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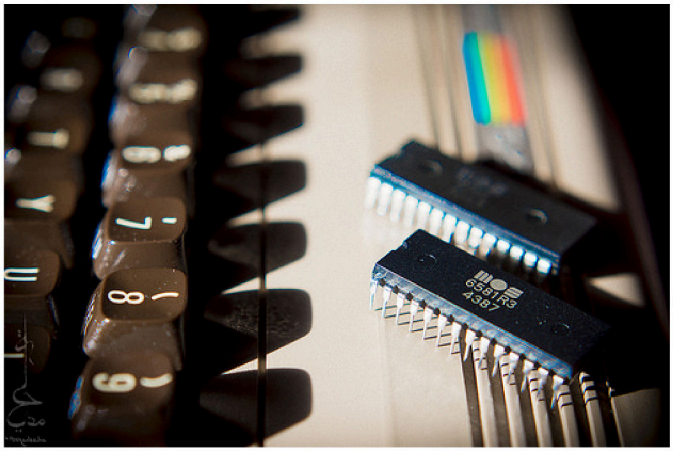
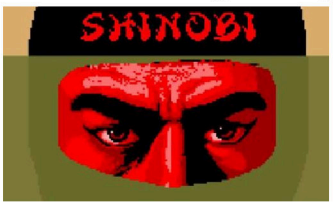
Issue 9 Year 2 - August 2021 - https://www.retromagazine.net - Free Publishing

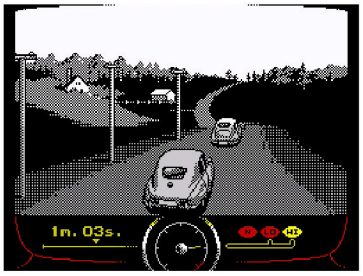
HARDWARE REVIEW: The TRS-80



VIDEOGAMES? THEY SOUND GOOD!
A trip in digital music

SHINOBI
The art of being a Ninja





TRAVEL THROUGH TIME
Volume 1: Northern Lights

ListAmiga
The best of the best (or worst) to play on our beloved Commodore Amiga

THE ASTYANAX (Arcade)

DEMON CRYSTAL & KNITHER SPECIAL

* **Laben 70:** a forgotten Italian excellence
* **ZX Spectrum News:** Next Launcher and ZX Retro Wireless
* **Plotting graphic functions** in Visual Basic for DOS
* **Norma Lijtmaer**, the lioness of Computer Science
* **Calculating Pi:** Monte Carlo method and random numbers
* Sorry for the **interrupt**ion, dear **6510**... - part 1
* **Japan 17th episode**: Nintendo G&W vs. all
* **EnigmA Story:** the bar clerk
* An introduction to the **Acorn Electron**
* Software piracy: interview with **PierSoft**

Interview with Shigeru Miyamoto
Nintendo's creative mind

The problem of the fourth player at poker

What is a chess player's worst nightmare? It's obvious, isn't it? Not having anyone to play against. And that of three friends around the green poker table? Also simple. The fourth player is missing to start a nice evening with chips, cards and the inevitable glass of whiskey. And finally, what is the worst time for a programmer? Easy. Not having a project or a problem to solve.
Who hasn't ever had that feeling of not having an idea to weigh up, a fault to solve or a goal to achieve? In short, nothing to sink your hands into or to devote your coding skills to. Because, after all, when it is not a matter of your job, then it is about a new challenge with yourself, undertaken to deepen the use of a programming language or experiment with code to force a machine to do what you want, perhaps even despite its hardware limitations.
One of the most fun and exciting things about owning a home computer in the 1980s was learning how to program it, often starting with BASIC and then moving on to machine code or assembly. You remember the scene, don't you? The computer is turned on on your desk and the flashing cursor on the full-screen editor intermittently illuminates the reflection on the desk lamp. Sitting there in front of it, you look at your trusty cassette recorder (or for the lucky ones, the disk drive) ready to start loading the latest game out on the market, then you pick up the magazine you just bought at the newsstand and start thinking about the best way to spend the afternoon: setting the new high-score of the game of the moment to brag about to our friends the next day at school, or looking through the pages of the magazine for a new idea to measure yourself with, creating a program or a faster algorithm to solve a whole class of similar problems.
Let's be honest: we all (or almost all) bought our first home computer to play games, play more games and then play even more games. But then a number of us became interested in programming, probably to create new games. And after reading books and magazines, typing in lots of listings, copying and perhaps modifying them, here we are, after a bit of practice, at the inexorable moment when we have no other things to try, but our cultural baggage as programmers remains unused and frankly disappointed. What to do now? What new topic to tackle?
Now that many of us retrocomputing fans have restarted writing code and programming on our beloved childhood home computers, the same problem of desperately finding someone to pose us a problem, a challenge or a project to do comes up again... Nowadays we have the whole Net, infinite documentary resources at hand, entire archives of program listings and examples (like our RetroLIPS), forums and dedicated groups on social networks, instant messaging applications to contact friends and fellow adventurers to submit doubts and ideas. And then there is RetroMagazine World, always there to provide you with hints, ideas and projects to build up with our beloved retrocomputers. So step up, all you brave coders tinkering with registers and indexed addresses. Send us your hard-earned (digital) papers and we'll keep your and our passion alive

David La Monaca

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Laben 70: a forgotten Italian excellence
(author's cut)

by Alberto Apostolo

After more than 2 years from the first publication on RM 07-IT, we propose again (with some revisions) the article on Laben 70. Who has documentation on this computer (manuals, wiring diagrams, etc..) is kindly requested to digitize the material and send it to retromagazine.redazione@gmail.com
(the Editors will make it available with a link on their site)
Thanks from the Editorial Staff

Prologue

Were the legendary eighties when I first saw a Laben 70. At the time I was a boy who specialized in Computer Science at the I.T.I.S. in Foligno (PG), today called I.T.T. Leonardo Da Vinci.

The computer was in the school's computer lab, and I always wondered how it got into his possession. Compared to the Commodore VIC 20 available in the same classroom, it looked like something cumbersome and hopelessly outdated.

The power on of the Laben 70 seemed a kind of priesthood ritual.

Laboratory assistants (a couple of graduates a little older than us students) turned the switches on and off on the front panel of the computer, to insert the octal numbers that formed the machine language instructions of the bootstrap loader.

Then they took a gray perforated tape, about a meter long, and placed it on the optical reader so that it could load the real bootstrap program (also in machine language) necessary to activate the tape unit that housed a large reel containing the M.T.O.S. Operating System and the Basic Interpreter.

With Basic finally residing in memory, you could type a small program (about 20-30 lines) from the console, consisting of a green phosphor monitor and a sturdy keyboard. The program list and its output were obtained from a small 80-column dot-matrix printer located next to the monitor (on the same table).

The great fun was to save the program to perforated tape using the direct PUNCH command. The drill emitted a deafening noise and a long gray snake made of perforated paper waved through the air as if it were really alive.

Once the drilling was finished, the perforated tape was torn off to be conscientiously rolled up into a small cylindrical transparent plastic box, which had previously contained the cheeses of a well-known brand (Figure 1).

After many years, the curiosity to know more about that computer has returned and I started looking for information and manuals on the Net (finding unfortunately little news). Much of the material was found on the website www.computerhistory.it [Ser20] with additions obtained from the courteous exchange of e-mail messages with Eng. Giancarlo Magnaghi (whom I thank publicly) that took place in September 2014. Ing. Magnaghi took care of the Laben 70 immediately after graduating in Electronic Engineering at the Polytechnic of Milan, from April 1971. He spent three years in Laben with technical and commercial duties. At that time, the application software, the connection of non-standard peripherals and customer training were carried out directly by the technical-commercial staff.

In the Appendix there is an example of a program in Basic (according to the version loaded on Laben 70 of the School) and the procedure to activate the bootstrap loader (some pages of the manuals were photocopied and distributed to students).

Very interesting is an extensive brochure (written in Italian) where the main characteristics of the computer and the instructions in machine language are described (the link can be found at the bottom of the article).

A 16 (sixteen) bit mini-computer

Laben (Laboratori Elettronici e Nucleari), was part of the Montedel group (Montedison Elettronica), to which the EMI (business calculators) , OTE (medical), CS Italia (printed circuits) and other companies also belonged.

The headquarters were located in Milan (Figure 2) and had three divisions: mini-computer, nuclear instrumentation and space telemetry on board and ground.

In 1968 the design of the Laben 70, a mini-computer for scientific and industrial applications, was undertaken,

Fig.1 (the reel contains multiple BASIC programs)

then presented in 1970 (Figs. 3 and 4). The cost of a system with 4K memory was $12220. Already during the design phase of the computer began the software development of the operating system, the languages Assembler and Fortran). To remedy the lack of the machine, the Univac computer of the Polytechnic of Milan was used, on which a virtual Laben 70 was implemented. The virtual Laben 70 was made through an emulator in Fortran V that ran in time-sharing on the Univac 1108 computer of the Polytechnic of Milan. The basic software was designed in parallel to the hardware by means of the emulator.

The software area was led by Prof. Galimberti (future founder of Etnoteam) and was divided into groups. The SO group (directed by Norma Lijtmaer and Agostino Belli), the Languages Group (Giovanni Rosci) and the Applications Group (Alessandro Osnaghi).
Alessandro Osnaghi later became a designer of the operating systems of some Olivetti computer lines and architect of the first RUPA (Rete Unificata Pubblica Amministrazione = Unified Public Administration Network). The machine was inspired by some of the best 12-bit and 16-bit machines of the time, such as the mini Varian, the HP 21100, the IBM 1800 and the DEC PDP8. In fact it was conceived for real time with interrupts , etc.. The CPU was 16-bit with 4 accumulators, memory from 8 to 64 Kbytes, MSI TTL technology (chip with 6 NAND ports, UART for serial interfaces, etc.). The first memories were still with magnetic cores (hand-punched by the workers). The initial system provided for control through an Olivetti TE300 telewriter. The telewriter reader and band-piercer was used as a storage device. A parallel printer, magnetic tape drives and disk could be connected to the computer. Then other supported devices were added: Teletype ASR 3 and Olivetti TE318 I/O telewriters, paper tape readers, punch paper tapes, card readers,magnetic tapes 800 and 1600 Bpi, Centronics needle printers and line printers Data Product 300 bpm, Calcomp drum plotters and analogue XY plotters, process devices (A/D and D/A converters, digital and analogue multiplexers, registers with relays).

The main features of the Laben 70 were:
1) Word length: 16 bits,
2) Ferrite core memory from 4096 to 32,768 words,
3) Machine cycle: 1.35 microseconds,
4) 8 ways of addressing and long addressing,
5) Extensive range of instructions,
6) Special instructions for the rapid transfer of program interrupted data, from standard peripheral units, analogue-to-digital converters, etc .
As an option it was possible to obtain:
1) Multiplication and wired division,

Fig.2: LABEN headquarters in Milan in 1969 (www.lombardiabeniculturali.it)

MINI-COMPUTER

The term mini-computer is usually applied to medium-sized, medium-capacity computers. The processing and memory circuits are encapsulated in a single unit [CC87].

Fig.3: Laben 70 and peripherals [Ser20].

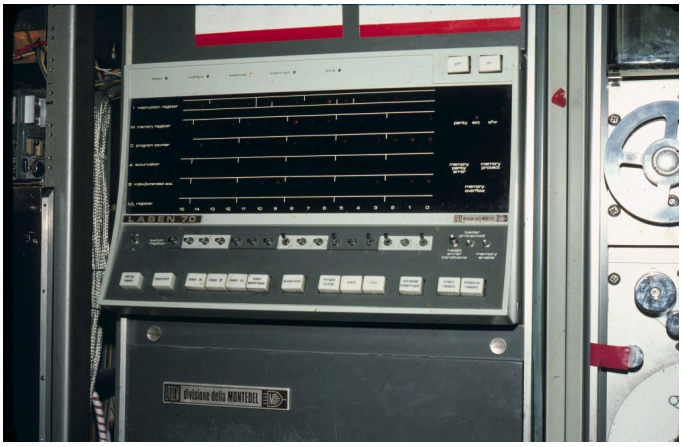

Fig.4: front panel [Ser20].

2) Direct access channels in memory (up to a maximum of 32),
3) Memory protection system,
4) Protection system for lack of network,
5) Real time clock.
The operating systems available were:
1) POS (Paper Tape Operating System),

2) MTOS (Magnetic Tape Operating System),
3) SOTER (Real-Time Operating System).
The expected programming languages:
1) Assembler,
2) Macro Assembler,
3) Basic,
4) Fortran IV.
The first operating system was the P.O.S. (Paper O.S.) and the Assembler, the libraries (mathematics, etc.) and the Binary Loader that produced directly executable object programs were available on the 4K word unit. The MacroAssembler, the Fortran compiler and the Basic interpreter were available with 8K word units. Subsequently, the M.T.O.S. (Magnetic Tape O.S.) was developed, which included all the basic software and allowed applications to queue the data of interest. Finally, the D.O.S. (Disc O.S.) was developed.

Some Laben 70 applications

The main applications were in the field of research and process control (data acquisition from gas chromatographs, medical and nuclear equipment, research laboratories of pharmaceutical companies, control of rolling mills and furnaces for aluminium refining, etc.). Among the main customers were Euratom in Ispra, CNEN (now Enea), CNR, Gemelli Polyclinic Hospital (by electro-encephalography).

The first customer of Laben 70 was the CNR of Fiascherino (La Spezia, Italy) who intended to use it for maritime and oceanographic processing. It was a very critical installation because not enough consideration was given to the marine environment that led to the corrosion of the feet of transistors and other components with their detachment to manual contact. The treatment with protective paint solved the problem but the problem of overheating arose. In the end the solution was found and the Laben 70 did its job.

The Polytechnic of Milan used the Laben 70 for the real-time control of SUPERSIGMA, an assembly robot developed by the Polytechnic on the basis of Olivetti's SIGMA robot. The application of the Laben 70 was designed by Prof. Riccardo Cassinis.

In addition, the Polytechnic was engaged in the development of a television signal compression system and from 1975 made use of a Laben 70 (Figure 5, [Fal11]).

At the University of Pavia it was used by Virginio Cantoni for image processing functions.

Fig.5

In the early seventies the Laben 70 was adopted in a search for the construction in Europe of a telecommunications network similar to ARPA, the network that will generate the current Internet. The use of the Laben 70 was recommended by Luigi Dadda, who participated in the European project.

Conclusions

In 1974, Laben discontinued its activity as a computer manufacturer, as part of a restructuring that also resulted in the cutting of the industrial automation sector, as well as 160 of the 360 employees.

With the dismantling of Laben's mini-computer branch, many technicians (Galimberti, Belli, Rosci and others) went to Italtel where they developed with others the Leone, a 24-bit word computer, with its "double" to increase its reliability and resident memory for quick answers: it was intended for transit telephone exchanges (tele-selection and data).

Osnaghi and others moved to Olivetti and subsidiaries while Lijtmaer and his colleagues at the University of Pisa (to deal with Unix and more).

Laben continued its activity in the field of nuclear and scientific instrumentation and in the aerospace sector from the 1980s until the merger in 2004 with Alenia Spazio (the latter acquired by the Finmeccanica holding company). Subsequently it was integrated as a Milanese headquarters in the Franco-Italian joint venture of the space sector Alcatel Alenia Space (67% Alcatel, 33% Finmeccanica). From 2006 he became Thales Alenia

The mysterious CCCP track

On the development of the D.O.S. Laben there is also a curious anecdote: the working group for the specifications produced a document that at one point raised concerns. The fact dates back to 1971 (in the middle of the Cold War). In the document, the remaining part of a disc track that was not used was indicated with the abbreviation CCCP without giving any explanation (ending in the pile of "available"). More than one and the leadership feared an attempt at politicization (CCCP in Cyrillic is equivalent to the acronym USSR, Union of Soviet Socialist Republics). Some time later, it turned out that there was an animated discussion in the working group on how to identify that part of the track and that in the end someone exclaimed:-"Let's call it CCCP (Come Ca**o Ci Pare = As the He** We Like) but let's move on".

Space with the acquisition of the Alcatel share by the French defence and electronics group Thales.

Appendix

The version of the Basic loaded on the LABEN 70 supplied with the I.T.I.S. of Foligno, did not have string variable management. However, he had the management of matrix algebra.

The program in Listing 1 solves the linear system of 3 equations and 3 unknowns in Figure 6.

Fig. 7 and 8 show the procedure for bootstrapping Laben 70 (sorry, they are written in Italian).

```
10 DIM A(3,3),B(3,1),C(3,3),X(3,1)
20 MAT READ A
30 MAT C = INV(A)
40 MAT READ B
50 MAT X = C * B
60 MAT PRINT X
70 END
81 DATA 3,-1,1
82 DATA 0,1,1
83 DATA 1,0,-1
91 DATA 3,2,0
```

$$\begin{cases} 3x & -y & +z & = 3 \\ & y & +z & = 2 \\ x & & -z & = 0 \end{cases}$$

Fig.6

List 1

APPENDICE A

Il caricatore "bootstrap"

Il caricatore "bootstrap" di cui viene fornita la lista deve essere introdotto manualmente nella memoria dell'elaboratore (1).

La procedura è la seguente :

Passo 1. Impostare sul registro SW il numero 4 e premere LOAD ADDRESS (2)

Passo 2. Impostare sul registro SW la codifica ottale della prima istruzione e premere DEPOSIT

Passo 3. Ripetere il Passo 2 per tutte le successive istruzioni.

Per eseguire il caricatore "bootstrap" la procedura è la seguente :

Passo 1. Impostare sul registro SW il numero 4 e premere LOAD ADDRESS (2)

Passo 2. Impostare sul registro SW il numero corrispondente all'indirizzo a partire dal quale si desidera caricare il programma e premere LOAD A.

Passo 3. Premere RUN. Il programma viene caricato. Quando la lettura ha termine, l'elaboratore è in RUN. Premere WAIT.

---

(1) - Per l'elaboratore LABEN 70 è previsto il caricatore "bootstrap" cablato come opzione.

(2) - E' possibile caricare il bootstrap in qualunque posizione di memoria.
Per fare questo occorre impostare sul registro SW un indirizzo d'inizio diverso da quello indicato.

39

Fig.7

Lista del caricatore "bootstrap"

Indirizzo	Cod. Ottale	Cod. Mnemonico		Commento
00004	145020	STA	*+16	Memorizzazione indirizzo di partenza
00005	045020	LDA	*+16	
00006	1755**	WCA	**	Abilitazione lettore
00007	1760**	SKF	**	
00010	C31377	JMP	*-1	
00011	1752**	INA	**	Lettura primi due caratteri
00012	000504	LLA	4	
00013	145311	STA*	*+9	
00014	1760**	SKF	**	
00015	031377	JMP	*-1	
00016	1752**	INA	**	Lettura secondi due caratteri
00017	115004	ERA	*+4	
00020	135404	ERM*	*+4	Fine decodifica e memorizza - zione parola
00021	015003	ISZ	*+3	Incremento indirizzo di memo- rizzazione
00022	031365	JMP	*-11	
00023	042100			Maschera per decodifica
00024	000000			Indirizzo di memorizzazione
00025	100200			Maschera abilitazione lettore

Nota : Nelle istruzioni di indirizzo 06, 07, 011, 014, 016 al posto di ** si deve sostituire il numero in ottale del lettore utilizzato.

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div. LABEN

Fig.8

Useful Links

Digital Processor LABEN 70 (short brochure) https://www.sba.unipi.it/sites/default/files/22_0.pdf
Digital Processor LABEN 70 (extensive brochure) https://www.sba.unipi.it/sites/default/files/31.pdf

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[Wik20] https://it.wikipedia.org/wiki/LABEN, last consultation: 14/08/2020.

The TRS-80

by Leonardo Miliani

The acronym TRS perhaps does not say much to most. We are talking about a computer that has more than 40 years behind itself and that has had a lot of its notoriety especially in its country of origin, the United States of America: and it is not only one of the many systems based on the Zilog Z80 processor, it is much more important. In this article we will therefore get to know more closely a computer born in the second half of the 70s of the last century and sold, in its evolutions, for about a dozen years. That has opened, along with other models, the roads of mass computerization. Welcome to the TRS-80.

The birth

We are in the early 70s and, in the United States, CB radios are spreading (the acronym for "Citizen Band"), that is a small/medium range radio communication system on a frequency band reserved for private use with devices that, for prices and size of the same, are within the reach of many and therefore spread on a large scale. Radio Shack, a famous chain of shops that counted about 3,000 stores in the USA alone, had already become between the end of the 60s and the beginning of the 70s, the reference point for hobbyists and electronics enthusiasts. When the boom of CB devices broke out, these devices became so important for Radio Shack that they represented about 30% of all its sales, so much so that Tandy Corporation, the company that owned this chain, sold almost all the other business branches in 1975. Like a flash in the pan, the CB market suffered an unexpected and rapid contraction, so much so that at the beginning of 1977 Tandy was forced to find other types of products to sell to fill the hole left by radio equipment.

