose. To do this we will have at our disposal verbs such as go, take, examine, use-the most common action verbs are all present. Dialogue verbs gave access to a section of jokes and information exchanges. Certainly an engine of such goodness was updated steadily, leading over time to make the SCUMM interpreter seem almost intelligent. He stopped asking for the verb to be used, simply began to rely on other data to infer the action to be taken.

Biker's thoughts

In 1987 a sentient meteorite crashed into the Edison house, and at the same time, that meteorite struck the community of us videogamers, changing it forever. Never had an adventure, until that day, been so captivating, irreverent, and fun. There was nothing to write about, just an infinite number of possible actions to take. One could not remain spellbound before so much genius. We in the Borgo San Paolo gang were in a group, and although one person led the session, we were all behind it, with our own ideas to go on. Ideas that we would then take back home to continue the solo adventure.

A game that marked an era, that gave the start to a new way of understanding graphic adventures. And I'll never be able to forget that cute carnivorous plant in the library, you remember it, don't you? His name was Chuck. That name would be double-tied to point-and-click adventures, returning years later in a title that I don't even need to tell you what it is.

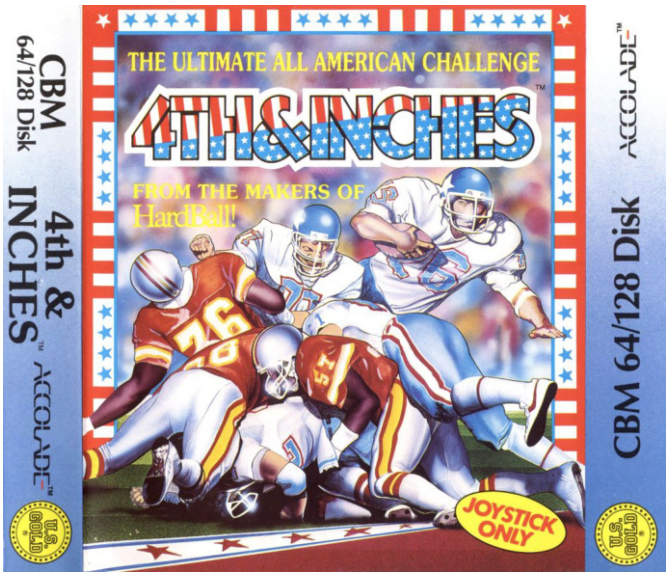
4th & inches, the American football on the C64

by Mic the Biker Novarina

There is an important clarification to be made before we begin our talk: in the States when people talk about "Football" they imply a rough sport, with an oval ball and players running around. The other sport, the one we may have meant, is called "Soccer" there. After all, only in recent years have Americans become more interested in this strange sport where no hands are used.

4th & inches came out in 1987, at the height of the golden age of video gaming in general. At that time we all became acquainted with star sports thanks to the program "Record," which aired on Channel 5 on Saturday afternoons. We loved the NBA and NFL, and, of the latter, we could enjoy some great games on Sundays. But while Basketball games on the cookie there were enough of them, American football had not perished.

Fortunately, good Bob Whitehead had the ingenious idea to think up and design a game about the sport, and he did it in a sublime way. Before that the best we could find was "10 Yard Fight," from 1983, in the arcade or at some friend's house with an NES; but here we are, at last, in another galaxy. From the very title, it is clear that we are dealing with something different: we are not talking about yards but inches. In Football jargon "4th & Inches" is like walking on a razor's edge, it can represent the completion of an attacking action such as losing possession and switching to the defense team. To understand it better two more words are in order: in this sport we have 4 attempts to walk the 10 yards to the "down." If you



succeed in the feat the count "resets" and you will have 4 more attempts to advance further. It may happen that on the fourth attempt the team is still far from the goal, which is why 99% of the time you resort to an action called a "punt," meaning you kick the ball as far from your end zone as you can, or if distance permits, you attempt a 3-point "field goal." But it may happen that you find yourself on the fourth attempt with only a few inches separating you from the suspected down. What to do in that case? Very often the instinct to risk a scramble on offense is the best solution, because a few inches up can rip. But if the opponent's defense is a wall there is a serious risk it all goes up in smoke.

But then does "4th & Inches" really allow us to play American Football? My answer is YES, and it does so in an amazing way. I still remember when I saw the review in Zzap! with glowing rating and judgment: one had to immediately fly out and get it! It was not easy initially: the game was not to be found in any store, even if we wanted to get it original. We had to wait a couple of weeks to be able to find it on cassette at American's Games on Via Sacchi. As soon as we got home we launched the loading and the magic began.

The first thing that jumps to the eye (and ear) was the graphic and sound throwback feel of

another Accolade game, the legendary Hard Ball released in 1985. This was not annoying but simply functional, because in 4th & Inches there is so much meat on the fire, graphics were not, unlike modern video games, the dominant aspect. It was the first time in a Football game that players had a choice of different schemes and types of play. Going forward one was enraptured by the vastness of the tactical aspect: after selecting a scheme, a small world of schemes, plays, movements, fakes, and more opened up. What was spectacular was that one could lightning-fast choose which one to apply once the action started. This made the two-player mode, the real gem of this game, epochal. The defense would choose movements on the fly based on how they saw the offense moving on the field, which in turn could, at the last second, change the type of scheme or feint to throw the opposing team off balance.

You can easily understand what revolution we were witnessing in those days, namely the massive use of strategy and technique within a sports game. Bob Whitehead went further, managing to make it absolutely fun and frenetic as if we were dealing with a full-blown arcade. Of course, there were some purely technical limitations present that we honestly never considered influential at the time, but reviewed today we can see that with little could have been done better. The most obvious was the management of the playing field. Its size was realistically large, so a limited area of it was visible. This prevented the player from seeing the development of the game in its entirety, especially on occasions of long throws. When the edge of the screen was reached, there was no scrolling of the field, but it was redrawn, placing the controlled player in a new position on the screen. defense management also suffered from this screen change management, with the player closest to the ball chosen automatically, with no possibility of changing it.

Biker's Thoughts

There were no championships, no statistics, no famous names to tie into merchandising, but there is a great game that finally, for the first time, does justice to American Football. A sport that's not just beating around the bush but also tactics, schemes, forms and that bit of lucid madness that only the improvisation of a quarterback can give you. Here you will find all these aspects, which put into action with the friend of a thousand battles sitting by your side will give you games to the death, with the risk of ending in real brawls on the floor of your house!

I wanted to do this review in honor of our friend Nithaiah, who in July this year became the Italian American Football 9-a-side champion with the Romagna Roosters. Well done big boy!