At that time microcomputers were gaining ground, thanks to the introduction of machines in kits or already assembled at affordable prices, transforming computing from something reserved for companies or, in any case, for those who had room and money to invest in large mainframes that occupied several square meters, in devices that could be housed on the desk of their office. Several Tandy employees bought the Altair 8800, one of the most popular microcomputers, sold in kits for about $500. Among the buyers of the Altair 8800 was also Don French, who was then responsible for the company's purchases. French came up with the idea of making his own computer to be sold, possibly, to Tandy herself. He therefore made a prototype that he presented to John Roach, vice-president of the production sector of the company: Roach, however, was not very impressed by that prototype but was, however, enticed by the idea of French. The microcomputer market was expanding and that type of product could represent the novelty to raise the fortunes of the Radio Shack store chain. The two therefore began to think about the possibility of making a computer in the company but they realized that they did not have the human or technological resources to carry out this project.

They therefore began a tour among the various component manufacturers to get a better idea of what it might take to make a computer. Among the first semiconductor manufacturers they visited was the National Semiconductor because Roach and French had thought about using their SC/MP CPU. The engineer who welcomed them and guided them during their visit was Steve Leininger: Tandy's men were so impressed by his skills that they asked National Semiconductor to have his contacts to offer him a job as a consultant but the top management refused.

The next stop on their journey was Paul Terrel's “Byte Shop”, where Steve Wozniak and Steve Jobs' Apple I had been sold the year before. Surprisingly, during the evening shift they found Leininger in the shop, who worked as a salesman to round off his salary, to whom they immediately offered a contract as a consultant. After a few weeks

Fig. 1 - The TRS-80 in its earliest adoption, called "Model I," with keyboard equipped with the numeric keypad (photo by Dave Jones, source Wikimedia Commons)

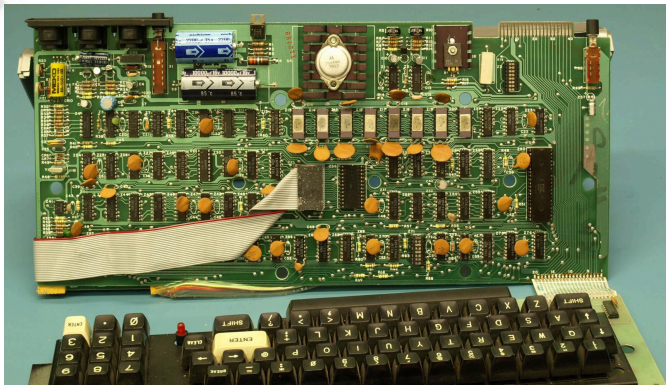


Fig. 2 - The motherboard of the first version of the TRS-80 - the large chip on the right is the Zilog Z80 (photo by Binarysequence, source Wikimedia Commons)

Leininger was invited to visit the headquarters of Tandy in Fort Worth, Texas, where he was proposed to become responsible for the development of the computer: Leininger, also pushed by his wife who wanted a better job and a better salary for her husband than he had at the time, accepted.

The development

After accepting the assignment, several weeks passed before Tandy's management decided to really start developing the computer because Tandy did not think that the price of this type of product was in line with that of the items for sale in Radio Shack stores, which averaged around 30 dollars. Only with the continuous fall in sales of CB radios was it decided to start the development of the computer. Leininger, when he took the project into his own hands, realized that the prototype developed until then by Tandy was little more than a board capable of turning on some LEDs.

He therefore began to review everything, keeping in mind the first priority received by the Tandy management: to contain the costs. This was because the final price had to be as low as possible, since Radio Shack was known to sell cheap products and it could not be predicted whether or not an object like a computer would have a good reception from the point of view of sales. The first step was the choice of memories: it was chosen to use DRAMs (dynamic RAMs) instead of SRAMs (static RAMs) because, despite the latter consuming less electricity, compared to the former they were much more expensive. When it was the turn of the CPU, among the options available on the market at the time, it was decided to choose the Zilog Z80 because this processor incorporated the circuitry for the refresh of DRAMs (continuous read accesses necessary to store data in this type of memory), thus allowing to save the mandatory external components with other CPUs. Speaking of memory, the Altair 8800 was sold with a few hundred bytes of RAM as standard, while the computer that Leininger was developing was initially equipped with 1 KB of RAM. On the software side, the choice was mandatory: the BASIC language was establishing itself as a real standard among hobbyists and beyond, so it was decided to adopt the Tiny BASIC High Pole developed by Li-Chen Wang, a version of the BASIC whose interpreter occupied only 1.77 KB of space. In this way it was possible to use only one 2 KB ROM chip where, in the few remaining bytes, enter the code to manage the display of the images on the screen.

Regarding the video section, the computer did not use a dedicated chip but generated the image independently. It was capable of handling 16 lines of 64 characters each or a 128x64 pixel graphics mode. The firmware handled only 128 characters (because only 7 lines of data were used for Video RAM, so 2^7=128 addressable bytes): the first 64 were the standard ASCII characters while the other 64 were special semi-graphical characters (figure 3) to be used for games or graphics. The text and graphics could be combined without limitation. Tandy's management would also stop here because he had in mind a Altair 8800-style kit product to sell on $200 but Leininger insisted that a different product be developed, already ready for use: thanks to the work experience at the Byte Shop he had realized that many computer enthusiasts did not know how to weld or preferred a computer already assembled.

Leininger was able to convince his managers to change their plans, and it was therefore decided to build a ready-to-use computer. A 53-key keyboard was added for the input in which to "hide" the motherboard of the machine, and a common black and white TV produced by RCA and deprived of all the superfluous (audio section and tuning of the television signal). The prototype thus made was shown to Charles Tandy, Tandy's elderly owner, with financial software loaded for the occasion. When Tandy entered his salary of $150,000 a year, the program crashed, because the BASIC used was only able to handle 16-bit integers (positive 16-bit signed integers only reach up to +32,767). The BASIC interpreter was therefore taken over and heavily modified to include the handling

Fig. 3 - The alphanumeric and semi-graphical characters of the TRS-80 set (processed from a photo by Kevin Savetz, source Wikimedia Commons)

of floating-point numbers, rewriting 60% of the code. With this change and the preloaded character map the ROM rose to 4 KB. The RAM was also raised to 4 KB, to make the computer really usable (figure 2).

Listing

The cost of developing the computer in its final version had risen a lot, reaching 150,000 dollars and it was estimated that, to return the investments made, the machine would have to have a sales price of about 600 dollars. This raised a lot of concern in the Tandy management because nothing so expensive had ever been sold in Radio Shack stores: the most expensive item ever sold until then had been a $500 hi-fi system. The marketers thought, contrary to Leininger's feeling, that no more than 1,000 units would be sold per year, at best. Fearing that the computer would not be as successful as expected, it was decided to initially produce only 3,000 units, the same number of Radio Shack stores: in this way, even if it remained unsold, each store could still use it to manage the warehouse and inventory. The computer was introduced in New York on August 3, 1977 with the final name of TRS-80, where TRS stood for "Tandy Radio Shack", and 80 for the "Zilog Z80" used as a CPU, and was put on sale at $599 which included, in addition to the machine body, the 12"monitor and a cassette recorder for loading and saving programs. In case the user wanted to use his own TV, he could only buy the car body for $399. This version of the computer was called “Level I” by the simple modified Tiny BASIC built into the ROM. The RAM, as mentioned, was 4 KB but expandable to 16 KB (figure 1).

At the beginning of 1978 a version called "Level II" was proposed because of a version of the BASIC language called "Level II BASIC": the latter was developed by Microsoft itself, deriving it from its Extended BASIC already released for other machines based on the Z80 (for example the Spectravideo 328) and introduced many more commands and functions, for a total of 12 KB of code. The new "Level II" computers could be purchased with 16 KB of RAM and were equipped with a new keyboard with an additional numeric keypad (figure 5). The new BASIC was also sold as a ROM kit for the upgrade of machines with the firmware "Level I" until then sold. In mid-1978, the Expansion Interface, an additional unit containing space for 2 additional banks of RAM, the RS-232 port, a controller to connect a disk drive and circuitry to drive 2 cassette players, as well as integrating the power supply, was put on sale. The container was designed to be placed under the official computer monitor (Figures 4 and 5). The Level II BASIC was a mandatory update if

Fig.4 - A TRS-80 Level I (note the keyboard without the numeric keypad) with Expansion Interface (the additional case placed under the monitor) (photo by Flominator, source Wikimedia Commons)

you wanted to use floppy drives because it allowed dialogue with the expansion bus of the Expansion Interface that contained, as mentioned, the controller of the disks themselves.

Commercial success

The computer was immediately a huge success. In the weeks following the presentation, Tandy's switchboard literally went into tilt for calls asking for information about the computer, as well as for the same reason several bags of letters arrived on site every day. In the Radio Shack stores, pre-sales were non-stop and the delivery times of the computers rose, at the end of 1997, up to 2 months. In the first months of marketing, 50,000 units were sold, selling much more than the other two microcomputers that were part of the so-called "trinity of 1977", namely the Commodore pet and the Apple II, also presented in that year.

At the end of its marketing, which took place in 1981 due to the fact that it no longer complied with the new regulations on electromagnetic interference imposed by the US Federal Communications Commission (FCC), it recorded a remarkable figure of 250,000 units sold in total. This was due not only to the competitive selling price but also to the fact that Tandy could count on 3,000 points of sale scattered throughout the territory of the

United States of America as well as another 500 scattered across various nations of the globe, thus having a much more widespread spread of its computer than other manufacturers. It should not be forgotten, in fact, that in those years computing was a niche sector and there were no, if not very rare cases such as that of the Byte Shop, shops dedicated exclusively to the sale of computers.

The success of the TRS-80 can also be measured by the numerous clones, more or less compatible with the original machine, which spread not only in North America but also around the world. Many of these clones were actually based on a single computer produced by a Hong Kong company called EACA that sold them to several other companies. Thus the TRZ-80 in South Africa, the Video-Genie in England and Western Europe, the PMC-80 in North America, the Dick Smith System 80 in Australia and New Zealand were basically the same machine produced by EACA but sold under different names. With small interventions on the electronic part, almost all the incompatibilities related to the hardware differences between these clones and the original TRS-80 could then be solved.

The next versions

Noting that the computer was mostly used in the home, Tandy, at the end of 1979, presented a new computer intended for professional use, calling it TRS-80 Model II, and calling the first "Model I" to differentiate it from the newcomer. Despite the similar name, these machines had nothing to share with each other, being completely different in terms of hardware and therefore completely incompatible with each other: the Model II used a Motorola 6809. The real successor to the first model was the TRS-80 Model III, introduced on July 26, 1980. Compared to the Model I, the CPU was increased from 1.78 to 2 MHz, the keyboard was improved and the computer was made with a single-block body that also included the monitor and the housings for the disk drives. This computer was replaced in 1983 by the TRS-80 Model 4, initially sold with a Z80 at 4 MHz and with up to 64 KB of RAM and the ability to display 40/80 columns for 24 lines of text. Other models of the TRS-80 were introduced over the years, including some portable models and some compact calculators, but no one was very lucky. The TRS-80 was, along with the Apple II, one of the computers with the longest commercial life, remaining, with the desktop version of the Model 4, on the market until 1991.

Fig. 5 - A TRS-80 Level II with the Expansion Interface (photo Rama & Musèe Bolo, source Wikimedia Commons)

Conclusions

The machine itself would have had a greater potential but could not fully express it. What limited the spread of the computer was the reputation of the economic product that accompanied it, as well as the reputation of everything that was sold by Radio Shack. And the TRS-80 did not escape this condemnation, being appealed (even by its own owners!) with the nickname of "Trash-80". It must be said, however, that this was not entirely unjustified. For example, the TRS-80 Level II had a bug in the firmware so typing led to incorrect readings of keys with unwanted character repeats: and the problem even increased as the keyboard picked up dirt under the keys. Despite the attempts made, the computer was not able to impose itself even in professional use as it was in Tandy's plans, remaining relegated to use in the home and school environment: in the latter sector, however, it was a good success, because it was a valid computer to be purchased by schools, since at a price lower than that of competitive offers, a complete system was available and ready to use.

All in all, the TRS-80 was one of the most important systems of the late 1970s, being part of that first train of machines with compact dimensions, affordable prices and more than discrete performance that brought computers out of that niche of "nerdy" and "geeky" products, pushing them to spread in the homes of ordinary people.

New products for ZX Spectrum: Next Launcher & ZX Retro Wireless

by David La Monaca

Two great new products for the old and new fans of the ZX Spectrum world come from Richard Szerman, a Londoner, retrostuff-lover, IT system engineer and creator of a software utility called Next Launcher and a hardware device named ZX Retro Wireless. The first is a software tool specifically designed for the Spectrum Next (the new ZX Spectrum clone based on FPGA technology), which is able to present at its launch a convenient and simple interface to start applications and games. The other is a new hardware device for all the ZX Spectrum models, both the original and the Next. ZX Retro Wireless allows you to load the entire software catalogue of the PlayZX and ZXTape apps or from PC via wireless interface. It also connects your machine to a Bluetooth sound box that can play game sounds, music, and sound effects in a higher quality than the computer speaker. But let's proceed gradually and see in detail the specifications and the features of the two products.

Next Launcher

This program was designed by Richard specifically for the Next and works as a programmable software interface to launch applications and games previously loaded on the microSD card of the computer in the classic compatible formats. You can think of Next Launcher as a desktop front-end that includes additional settings and features to save you time in normal game launching and loading operations. The menu of commands and functions made available by Next Launcher will radically change your retrogaming experience, quickly forgetting the long process to find your favourite games or apps you love the most on Next.

Version 9.0 is the latest available and allows the use of 20 pages of programs, with 15 slots per page, for a total of 300 customizable options to categorize games, application utilities and documents. The launcher supports several extensions including TAP, NEX, BAS, SNA, Z80, SNX, TZX, DOC, ASM, etc. Each page can have its own name, a graphic background, a colour scheme and a font that can be selected from the dozens of those compatible. There are already preloaded backgrounds to choose from, in order to customize the launch pages of the games and programs according to their nature: Space, Music, Games, Fractal, Cars, Robots, etc. The navigation of the menu and options pages is as simple as it appears. Just use the arrow keys or the 5, 6, 7, 8 keys or a joystick (Kempston mode) and Fire button or Enter key to start a game or application. More features available include turning WIFI on and off, adding a quick link to another page, changing a slot, changing the launch speed, changing the background, font, and colours.

The installation is also simple and fast and a special guide makes it almost immediate. The package to download (a total of 46MB) includes the Next Launcher program, well-made and easy-to-follow manuals and many utilities for those who like to manage the image files of games and applications for the Spectrum Next.

ZX Retro Wireless

As it often happens with modern devices designed for our beloved old back machines, everything is made very easy for the end user. And ZX Retro Wireless is no exception. Simply connect the device to the ZX Spectrum to make it automatically active and available with its many functions, including providing a power button to the computer itself. The power supply of your ZX Spectrum 48K must be connected to ZX Retro Wireless and from this you go with the power cable that must be connected to the computer. A convenient button on the device will allow you to turn the Spectrum on and off. The other two cables of the device must be connected to the AUX socket and the MIC/EAR socket respectively.

The device keeps being updated by Richard and it is currently available in two versions, one for the original Sinclair ZX Spectrum 48K and the other for the Next. The main functions made available by ZX Retro Wireless, in addition to turning ON/OFF the computer, are loading programs in wireless mode and playing sounds through the Bluetooth speaker.

When it comes to loading games and programs, it currently supports the Android ZX Tape Player and PlayZX apps, the iOS ZX Tape via Testflight app, and PC apps called Tapir and Otla. Combined with these applications, ZX Retro Wireless basically converts itself into a convenient cassette player, even if only virtual. The ZX Tape and PlayZX apps also allow cassette files to be loaded at higher speeds than a regular recorder. The version for Next also supports the new release of Next Launcher and also allows the use of fast loading.

To use ZX Retro Wireless as a Bluetooth sound box, simply turn on the device and pair it with a laptop, smartphone or tablet. Once this is done, the device will turn the audio output to the ZX Retro Wireless speaker. Better make sure that the Bluetooth volume is at maximum to start using the apps mentioned above. From then on the Spectrum will see the ZX Retro Wireless interface as a cassette recorder and all related commands will run smoothly. The only caution when using Bluetooth wireless is to reset the volume of other audio sources because this could cause some delay during playback.

Conclusions

Last but not least, Richard's two nice projects are offered on the market with a peculiarity: part of the proceeds go to donations (in particular to a charity dedicated to research on Parkinson's disease). We at RMW are always curious to review modern devices that combine old machines with current technology and Richard Szerman's retro-projects are really interesting, surely worth considering and above all, well made. We therefore thank Richard for having contacted us and for having submitted his works to us. They shine with great passion and commitment. Well done, Richard!

References

Facebook group:
https://www.facebook.com/groups/nextlauncher

Android - ZX Tape player:
https://play.google.com/store/apps/details?id=com.tekdeq.zxtapeplayer
IOS - ZX Tape player via TestFlight:
https://testflight.apple.com/join/SaoGn65t
Android - PlayZX:
https://play.google.com/store/apps/details?id=com.baltazarstudios.playzxtapes
PC Windows - Tapir, Otla:
https://markfixesstuff.co.uk/sinclair-spectrum/load-software-into-a-real-spectrum-super-fastfrom-mp3-players-iphone-etc-using-otla

ZX Retro Wireless quick demo/review:
https://m.youtube.com/watch?v=mWDAiltOmk4&t=323s

The creative mind of Nintendo

by Takahiro Yoshioka and Carlo N. Del Mar Pirazzini

This time Takahiro managed to find him!

He managed to have a couple of minutes to ask some questions to the designer/genius/mind of Nintendo, the father of Super Mario, the saga of Zelda, Donkey Kong and a ton of other Nintendo brands.
Mr. Shigeru Miyamoto proved to be affable and kind and answered our friend's questions during a developer introduction call.
It is not impossible to interview him, but he's full of work and overloaded with commitments and therefore speed becomes essential.
We thank our collaborator, Nintendo and Mr. Miyamoto for their time.

TAKAHIRO: Thank you very much Master Miyamoto for this short interview, thank you for the time you dedicate to our magazine.

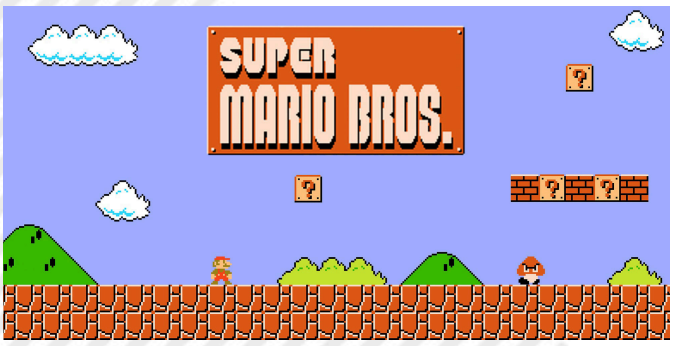
Miyamoto: Thank you. Greetings to Italy. Congratulations on the trophy! (Refers to the newly won European Championship, the interview was released on July 12. N/A).

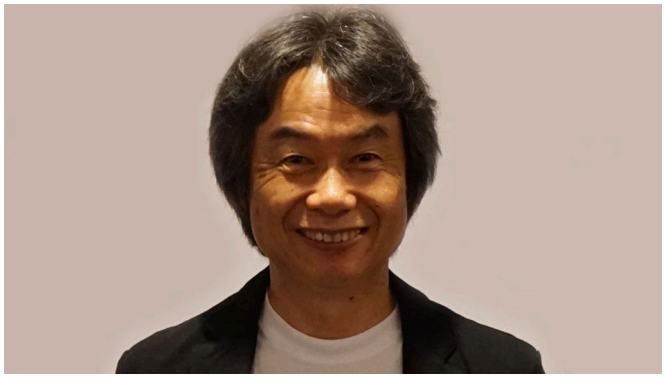
T. - What does it mean to make a Nintendo game special? How do you know when a game is good?

Shigeru Miyamoto: The trick is to entertain people with the game, but the real barometer and the initial indicator are whether or not I enjoy myself. Another thing is if "the difference", the uniqueness is maintained in the game Nintendo, compared to other products of other companies

T. – What do you mean by uniqueness? What distinguishes a great game from others?

Miyamoto: There could be several factors. The way you play rather than the techniques or technologies used. There's always a limited amount of things we can use, so it's how we use them and what combination to make the difference. Create and innovate instead of stunning with





simple graphics.
This becomes a bit of a conceptual discourse, but I think what's really important is that there's a core (in the game). And, based on this core, we use technology to develop the final product. This core can be a concept, a spark, and it's around this that we create. For me, developing video games is no different now from the past. Like when I developed the story behind Donkey Kong! In those years I had in mind a core on which to build the game. In 2021 I do the same thing.

T. – When I think about what distinguishes a Nintendo game, often the feeling I get is in the simplicity of the controls. This is how Mario jumps in Super Mario 64 or in the simplicity of the gameplay of the Zelda series. I feel a simplicity and intuitiveness that I can hardly find in other products. I suppose you can hear that, too. How important are in-game controls and how hard is it to make them feel good to the end user?

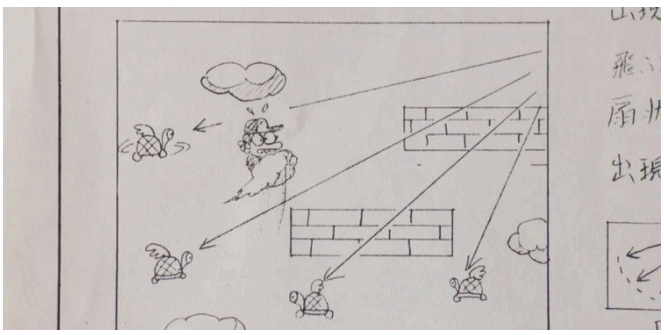
Miyamoto: You know, programming is all about numbers. The challenge is to get something from these numbers that is immediate and that can give the player a "feeling". So there's a lot of work for a programmer. It must go deep into the game and descend back and forth into the mechanics. He must, in short, have fun as the end user. That's why in many of our games you won't find any difference in the intuitive controls. If you play the old titles for Nes it will be all intuitive in the same way as the new titles for Switch. Even if you have implemented many more keys!!! AHAHAHAHAH!!!

It actually goes back to the way we designed the original Super Mario Bros.
Originally, there was neither Mario nor a person. It was just a block. And you pressed the button and watched the block move. There's actually a word in Japanese that describes what I'm talking about - the feeling - that there's not a word in English for. In Japanese, it's called tegotae. Tegotae is the word that describes when you talk about

that feeling of a Nintendo game and returns to the focus on the idea of pressing a button and what happens on the screen and how you feel.
This applies to the game system, the graphics on the screen and the music. Everything has to bring you back to a feeling. We play games like this.

T. – This feeling ties us very much to the theme of retrogaming. A phenomenon that grows a lot all over the world. Retro players often look for the sensation and not the graphics. Master, what do you think?

Miyamoto: Retrogaming isn't really retro and doesn't exist for me. Let me get this straight.
For us Japanese, playing video games is not sectoral in times. If a game gives me "Tegotae" it doesn't matter if it's 1980 or 2021. That's why we still love our old products and for example you can find a ton of NES and SUPER FAMICOM titles on the Switch store. The game is not retro but it is a game that brings emotions, regardless of its era. I follow very closely the independent developers and those who try with great capacity on systems of the 80s or 90s. They are people who have understood the phenomenon of sensation and who develop out of love and play. Bravo!
I think the retrogamer really looks for that feeling of immersion in the game and not only in a beautiful graphics and an infinite series of movies. Look for that primary "core" on which the game is built. He often does it out of nostalgia and often because that is his way of conceiving and playing the game.
We at Nintendo care about this type of research and in our products (but also overseeing third-party products) we still put the push to build on the game.



T. – What non-Nintendo games would you like to create?

Miyamoto: I admired every product game where I saw people working to give the final player a long-lasting product that would bring fun. A lot of admiration for the Sonic Team, for Master Fukio Mitsuji who taught us all so much. I cannot fail to mention Master Iwatani, absolute pioneer in this world. I would also like to quote Master Gunpei Yokoi. Absolute innovator for Nintendo. An unforgettable person. He was my supervisor in the development of Donkey Kong and urged me to look more and more when I was developing with him. I owe him a lot.

T. – Thank you Maestro for the time given to Retromagazine for the interview. Thank you also for all the hours of play that has given us in these 40 years of development.

Miyamoto: Thank you for accepting me in your pages. On the other hand, I thank every single enthusiast for the hours spent on the products we have created. We are grateful.

Graphs of functions in Visual Basic for DOS

by Francesco Fiorentini

A couple of numbers ago we tested the latest version of DOSBox, with the promise that we would deal more with DOS software in the future. The occasion was presented by scrolling through the magazines of MC Micro and Personal Computer (very well known italian magazine) that you can find at this address:
http://www.mc-online.it/.

Unfortunately, since a few days it is no longer possible to access the scanning of entire magazines, but it is always possible to view the scans of the articles whose authors have kindly granted the release, which fortunately are many.

Scrolling through the index looking for an inspiration for my next contribution to RetroMagazine World, I came across an article by Francesco Petroni published on page 83 of issue 37, entitled "Graphics without ... input":
http://www.digitanto.it/mc-online/PDF/Articoli/037_083_088_0.pdf

The article, like all those published in MC, is very interesting and deserves to be read in depth, so I recommend you retrieve it as soon as possible.
In the article there are several lists, but one that immediately attracts my attention is that of figure 6 on page 85, entitled Sampling of surfaces in Space. Being a listing for IBM PC, I have the idea to try it with DOSBox and GW-BASIC.
Despite the relative brevity of the code, I opt for character recognition and subsequent corrections instead of typing everything directly.

I enclose here the code in copyable format, to facilitate anyone who wants to reproduce the result on their PC:

```
100 REM Campionario di Superfici nello Spazio
110 GOSUB 470:SCREEN 1:COLOR 1,0:CLS:S=2
120 TH=.3:S1=SIN(TH):C1=COS(TH):PH=.
4:S2=SIN(PH):C2=COS(PH)
130 REM loop principale
140 FOR Q=1 TO 10:GOSUB 290
150 REM meridiant
160 FOR Y=-20 TO 20 STEP S:FL=0:FOR X=-20 TO 20
STEP S
170 ON Q GOSUB
340,350,360,370,380,390,400,410,420,430
180 GOSUB 270:IF FL=0 THEN FL=1:PSET (SX,SY)
190 LINE -(SX,SY):NEXT X:NEXT Y
200 REM parallels
210 FOR X=-20 TO 20 STEP S :FL=0:FOR Y=-20 TO 20
STEP S
220 ON Q GOSUB
340,350,360,370,380,390,400,410,420,430
230 GOSUB 270:IF FL=0 THEN FL=1:PSET (SX,SY)
240 LINE -(SX,SY):NEXT Y:NEXT X:NEXT Q
250 GOSUB 440:END
260 REM-routine
270 REM da tridim. a bidim.
280 SX=X1*C1-Y1*C2:SY=X1*S1+Y1*S2+Z1:RETURN
290 REM pulizia schermo e tracciamento riferimenti
300 PRINT CHR$(7)
310 I$=INKEY$:IF I$="" THEN 310
320 CLS:WINDOW(-10,-6)-(10,6):LINE (-10,-6)-
(10,6),2,BF
322 LOCATE 2,2:PRINT Q:RETURN
330 REM funzioni
340 X1=X/5:Y1=Y/5:Z1=(1-COS(X1))*(1-COS(Y1))-
3:RETURN
350  X1=X/6:Y1=Y/6:Z1=.4*COS(X1*X1+Y1*Y1):RETURN
360 X1=X/4:Y1=Y/4:Z1=EXP(.02*(X1*X1+Y1*Y1))-
3:RETURN
370 X1=X/4:Y1=Y/4:Z1=.02*((X1*Y1*Y1)-
(Y1*X1*X1)):RETURN
380 X1=X/4:Y1=Y/4:Z1=.02*((X1*Y1*Y1)+
(Y1*X1*X1)):RETURN
390 X1=X/4:Y1=Y/4:Z1=3*SIN(X1/2)*SIN(Y1/3):RETURN
400 X1=X/4:Y1=Y/4:K=(1-X1*X1/5-
Y1*Y1/7):Z1=SQR(2*K*(SGN(K)+1)):RETURN
410 X1=X/6:Y1=Y/6:Z1=.02*SQR(X*X*Y*Y/2)-3:RETURN
420 X1=X/5:Y1=Y/5:Z1=(1-SIN(1.8*X1))*(1-
COS(1.2*Y1))-2:RETURN
```

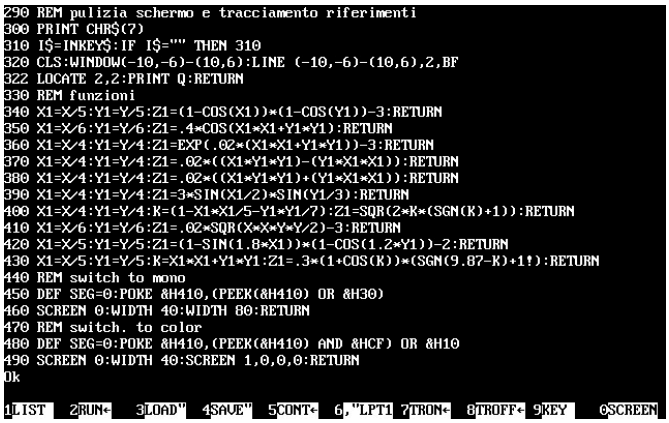


Fig. 1 - GW-BASIC environment

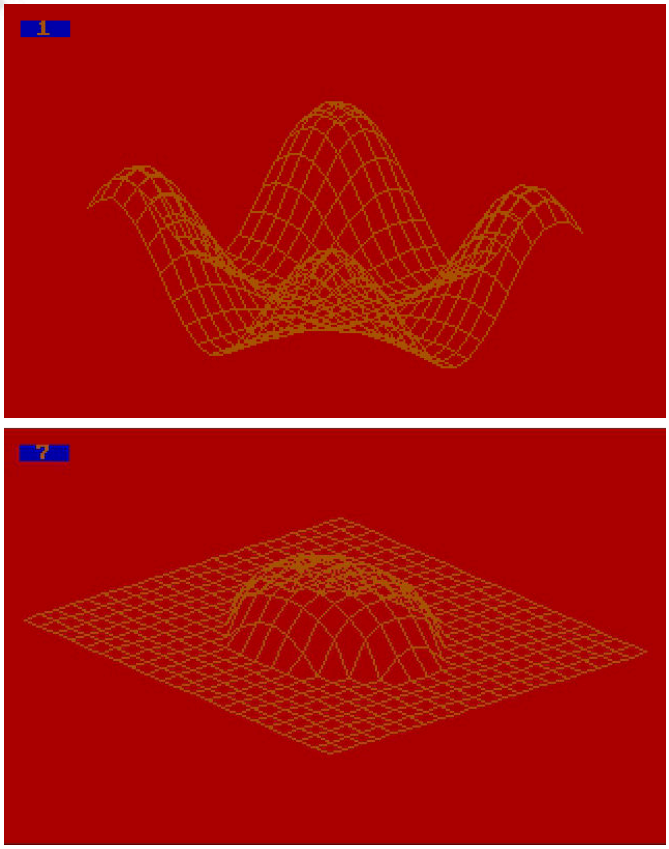


Fig. 2 and Fig. 3 - The program running with two of the functions drawn

```
430 X1=X/5:Y1=Y/5:K=X1*X1+Y1*Y1:Z1=.
3*(1+COS(K))*(SGN(9.87-K)+1.):RETURN
440 REM switch to mono
450 DEF SEG=0:POKE &H410,(PEEK(&H410) OR &H30)
460 SCREEN 0:WIDTH 40:WIDTH 80:RETURN
470 REM switch. to color
480 DEF SEG=0:POKE &H410,(PEEK(&H410) AND &HCF)
OR &H10
490 SCREEN 0:WIDTH 40:SCREEN 1,0,0,0:RETURN
```

Ah, of course you will need the GW-Basic that is not included in DOSBox, but can be easily downloaded from:*https://winworldpc.com/product/gw-basic/3x

Once downloaded, unpack the file with 7Zip and open the .img file contained therein, always with 7Zip. GW-Basic consists of only one executable file, so you can copy it wherever you want in a directory accessible from the DOSBox and then just run it to enter its development environment.
Likewise, save the code attached above in a text file, with extension .BAS, and put it in the same directory as the GW-Basic.

At this point, from the GW-Basic environment, run the command:
LOAD "filename.BAS
to load the file in memory.
To see the list, just type the LIST command and to run it, a simple RUN.
The program quickly draws graphics and it is a pleasure to see how a few lines of code can transform complex functions into similar three-dimensional images. See Figures 2 and 3.

At this point, however, curiosity has taken over and, remembering that in another previous article I had talked about Visual Basic for DOS, I wondered: will I be able to convert this short program and run it in that environment? There was only one way to find out. Find the VB DOS, install it and adapt this code... I had my article! :-)

Let's download Visual Basic for DOS, also available on winworldpc:
https://winworldpc.com/product/microsoft-visual-bas/10-for-dos

As with GW-Basic, just copy the contents of the two disk images contained in the compressed file, in a folder accessible from the DOSBox, but unlike the older ancestor, in this case we also need to install the software.

The procedure is relatively simple and there is no need to describe it step by step. I still enclose a couple of sample screens to point you in the right direction.

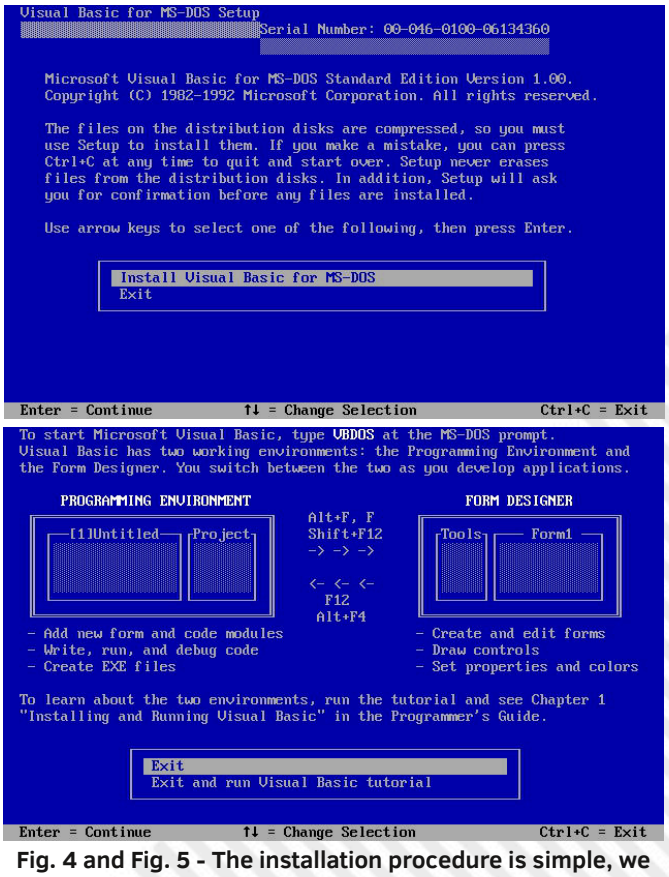


Fig. 4 and Fig. 5 - The installation procedure is simple, we just have to choose the directories to use.

Once the installation is complete, a tutorial automatically starts, explaining how to navigate Visual Basic menus. The tutorial is very well done, but I would not have expected anything different; on the other hand, the Microsoft products of the 90s were accompanied by good quality tutorials and manuals. I suggest you take a look at it, especially if you have no idea how to get around with VB.

Fig.6 - VBDOS splash screen

Now let's move into the directory where we installed our version of Visual Basic and run the VBDOS command to start the Rapid Application Development (RAD) environment that will allow us to edit our programs.

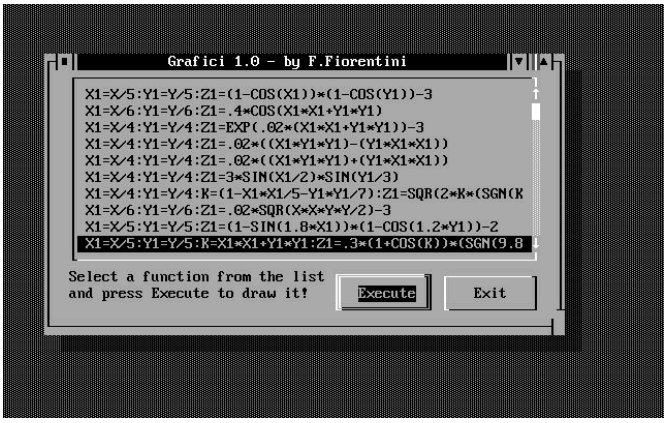


Fig.7 - How our Form looks like and how, if you want, you could draw it to reproduce the example

Personally it was the first time I saw Visual Basic for DOS, but if, like me, you are familiar with any later version of this development environment, you will not find it difficult to navigate through the various menus and start programming rather quickly.

The idea I had in mind was to create a simple Form, with a Listbox that contains all the functions proposed by the original program and, once pressed the execution button, draw the chosen function.

I then created a form, with a listbox in the center, a label (containing only the on-screen instructions) and two buttons (commandbox), see Fig. 7.

One of the two buttons is used to end the program; see the code contained in the **Quit_Click()** procedure. Quit is the name of the button, Click is the event that invokes the code.

The other button is the real heart of the program. Obviously the logic has remained the same of the original program, but everything has been adapted to draw only one function at a time, that is, the one selected from the listbox: **GrList.Listindex** returns the line number of the selected listbox (starting from 0).

Note the call to the **screen.HIDE** function, this is used to hide the forms of the running VB and redirect the output of the screen to the SCREEN version set (in my case SCREEN 2). Once the program is finished, to display the VB form again and proceed with the selection of a new graph, simply invoke the screen.SHOW function. Logic would tell me to use these functions in the completely reverse way, but I didn't program VB...

At this point our program is almost ready, only the routine to load the functions in the listbox is missing. Obviously this must be completed before the Form appears to the user. The event that allows us to fulfill this task is obviously the Load event of the Form. See **form_load()** code.
The function to populate the list is: **GrList.ADDITEM**.

Here is the full VB code:

```
SUB Form_Load ()
GrList.ADDITEM  "X1=X/5:Y1=Y/5:Z1=(1-COS(X1))*(1-
COS(Y1))-3"
GrList.ADDITEM "X1=X/6:Y1=Y/6:Z1=.
4*COS(X1*X1+Y1*Y1)"
GrList.ADDITEM "X1=X/4:Y1=Y/4:Z1=EXP(.
02*(X1*X1+Y1*Y1))-3"
GrList.ADDITEM "X1=X/4:Y1=Y/4:Z1=.02*((X1*Y1*Y1)-
(Y1*X1*X1))"
GrList.ADDITEM "X1=X/4:Y1=Y/4:Z1=.02*((X1*Y1*Y1)+
(Y1*X1*X1))"
GrList.ADDITEM "X1=X/4:Y1=Y/
4:Z1=3*SIN(X1/2)*SIN(Y1/3)"
GrList.ADDITEM "X1=X/4:Y1=Y/4:K=(1-X1*X1/5-
Y1*Y1/7):Z1=SQR(2*K*(SGN(K)+1))"
GrList.ADDITEM "X1=X/6:Y1=Y/6:Z1=.02*SQR(X*X*Y*Y/
2)-3"
GrList.ADDITEM "X1=X/5:Y1=Y/5:Z1=(1-
SIN(1.8*X1))*(1-COS(1.2*Y1))-2"
GrList.ADDITEM  "X1=X/5:Y1=Y/5:K=X1*X1+Y1*Y1:Z1=.
3*(1+COS(K))*(SGN(9.87-K)+1!)"
END SUB
```

```
-----------------------------------------
SUB Execute_Click ()
'Hide the form
screen.HIDE

'Draw the selected function
SCREEN 2: CLS : S = 1.5
GOSUB Screen_setting

TH = .3: S1 = SIN(TH): C1 = COS(TH): PH = .4: S2
= SIN(PH): C2 = COS(PH)
FOR Y = -20 TO 20 STEP S: FL = 0: FOR X = -20 TO
20 STEP S
    GOSUB DrawGraph
    IF FL = 0 THEN FL = 1: PSET (SX, SY)
    LINE -(SX, SY): NEXT X: NEXT Y

FOR X = -20 TO 20 STEP S: FL = 0: FOR Y = -20 TO
20 STEP S
    GOSUB DrawGraph
    IF FL = 0 THEN FL = 1: PSET (SX, SY)
    LINE -(SX, SY): NEXT Y: NEXT X

'Return to the Form
SCREEN 0
WIDTH 80, 25
screen.SHOW
EXIT SUB

DrawGraph:
SELECT CASE GrList.Listindex
CASE 0
    X1=X/5:Y1=Y/5:Z1=(1-COS(X1))*(1-COS(Y1))-3
CASE 1
    X1=X/6:Y1=Y/6:Z1=.4*COS(X1*X1+Y1*Y1)
CASE 2
    X1=X/4:Y1=Y/4:Z1=EXP(.02*(X1*X1+Y1*Y1))-3
CASE 3
    X1=X/4:Y1=Y/4:Z1=.02*((X1*Y1*Y1)-(Y1*X1*X1))
CASE 4
    X1=X/4:Y1=Y/4:Z1=.02*((X1*Y1*Y1)+(Y1*X1*X1))
CASE 5
    X1=X/4:Y1=Y/4:Z1=3*SIN(X1/2)*SIN(Y1/3)
CASE 6
    X1=X/4:Y1=Y/4:K=(1-X1*X1/5-
Y1*Y1/7):Z1=SQR(2*K*(SGN(K)+1))
CASE 7
    X1=X/6:Y1=Y/6:Z1=.02*SQR(X*X*Y*Y/2)-3
CASE 8
    X1=X/5:Y1=Y/5:Z1=(1-SIN(1.8*X1))*(1-
COS(1.2*Y1))-2
CASE 9
    X1=X/5:Y1=Y/5:K=X1*X1+Y1*Y1:Z1=.
3*(1+COS(K))*(SGN(9.87-K)+1!)
CASE ELSE
    X1=5:Y1=Y+X:K=X1*Y1
END SELECT
SX=X1*C1-Y1*C2:SY=X1*S1+Y1*S2+Z1
RETURN

Screen_setting:
CLS : WINDOW (-10, -6)-(10, 6)
LOCATE 2, 2: RETURN
END SUB

-----------------------------------------

SUB Quit_Click ()
END
END SUB
```

A simple program, but that is useful to understand what were the potentialities of the VBDOS. At least from the point of view of development of graphical interfaces within the DOS environment.