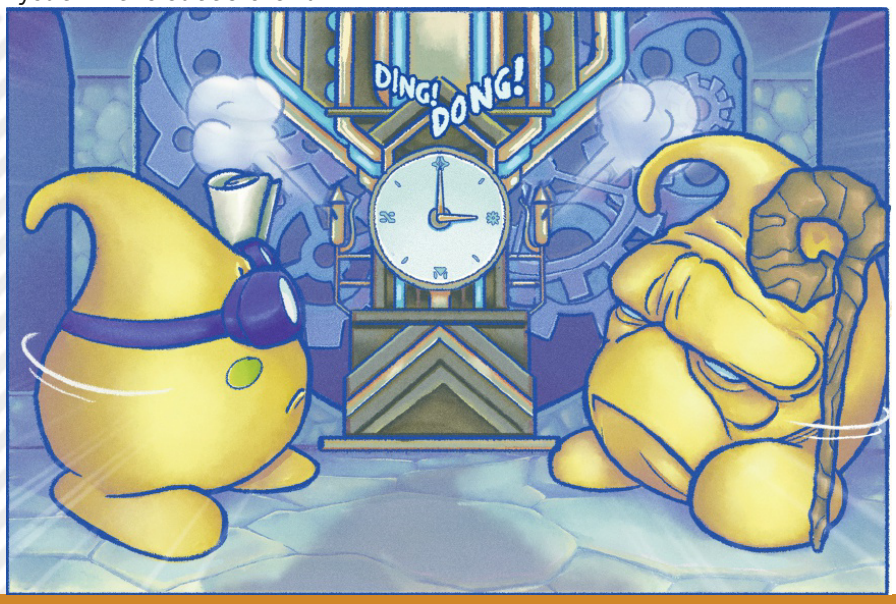
NEW GAME

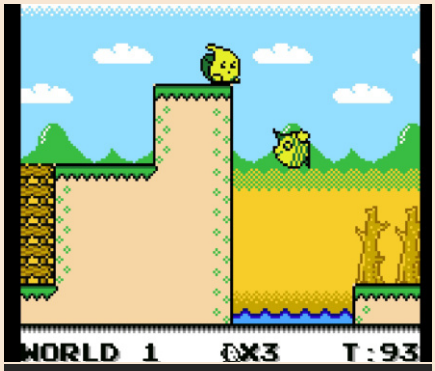
POWA!

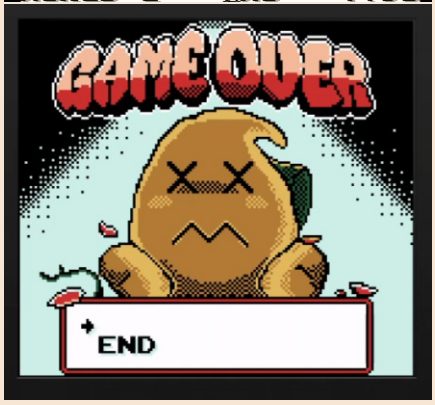
Year: 2020/2022 edizione fisica
Editor: First Press Games/ Aiguanachein
Genre: Platform
Platform: Game Boy Color/Game Boy

A "chubby" game! With a decidedly "kawai" and likeable protagonist who moves through a colorful world full of enemies who are themselves absurd and "kawai" like him.
What's more, we have to help the chubby, yellowish Powa return to the village with healing herbs.
Without too much to do. All you have to do is jump from one platform to another in the simplest and quietest of video games.
I love carrying around the Game Boy in this first year of college. It is a family console and we passed it on to each other first my father and then me. So I know it well and I know its games well. Also, I am a fan of platform games.
What more could you want?
The protagonist resembles a tear-shaped sack with eyes, legs and a mouth, and his only attack is the ability to blow short-range bubbles. He can also jump to reach platforms and clear the level. The game mechanics are simple, with a handful of enemies roaming back and forth or shooting projectiles.
There is a though, though! Beware, if you think this is a title for small children with nutella-stained little hands you are very wrong. We are dealing with a title that as Uncle Nith would say "is damn old school." If you don't jump accurate ... you die! If you make a mistake in approaching an enemy...you die! If you die anywhere in the level...you start over! You can continue...yes but from the beginning of the play area!
The jumps are "PIXEL PERFECT" that is, they require a fair amount of precision and swearing (always in moderation, I'm a young lady myself!). Otherwise it is a beautiful game, frustrating but beautiful. Graphically polished and with beautiful music.
It is available as a digital download on the programmers' site but I highly recommend the good old-fashioned "real" cartridge format to stick in your trusted Game Boy.
Well, I'm going to go now -- I'm going to go back and jump between platforms anyway I have a two-hour gap between classes.
Be good!

by **Ingrid Poggiali**







OUR FINAL SCORE

» Gameplay 70%
A game simple to learn but difficult to handle. You must be accurate to survive.

» Longevity 75%
Enjoyable to play during breaks. But you have to do it solo because of the immense amount of expletives you may say... Difficult and therefore loses interest if you don't commit to it.

TOUHOU

HIGHLY RESPONSIVE TO PRAYERS

Year: 1996, pubblicato 1997
Music: Jun'ya Ōta "ZUN"
Editor: ZUN Soft (ora Team Shangai Alice), Amusement Makers
Genre: Sparatutto d'azione Scroll-less
Platform: PC-98 (NEC PC-9800 / EPSON PC-486/586)

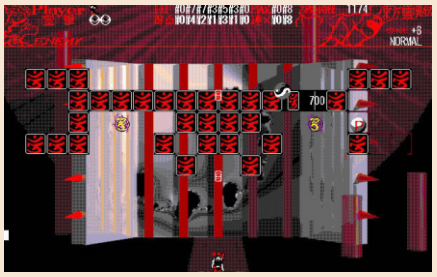
The 1990s were interesting years for video games, great titles came out, especially thanks to the Japanese video game market, which saw great development. But there are little gems that remained hidden and made their way out over time, one of which is more than just a game. Born from a simple university project by independent developer Jun'ya Ōta, also known as ZUN, who also composed the music. "Highly Responsive to prayers," simply known as Touhou or Touhou 1, is the first game in a successful series but also the most different in story and gameplay, introduced in 1996 and released in 1997, only in Japan, for the PC-98, along with the second game "Story of Eastern Wonderland." The series would become globally popular only a few years later, mainly due to its distinctive art style and music. The name uses the Kanji alphabet "Touhou" and is derived from the song Touhou Kaikidan, part of the OST that will be included in the fifth game in the series , can be translated as "oriental," the title often being translated to "oriental stories."