See you, then, in the next issue of RMW.

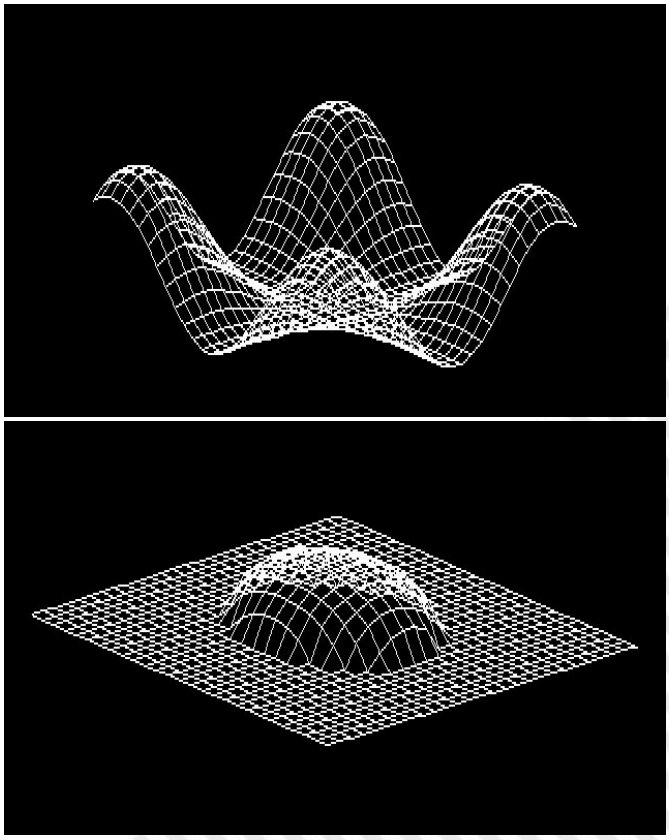


Fig.8 - Examples of graphs drawn by VBDOS

PI, MONTE CARLO AND RANDOM NUMBERS

by Marco Pistorio

INTRODUCTION

Hello, everyone. I finally am back to writing a few pages, dear friends/retro-fan readers :)

All of you will surely know Pi, the number that expresses the relationship between the perimeter of a circle and its diameter, also a number which humanity always talked about since the ancient times. Among its properties, Pi is an irrational number, that is, it cannot be written as a quotient of two integers. It's also a transcendent number, that is, it is not an algebraic number. It is therefore impossible to express Pi using a finite number of integers, fractions and their roots.

For those who would like to learn more, here is a link to start with:

https://en.wikipedia.org/wiki/Pi

Pi is already available as a reserved constant in every Commodore BASIC. However, today I will talk about an interesting and simple method to be able to calculate it, with good approximation, using a few lines of Commodore BASIC V2 code.

Suppose you want to determine the surface area of a circle.
We draw a square on a sheet of paper and calculate the side with a ruler.
We determine the area of this square, multiplying the measure of its side by itself.
Then, inside this square, we draw a circle.
After that, let's fill the whole area of this square with a certain number of points, completely arbitrarily, at random.
Many of these points will fall inside the circle. Of course, other points will be outside the circle.
We can calculate the ratio of the number of points that fell inside the circle compared to the total number of points that were plotted.
Then we multiply that ratio by the area of the square.
The result we get will be approximately equal to the actual area of the circle.
This estimate will be closer to the exact value of the circle are if we increase the number of points plotted inside the square.
Similarly to the above, we could determine, with good approximation, the area of the surface of a nation, say Italy, reproduced within a geographical map, whose dimensions of the latter are immediately determinable.
This is called the "Monte Carlo Method" and it proves to be a robust technique that can be applied in many problems.

For those who want to learn more about it, here is the link to its Wikipedia page:

https://en.wikipedia.org/wiki/Monte_Carlo_method

APPLICATION OF THE MONTE CARLO METHOD FOR THE CALCULATION OF PI

Let's imagine that our square has a unit size, i.e. 1.
Inside, we draw NOT a complete circle, but a quarter of a circle, whose radius will coincide with the side of the square, so its measure is also 1.

Now, we know that the area of a circle is calculated as: **Radius x Radius x Pi**.

Let us remember, however, that within the square we have drawn only a quarter of a circle.
Its area will therefore be:
Radius x Radius x Pi / 4

The area of the square is, of course: **Side x Side**.

Using the "Monte Carlo Method", we will obtain an estimate of the value of the area of this quarter of a circle compared to that of the total area of the square.
I mean, an estimate of the ratio:
(Radius x Radius x Pi / 4) / (Side x Side)

But radius, in our drawing, equals the size of a square side. The ratio then becomes:
(Side x Side x PI / 4) / (Side x Side)

Simplifying, whatever the value of side is, the relationship between the two areas will simply become:
PI / 4

So let's summarize the above steps.

• We draw a square of unitary size
• Inside this square we draw a quarter of a circle. The radius of this quarter circle will coincide with the side of the square.

• We determine the relationship between the two areas, that is, the relationship between the area of the quarter circle and the area of the square that contains it, using the "Monte Carlo Method".
• As the number of points considered increases, the ratio we will obtain will be closer to the PI/4 value.

CODE AT A GLANCE

How do you get a random point, with coordinates (X,Y) whose value of each coordinate is between 0 and 1?
In BASIC V2 here's how you do it:

10 XP=rnd(1)
20 YP=Rnd(1)

How can we tell if this point is inside or outside our quarter circle?
It is demonstrated that all points with coordinates (X,Y) lying on a circumference must satisfy the following equation:

(X-Xc)^2 + (Y-Yc)^2 = r^2

where Xc and Yc are the coordinates of the center of the circle and r is its radius.

Keeping in mind our construction, we match the center of the circle with the point of coordinates (0,0) and, since the radius is 1, the formula becomes simply:

X^2+Y^2=1

or:

X^2=1-Y^2

which can also be written as:
X=sqr(1-Y^2)

The "Monte Carlo Method" at work (Simons' Basic)

If a point of coordinates (X,Y) then lies on our segment of circumference, its coordinates (X,Y) MUST respect the equation just stated.

By fixing one of the two coordinates, Y for example, and replacing X and Y with XP and YP (i.e. the coordinates of our random point), and keeping in mind our construction, which avoids us from also taking negative sign coordinates into consideration, we can say that:
• if XP > sqr(1-YP ^2) the point lies outside the circumference arc;
• if XP = sqr(1-YP^2) the point lies exactly on our circumference arc;
• if XP < sqr(1-YP ^2) the point lies within the circumference arc.

Dear readers, greetings to you all. See you next time!

LISTING IN BASIC V2 - NO GRAPHICS

```
10 ci=0:rem contatore punti interni
20 nm=1000: rem numero punti totali
30 for pp=0 to nm
40 xp=rnd(1)
50 yp=rnd(1)
60 if xp<=sqr(1-yp*yp) then ci=ci+1
70 next
80 print "pigreco (approssimato)=";
(4*ci/pp)
90 end
```

LISTING IN SIMON'S BASIC - WITH GRAPHICS

```
110 colour0,0:poke646,11
120 ra=60:cx=160:cy=100
130 def fn x1(y)=sqr(ra*ra-y*y)
140 :
150 hires1,0
160 rec cx,cy-ra,ra,ra,1
170 :
180 for y=0 to ra step .1
190 plot cx+fn x1(y),cy-y,1
200 next
210 :
220 x=ra*rnd(1)
230 y=ra*rnd(1)
240 plot x+cx,cy-y,1
250 x1=fn x1(y)
260 if x<=x1 then c1=c1+1
270 c2=c2+1
275 pg=4*(c1/c2)
280 text 30,30,"pi:"+str$(pg),1,1,8
290 for dl=0 to 1000:next dl
300 text 30,30,"pi:"+str$(pg),0,1,8
310 goto 220
```

APOLOGIZE FOR THE INTERRUPT DEAR 6510... - part 1

by Attilio Capuozzo – Founder of "RetroProgramming Italia – RP Italia" and Antonio Savona – GameCoder & DemoCoder C64

We begin our journey in the Interrupt of the C64, a world that is both complex and fascinating, whose control allows us to implement interesting programming techniques for the graphic and sound skills of the "commie", provided that we use the Assembly language.

In the 8-bit Commodore, the Interrupt is essentially an Interrupt request addressed to the CPU, the 6510 microprocessor.

The Interrupt request can be of the Hardware type, that is, through an electrical signal sent to the CPU or of the Software type as generated by an Assembly statement.

The 2 types of Interrupt Hardware are the IRQ, acronym for Interrupt Request, and NMI which stands for Non Maskable Interrupt.
The Interrupt Software is the BRK Interrupt produced by the Assembly instruction of the same name.

At the request of Interrupt, the 6510 responds by concluding the instruction in Machine Code that it is executing at that precise moment to then process a predefined task that serves to appropriately manage the aforementioned Interrupt Request.
At the end of the so-called Interrupt Service Routine, the CPU will once again execute the instruction in ML (Machine Language or Machine Code) following the one processed at the time the Interrupt occurred.
The Task performed from 6510 against an Interrupt Request, varies fundamentally depending on the type of Interrupt, IRQ or NMI.

We will see later how to create our Routines in Assembly that can be called upon the occurrence of an Interrupt Request; these Routines represent the true strength of a Programmer.

In Fig. 1 we report the Sources that in the C64 can generate

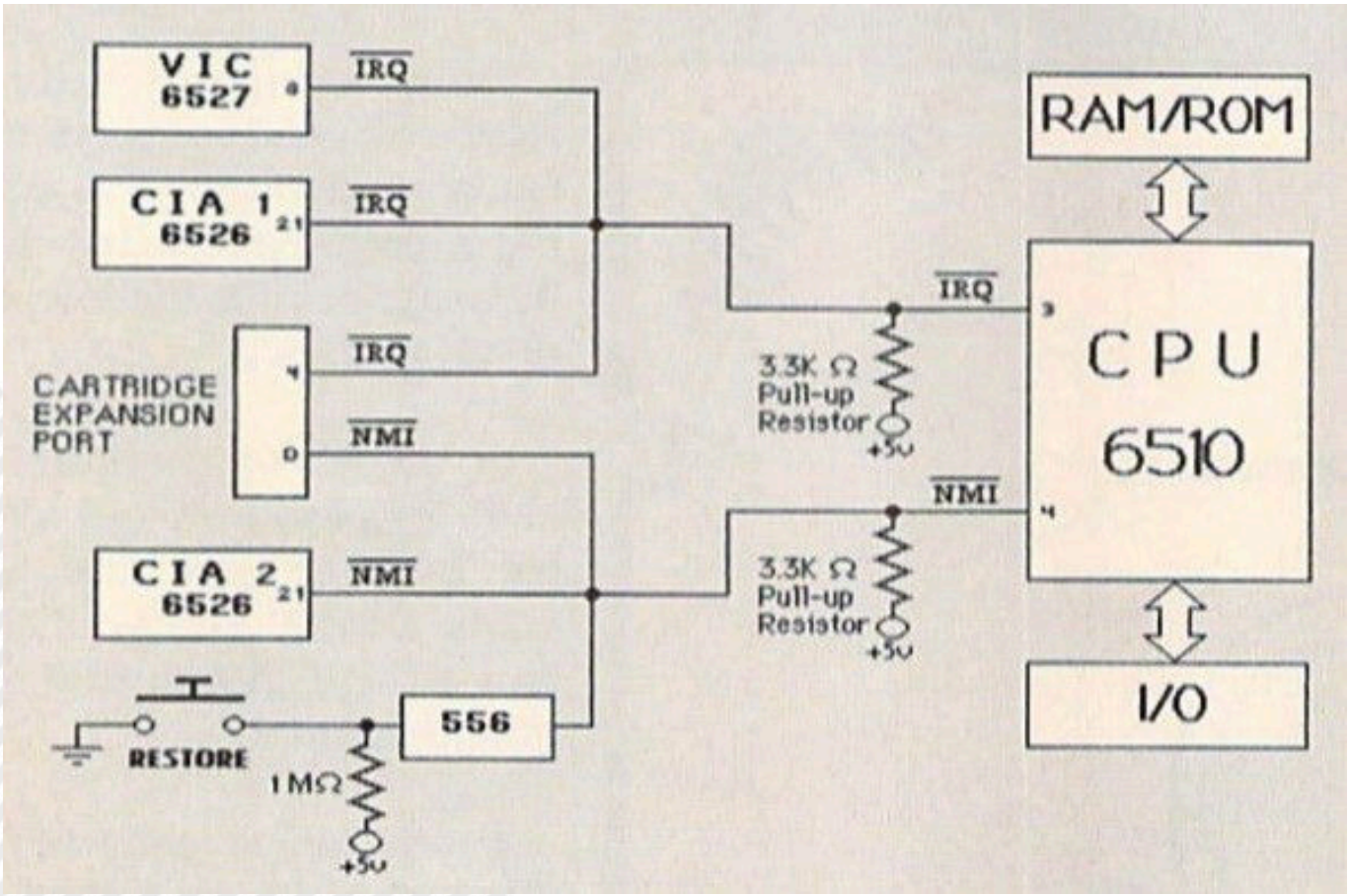


Fig. 1 - Sources of Hardware Interrupt Requests to the 6510 CPU in the Commodore 64

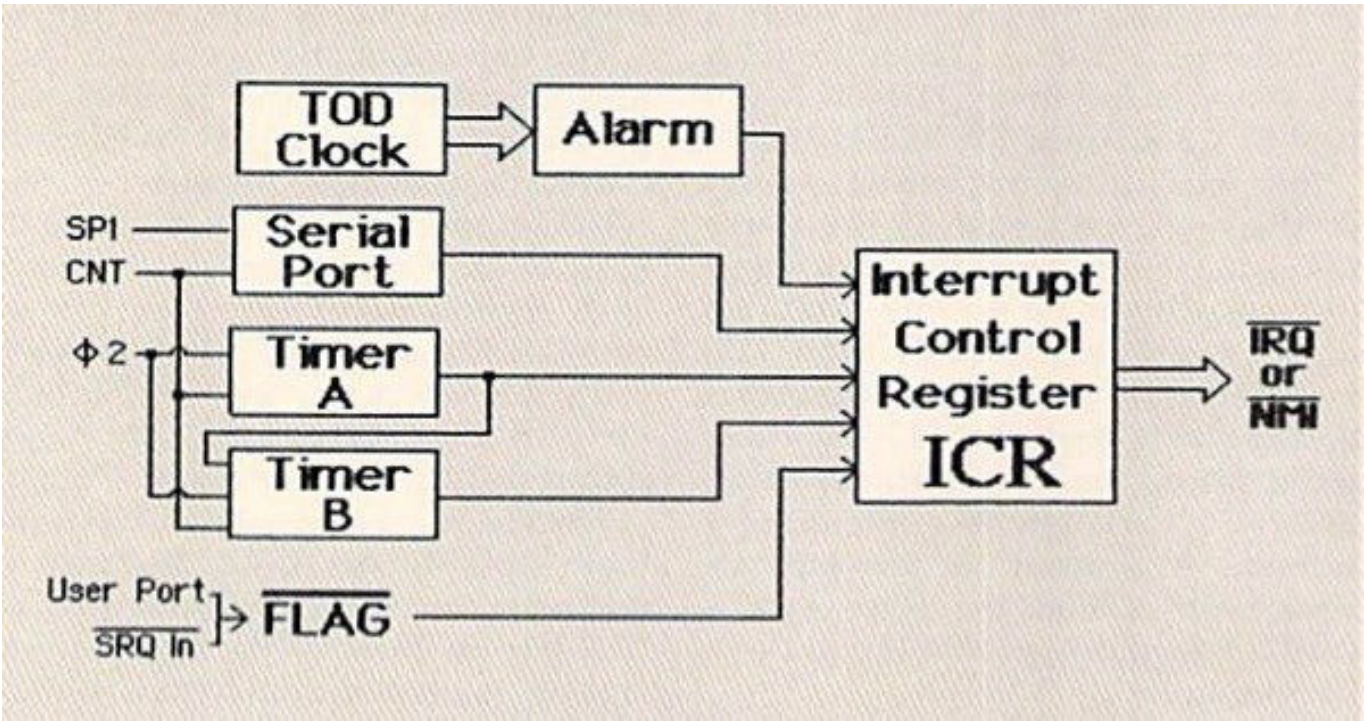


Fig. 2 - Detail of possible Sources of the 2 CIA chips

Interrupt Hardware Requests to the 6510 CPU.

From the diagram in Fig. 1 it is highlighted that Requests for an Interrupted IRQ can generally come from:
A) From one of the 4 GPU Sources of the C64 i.e. the VIC – II Graphic Chip (or more simply VIC)
B) From one of the 5 CIA Sources 1 acronym for Complex Interface Adapter
The NMI Interrupt Request can instead come from:
A) From one of the 5 CIA Sources 2
B) From the RESTORE button
C) From a ROM Cartridge inserted in the Expansion Port

We report in Fig.2 the detail of the possible Sources of the 2 CIA chips bearing in mind that the aforementioned Chips - assigned to the interview with the I/O devices - differ substantially for the Interrupt Line to which they are connected: the CIA 1 to the IRQ Line and the CIA 2 to the NMI Line.

The 2 Timers (Timer A and Timer B) are 16-bit (2-byte) counters that count down from a starting value, called a LATCH VALUE, to 0.
When they count to 0 (or rather, when an underflow condition occurs, that is, when a value less than 0 is reached), the Timers generate an Interrupt Request.
CIA 1 Timer A, in particular, is set by default to generate every 1/60 according to an Interrupt Request.

The Interrupt Request of the Timer A triggers an Interrupt IRQ thanks to which - for 60 times per second - a Routine fundamental for the proper functioning of the C64 Operating System is performed.

This Routine also deals with:
A) Scan the Keyboard
B) Update the Jiffy Clock, that is the C64 Software Clock (Zero Page Locations from $A0 to $A2) on which the Reserved Variables (of the BASIC V2) TI and TI$are based
C) Manage Cursor Blinking

Let's remember briefly that the Jiffy Clock counts the number of Jiffies (i.e. sixty-second) that have passed since the power on of the C64.
Next time we will analyze the sequence of operations performed upon the occurrence of both an IRQ and an Interrupt NMI.

That's all folks!

You can reach the group
RetroProgramming Italia - RP Italia:
https://www.facebook.com/groups/retroprogramming/

An introduction to Acorn Electron

by Gianluca Girelli

As readers will already know, there are basically two machines that I love: the first, and most important for what it was for me in the 1980s, is the Commodore C128; the second, for what it allowed me to do later, is the Amiga 2000.

Although in the last twelve or thirteen years my world has revolved around the Amiga systems called "next-gen" (mainly AmigaOS4.1, but also MorphOS and AROS), my heart continues to beat at 8 bits, which is why, more and more, I am returning to the old processors: among all, the 6502 and its derivatives.

I've been trying to get my hands on an old Acorn Electron for a long time. This wonderful machine, probably a bit snubbed in its time in Southern Europe despite being the third most widespread in Great Britain, continues to give great satisfaction to its fans: its "simple" architecture, thanks to the abundant availability of documentation, is also within the reach of the novice; the capabilities of its graphics instead, although apparently less powerful than that of the competition, still manage to create truly spectacular effects, as we will see in this first article.

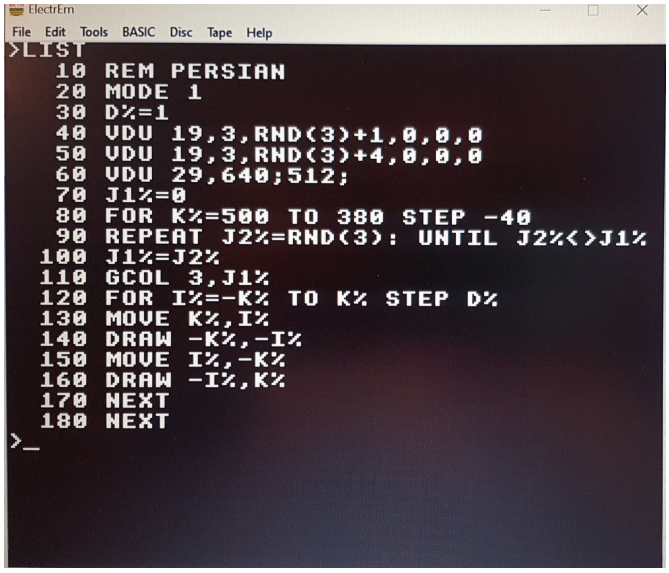
Unlike Commodore systems, for example, which have a maximum resolution of 320x200 pixels (or 160x200, in Hi-Res mode) in graphic mode and, usually, a text mode of 40 columns by 25 rows, the Acorn has 7 different modes that arrive for text up to a maximum of 80 columns by 32 rows, and up to 640x256 pixels for the graphic screen. Although the number of colors available is always very limited (only 2 in the case of maximum resolution), the way they are handled allows you to achieve wonderful visual effects.

Mode	No of characters	No of graphics pixels	No of colours	Memory used
0	80 × 32	640 × 256	2	20K
1	40 × 32	320 × 256	4	20K
2	20 × 32	160 × 256	16	20K
3	80 × 25	(text only)	2	16K
4	40 × 32	320 × 256	2	10K
5	20 × 32	160 × 256	4	10K
6	40 × 25	(text only)	2	8K

Not yet having, as mentioned at the beginning, a physical machine, I went looking for an emulator on which to move the first steps. I found two: the first is "Elkulator", a terrible name that brings to mind the exploits of a popular Italian movie star... alternative; the second is "Electrem", a persuasive title that tastes of serene afternoons of the 80s based on watching on TV Japanese cartoons and eating chocolate spreads.

Easy irony aside, the two emulators are as spartan as they are easy to use: they do not require any particular set-up and, after having downloaded and unpacked them, it is enough to double click on the executable to enter directly into the emulated environment. Forget complex (though very powerful) suites like those for the development on the C64 (we talked about it on the first issues of RMW): here we start immediately with a black screen and a command prompt.

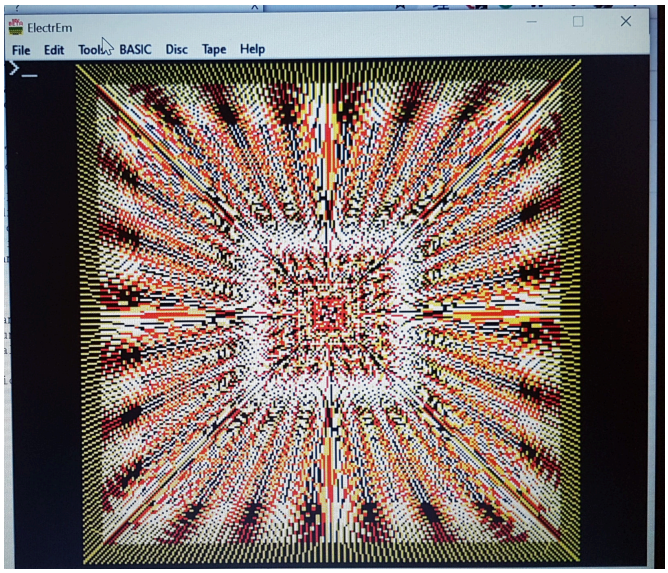
We will analyze in the near future the options provided by these two emulators as well as the basic characteristics of Electron; for this first article we will simply see an example of graphic programming. To execute it, simply type the text in the emulator and, at the end, impart the

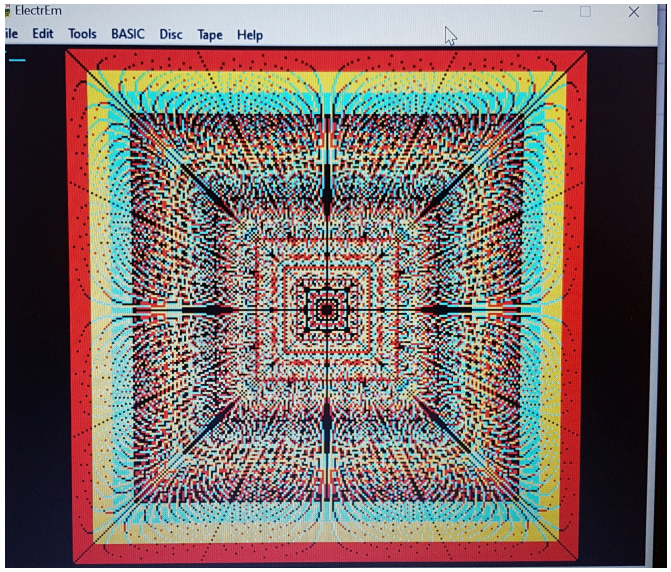


traditional "RUN".

As a first example, I chose a program shown in the user manual. This algorithm, called "Persian", creates a colorful pattern reminiscent of a rug. I chose this small program to highlight the difference in approach between Commodore and Acorn.
Released in 1983 and therefore the same time as the C64, Electron could boast a BASIC much more advanced than the competitor from the point of view of primitive graphics and, although in fact it had only 8 colors (plus another 8 in "flashing" mode), it could manage four different at the same time in 320x256 pixels mode, instead of the 3 (plus the background) of the C64/C128 which in hi-res mode were however limited to a resolution of only 160 x 200 pixels, as we have already seen in previous tutorials (see RMW nos. 21 and 30).

"Persian" draws hundreds of lines that, starting from the center, reach the edges of the screen. After it is completely saturated, the color is changed and the lines are drawn again. This alternation composes a texture where the colors blend with each other to create very pleasant textures, as can be seen in the photos attached to the article.





Below is the full text of the program. I advise you to "play" a little with it, changing the value of the variable "D%" in line 30. We will explore the individual commands in the near future, with particular reference to the "VDU" directive which has a very similar behavior to the "PRINT CHR$" sequences of Commodore systems.

```
10 REM PERSIAN
20 MODE 1
30 D%=4
40 VDU 19,3,RND(3)+1,0,0,0
50 VDU 19,3,RND(3)+4,0,0,0
60 VDU 29,640;512;
70 J1%=0
80 FOR K%=500 TO 380 STEP -40
90 REPEAT J2%=RND(3): UNTIL J2%<>J1%
100 J1%=J2%
110 GCOL 3,J1%
120 FOR I%=-K% TO K% STEP D%
130 MOVE K%,I%
140 DRAW -K%,-I%
150 MOVE I%,-K%
160 DRAW -I%,K%
170 NEXT
180 NEXT
```

In the next paper we will go into more detail of this wonderful machine retracing a little history, analyzing the memory maps and the ease of use as well as some of the most significant graphic features.

See you, then, in the next issue of RMW.

Useful links:

http://elkulator.acornelectron.co.uk/index.html
http://electrem.emuunlim.com/index.html
http://www.stairwaytohell.com/
http://www.acornelectron.co.uk/

Norma Lijtmaer, the lioness of Computing

by Alberto Apostolo

Argentina is not only home to great sports champions such as Diego Armando Maradona.

On the pages of RetromagazineWorld we have the privilege of remembering Norma Lijtmaer (Fig.1) who was a pioneer of computer science in Argentina and Latin America, a researcher and university professor in Italy (in Pisa).

In 1985 she contributed to the creation of the Escuela Superior Latinoamericana de Informática (ESLAI), an institute created to train high-level researchers in the IT sector.

Norma Lijtmaer was born on August 2, 1937. Her family had various origins: Lithuania, Russia, Switzerland and Netherlands.

At the end of the 1950s, she began his studies in Electronic Engineering at the Faculty of Engineering of the University of Buenos Aires (UBA). She was one of the 2 or 3 girls enrolled in Engineering and one of the few people who knew how to program. During this period she was a member of the Communist Youth Federation.

Later, in the 1960s, she began to devote himself to programming at the Instituto Nacional de Reaseguros.

She had previously completed a course at IBM that had given her her first knowledge in the field.

Thus in 1964, she decided to leave Engineering to devote himself fully to the study of programming.

Manuel Imaz (classmate at the Facultad de Ciencias Exactas y Naturales in Buenos Aires) remembers her as a very active, enthusiastic, dynamic woman who wanted to be a protagonist in everything she did.

At that time in Argentina there were only four computers installed (one IBM, one Type and two Univac). In 1959, the mathematician Manuel Sadosky (1914-2005, Fig.2) bought the "Clementina" (a version of the British computer Ferranti Mercury, Fig.3) in order to establish the foundations of computer science in Argentina. In 1962 the Instituto de Cálculo (of which Sadosky was director) was created. The first university courses of Calculation were born (until then taught by computer manufacturers).

In 1966 Norma Lijtmaer became an IBM systems analyst. She deepened his knowledge of Operating Systems and programming languages, working with IBM/360 and IBM 1401 computers. She also studied the GPSs (General Purpose Simulation System) language, which provided the basis for her future courses in Italy.

On June 28, 1966, Argentina suffered the coup d 'état of

Fig.1 [Sil19]

Fig.2 Manuel Sadosky with his wife Cora Eloisa and daughter Cora Susana (1940-2010), who in turn became a mathematician and university professor (Google)

General Onganía. Although academic autonomy was regulated by a 1918 reform, on July 29, 1966 ("Noche de los Bastones Largos") the Argentine Federal Police raided several university faculties in Buenos Aires, beating several Argentine and foreign professors.

As a protest, thousands of professors resigned. Norma Lijtmaer also resigned from her university position.

IBM, being aligned with the new regime, fired Norma

Lijtmaer. However, it offered her a good liquidation and a job in any other Latin American country.

Norma Lijtmaer chose to take refuge in Italy and, with a letter of recommendation written by Manuel Sadosky, obtained a scholarship at the University of Pisa, starting to work at the CNUCE (Centro Nazionale Universitario di Calcolo Elettronico = National University Centre for Electronic Computing).

Later she worked at the CNR in Pisa and then at the Laben in Milan (collaborating in the realization of the Laben 70 computer operating system under the direction of Roberto Galimberti).

In 1968 he met Ugo Montanari (born 1943, researcher and then professor at the University of Pisa, Fig.4) whom she married in 1972.

Having changed the political conditions in Argentina, Norma Lijtmaer returned on 14 December 1983. On Christmas 1983 he met Manuel Sadosky again.

A decree of President Alfonsín in April 1984 started the creation of the Comisión Nacional de Informática to rebuild the IT sector. Sadosky became Secretary of Science and Technique of this commission.

Under these auspices, Escuela Superior Latinoamericana de Informática (ESLAI) was established in 1985 .

The school was located in the main house of Parque Pereira Iraola about forty kilometers from Buenos Aires (Fig.5). In the admission competition for the thirty places assigned each year, a thousand students from all over Latin America participated. It was a great effort by Norma Lijtmaer (helped by her husband) to plan and organize the structure. She defined it as "la niña de sus desvelos" (the light of her sleepless nights). ESLAI remained active from 1986 to 1990 (when it was closed by the Menem government). During this period, many high-level researchers and professionals were trained.

Another important assignment for Norma Lijtmaer was, from 1979 to 1985, the Cnet Project Management (Campus Net) as part of a larger project of the CNR for the development of local networks in collaboration with Olivetti. Until reaching retirement in 2002, he continued his work at IEI (Istituto di Elaborazione dell'Informazione = Institute of Information Processing) and the University of Pisa.

Fig.3 (Google)

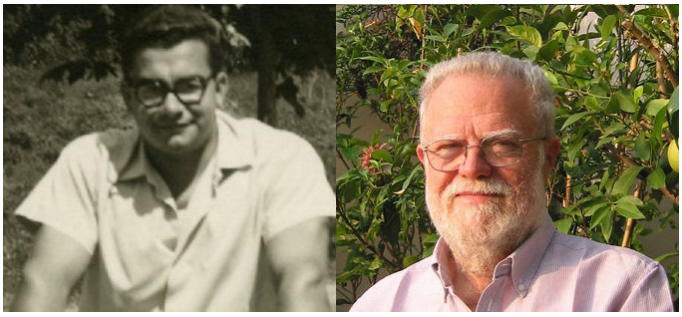


Fig.4 (Google)

Fig.5 (Google)

After a long and painful illness, Norma Lijtmaer died in Pisa on August 5, 2004.

Her unattainable career demonstrates what she has always been: a fighter in her values as a person and a worker, with a mentality and a team sense that has changed her life for all the people she has met and crossed [Sil19].

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Japan 17th episode: Nintendo G&W against everyone

by Michele Ugolini

Is Nintendo such a powerful company that it can declare war at the same time on all its competitors? Is the big "N" declaring war on all the Clouds scattered around the world that host its pirated ROMS?
A company that has had humble origins, producing playing cards of the famous Hanafuda, can really scream loudly and be heard throughout the terrestrial video game universe?
Can a tiny object like a G&W, climb to the top of sales, surpassing its own clones, emulators, simulators, including the new Gig Tiger and close relatives, up to the new mini and micro arcade cabins?
Obviously there is no unambiguous answer. We will discuss the situation along the endless path of a company that in the West, unfortunately, we appreciate incredibly less than a giant like PlayStation. Is anyone going to win? Obviously, victory in Japan is the result of intrinsic mechanisms, where national glory is the point of arrival for any sector with competition within that environment. From them the single never wins: in Japan Japan must win.
Are we all ready for big news?
Did you like Super Mario's G&W?
Are you a Zelda fan?

Well, recently Nintendo announced that, to celebrate the 35th anniversary of the birth of Zelda's wonderful saga, it will produce a G&W in her honor!

Inside this collector's item we will find: the first The Legend of Zelda, Zelda II: the Adventure of Link and The Legend of Zelda Link's Awakening for GameBoy.
In addition, in a similar way to the juggler Super Mario, we will find Link as the subject of this fun remake of G&W: Ball.
There will also be some easter eggs that we will probably be able to observe in some function related to the watch.
It seems that this jewel has already been programmed and produced, at least in limited quantities for Nintendo company staff. In fact, Eiji Aonuma, in the 2021 E3 Nintendo Direct, before showing the public the gameplay of Zelda's sequel Breath of the Wild, showed everyone this Zelda G&W, taking it out of his "magical pocket".

Remember that the G&Ws were born just to get out of the pocket of a typical Japanese businessman's shirt. These toys had above all to be perfectly camouflageable: the company willingly accepted a calculator in the pocket of a rampant business man, but did not accept a toy! It can be camouflaged in your hands , on the street and especially on the metro, or by train, when returning from work. It had to be easily reinserted into the famous pocket just to be hidden by the hypothetical visual arrow (of outrage) during the passage of the ticket controller. "Pfui! A businessman who uses a toy! Unacceptable!", the official would have thought, expressing a mocking smile over the head of the businessman.

Figura 1

That explains why, even this G&W, came out of the famous pocket. The Japanese follow very precise rituals, so the G&W have now become a far-sighted fashion of a revered and glorious past: all in line with their philosophical thinking.
The release is scheduled for November 12, the price is yet to be revealed, but it is supposed to be similar to the recent G&W of Super Mario, around €50.
We hope that in this version the battery will be removable, otherwise we will have to seriously prepare to compromise seals and internal components, to save these small jewels from the future functional exhaustion of the battery.

In addition to this fantastic news, here is another one of great importance: the success of the return of R-Type.
Nizakashii, as a good independent developer, has recreated with the peculiarities of G&W, the iconic R-Type, precisely the scene of the clash with the first famous alien enemy.
This porting, if you will, was named R&WATCH DOBTOPUS.
https://nizakashii.itch.io/rwatch
Obviously there is no physical version of this unofficial IREM R-Type. We can only play via the link via browser.
The good news is that the game is free and is enjoying great success. A remarkable praise to the everlasting R-Type that saw the recent release of R-Type Final 2 on several platforms, including the Ps4.

We talked about Nintendo, Sony Playstation, G&W, Super Mario, Zelda, it seems incredible but the Japanese are a population of inventiveness (and reinvention) both fluid and fluent. He did not sit and watch even the staff of NeoGeo or Sega, much less Taito!

Do you remember the NeoGeoMini phenomenon in the past?
Do you remember the recent Sega Astro City Mini phenomenon that sold discreetly in Japan and that did not arrive at all, officially, in the West?

The following were present in this mini cabinet:
36 classic Sega titles, belonging to the company's arcade catalogue:

Announced on 3 September:
Alex Kidd with Stella: The Lost Stars , Arabian Fight , Flicky , My Hero , Puyo Puyo Tsu , Quartet 2 , Rad Mobile , Scramble Spirits , Sega Ninja , Sonic Boom , Space Harrier , Stack Columns , Thunder Force AC.

Announced August 20: Bonanza Bros. , Columns , Cotton , Crack Down , Cyber Police ESWAT , Puyo Puyo , Puzzle & Action: Ichidant-R, Gain Ground , Shadow Dancer , Shinobi , Wonder Boy , Wonder Boy in Monster Land , Wonder Boy III: Monster Lair.

Announced July 7: Alien Syndrome , Alien Storm , Altered Beast , Columns II: The Voyage Through Time , Dark Edge , Fantasy Zone , Golden Axe , Golden Axe: The Revenge of Death Adder , Puzzle & Action: Tant-R , Virtua Fighter.

This time it's Taito's turn.
A new mini cabinet is really coming and it will be called Egret 2. It will contain 40 games and will be equipped with trackball, spinners, several buttons and a joystick with a structure finally related to a promising use.
The Egret II Mini is a precise reproduction of Taito's arcade coin-op.
The machine in question was originally launched in 1996 by Taito, as a standard device able to

Figura 2

accommodate the various classic titles of the company's catalog: from the origins as Space Invaders of 1978 to arcade games of the 90s.
A selection of these will be featured in the Egret II Mini with 40 games, an additional 10 will be sold separately for a total of 50. Let's imagine that there will be machine upgrades. Among the peculiar features of the Egret II Mini there is the possibility to physically rotate the screen to position it vertically, so we can fully enjoy the gameplay of different titles such as Space Invaders and other shooters. There will be an additional dashboard equipped with trackball and, drum roller, a beloved potentiometer, which can be used on other classic games developed through this type of control, for example Cametry and Arkanoid.

At the moment, the first part of the revealed games is listed in the following list:
Space Invaders , Lunar Rescue , Qix , Elevator Action , Chack'n Pop , Bubble Bobble , Rastan Saga , Rainbow Islands Extra , New Zealand Story , Don Doko Don , Violence Fight , Cadash , Liquid Kids , Metal Black , Kaiser Knuckle.

Other specific games will be added that will use paddles and trackballs, probably included in an SD Card bundled with the additional controller: Strike Bowling , Arkanoid , Plump Pop , Syvalion , Cameltry , Arkanoid Returns.

We are in a historical moment where nostalgia frequently influences the decisions of our lives: we live in a situation of historical uncertainty and the memory of a more serene past gives us an illusory daily peace. That's why we're seeing remakes of titles from just 5 or 10 years ago, and then remastered remakes and who knows what we'll see later!

We also remember that, in Japan, the social element of cabinets enjoys a deep and intimate sphere within daily life. In the rest of the world, however, the romantic passion of the cabins has gradually disappeared, kept alive in our garages and in some game rooms resistant to the modern blows inflicted by slot machines.
This explains the birth, indeed the rebirth of Egret2. A small memory of a great object related to a recent and glorious past. A miniature cabinet that faithfully resembles the original, marketed in the 1990s, including the ability of the screen to rotate a 5-inch LCD display.
A minicab with 40 great integrated games. Significantly improved dashboard proportions compared to other ridiculous mini-micro-nano consoles badly emulated in the past.

The connectivity of Egret II Mini also defends itself well: it is equipped with a USB-C port, two USB-A ports, an SD slot, a 3.5 mm headphone jack, an HDMI socket so you can connect it to a TV or an external monitor.
Taito will also sell three optional controllers that we all loved in the games of the 80s: a potentiometer and a trackball.