The gameplay is a variant of Arkanoid, with The only difference being that the ball, which in this case is a Yin-Yang sphere, can touch the bottom of the screen and the player controls a defined character, La Miko (priestess) Reimu Hakurei, of the Hakurei temple, who has been struck by an unknown entity. Enemies, represented as cards, will attempt to strike the player with various blows, these can be canceled with "ofuda" (talismans) or deflected with Reimu's gohei. Enemies can be defeated only by throwing the orb at them or with "bombs," but these can fail and are often useless against bosses. The bosses are not cards but actual characters.

The game succeeds in balancing relatively simple gameplay with a wide variety of enemies and bosses inspired by Japanese folklore and divided into stages, or levels; stages are completed by defeating all enemies or the boss. Bosses occur every fifth stage. You will get halfway through the game to choose between two paths: hell or "Makai," from which other stages will then follow. Respectively, a good or bad ending will be unlocked.

It is a title that shows its age, released on a system exclusive only to the Japanese market but emulatable today, and has had several more modern and accessible sequels with totally different gameplay. But if you have the chance, I highly recommend giving it a try.

by **Maurizio Diamanti**



OUR FINAL SCORE

» Gameplayl 80%
Although it is only a slightly more complex version of Arkanoid, it can prove to be a good challenge, with stages of increasing difficulty and different ways of fighting opponents.

» Longevity 80%
The story is linear at the beginning, with two paths that unlock two different endings and different bosses. We are talking about 20 stages in all, which combined with the gameplay and difficulty make the game quite long.

NEW GAME

CAPTAIN ISHTAR

Year: 2022
Editor: Psytronik
Developer: Alf Yngve/Richard Bayliss
Genre: Shooter/Platform
Platform: Commodore 64
Website: https://psytronik.itch.io/ishtar

In the distant future, the Federation of Planets needs brave space pilots to patrol the spice streets of the Galaxy. And among these heroes few are as brave as Captain Ishtar of Mars....
The federation asked the captain to investigate the mysterious planet Petit-4, a world unknown to earthlings. Hostile ships of the Nitwup Empire were detected in the system.
While the captain is intent on investigating, he falls into a terrible ambush and-the game starts!
The game is divided into 4 parts to be loaded separately. When one part is completed you receive a password to unlock the next part and so on.
It is a game divided into two genres. The first world and the third world see us driving the captain's shuttle with a subjective view. In these levels we must blast every alien life form that appears in front of us through the use of the joystick. For every 10,000 points we will be rewarded with a tasty extra life.
In the second and fourth worlds instead we will guide the captain on foot with the joystick. It is the classic exploratory platforming level where with the fire button we will be able to destroy any enemy and by pressing in SU we will make sure to activate our jet pack to get to some really difficult points to cross.
We will also have the thankless task of rescuing the surviving Earthlings and some peaceful blue aliens. By rescuing the aliens and hostages we will get some bonuses that will significantly improve the destruction capability.
The title was created as graphic effects and level design by Alf Ynve, who is famous in the retro scene for creating such titles as Knight 'n Grail, Drakness, and Sub Hunter.
Technically it perplexes me, leaving me somewhere between "I like it" and

"mamma mia what a thing it is." The first-person part on top of the spaceship I found well done and fluid. Everything flows well and there is good pacing.
The exploratory platforming part is, in my opinion, drawn out. Dull backdrops, characters with little "charisma" and in some places it slows down (on real machines of course).
I really think a little more could have been done.
Nothing to say, however, about Richard Bayliss' score, which I found beautiful and with skillful use of SID. Beautiful and engaging.
It is a peculiar title on the playability front. I liked the first-person section quite a bit precisely because it glues you to the joystick and forces a high pace to avoid getting slaughtered by aliens, while the platforming section is less punchy and slower. The fourth world is well done but presents no real challenge.
Captain Ishtar is a title that once finished you probably will not replay (also accomplice to the strange final screen).
More could certainly have been done.

by **Carlo Nithaiah Del Mar Pirazzini**

OUR FINAL SCORE

» Gameplay 70%
First-person levels are interesting, less so the platforming section. Intermittent pace.

» Longevity 50%
Pace unfortunately also affects the desire to play the title. Odd ending.