This little jewel was announced nine months in advance and the prices are commensurate with the nostalgia effect as well as the size of the components, this time there seems to be a good dose of plastic (hopefully also of electronics). Egret II Mini will be launched in Japan on March 2, 2022 will cost the European equivalent of 140 euros, while the controllers will cost approximately 90 (trackball), 65 (arcade stick) and 24 euros (classic pad).
Studies of Japanese marketing have probably already foreseen limited series, deluxe, exclusive, bundle, etc.

At the moment it is known that you can buy a bundle that includes everything and also includes some extras such as CDs with the soundtracks of the games for the modest amount of 32,978 yen (246€).

We do not know the European fate of this mini-cabinet. Is there a sale in the West? Will only the greedy and voracious domestic demand for these niche products be satisfied? Let us remember that the Japanese often and willingly have little interest in satisfying us Western collectors: they just need the internal market, faithful, cadenced, imperishable, curious and slave to this system as I have explained several times in the past articles.

This is all dear readers, at least until the next article. We will collect new data and analysis about this delicate battlefield where it seems there are no rules and the motive of such actions is obviously animated by evil nostalgia. See you soon!

EnigmA Story: the bar boy

by Michele Iurillo

When I see an Amiga, even today there is a contrast of emotions: nostalgia, pride, the memory of the first steps (The famous book published by our publishing house “Amiga Primi Passi'' has been lost in one of the movings).

Everything comes from the chance as the most beautiful stories, from a schoolmate who convinces me to go to the Newel of MacMahon (that of Rho will arrive years later) (Newel Newell was a computer and video game store in a city near Milan, ndN) and take home a beautiful Amiga 1000. I had hastily sold my PC 286 with two 5-inch floppies used to make compilations in Ansi Cobol for school, and turning on the Amiga was like entering another dimension.

I still remember my father approaching me and saying, "but this is smaller and costs more..." and reassuring him with the colors, the juggler and especially the command SAY "Meekele". In those days the world was pure piracy, there were no games even to search them, at most some compilers like Lattice "C" and everything was done in AmigaBasic.

We used to own a bar with my parents in Viale Montenero, and among the customers of the morning there was always a strange American guy: **Maverick Greissing** who was the first editor and director of the magazine. He was taking the cappuccino and the juice, which makes me disgusted even today. But it was his badge. I had just returned from the military and the only girls I saw were the one at Centerfold Strip Poker, not that I was a wanker but I spent a lot of time at home programming and reading MC Microcomputers, copying listings... Things we all did. Then one day my father heard the American and another gentleman talking about computers and trying to do a favor and place his son... he said the famous phrase.. "even my son has a computer... I think AMIGO…” After about two hours I entered the EnigmA editorial office with a tray, two cappuccinos and two coffees. The FTE office was in via Sassoferrato 2 150 meters from our BAR.

From there began a wonderful story of over 10 years in which I covered all the roles of a delivery man with 6000 diskettes on my panda, bagger of 5" floppy for the magazine PC Library, scribbler, photographer, subscription officer, handyman boy, editor, deputy editor, editor-in-chief, editor-in-chief, editorial director...

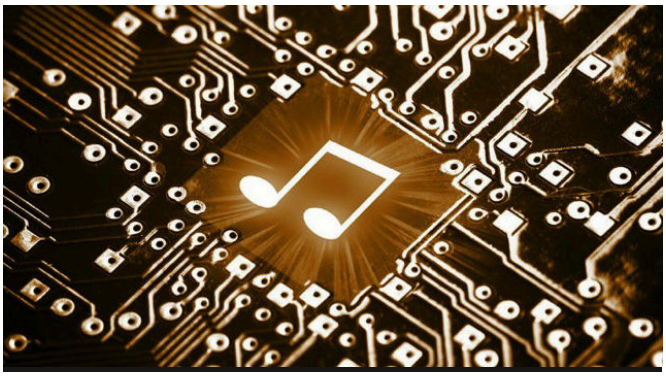
In short, a classic career case that if you have the pleasure of following in the next episodes will reveal a lot of other things...

There will be plenty of vintage photos: authentic heirlooms... Which I still keep jealously.

VIDEOGAMES? THEY SOUND GOOD!

by Mic The Biker Novarina

The editorial in issue 29 of Retromagazine World (RMW# 07-EN) gave me a lot of thought.
We often limit ourselves to giving more emphasis to the graphics sector than to other less obvious aspects of a game, we relay the other senses, which are involved in a game session, in the background. But there is one that in my opinion is fundamental but that we often do not take into account. Imagine for a moment your favorite video game. Now turn off the audio. Do you realize how important that is? Now let's go back a little bit to the early 1970s. From here we will leave for our curious journey to discover "chip music".



In 1972, Atari released Pong: the history of video games officially begins. Primitive graphics and sound that, when present, was limited to a buzz here and there. However, you have to wait until 1975 to have the first jingle: the game Gun Fight is released and it is the first to present itself with opening music obtained from a specific chip. The author is Tomohiro Nishikado and thanks to him, in 1978, we have the first soundtrack in game: we are talking about Space Invaders, which presented a line composed of four bass tones repeated in loops that increased in intensity according to the approach of the enemies.

In 1980 two historical titles for the audio evolution in game made their appearance: Namco's Rally-X, which presents a real melodic soundtrack in game, and Sunsoft's Stratovox, which was the first game to present a vocal synthesis. At this point I make a proper clarification: in those years the audio programming capabilities were often limited, not all programmers had notions or musical rudiments. The same gaming machines were almost ridiculous: just think that an Atari 2600, the most common system at the time, could play at most two notes at a time! But a new generation of microchips was coming on both home gaming machines and arcade booths. The Yamaha with the YM series and the General Instrument with its AYs brought performance to unthinkable levels until a short time before making it possible to play up to eight channels together. Unknown figures are beginning to be born, namely the people dedicated to audio programming, the wizards of chip music.

One of the pioneers of the genre was the Japanese (yes, she was a woman, which was unthinkable here at the time) Yuriko Keino. In 1982 he did something for the game Dig Dug never heard: a soundtrack that stopped when the player stopped digging. At the same time, the use of sampled sounds was increasing and even more important was the introduction of FM synthesis, pulled out of the cylinder by Yamaha with the successful FM chipset series. To sum up in a few words what they could do is not simple. Let's say that while before a type of sound generated was closely linked to the chip that produced it, with the FM series the tones could be manipulated so as to create different sound characteristics with the same chip. Two real composers of soundtracks were pioneers in the field: Miki Higashino and Horoshi Kawaguchi.

Konami sensed the abilities of the first in the mid-1980s and from his mind came the music of giants such as Gradius, Ye ar Kung fu and Salamander. Hiroshi Kawaguchi, on the other hand, was hired by Sega in 1984 and is still one of the oldest still active chip music composers. He was perhaps the first to realize that audio and gameplay must go hand in hand and in fact he worked closely with game designers to literally sew the music in to the game. The result is history: he signed the soundtracks for Hang On, Space Harrier, Enduro Racer, After Burner, Dinamyte Dux and Power Drift. Lastly, I leave the trio of the best known songs, namely those of Out Run, still today the subject of remakes and remixes of all kinds.

At the same time, obviously with the right proportions, domestic systems also grew rapidly. The Colecovision, in 1982, had gone on the four channels but it was in 1983 that a leap of historical importance was made with the arrival of the Famicom, acronym of Family Computer, here known as Nintendo Entertainment System. This machine was equipped with five channels: four classics and one dedicated to basic pulse code modulation, or PCM. As we are now noticing, the audio section is of great importance. Take for example an arcade: Bubble Bobble from 1986. An absolute masterpiece of its kind. In fact, a game that

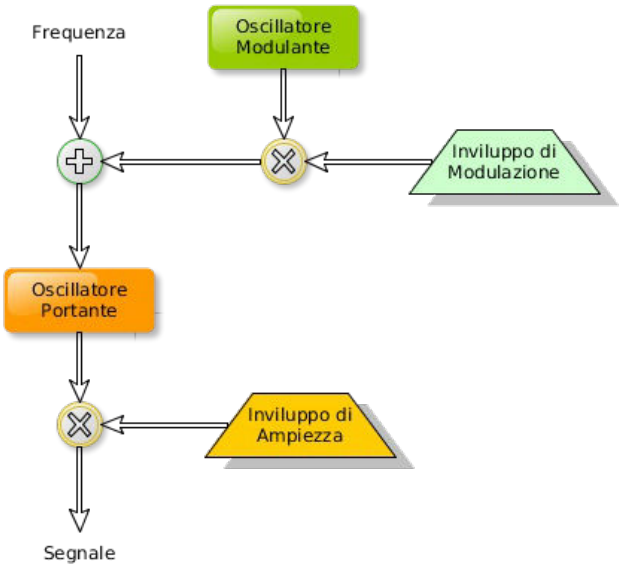


Fig. 1 - FM Sinth

has created a standard! Well, practically everyone is now imagining the two dragons descending into the first painting. Meanwhile in your head has also started the historical music, perfectly functional to the game. It is a serene music, it could not better accompany the continuation of the levels. But beware: if time presses the music accelerates, putting on you anxiety, haste, a sense of urgency.

Immediately understand that the difference between a beautiful game and a masterpiece is here. Music changes your strategy, your approach. The various music are then combined with the sound effects, just to give a greater immersion to the player. The effects now help to create the virtual scene we are playing, trying to replicate a certain natural sound. A set of good FX sounds throws the player into the action, it can increase the heartbeat as it can even alienate him from the reality around him.

Arcade games and consoles were expanding globally, everyone wanted video games but this craving in some countries had a name: Atari shock. In 1983 a historic recession began due to the saturation of the market of the time; we also add a rather low average level of outgoing securities and the omelette is made. This fact was, however, the propellant for the home computer market, machines that at a lower cost promised better graphics and better sound. Among these home machines there was one that stood out (and split) more than the others. It was the Commodore 64. Equipped with exceptional overall qualities it was the only device capable of creating effects and audio filters, different types of waveforms and the bizarre ability to have on a fourth "dummy" channel the ability to reproduce 4-bit samples. And all this thanks to a dedicated chip that is still used to create music: the SID.

Ladies and gentlemen, the SID

Three channels could be synthesized, eight octaves and four waveforms could be reproduced for each channel, all from 16 to 4000 Hz. There were already fully programmable filters: high pass, low pass, band pass and notch. And one of his defects was exploited to have a kind of fourth channel. In the original chip set, the 6581, the volume change on one of the channels creates a noise called "pop".

The brilliant idea was to use this to create percussion sounds and synthesize the human voice. Now try to put yourself in the shoes, my included, of who uploaded Impossible Mission and found himself listening to the computer talk! If the game itself was already beautiful, the vocal parts made it literally immortal. This chipset saw the consecration of true masters in the creation of eight-bit music.

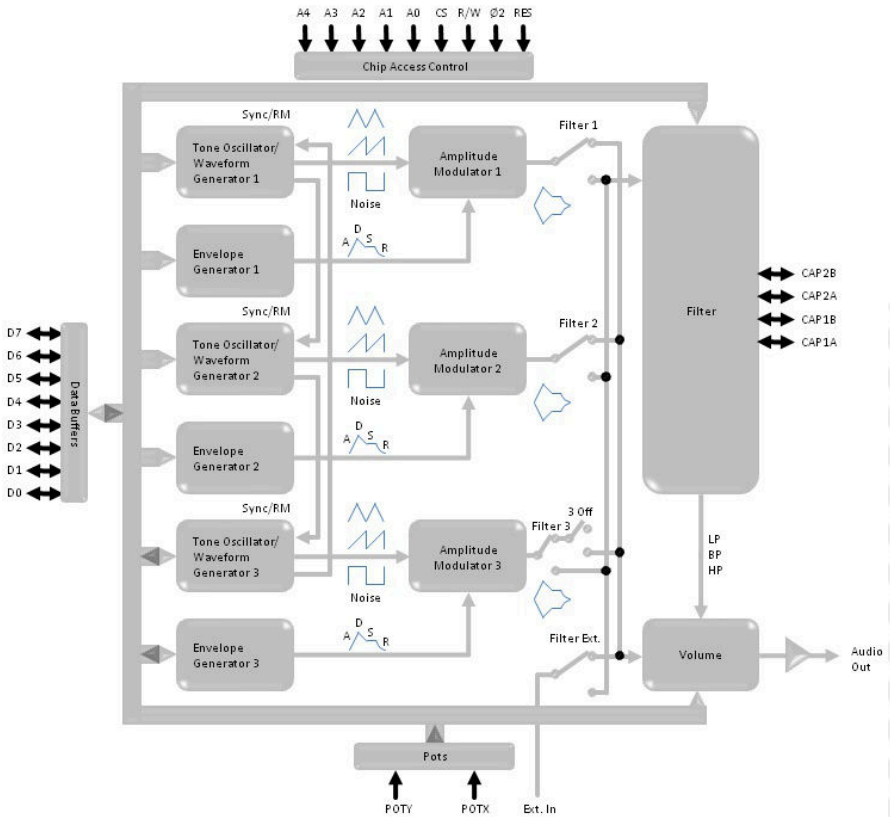


Fig. 2 - SID 6581 Datasheet

Perhaps the greatest exponent was Rob Hubbard, British composer and author of a multitude of songs, among which stand out those of Commando, Delta, Ik+ (the state of the art in making percussion emulate sid), Monty on the run and we remember with pleasure also Samantha Fox strip poker!

Another sacred monster is Martin Galway: he was the first to use samples on the c64 in the game Arkanoid. From his mind came other masterpieces of chip music such as Rambo's soundtrack, Wizball, Yie ar Kung Fu, which sees the masterful performance of the piece Les Chants Magnetiques by Jean Michelle Jarre.

I cannot fail to mention David Whittaker: he directly programmed the music into machine code and then assembled everything with programs he had prepared.

Jeroen Tel from the Netherlands was a real prodigy in the industry: during a chat on her YouTube channel I found out that when she wrote the fantastic Cybernoid song she was only 16 years old. For those who want to understand what phenomenon is advised to listen to the soundtrack of Robocop 3.
Last but not least, Ben Daglish, talented composer of the C64 era, died prematurely at the age of 52. His talent and creativity with the Commodore 64 SID chip have earned him the reputation of one of the best composers of soundtracks, music and video game jingles of our time, as well as participating in numerous live concerts dedicated to video game music. The list of his compositions is truly immense, crossing the entire golden period eight and sixteen bits, touching Atari St, Amstrad CPC and Amiga.

The Commodore 64 remains a revolutionary machine and if still today a hard core of chip music travels on the SID it is because of its uniqueness. I remember that in those years I had modified the plug that carried the signal from the c64 to the TV so that I could connect the audio to a "radiolone". In this way I pumped the music of the games and the masterful demos, but above all I recorded audio cassettes with my favorite music chips to listen to during the day.

The advent of 16 bits

The world was racing and with it a new generation of machines was being born: the era of 16 bits was beginning. Commodore launched the Amiga 1000 in the mid-1980s. Aesthetically it was very professional: flat desktop cases, keyboard and mouse. No monitor was provided as it could be connected to the TV. It was a computer with advanced features, far ahead of the competition: it had an operating system, a window system and was multitasking. Graphics and sound were almost futuristic. The times were not yet ripe for the bang but the car made a lot of talk about itself because a star like Andy Warhol used it a lot to create graphics. It will take a few years to see the explosion of 16 bit machines thanks to the launch of the new generation of consoles and the large-scale Commodore evolution with the Amiga 500.

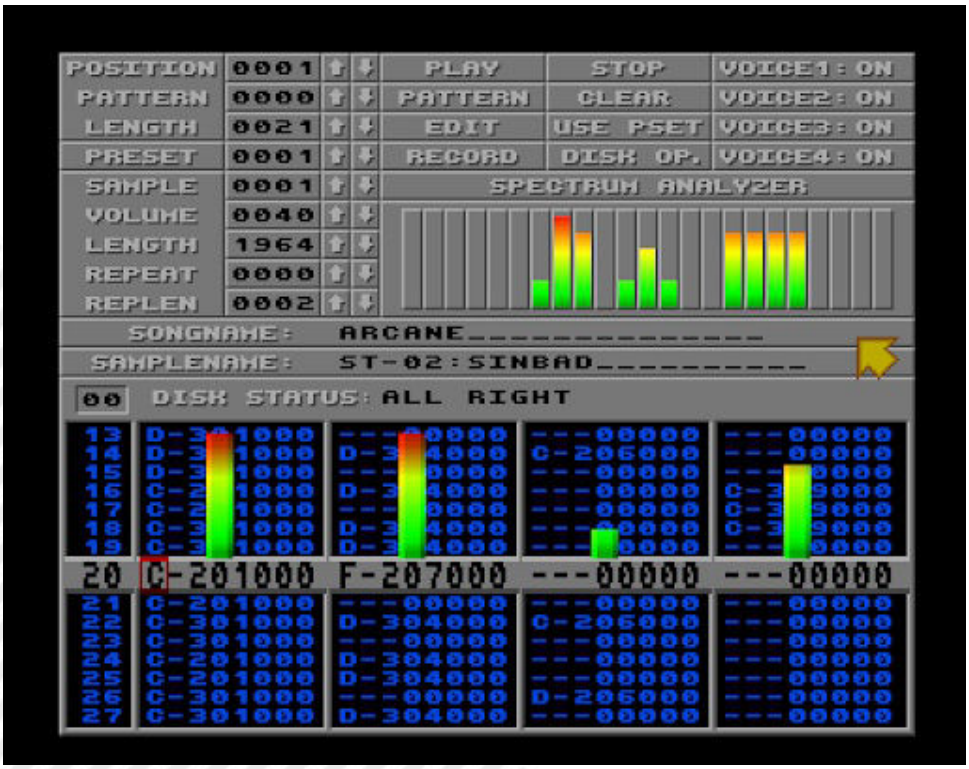


Fig. 3 - Amiga Soundtracker

Sega launched the MegaDrive, which, especially in its model 1 version, was very powerful: 6 FM stereo channels, plus two units for various backwards compatibilities, namely a 4-channel SN76489 programmable generator and a Z80. This hardware allowed him to go so far in audio quality that he could compose songs almost like House or Techno. The greatest exponent was surely Yuzo Koshiro who with his work in the Streets of Rage saga managed to enter the gotha of chip music. Today it still runs the most prestigious clubs in the world with its Digging in the Carts evenings, born a web series

on the Red Bull Music channels. Six episodes that since 2014 have wanted to pay homage to Japan, celebrating the pioneers of digital music. Hence the idea of a Dj set all based on music that made the history of video games.

Nintendo did not stand by and launched the Super Famicom (here called Super Nintendo). Wonderful console that focused everything on graphics and speed at the expense of the audio section, for which an eight-bit and eight-channel Sony chip was used: however, we must note the name of this giant for the near future, we will see the reason.

The glorification of the 16-bit music chips was achieved thanks to the Amiga 500 and Atari ST. Thelatter, despite being generally inferior and above all with an audio almost equivalent to that of a c64, had a convenient midi interface that made it very popular. In fact, it was the most used machine for the production of music through Sequencer and the support of excellent software.

The Commodore machine was more "friendly" than the 1000 model. Thanks to the chipsets the CPU was free to do its calculations without having the weight to handle the additional information, and such chipsets by the female names were in turn dedicated. The audio part was managed by Paula and provided 4 stereo channels divided into two channels on the right and two on the left. Each channel was 8-bit PCM and had a volume of 6 bits. Various channels could be modulated in many ways and audio samples could be given either via DMA or via CPU. The possible frequency with a DMA sample is about 29kHz and the audio output was incredible: Amiga had managed to take the concept of chip music to a higher level. Almost every user sooner or later found himself loading one of the many trackers around.

Whether it was the historic Soundtracker or the lesser-known Oktalyzer, sooner or later everyone started making music with Amiga. It was possible to sequence music without knowing a single musical note and this thanks to the infinite number of samples available.

In the arcade the situation was stabilized at very high levels. Almost all of them used the Yamaha YM2610 chip, capable of 15 channels: 7 digital, 4 synthesized FM, 3 free and programmable and one noise. You were living the golden age of video games that today are part of the category "retro". But progress knows no limits, while we were dreaming it was about to land a new generation of machines with almost unimaginable performance.

The 3DO, although not very successful, was the first NeXT level machine produced and could count on an audio never heard before, including dolby surround. Commodore was no longer in good water and tried the CD32' move to enter the console market. Unfortunately the machine was already obsolete, it was mostly a 1200 Amiga with CD player and died shortly thereafter.

Atari also tried this step, a return to the glories of the past with the Jaguar but it was a total failure. The real challenge glove was thrown by Sega with the Saturn, a machine as powerful as it was too difficult to program. It guaranteed a respectable audio section with 22 stereo channels. In the beginning the machine worked well in sales but Sony (right, the one that had supplied the audio chips for the SNES to Nintendo) decided to go out with the machine that is unanimously recognized as the creator of the death of the Arcade systems, that is the PlayStation. It is, in addition to the console that everyone knows, also a CD player, which made it more than just a game. It goes without saying that the audio quality was at the top: the games began to have as soundtrack the hits of famous bands. Take, for example, the first great tourism of 1998: pieces remixed by the Chemical Brothers, a song by Garbage and pieces by Cubanate just to name a few. The soundtracks more than samples and Synth now contained orchestral pieces, real bands that signed the audio part.

The music played by our microchip friends over the years has never lost its charm. We come to our times, where everything runs and is swallowed up in a very short time: today it is difficult to invent something new in this field, it is increasingly easier to find yourself facing a recovery, a recycling of ideas. But chip music and its tunes live and continue to be composed. You can listen peacefully with dedicated emulators or players, including Apps on smartphones.

There is a world that continues to grow, to be super creative and this is it! You never have to stop making your own chip music compilations and shooting them in the car: passion never dies.

DEMON CRYSTAL and KNITHER SPECIAL

by Ermanno Betori

When we talk about MSX1 and especially when we talk about RPG games created in Japan that made the most of the computer or that had an innovative storyboard, we can say that they can be counted on the fingertips... If we then speak specifically of games created from 1984 to 1990, the fingers become those of a hand. In fact, we have famous titles that will inspire sagas such as Hydlide, Dragonslayer, YS, Metal Gear and an unknown "Borfesu and Five Evil Spirits" that deserves a separate article.

But in addition to these sacred monsters there is a game DEMON CRYSTAL that stood out as it can be said that created a new kind of game... The Action-Puzzle-pseudo RPG.

It was made in 1986 by a Japanese company with the bizarre name YMCAT (or Dempa Micomsoft Co., LTD), which literally translates to "Yonago Micom Club Amusement Team". Barely 5 titles of this Japanese Software house have arrived in the West, but in Japan they have made more than 1000 since 1982 and have been very active since their last known work dates back to 2005. They started on 8-bit computers such as the Fujitsu FM-7/8, NEC PC88, Sharp X1/MZ1500, MSX 1&2 systems, and another dozen machines that never arrived in the West, while on the ARCADE booths they did only work on commission, mainly requested by the companies SEGA and SNK.

Demon Crystal was the first game for the MSX computer to be created by YMCAT in 1985/86, then followed by: Knither special, Sophia, Gate Labyrinth (another very nice RPG), and porting of famous arcade games essentially for the Japanese market such as Moon Patrol, Burger Time, Revival of Ishtar (MSX2). They also created Dragon Spirit (MSX2) without finishing it, which watching the

movies could be a great conversion.
https://www.youtube.com/watch?v=GbI-6R-v2NM

To program **DEMON CRYSTAL** were two programmers: TOSHIO TABETA co-producer or special programmer, of over 200 games created almost all for computers NEC, MSX, X68000, PC88 etc. including good arcade conversions such as Darius Alfa and Afterburner (PCE) , Dragon Knight2 (MSX2), Outrun, Thunderblade, Altered Beast, Forgotten World, Rainbow Island. The other programmer was GAME ROMAN pseudonym of MASAMI NAKAMURA, a genius medium that will later give birth to famous games such as Sofia, Battle City, Demon Crystal2, Grobda (it is a spinoff of Xevious based on an enemy character in the shape of a tank).

DEMON CRYSTAL, as already mentioned, was among the first action/puzzle that computer history remembers, with a plot that was presented to the player in RPG style. In fact, the description was more or less the following: there was once a demon named Sharudo who suddenly appeared in Fairyland. He built a monstrous city on top of a mountain and dwelt there, dominating the land below. One day Sharudo fell in love with Princess Chris and kidnapped her, taking her to his den of monsters. Now it's up to Ares, a brave soldier serving the fairies, to save Chris.

Both games were absolute masterpieces of programming as they combined high gameplay with an easy but not obvious sequence of house choices to be cleaned before each level. In fact the purpose is quite simple, you have to enter a house of your choice armed with a handful of

incendiary bombs, make a clean square and find the exit key, there are 30 houses to take before finishing it.

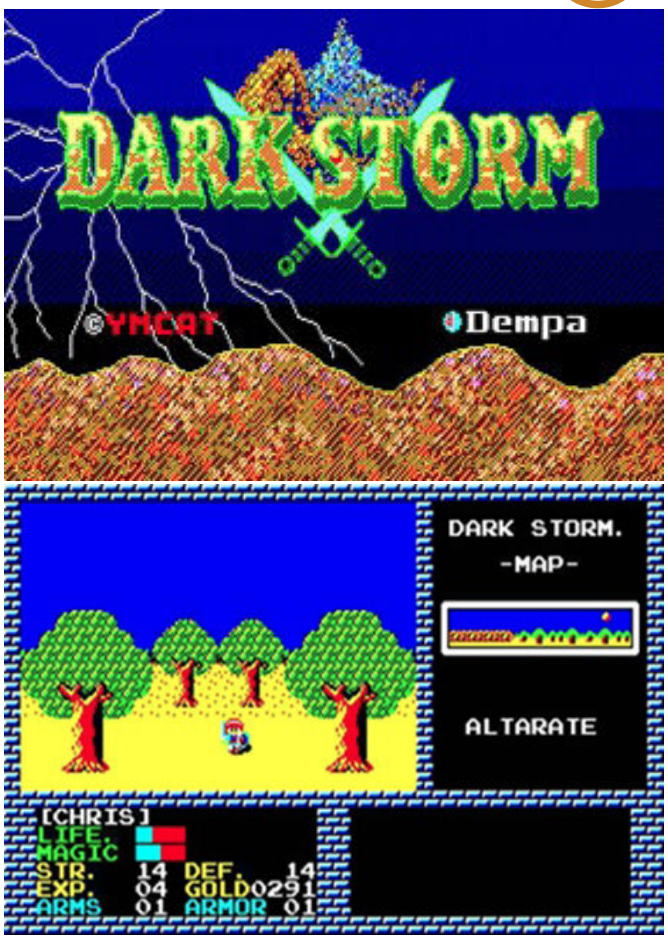
KNITHER SPECIAL is the sequel to THE DEMON CRYSTAL in Megarom with remarkable graphic adjustments, extremely rare to find. The programmers were the same as DEMON CRYSTAL with the only help for the soundtracks of a stranger TADASHI FUJIOKA who seems to have done the conversion for Xevious's SHARP X1 on his own for Dempa. (Here we are at the level of metropolitan legend

because of the enormous scarcity of certain information).

The gameplay is similar to that of Demon Crystal.

If you just collected the keys to open the locked areas, find the big key and then exit, now you also have to collect 3 passwords per world, otherwise you can't advance to the next world. As weapons in addition to the fireball, we have an electric sword, a wave of fire, a cracker and a sparkle that kills all enemies on the screen. The game features 5 worlds with 10 levels each, plus the last level where you fight the witch, for a total of 51 levels.

DEMON CRYSTAL 3 was also released in 1987, a Final Fantasy style RPG very well made by the title **DARK STORM** that unfortunately was never converted for MSX , it only came out for the Sharp MZ-80K / 700/800/1500 and



X1. I highly recommend playing with the X1 emulator and you will discover a small masterpiece.

Fun fact: THE DEMON CRYSTAL has also been released for nintendo SWITCH.

In Japan this saga has been one of the most appreciated ever thanks to the simple fusion of RPG elements with MAPPY-style puzzles and a serious fire dusting to the bomberman. The game as it is could safely come out in Arcade version and would be a real must.

ListAmiga - The best of the best (or worse) to play on our beloved Amiga

by Giuseppe Rinella

Welcome back dear friends, we continue to talk about the games that we lived ("played" only would be too reductive) thanks to our beloved Amiga, the computer that we all love a lot.
This month I want to inaugurate a new "format" that I will alternate with my long discussions on a single title, like the one in the last issue of RetroMagazine about Another World.

I will present lists (not rankings) of the best games grouped by themes. Obviously those lists are absolutely subjective. Nothing so original at the end, but besides being a great way to speak about several games at once, I've always loved lists!

I invite you right now to come and visit us on our website and on our social channels to tell me how wrong I was and what you think is the best list!
I will not go into every game too much or I would risk going too long, you have the task to (re)do it!
There is a lot to say and so we start rocketing with:

TOP 10 GAMES ON AMIGA

To compile this list I imagined a hypothetical dialogue with my nephew, a great videogame player, class of 2004. As far as I know, he's never played anything on Amiga to this day. I'm not even sure he knows it ever existed.
Well, if one day the aforementioned nephew came to me and asked me which are the titles to play absolutely on Amiga, it is with this list that I would answer.
Small clarification: the titles are ten, very few compared to the amount of excellent Amiga games, so for each I decided to mention another of the same kind, as an excellent alternative, albeit in some cases very different.

SENSIBLE WORLD OF SOCCER 96/97

One of the two titles that perhaps more than any other have created two well divided factions: Kick Off or Sensible Soccer?
Having chosen the latter, I think it is clear which faction I belong to, despite considering Kick Off 2 the great game it is.
SWOS is simply the best football game on Amiga (I can hear it, the screaming crowd that wants to lynch me!), a gameplay as simple as complex to master, graphically more than essential but absolutely perfect.
An exceptional career mode, management of the football market, a database of championships/teams/players simply epochal for the times and that still makes its great figure today.
How many games allow you to scout in the Indian championship?
Sensible Soccer is still in excellent health today, 25 years after its release (considering version 96/97), thanks to the community of sensiblesoccer.de, which every year continues to update the database of players but not only, introducing graphic and sound improvements, in addition to the ability to play online. This is going to mean something.
Indispensable.

The great alternative: Kick Off 2. Anything else you need to say?

SHADOW FIGHTER

Just the best beat'em up on Amiga, that's all.
A programming miracle, a large number of selectable fighters, each one of them with very different fighting styles. Graphically exceptional and a gameplay never seen before in a title of this kind, despite Amiga's historic limit of the single button. Limit that up to that moment made us think of the impossibility of making a beat'em up almost decent.
But instead...
Tons of highly spectacular special moves. Perfectly animated characters and scenarios, flawless sound thanks to the excellent music and the sampled voices of the wrestlers.
So finally on Amiga came what was Street Fighter 2 on Snes.
Needless to say, playing with friends gives you the best of yourself.
We then add a little Italian pride, being Shadow Fighter made by NAPs Team, these two guys from the wonderful land of Sicily, gave programming lessons to many.
Absolute masterpiece.
The excellent alternative: Mortal Kombat 2. A conversion that borders on perfection.

LEANDER

Amiga has received a considerable amount of excellent platforms.

Leander, adding a good dose of adventure, is in my opinion among the best ever.

The most classic of the unblemished knights who must save the equally classic princess.

Wonderful fantasy setting, orcs, dragons, giant monsters of all kinds.

Graphics and sound are practically perfect (although it was not possible to listen to music and effects at the same time).

Top-level playability, if we then add the possibility of buying ever more powerful armor and weapons in the shops scattered in the levels (which was very reminiscent of Wonderboy in Monsterland, among my favorite ever), special shots and magic, in short it is easy to understand that we are in front of one of the best titles on Amiga, and not only in its genre.

I loved it madly and playing it still today brings true enjoyment.

The excellent alternative: Lionheart. Different interpretation of the same genre, with a fantasy setting never so spectacular.

LOTUS TURBO CHALLENGE 2

The second chapter of a series that will run until the third episode, in my opinion Lotus 2 is superior to both its predecessor and its follower.

As happens in SEGA's Out Run (on Amiga one of the worst conversions ever seen) there is no ranking and placements, it only counts on arriving in time to the next checkpoint, then to the next and so on until the end of the track.

Our only opponent is the stopwatch.

Once started you never lift your foot off the pedal and the sense of speed almost instilled awe, thanks to a graphic realization simply flawless, as well as the sound, with the roar of the engine that invites us to push harder and harder on the accelerator.

Eight tracks in which to run like crazy, each one with its own setting that well differentiate them from each other, both aesthetically and at the level of gameplay.

In co-op, as often happens, it becomes practically infinite as well as fun as few.

Pure adrenaline.

The great alternative: Jaguar XJ220. For many it is superior, for me it is different but equally amazing.

SUPERFROG

It can safely be considered what Super Mario World was for Snes and Sonic for the Megadrive.

Except for the same type of game, none of them has anything in common with Superfrog that does nothing to imitate them! What these titles have in common, in my opinion, is the importance they have had for the respective platforms on which they were released, thanks to a quality that no other title has ever reached. Superfrog is a marvel

from every point of view, starting from the animated presentation onwards.
Graphically, it is a colorful delight and everything moves with impeccable fluidity, very good sound effects and music by the great Allister Brimble, and there is nothing else to add.
Playability is as simple as it is perfect, and the difficulty level is perhaps a little less Team 17-like than other titles made by the same studio, which in my opinion is a good thing. The level "Project-F" then, in which the developers quote themselves taking up Project X, is a real stroke of genius. It is impossible to play without a smile permanently printed on the face.
The best alternative: Fire and Ice. A beautiful concentrate of pure joy.

TURRICAN 2

There are few games I've loved as much as I've loved Turrican 2, and I'm not just talking about Amiga. The only flaw it has is that it ends, otherwise I challenge anyone to find something wrong. Huge, beautiful, pure action from start to finish.
Aesthetically it is a splendor, from the settings to the enemies we will encounter during our adventure, including end-of-level monsters of truly remarkable size.
The music is composed by that genius of Chris Hülsbeck, one of the greatest composers of video game soundtracks (and perhaps not only). In this regard, the anthology released in 2013, containing the soundtracks of all the episodes of Turrican (as many as 4 CDs) is to be retrieved absolutely, if you have not already done so.
In short, impersonating a guy in a robotic suit, who collects weapons and power ups with which to destroy anything that moves, in huge levels where getting lost is a real pleasure, can you ask for more? In fact, yes, maybe the possibility of flying a spaceship and shooting the whole thing? Well, Turrican 2 has that, too.
Turrican 2 is just perfect, end of story.

The best alternative: Ruff'n Tumble. A great game, although it may not seem like the two titles have much in common.

MOONSTONE

What a great game!
Exploration, strategy, real-time fighting where rivers of blood flow, which in comparison Mortal Kombat is kindergarten stuff.
Graphically spectacular, the monsters we will have to face along the way are divinely made, some of them literally jumping into the chair for fear.
Played with three other friends, each impersonating his own knight (otherwise used by the computer) becomes something never seen before, and perhaps not even after. Moving in turn in the various locations on the map will meet these monsters to be eliminated, thus accessing the treasures contained in the chests, remained at that point unattended.
Obviously meeting between humans gives way to clashes between knights to the death, literally.
This and much more is Moonstone, a game for which to find a term of comparison is really difficult given its splendid uniqueness.
Impossible to explain what is this masterpiece of a game in so few lines, certainly deserves a more in-depth study that sooner or later will arrive on these pages, rest assured. Beheading horrible beings (but also friends) has never been so much fun.

The excellent alternative: Defender of the crown + Darkmere + Mortal Kombat. Put them together and you'll get something vaguely similar!

MONKEY ISLAND

I could safely stop at the title without saying anything else, a timeless classic, probably the best graphic adventure (or if you prefer, "point-and-click") ever made. A brilliant story to say the least, a protagonist who is the anti-hero par excellence and who is impossible not to love, an adventure full of situations and absurd characters, humor in packs.
Characters and locations (wonderful) become iconic, entire lines of dialogue still cited today as is done with great films. We find ourselves in the presence of a game that has simply made history, becoming the term of comparison for any title of the same kind that would have

come out from there on. Played today it provokes the same sense of wonder of then, accompanied by fat laughter. In 2009, a graphically updated remake was published (and not only); delicious, although in these parts we continue to prefer the dear and old pixels.
To say the least fundamental.

The great alternative: Monkey Island 2. Another masterpiece, not an alternative but the title to be played one minute after the end of the first chapter.

SPEEDBALL 2

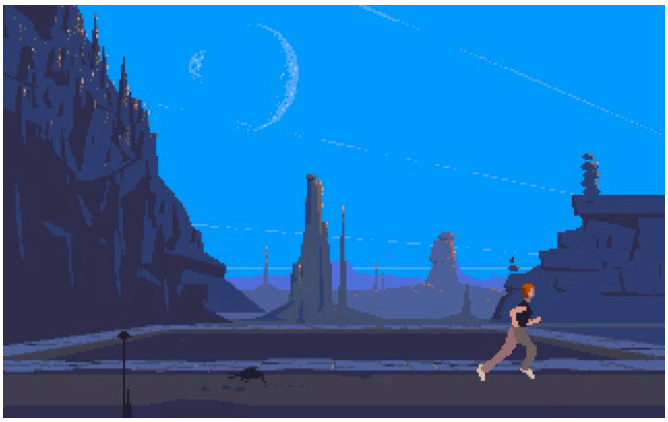
I've always loved anything done by the Bitmap Brothers, Speedball 2 remains in my opinion their absolute pinnacle. Here we do not just bring out a great game, what is done is to create a sport (inspired by the film Rollerball) and on that sport, an epochal game. Okay, actually, sport is invented with the first episode, but it's with the second that perfection is achieved in every respect.
Graphically impeccable with its cool and metallic cyberpunk look, fluid, fast, without the slightest uncertainty despite the amount of moving elements.
Exceptional sound thanks above all to the introductory music (Golden Joystick for the best soundtrack) and the effects during the games, including excellent sampled voices.
Whoever played Speedball 2 knows full well that the mythical ice cream vendor is in the stands.
Instant playability and guaranteed fun right from the start. Immediate, yes, but not easy.
The career mode is perfect, with the ability to enhance the skills and armor of their players, as well as being able to buy new, stronger and uglier.

Played in pairs, Speedball 2 reaches peaks of fun that few games can boast today.

"Ice cream! Ice cream!"
The excellent alternative: Speedball. I don't think there's anything like Speedball 2, except the first episode, which is really a good game but not at the sequel level.

ANOTHER WORLD

As I said at the beginning of this article, I talked about it quite in detail in the last issue of RetroMagazine World, so I avoid going into too much detail or I would inevitably end up repeating myself.
For me it is undoubtedly on the podium of the best games ever released on Amiga, there is little else to say.
An intense and exciting adventure, a sublime technical realization and an animated presentation that has made school.



An experience to be experienced at least once in a lifetime.
The great alternative: Flashback. The spiritual heir to Another World, another Delphine Software gem.

I hope I have not upset anyone with this very personal list, in any case I renew the invitation to visit us on our website and on our social channels, we are curious to know your personal list of titles to play absolutely on our beloved Friend!

Greetings!

SHINOBI, THE ART OF BEING A NINJA

by Mic The Biker Novarina

Hello to all readers of Retromagazine, today our brave DeLorean will take us on a scary journey back in time, to get to know this mysterious character and his enormous success, which led him to become an icon of an era. In 1987, and in the 1980s in general, the figure of the Ninja was quite fashionable. I remember that we of the Borgo San Paolo Band all had a SHURIKEN always following, obviously bought in the martial arts store located in Via Trecate. The memory of Bruce Lee was still palpable, the movies with the theme Kung Fu and similar were great successes.

We of the band were also beginning to take our first steps in this world, choosing each his own oriental discipline not without initial difficulties. In those years doing martial arts was not just going to a gym to fight: there was a strong concept of the Dojo, which was the place to form a good character, patience and discipline. There was a lot of philosophy and a lot of wisdom in what was taught, something romantic seen with today's eyes. Just in those years we were all in a bomb with the figure of the Ninja, the mysterious protagonist of the immense THE LAST NINJA, a game we talked about in number 29. The protagonist is the prototype of the masked fighter, skilled in espionage, sabotage, infiltration, murder and guerrilla warfare. But remember that his exact name was Shinobi, which indicated who was part of a specialized group of spies and mercenaries. For us, this name represented one of the most beautiful coin ops ever. In this masterpiece we control the ninja named Joe Musashi and we have to deal with the criminal association "Zeed". What a game, guys, a super dynamic platformer with a lot of action inside: you have to practice to play it and continue with the missions.

The Coin Op

The cabin made its dirty appearance with its themed aesthetic and Mom Sega's logo in the foreground on the dashboard. The controls were a classic of the time: a joystick and three buttons to attack, jump and use the "ninja magic", which we will see after what they are. Very nice movement of the protagonist: in addition to walking, you can proceed by squatting while keeping the joystick diagonally low. We can jump to the upper and lower levels, where provided, by pressing jump and joystick lever up or down. Joe Musashi is well armed, we find an unlimited supply of shuriken, in addition to the most ignorant kicks and punches that are used when an enemy is too close.