GUN NAC

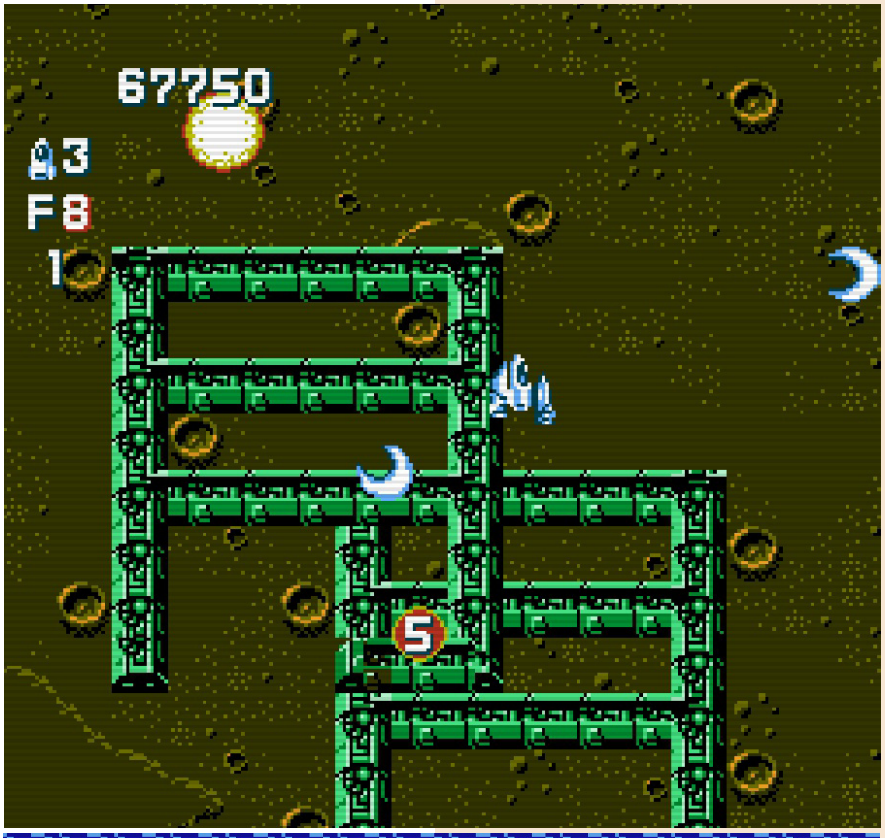
Year: 1991

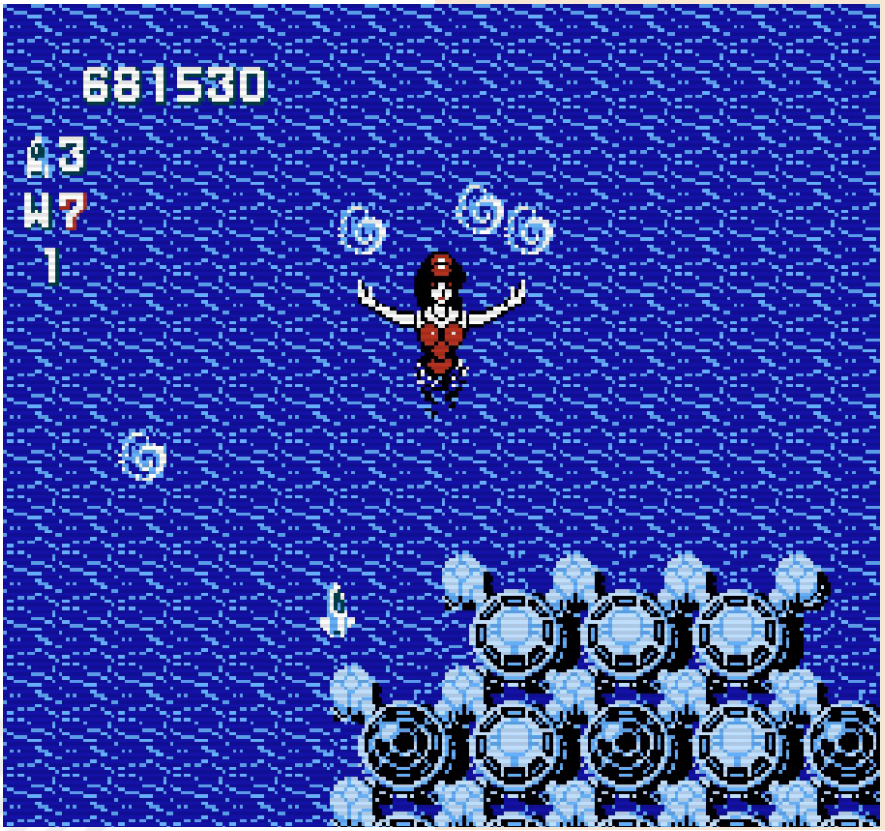
Editor: Compile

Genre: Shoot em up

Platform: Nintendo NES

Gun Nac is a strange and damn "friendly" shooter on the surface.
Let's start from the beginning. The NES was not particularly suited for vertical scrolling shooters, either because of its sprite limitations or its slow processor, but somehow over the years it astounded us with some noteworthy titles such as Life Force, Crisis Force, and 1943. Excellently developed titles.
Among these titles, the one that most intrigued me was the obscure Zonac. Developed by Compile (the same as this Gun Nac) it really turned out to be a fast-paced and technically well-made product. It had a well-calibrated difficulty system and required a lot of attention while playing.
Gun Nac we can consider it a sequel, not straightforward or even serious but damn crazy and majestically tasty. Compile is a house that has had a way with its titles. It created Puyo Puyo, but also has a diverse portfolio that includes Golvelius, The Guardian Legend, and the Sega versions of Ghostbusters.
Released in 1991, Gun Nac looks like a "kitchen sink" approach to the shooter genre. Have you ever fully upgraded your firearms in Raiden? It's an amazing experience isn't it? The libido of seeing everything destroyed on the screen was as incredible as the frustration of losing a life.
Gun Nac reminds us so much of Raiden in terms of the "mass destruction" sequence we can achieve by collecting the tons of bonuses we will find on





the screen.

All while presenting eclectic, crazy and totally nonsensical levels. There is a logging industries level, a banking level, a marine level with flying fish, a totally armored level. And it's full of absurd enemies: coins with feet, totems, missile-shooting candles, and rabbits--a barrage of crazy rabbits mad as hell.

The screen fills up with so many sprites it makes you think, "but will the poor NES make it?" Think Compile has included in the game menu the option to prioritize speed or flicker.

It is a game reminiscent of upgrading our spaceship in the style of Musha Aleste. There are five types of main weapons and four types of bombs. All of them can be upgraded and upgraded to a more aggressive and destructive version. Each weapon is marked with a number. Collecting the same number will upgrade it.

Bombs are enhanced in the same way but with letters of the alphabet. Enhanced bombs use more ammunition magazines and obviously the more powerful they are the more lethal they will be to enemies.

Whichever way we upgrade our spaceship, the screen will be filled with destruction in no time. It is not impossible to be hit although taking a single hit will not kill us but will damage the ship and cause us to lose a power level.

Between missions, collecting a few bags of coins will provide access to the shop where we can purchase even more upgrading.

This is not a difficult title but it requires concentration and skill. Losing an enhancement or starting from scratch is not the best way to go, so fast hands and quick eyes are needed. A fun, well-crafted and decidedly atypical game for Nintendo's 8-Bit console.

Nice soundtrack, crazy introduction, and graphics.

Try it in emulation or, if you are crazy, buy it even if the price is around 500 bucks.

by **Roberto Del Mar Pirazzini**

OUR FINAL SCORE

» Gameplay 95%

Upgrades, multiple weapons, bombs, destruction, and a ton of monsters. Beautiful!

» Longevity 89%

It is not difficult but it is definitely tenacious. You will appreciate it.

ALUNDRA

Year: 1997

Editor: Sony/Matrix Software/ Working Designs

Genre: Action Rpg

Platform: PlayStation

Alundra is a special game in many ways.

The game was released in 1997. At the time, I was not very interested in action RPGs, preferring the tactical gdr's that were swarming on the Snes, so I did not pay too much attention to the game.

Working design unfortunately released few copies of the game, which, at least in my opinion, sold out fairly quickly. So it was that by 2000 the game had become very difficult to find unless one delved into the web of that time.

It was in that very year that I began to follow the title and get hooked on it. I read numerous reviews from industry magazines praising the game as a masterpiece born at a "different" time.

Eventually he was able to find it and my journey began.

An incredibly difficult journey. Was it worth it? Absolutely.

Alundra is a "disguised version of Zelda"--a "rip-off." Mind you, there is nothing wrong with taking many aspects from Nintendo's masterpiece and trying to improve them. This is exactly what Alundra does.

He does it well. He does damn well.

To begin with, the story puts all Zelda plots to shame, while at the same time managing to surpass many other more traditional RPGs. I had the idea that because of the dungeon crawling and collectible nature of action RPGs, it was almost impossible to have a good storyline in that genre.

Alundra slapped that silly idea in the face with its brilliant storytelling. The basic goal in Alundra is to collect seven crests in order to fight the evil Melzas.

This basic story had been done a few times before in the Zelda games. In those titles you collected gems, medallions, masks, tri-force fragments, etc. to reach the final boss. However, unlike Zelda, Alundra makes you feel part of a truly sinister story. Melzas is not the stereotypical action RPG villain. He has clear reasons for being evil, unlike Ganondorf (at least in early Zelda).

Alundra is an elf boy from the tribe of Elna. He can enter people's dreams and change their outcome. He has a dream that tells him to take a trip to the village of Inoa. So your quest begins with Alundra on a ship bound for Inoa.

From there Alundra will eventually reach the village, which is going through a difficult time as the villagers are dying in their sleep while dreaming. This is where Alundra's dream and walking abilities come into play. From then on you will witness death, corruption, religious issues, love and other common themes in Japanese role-playing games.

The one problem I always had with Zelda games was that the plots were

simply too vague and predictable (the series has improved in this regard since the N64 iterations). Alundra solves these problems because it presents a mature and extremely unpredictable storyline.

At the beginning of the game the story gives you the feeling that you are only saving individual people and not the world. This is one of the key plot points. As you play the game you never really feel the need to save the world because simply no one knows what is causing the nightmares. It is a mystery that you, in the role of Alundra, have to solve. What you do know, though, is that people need your help and you have to enter their dreams to save them. So subconsciously, I became attached to the villagers because I felt like I was really living among them, helping them. As you advance in the game, the story takes you to different dungeons to collect the crests. When you enter these dungeons to collect the emblems, your only motivation is not to reach the final boss as in most action RPGs, unlike other action RPGs, the storyline of Alundra always gives you a valid reason to enter each dungeon different from the usual to become powerful enough to face the final enemy.

The ending itself is very satisfying, but it leaves much room for a sequel. Unfortunately, they made a terrifying Alundra 2 that has nothing to do with this little gem.

Alundra is not a game for children. This is an incredibly difficult role-playing game that makes any Zelda and any action role-playing game (not called Dark Souls) seem like child's play. The exploration and dungeon crawling features are reminiscent of two-dimensional Zelda.

In your arsenal you have a sword, an iron flail, a hunter's bow and fire and ice wands, etc. You can also find some hidden weapons around the world. In Zelda you collect hearts for life, in Alundra you collect pots of life that you can find by exploring the world map and inside dungeons. You can also collect magic seeds to use spells.

There are many health items that you can use from your inventory. It's all very similar to Zelda, in fact you can use bombs as well. So what's different from Zelda you say? Well, you can jump by pressing X. This adds a new dimension to the exploration side of the game and a new twist to some of the puzzles. It also makes the game harder -- much harder.

Some puzzles require you to jump from one platform to another in a certain amount of time, otherwise Alundra might fall and start over. I particularly remember one instance where I had to jump across switches before they fell. I had to repeat it like 20 times to get it right. So while there are many advantages to being able to jump at will. The disadvantages are--this for me--it seems that jumping was not meant for two-dimensional RPGs with 3/4 viewpoints.

Technically it is a masterpiece of 2d graphics, and I challenge anyone to find such a title with the same look.

Beautiful and beautifully animated sprites. The game world is huge and varied, animated in an amazing way.

Even after all these years it still turns out to be a title with excellent graphics.

As for the music, Alundra is difficult to evaluate. There are some compositions that can be compared to Koji Kondo's for Nintendo, others much less evocative and almost drawn out. The Boss music themes are beautiful. Kohei Tanaka is a good composer and shows moments of brilliance throughout the game but still below master Kondo.

Alundrà is a title that needs to be rediscovered, with compelling gameplay and a complex storyline that glues you to the screen.

It has a killer technical compartment and is suitable for all those players who are tired of tutorials or casual games. Perfect.

by **Roberto Del Mar Pirazzini**

OUR FINAL SCORE

» Gameplay 95%

A title with incredible gameplay. The best puzzles I have ever seen in an RPG. Frustrating at times, but brilliantly designed. Lacks perfection because of the last really devastating boss and of some tricky platforming segments.

» Longevity 99%

Vast and comprehensive. You'll play it until you find everything you can.

NEW GAME

1942

Year: 2022
Editor/Developer: ZeroPage Homebrew
Genre: Shoot em up
Platform: Atari 7800
Website: https://forums.atariage.com/topic/341719-1942-it-needs-a-thread/page/4/

1942 is video game history. A vertical scrolling shooter that was released by Capcom in 1984 for the arcade market.
It is the first in the 194X video game series dedicated to World War II air battles.

Set over the Pacific Ocean, it had a huge following and over the years has been converted for numerous home computers and consoles including Nes, MSX, Commodore 64, ZX Spectrum, Amstrad CPC as well as in some classic collections for Playstation, Saturn, PS2 and Xbox.

The protagonist commands the Super Ace fighter plane, a Lockheed P-38 lightning a heavy twin-engine, wide-ranging fighter employed by the RAF and the United States.
A revolutionary aircraft for the period (1939), it was extremely innovative, fast and comfortable to fly. It was even one of the quietest fighters in history but had the problem of not being outstanding in air duels.
Digression aside, the aim of the game is to reach and bomb Tokyo. During the flight we will fly over various ocean locations that served as battle scenes during the war.

The game consists of 32 levels, the plane can move from all directions, and throughout the game you can collect numerous power ups that allow you to either boost your firepower or destroy everything on the screen. There is even a POW that allows you to capture two enemy planes that will stand next to our plane to help us shoot with more power.
In short, an iconic title that almost every reader will have played once in

OUR FINAL SCORE

» Gameplay 90%
An iconic well done title with an excellent control system.

» Longevity 90%
You will play it often for love, for memory and because it is an excellent shooter.

their lifetime.

The Atari 7800 is an underrated console that lived during the period when Nintendo NES or Sega Master System examples were more likely to be found in gamers' homes. But it is a worthy console that has given us several interesting titles (though not many) and that, in recent times, has been carving out a nice slice of the market in the world of homebrew.
This conversion of 1942 is a little gem.

A well-crafted title that took quite some time to convert but is well worth playing. There are all levels and the same type of increasing difficulty for all 32 game scenarios.
The title responds well to commands and has no issues in emulation.

From the technical point of view, we can say that the graphics are the strong part. Everything moves very well on the screen without slowing down and with good animations.
Of course the movement of the sea is not quite what I would have chosen, but that is simply personal taste.
Simple and unpretentious audio with simple sound effects.

The game has the same charm as the original title, and this will keep you playing and playing for quite some time and will not lower the urge to play it once in a while.

An apt product like 90 percent of the latest productions for this often forgotten but high-potential machine.

by **Carlo Nithaiah Del Mar Pirazzini**

THE BATTLE OF OLYMPUS

Year: 1993

Editor: Imagineer

Genre: Platform/Adventure

Platform: Game Boy

Every time I got this game, irretrievably it had been sold! So I would put off the purchase....
By the way the price has skyrocketed! It's worth it though, because if you love Greek mythology like I do or history in general this is a title not to be missed (if in doubt it exists for Nes as well, Jap/USA/Eur), TBOO is a title to HAVE without any buts and buts, there is no jap version for Gb though...
The plot is loosely based on the myth

of Orpheus and Eurydice: the young Orpheus loves the beautiful Helen (at the beginning of a game, however, names can be changed), but the latter following the bite of a poisonous snake is turned into a stone statue. The goddess Aphrodite, moved to

compassion, reveals to the young man that Helen is not dead, but has been kidnapped by the god of the underworld Hades. Orpheus then embarks on an adventure that will take him all over Greece, meet the gods of Olympus, and bring him into confrontations with numerous mythological creatures."

The graphic style is very reminiscent of Zelda II for Nes; it is a typical 2D platformer.
Well realized technically and with the most enjoyable audio compartment. Not easy to complete and will engage you for a few hours. It is not a title for everyone.

In addition, my very original cartridge has the double label! Mo I have no idea if it is actually a factory defect from the days of yore, or has been replaced, it remains a mystery that I will not go to find out... Plus the game contains the various languages including Italian... And the battery-less saves! So, if you don't have this little gem... Run and try it out!

by **Barbara "Morgana" Murgida**

OUR FINAL SCORE

» Gameplay 80%
If you liked Zelda 2 on the Nes you are on the safe side. Nice control system.

» Longevity 75%
It is not easy to complete it.

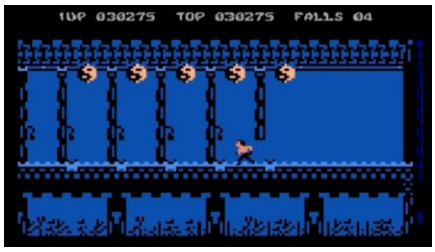
NEW GAME

BRUCE LEE: RETURN OF FURY

Year: 2022
Editor: Megastyle/Ute, Fantomas e Kostantine Giamalidis
Genre: Platform
Platform: Atari XL/XE
Website: http://www.atari.org.pl/informacje/bruce-lee:-return-of-fury-dla-atari-8bit/2327

Issue 17 of Italian Retromagazine World was dedicated to the figure of Bruce Lee and his video games.

Among the many articles featured and reviewed for C64 was one by our friend Filippo Santellocco entitled "Bruce Lee, a game fit for Atari 8-Bit."



After some time and work on numerous betas, Ute and Fantomas have released the full version for XL/XE as well.

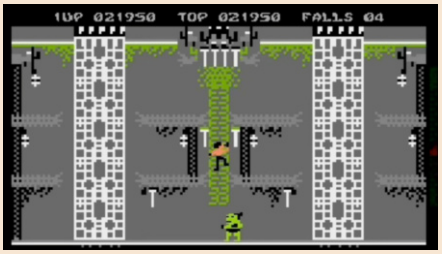
The title is basically the one released for C64 and sequel to DataSoft's 1984 classic "Bruce Lee."

What is different from the C64 version? I found it more pleasing graphically with stronger, less obscure colors and greater fluidity.
As with the Commodore version, there is no sound here but simple effects accompanying Bruce's movement and a few other effects.

As our Boss Francesco Fiorentini wrote in his review of #17 for the C64 regarding the title's playability also applies to the Atari version. It is a title that glues you to the screen and that you want to complete even if the difficulty is not always balanced and you die easily if you are not careful.

If you are happy Atari 8-bit owners, don't miss it and give it a try.

by **Giampaolo Moraschi**



OUR FINAL SCORE

» Gameplay 90%
A well-structured and well-designed platformer that requires reasoning and lightning-fast action.

» Longevity 85%
It is a quite difficult title but will keep you glued to the joystick.

NEW GAME

LILLY'S SAGA

THE STONE OF EVERGREEN

Year: 2022
Editor: The Fabulous 8Bit
Genre: Platform
Platform: MSX2
Website: https://www.lillyssaga.com/

Mamma mia what a marvel! A well-crafted, colorful, fast-paced, and fun platform game the likes of which haven't been seen in a while.

This Lilly's Saga is an homage to past masterpieces for 8bit platforms.

I see in it a bit of Super Mario Bros, a touch of Wonderboy and a dash of Giana Sisters--a fun cocktail that makes it one of the best recent titles for the MSX2 system.

Its development began in 2020, when Pal Frogner Hansen had thrown himself headlong into the alive and thriving MSX scene. The title was made by a team of talents such as Julie Trevland, a very versatile artist, and composer Wolf, one of the most famous in the Dutch MSX demoscene, strong in FM synthesis.

In the game we will guide Lilly, a little heroine from the legendary village of Evergreen.

The evil lord Abaddon has stolen four very important sacred gems, and our task will be to recover them.

There are four worlds each consisting of four levels and set differently. Some levels are on top of verdant hills, some in terrifying caves, and some in castles. We will encounter several hostile creatures. Most can be crushed by our powerful jumping, but some of the tougher monsters require other means to be eliminated or simply cannot be touched.

At the end of the fourth world level we will face the boss to move on to the next world. There are numerous hidden bonuses and some secret levels. In addition, it is possible to

increase little Lilly's power by collecting magic items from the crates.

In short, there is everything needed for it to be a perfect title of its kind.

What it requires to be used: an Msx2 or higher, 64 Kb Ram, 128Kb VRam.

It is distributed as a download version in rom format playable by emulator (we recommend OpenMSX) or as a

physical version for collectors with box, megarom cartridge and printed manual.

The first impression is that it is the usual tribute platformer, but Lilly's Saga has much more to it and is an example of how careful programming can make the most of gaming machines.

Graphically it is a delight. Fluid, fast and colorful. The sound section is also perfect.

In short, it is a great title.

The game has a good difficulty curve and proper game design. It makes people want to be played. A save system is even present.

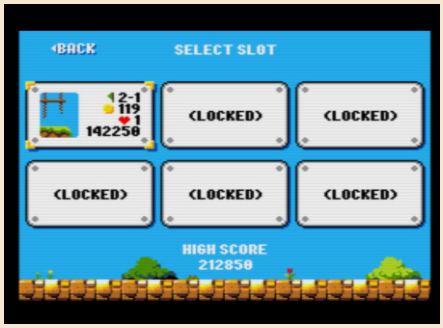
I conclude these lines of mine and return to the colorful world of Lilly by reminding you to support productions of this genre and especially to play it. Super!

by **Carlo Nithaiah Del Mar Pirazzini**

OUR FINAL SCORE

» Gameplay 95%
A perfect platformer in terms of design, level development and game dynamics.

» Longevity 90%
It's not easy and requires practice, but it keeps you glued to the joystick.



NEW GAME

MISION LA LUNA

Year: 2022
Editor: Jojo73/Luis Fernandez/ Narcisound
Genre: Shooter
Platform: Amiga
Website: https://luiscoco.itch.io/mision-la-luna

In a parallel world two countries are fighting over lunar mineral resources. United States of America and the Union of Soviet Socialist Republics. We will play a valiant U.S. team agent and must defend our moon base from Russian invaders, while also trying to advance toward the enemy base.
This will not be an easy task. The Soviets are well equipped and also have robotic support, but we are "Real Americans" and will know how to defend ourselves.
In the spirit of the 80s and American Dreams, we are faced with a clone of Operation Wolf. A track-based shooter made in Amos with decent care by the developers.
The title is simple. We are armed with a sniper rifle, have to blast enemies and recover ammo and energy to survive.
No upgrades, no smart bombs, only 3 lives and 4 levels plus the final boss. Simple, direct, brutal...
One can use the mouse (recommended) to aim at opponents, and I must admit that it turns out to be quite accurate.
Technically it is neat and well done, perhaps not quite the best graphical look possible, but it is functional.
Simple but accompanying sound.

The title lacks variety. Mind you, the enemies are one many on the screen but they are always the same. Cosmonauts, research robots, rovers and a shuttle -- on repeat. Little variety and rather predictable.
We do not even have an enhancement of our weapon.
In short, there is very little from the point of view of attractiveness.
The title is not difficult but allows itself to be played.

If you love the genre to try.

by **Carlo Nithaiah Del Mar Pirazzini**

OUR FINAL SCORE

» Gameplay 60%
Operation Wolf but less various, with fewer weapons and with less ...enthusiasm for battle.

» Longevity 60%
It is not difficult to finish the game but it is enjoyable. To be loaded now and then to let off stress.

NEW GAME

KITSUNE ZERO

Year: 2022
Editor: Kitsune Games
Genre: Platform
Platform: Steam/Windows
Website: https://eniko.itch.io/kitsunezero

Kitsune Zero is the prequel to an interesting adventure game to be released in 2023 on PC and new consoles.

The title will be called Kitsune Tails, this Kitsune Zero is a prequel in 2d platform game form.

It all starts with Yumi, a Female Kitsune, or a fox spirit in the service of the Goddess Inari, who has been asked by the local squire to stop the terrible Ogre Fang Clan and their expansionist aims. You will also have to free a young monk, who is really very cute.

It's a game that really harkens back a lot to Super Mario Bros. You run, jump, crush enemies, traverse four worlds (plus the bonus level) and have to defeat a terrible samurai monster.

You move with the pad's directional keys, shoot with one key, jump with another, and, again with the same firing key, you can run. Linear, simple, effective, and... damn near the same as Super Mario Bros.

The game is very, very short. The few worlds are initially traversed without too much difficulty, and, except for world 4-2, it is all quite easy once the game patterns are learned.

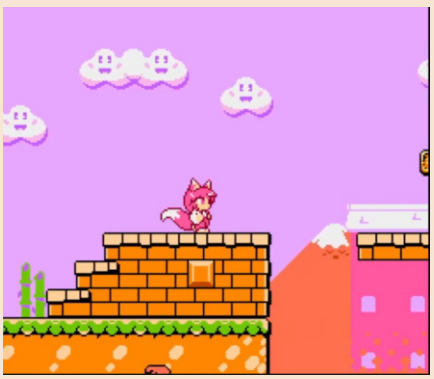
There are no lives, and if you die, you can always start over from the beginning of the level.

This is complemented by a medieval Japanese-themed soundtrack and graphics in full 8 Bit style, or as Uncle Nit says, in perfect Nintendo Style.

Overall it is a nice dip into the past for nostalgic people, but it offers no real challenge and is a fairly shameless clone of Mario.

It appeared to me to be an attempt to sell the future Kitsune Tails title, hopefully slightly more substantial and long-lived.

by **Ingrid Poggiali**



OUR FINAL SCORE

» Gameplay 70%
It's all very nice. Simple, colorful, fun, but it's Super Mario.

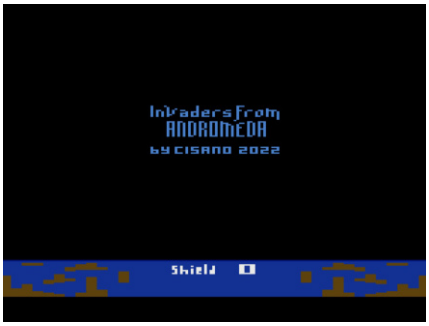
» Longevity 10%
I finished it in less than an hour. I said it all.

NEW GAME

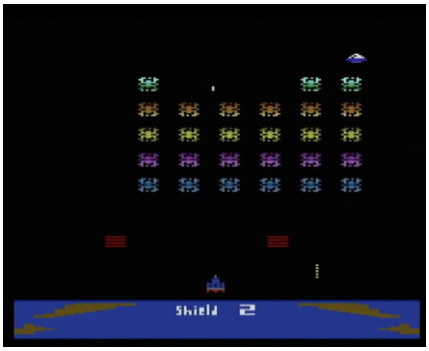
INVADER FROM ANDROMEDA

Year: 2022
Editor: Carmelo Cisano
Genre: Shoot em up
Platform: Atari 2600
Website: https://forums.atariage.com/topic/342605-invader-from-andromeda-final-version

An all-Italian Space Invaders but with a twist that differentiates it from the original title.
The author of the platformer FALLPIT! THE MAYA CAVE returns to development on the ATARI 2600 and gives us this little gem.

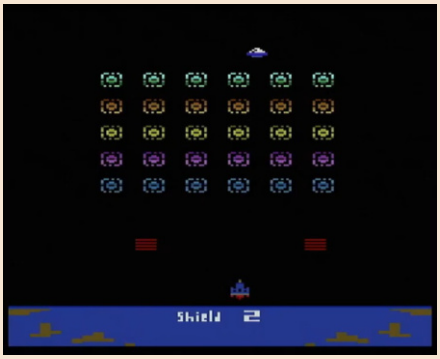


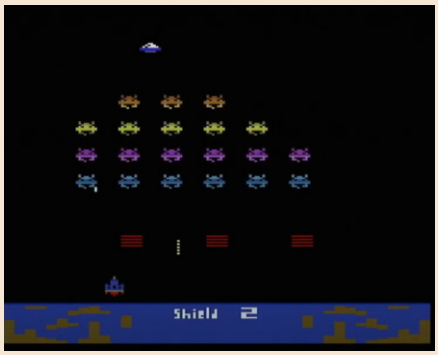
It is a clone of Space Invaders with some differences.
There are 10 waves of alien invaders and it ends.
No score, no spaceships, only cumulative shields for our spacecraft.
If you hit the ufo crossing the screen at the top, you get an additional shield for up to 5 total shields.
When all shields are exhausted, the game ends with Game Over.
If all shields are lost, but the last bullet fired hits the ufo--the game continues and the spaceship with 2 different firepower.
Beyond the first three levels, the protective barriers become movable.

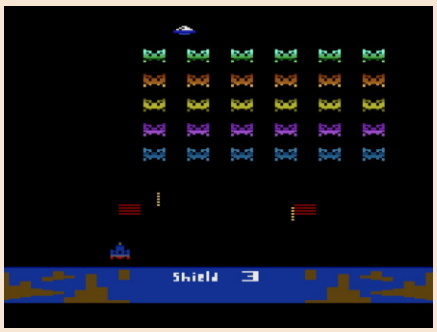


The game has undergone several changes to fix some compatibility issues on real hardware, but with the latest release everything works perfectly.
Graphically it is simple but very pleasing and moves with good speed and a brisk pace.
Minimal sound limited to effects and movements of on-screen objects.
Invaders from Andromeda is a Space Invaders with some playable and fun innovations.
Run to download it because it deserves it.

by **Carlo Nithaiah Del Mar Pirazzini**







OUR FINAL SCORE

» Gameplay 90%
It is Space Invaders with some nice "changes".

» Longevity 85%
A title you'll gladly load up to relax by shooting down wave after wave of aliens.

CASTLE OF TERROR

Year: 1984

Sviluppatore: Melbourne House

Genre: Avventura grafica

Platform: Commodore 64

We have once again come to the most playful, goliardic, traditionalist and scary time of year! Our Halloween, the first actual post covid after two years of restrictions; but horror-themed video games have never known restrictions or limitations, so we have been quietly dealing with them as if nothing was wrong, given the myriad of horror titles available ...and not only at this time of year. The title I dealt with this year is a very special game, and to be precise a text adventure with graphics. These are graphic adventures in which pictures appear with attached descriptions of the place and possible actions, and we with the keyboard will have to write what we want to do with one or more verbs using the vocabulary of the game itself. Most of the games in this genre were in English but I have seen some in Italian as well. Castle of terror catapults us into a small mountain village where we catch a glimpse of a huge castle inhabited by guess who? The king with his beautiful daughter waiting for her betrothed, namely you? Who knows. We will start the game in the middle of a clearing with a cottage, and first we will have to explore it looking for clues and possible objects that will be useful later on. Be careful, because at the slightest wrong action and/or verb it will be game over! These mountain people are really stiff! They will give us a penny in exchange for help with work in the fields, though. As in the best tradition of mountain villages, we will also find a cheerful and quaint inn full of drinkers, and it is from there that the real adventure will begin thanks to a customer who will tell us, under the influence of beer, about the daughter kidnapped and taken to the castle we have glimpsed. The hypothesis of a probable kidnapping by a vampire count will then come up -- without a shadow of a doubt. Well, now let's think about arming ourselves properly and getting through the castle defenses and once inside let's have fun with the puzzles before we get to the final confrontation with the count and rescue the maiden! The playability of text adventures we know how it is, which is with the keyboard. The only difficulty lies in our level of knowledge of the English language, particularly with verbs and nouns (it will be an extra incentive to improve it) but I assure you that the vocabulary is quite simple. Plus there is also accompanying music to listen to with the lights off and windows possibly closed. Longevity-wise it does not last long if you know it by heart or worse if you watch gameplays! Whereas if you decide to solve it on your own, next Halloween you may still be there in the village wandering around with your English dictionary. If you want the clue I'm used to giving you in almost every game, pressing the V key that stands for vocabulary will bring up the entire list of verbs the game recognizes and you can consider yourself halfway through. But be careful not to enter one verb for another! In foreign countries and especially in small villages they might misinterpret a word that is innocent to us. Have fun with this adventure and especially enjoy the many titles to play in the most horror month of the year! Happy Halloween to everyone!

by **Daniele Brahimi**

OUR FINAL SCORE

» Gameplay 60%
It is a text adventure.

» Longevity 90%
If you don't look for the solution, you'll have it for quite a while...

Fear is an ugly beast and it is... 40 years old!

Don't hold it against the readers, but I certainly could not refrain from celebrating reaching our number forty.
Coincidentally, this milestone comes exactly five years after the release of the first issue of RetroMagazine World, which at the time, I remind you, was just called RetroMagazine. On another colorful note, the release of this issue will occur close to the Halloween holiday.
Throughout the years we have celebrated the occasion of Halloween with themed articles and reviews, but this year we preferred not to repeat ourselves so as not to risk inflating the theme.

As I have already had a chance to write in many other editorials, during these years RetroMagazine has changed its skin several times, always evolving into something better. Or at least we hope it will.
In the face of all the changes, however, the thing that personally strikes me most positively is the effect that the RetroMagazine World project has had on many of our readers and the retrocomputing community at large.
After forty issues there is no doubt that RMW has carved out a space for itself and enjoys a certain reputation in the world of Italian retrocomputing and lately also in the international one.
Proof of this is the fact that some readers have turned into editors over time, and this, as we have already recounted several times, can only please us. But what is even more surprising, is the fact that when we ask for availability to publish on our pages articles or writings that were not originally intended for our magazine, we always get full cooperation.
Some might wonder what is so surprising about this, in fact, collaboration between associations or individuals moved by the same interests, should be the norm. Unfortunately, this has not always been the case in the past, for all sorts of reasons. Therefore, it fills us with pride that many trust us and give us the opportunity to publish their work in our pages. As is our custom, we have always attributed the authorship of works to their respective authors and will always continue to do so.
The RetroMagazine project was born to give voice to all those who had something to say about retrocomputing, and true to this line, we hope for the future an increasingly close collaboration with anyone who wants to do so.

Forty issues and five years in business; these numbers are a little scary.... Scary that so much has been said and written. Fear of repeating ourselves. Fear of not finding more interesting material for our readers.... Fortunately, instead it is just a Halloween prank. Every day we discover new things. Every day we meet new friends who have something to tell and want to do it with us.

So yes, fear is an ugly beast and it's forty.... But our urge for retrocomputing is still great!

Francesco Fiorentini

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