The graphics were really remarkable and still makes a good impression today. The detail of the seabed immediately comes to mind, always of great impact and chromatically convincing. The animations are super fluid, with sometimes really gigantic sprites. The animations have a large number of frames, which makes the movements really beautiful to see. Moreover, the card used the "System 16b" system powered by a Motorola 68000 at 10 MhZ and boasted a palette of 6144 colors. The audio part uses the power of the typical audio chips of the period, namely a YM2151 (4 Mhz) and a UPD7759 (640 Khz), to support a Z80. The music was curated by Yasuhiro Kawakami, prominent composer of the Sega videogames of the time. Typical of his way of working is the linearity and simplicity in the composition of the pieces. He reached the height of fame the following year by signing the soundtrack of a little game called Tetris.

The game has its own rules to follow to progress with less effort: the rescue of certain hostages guarantees us an enhanced attack: in this case the ninja stars, as we called them, are replaced by a gun. This is very useful because it shoots explosive bullets while the attack at close range becomes a katana shot. We only have Musashi's "Ninja Magic" once per level: using it will destroy all enemies. If we use them against bosses, we'll be able to hurt them, very badly. Let's now look in detail at what these three powerful attacks consist of. Let's start with the magic called Shadow Magic: it creates sixteen clones of Joe that propagate in every direction, slicing whoever is on the screen. Note that it is possible to use it against all bosses: it instantly halves the bar of life and is a great technique to finish an already weakened boss. Let's move on to Wind Magic: the move causes a huge tornado of wind around Joe, which will form several smaller vortices that cross the screen overwhelming all enemies, who will die

immediately. And finally we see the Thunder Magic: our Joe is hit by a rain of lightning and in turn will spread a shock that will cross the entire screen creating smaller lightning, which will roast the enemies without the slightest mercy. There will really be many who will try to put the sticks in our wheels during our race against time. In the three minutes at our disposal we will find punks, many mercenaries, several ninja warriors dressed in different colors and some boring swordsmen who watch the hostages. The clash dynamic is innovative: we can hit most enemies without taking any damage, but we can be killed when hit by an enemy attack. It is very logical if we think about it, differentiates the game from almost all the titles of the time where every contact suffered damage. When we die, we have to start the level again from the beginning. In this case, the hostages already released must not be rescued again. There are three lives at our disposal and once they are exhausted, we must use a less innovative dynamic but very popular at the time: down coins or tokens to continue the game. But the programmers were ruthless and heartless: it is not possible to continue if killed during the final mission. Bonus points can be accumulated during the game: they are awarded by calculating the advanced time at the end of the level, to which a juicy score is added if you pass the level without using the "Ninja magic". Higher scores can be obtained using only close-range attacks, without ever using stars and guns. Extra lives come to our aid: they are assigned to reaching certain scores, saving a special hostage or completing the bonus round. This special level is found between one mission and another: here we will have to deal with the mythical first person screen, in which shuriken must be thrown at the enemy ninjas before they reach us. If the player successfully completes the bonus round, they will receive an extra life.

The Urban area - The game unfolds through five distinct settings from the changing scenery. The first, where we will start our adventure, has typically urban connotations. We will begin to get acquainted with the enemies of the game: punk with the desire to fight, men armed with guns or knives and bizarre fighters with sabres dressed as SheezHan. Continuing in the scenarios we will find terrorists who try to surprise us by throwing themselves from the walls on which they are climbing. And here we come to the first boss, this Ken Oh. This is a giant warrior with a face covered in a samurai mask. It will be hard, he will try to make us grill by throwing us flames that move around the screen but that, fortunately, disappear quickly. Ken's weakness Oh are his eyes, unprotected by the helmet.

The harbor - After having brought home the skin from the urban area, here we are at the port. We begin to wander in the docks, full of enemies and prisoners to be released, to get inside a docked ship. Here we get acquainted with some really challenging bad dudes, such as ninjas armed with double katana. Leaving the ship the level becomes tough, with pillars to be used as platforms from which to stand out powerful jumps, all while killing divers armed with knives. The boss of the location, Black Turtle, is a helicopter armed with rocket launchers: if that wasn't enough, bunches of ninja emerge from the middle, definitely angry with us. The weak point is the engine, located under the cockpit.

The mountain - The action moves into a mountainous and rocky environment that teems with evil belligerents. At some point we are faced with an opening that leads inside the mountain and from here to a technologically advanced base. The boss on duty, Tal Mandara, is quite special: initially we have to face a wall of robots with the features of Shiva: here it is practically mandatory to use Shadow Magic to give a good shot to all these droids and finish them faster. Then, ready to go, here we are in front of a mechanical face that flows on the wall: it goes from top to bottom, shooting from the mouth of the fireballs. Its weak point is a hemisphere on the forehead.

Japan - The mountains in the background introduce us to a Japanese residential area: we enter the houses made of wood with strange interiors, since more than houses it seems to be in a sawmill with many logs that we find.

The atmosphere becomes more horrifying due to the presence of zombie ninjas and horrible anthropomorphic frogs. The boss can not be less: his name is Lobster and has the features of a samurai with a katana protected by thick armor. He always strikes at close range and is a tough nut to pull off, since his weak spot is his neck: you have to be precise since he discovers it only when he is about to strike. I never understood the reason for his name, perhaps because of the color and the fact that he's armored, not because of the resemblance to a lobster.

Th**e Forest** - Here we are at the last level, what in case of death there is no token to hold, you must suffer the shame of Game Over. A boundary wall welcomes us and accompanies us in a huge garden of bamboo reeds typical of Japan. Here we will have the good fortune to meet a roundup of almost all the enemies previously found in addition to the armed guards of Bo, the famous long stick. From here you enter a typical Dojo environment of the rising sun and get to know the supreme boss, the infamous Nakahara, the iron-masked Ninja. This one is really scratchy, it literally jumps the nerves since it uses various ninja spells: it jumps, teleports, disappears and hits dry. It is vulnerable only when it does not use magic and is also very resistant. If we manage to get the better of ourselves we can finally enjoy the very sweaty ending, where we are shown an explanatory text and the word END. Let's say a very poor final, in line with most of the arcade games of the time. An understandable choice, given that reaching the end of such infernal machines was almost impossible.

Shinobi and the home conversions

Obviously, such a game could not have not had a lot of conversions for our beloved home gaming systems. Obviously Sega, playing at home, anticipated everyone by launching the home version for Master System. The date of the Japanese launch was June 19, 1988, later in North America and Europe. Sega did a particular job since some game dynamics were modified compared to the original. The thing that immediately catches the eye is that the player now has a health marker that allows Musashi to take more damage before losing a life. You will miss the excellent idea of coin op where simple collisions did not cause damage, here touching an enemy loses health. The rescue of hostages is also handled differently: on the Master System it is not mandatory to complete the game. However, saving the hostages allows the player to upgrade the weapons, as well as to recover the energy lost in contact with the bad guys. The rescue of certain hostages remains a prerequisite for accessing the bonus stages of the game, which arrive here after each stage instead of at the end of the level. The "Ninja magic" here appears by completing the bonus rounds and the player can hold up to four actions.

Starting in 1989, Shinobi ports were released for most of the systems then in vogue. We find the game converted for the newborn 16-bit systems Amiga and Atari ST and for the very common 8-bit machines Commodore 64, Amstrad CPC and ZX Spectrum. All these conversions were developed by The Sales Curve and published by Virgin Mastertronic in Europe and by Sega in North America, excluding the Amstrad and Spectrum conversions.

C64 (1989) - Here we are talking about the best conversion to 8Bit, in my modest opinion even superior to the conversion on Master System. This masterpiece was born from the skill of Simon Pick and Ned Langman, who managed to make a real miracle by making the visual sector look great and balancing everything with a crazy gameplay. You have to try it to understand, the gameplay is damn balanced, the controls are perfect and the game runs smooth as few. The litmus test was that every specialist magazine of the time gave this conversion enthusiastic reviews to say the least.

ZX SPECTRUM (1989) - The conversion for ZX Spectrum had to deal with the chromatic limits of the machine: we find therefore essential backdrops to which they counterbalanced the sprites designed with great care. Programmed by David Leitch with Drew Northcott's support for graphic tools, the real Achilles heel of the game was animation. Nevertheless, given the pace of the game and the relatively precise response of the controls, this version was very good in reference to the games present for the machine but did not meet as much favor in the critical field.

MSX (1989) - The first thing I can say is that much more could be done: aesthetically the MSX version resembles that of the Spectrum ZX but with a much cheaper scrolling. To this we add a reduction in the size of the game screen and the omelet is made. By playing it you realize that there is a serious delay in the response of the commands

and the sentence can be only one: without a doubt the worst home incarnation of the classic Sega.

AMSTRAD CPC (1989) - The conversion for Amstrad CPC was by Richard Aplin. The first thing that jumps to the eye is the good work done in purely visual terms: excellent colors, great graphic care, all to contain the technical gap between this porting and the original Coin-Op. As often happens it is only by taking the Joystick in hand that the knots come to the comb: there was immediately a noticeable delay in the controls, which made it difficult not to die. This, combined with a questionable rendering of the animations, compromised the overall effectiveness of the gameplay, since it was simply difficult to continue in the game. Too bad, the potential was there.

AMIGA and ATARI ST (1989) - Here we are looking at the two most beautiful versions of the entire lot, but will they also be fun? Making the right proportions on the number of colors on the screen, the Amiga and Atari ST conversions by Shinobi are the most faithful to the original Coin-Op. Let's take the Joy in hand and see if it also applies to gameplay: the similarities unfortunately stop at the graphics. In terms of gameplay, the two games are difficult, thanks to a sharp cut in the animation frames of both Musashi and his opponents. Added to this is a scratchy and slow scrolling, which seems to drag itself, sensation due to the annoying delay of the controls. Shinobi was crushed by criticism at the time, but this conversion met with some success. I remember it very well and I played it a lot first: Shinobi was the classic case in which good graphics combined with a passion for the original arcade put the many flaws in the background.

NES (1989) - For the good Nintendo Entertainment System, Shinobi was released by Tengen as an unlicensed version and limited to the North American market. The basis of the Master System was used for this conversion. However, they removed all short-range weapons, grenades, and held basic fists, kicks, throwing daggers, and guns. It's harder to get rid of enemies because we can only shoot one shuriken, one dagger or one bullet at a time, even after getting the power-ups. To overcome this, there are now five "Ninja magic". In this version, the vertical scrolling phases have been redesigned into horizontal scrolling phases.

PC ENGINE (1989) - On December 8, 1989 was released, exclusively in Japan, a PC Engine version by Asmik. The resemblance to the original is remarkable: graphics and game mechanics are similar to those of the arcade version. As often happens for conversions on this machine some parts are missing from the original, in this case the bonus rounds and the second mission: all subsequent missions are renumbered accordingly. Close attacks and power-ups are also missing and there is no timer on the screen that indicates the remaining time. Despite all, the game is nice, what there is is done really well and does not make you regret the original.

In October 1993, a curious fact happened: years later, Atari Corporation filed a lawsuit against Sega. The reason, according to Atari lawyers, is an alleged infringement of a patent created in the 1980s by Atari Corp. Thelatter asked to stop the production, use and sale of hardware and software for Sega Genesis and Game Gear. On 28 September 1994 the two giants reached an agreement: this provided for a cross-licence to publish up to five titles each year in their systems until 2001. Sega chose shinobi as the first conversion for the Atari Jaguar, but history tells us that nothing was ever done about it.

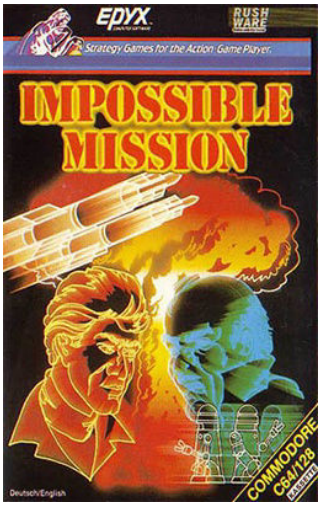
Biker Reflections

Unbelievable how years have passed under the bridge of life. More and more often I find myself thinking about a game and, remembering its date, I have the perception that everything is recent, almost the stuff of the day before yesterday. But then I think about the numbers and stop, almost feeling bad. But does math really tell me it's been all these years? Hell, I remember sticking my token in Shinobi's cabin, and it seems to me to have happened a little while ago. I remember every moment I lived with the Banda di Borgo San Paolo as if they were events of a few months ago. Instead, generations have passed. If we consider the world of video games, geological eras have passed. But tell me what you want, those damn booths are still playing pretty damn good today. Of course, there was talk of difficult games, a difficulty that modern video games do not even dream of. But it's history and Shinobi is part of it, one of those games that are the fuel of the DeLorean, the magical memory machine that takes us back in time.

Impossible Mission

by Christian Miglio

I can only start this article with the phrase "Another Visitor, stay awhile, staaaaay foreeeever!". Which game can ever refer to except the killer app par excellence for C64 or Impossible Mission?



Good evening brothers of RetroMagazine World, this time I do not just call you friends if tonight you decide to take two minutes with me to be able to "play" with words (and why not, even emulating it while I write) at the mythical Impossible Mission.

It was back in 1984, when, after a few laps of tape, that criminal bastard Dr. Elvin Atombender invaded the phrase that would remain in the history of the video game. Above all, it would elevate the C64 to a large video game machine for the time.

So...let's go! Press play on tape!

Another visitor...

Where to start?

A story as simple as the threat of a worldwide nuclear disaster from that crazy criminal genius. A secret agent ready to dive headlong into the labyrinth bunker defended by a myriad of robots to recover the 36 pieces that make up the 9 pieces of the puzzle that hide the password of the armored door behind which the madman is hiding.

All in the form of jumps.

And so far so simple... or not?

Stay awhile...

And to think, such an epic game comes from the mind of a very modest programmer, Dennis Caswell.

So modest, I can't find a picture of him on the web.

After graduating in 1981, Caswell was hired by his old roommate's brother to start a video game company, Arcadia. He later became Starpath, responsible for the Supercharger hardware for the Atari 2600.

After the collapse of the company, Epyx bought the Starpath and with it most of the talented staff including our hero Caswell.

Impossible Mission was Caswell's first and only work for Epyx even though the "running man" project had begun some time before the acquisition.

When Caswell was given permission to start a project on the C64, He detached the Atari 2600 and threw it in the hallway outside his office waiting for the new Commodore. It was a job of inventing a game around a character, since he didn't have a precise idea at first. What gave him credit was the idea of a character bigger than usual and with several animations.

Epyx big guys liked such idea.

Stay Forever!

Apart from the sampling of the audio, the game was

created entirely by Caswell, he took care of practically everything.
Being in the early days the manufacturer did not have graphic digitization tools available, so the entire graphic part was drawn on millimeter paper, then converted into strings and then typed into code.
The idea of the game, contrary to what is thought, was taken from "Wargames" movie. Caswell liked the idea of having to infiltrate a bunker and deal with a bad guy like a supercomputer or something that threatened to destroy the world.

Only the title at the end of the programming, was borrowed (a bit cheating) for similarity of the character with those of the television show Mission Impossible. Due to obvious copyright problems it could not be borrowed for which it was reversed.

Getting back to the programming phase, only the movement of the little man required for the movement of approximately 3 sprites, was the heaviest part of the whole program.
Fortunately the rest of the game did not occupy great

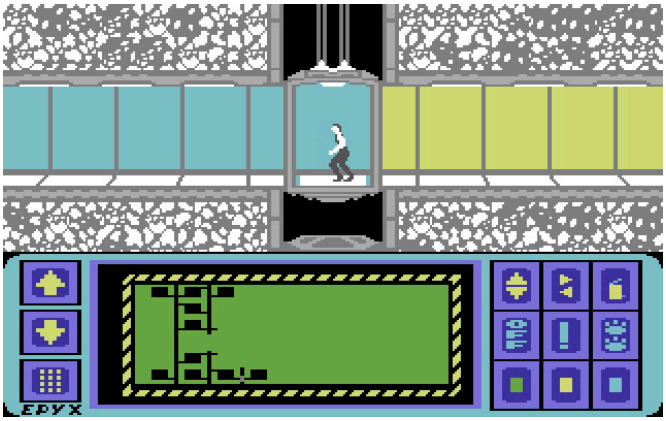
resources so it was possible to remain within the hardware limits of the C64.

The Impossible Mission Plot
Impersonating the secret agent 4125 fighting with his nemesis, the brilliant nuclear scientist suddenly mad Elvin Atombender who threatens a nuclear attack against the world.

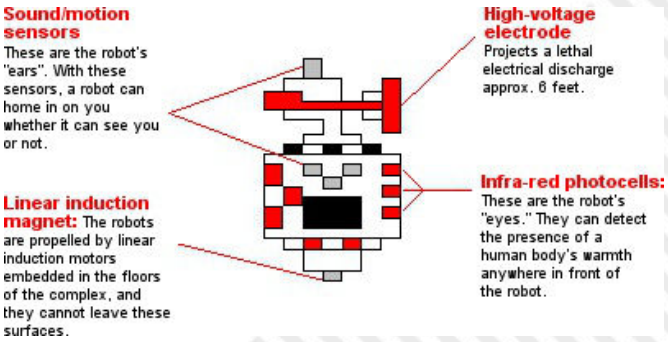
As soon as you enter the bunker the door closes behind the shoulders of our hero and you will begin to hear the voice of Doc Elvin. Realizing the presence of the intruder, he launches the famous challenge phrase and activates the sentry robots.
The purpose of the game as we mentioned before, is to recover the password to open the vault where the crazy doctor is hiding.

The password of 9 letters was hidden in as many punched cards then each broken into 4 pieces for a total of 36 tiles. In the bunker we immediately realize that it is not a simple bunker but is the real residence of our nemesis, to the point of having to look for the puzzle tiles inside the most disparate furniture, from the desk to the bathroom up to even the trash can.

Destroy Him



In our mission we will be alone and without weapons, the only weapon is the incredible agility of our agent 4125, which results in an incredible death jump that will allow us to overcome any difficulty.
We begin the game inside one of the elevators in the bunker, with Elvin's voice saying "Destroy him my robots". We note that in the lower half of the screen, in the center there is a minimap of the rooms that changes with each new game, in the bottom left the commands to scroll the pieces of the puzzles found in addition to asking for the help of the computer, in the bottom right the commands to manage the rotation and the color of the puzzles.
Computers and puzzles can only be accessed by pressing the fire button when we are in the elevator.



As soon as we enter one of the rooms we will notice that to reach some of the parts of the room there are no stairs but elevators and that each room is full of sentry robots ready to fry us for each of our false moves.

...My Robots

The only possible help is to be able to find some passes to reset the lifts inside the room or to be able to temporarily "sleep" the robots inside it.

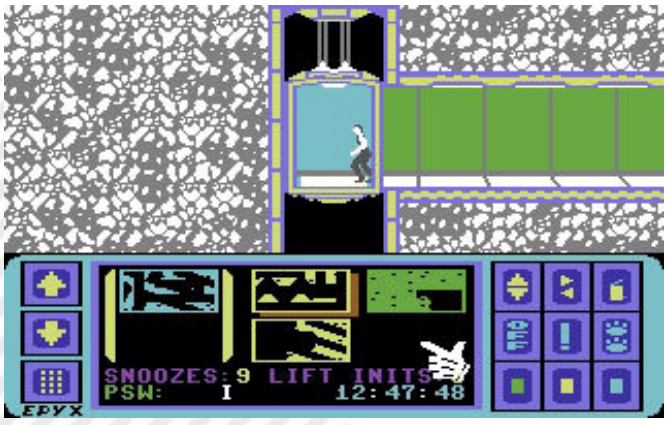
It is possible to do this by finding them inside the furniture we are looking for or inside particular rooms that use a sound minigame with increasing difficulty in which we have to press in the right order of tones of sounds.

As for the robots, there are two types, one of the sentry type that runs back and forth the platform or remains stationary and in any case can shoot electric shocks, and another of the flying ball type that resembles the robot sphere surgeon torturer of Star Wars.

The simple contact with the sentry robots unless they are asleep with a pass is lethal, as is the discharge.

Out in six hours, a real impossible mission.

Contrary to what is expected, instead of having 3 or 5 lives available as in canonical arcade games, Impossible Mission gives us 6 hours of real time to complete the mission.



It sounds like an infinity, but it doesn't.

Every time our hero dies in one of three possible ways, that is by direct contact with a robot, by shock from the robots themselves or by falling into the pit of an elevator, they are removed ten minutes from the time limit.

The game has a basic complexity that increases its longevity and makes it one of the milestones in the history of the C64, it is a game where the professionals of the joystick risk getting stuck in front of the complexity in the resolution of the puzzles.

The Sound of Impossible Mission

The version for Commodore 64 makes use of speech synthesis to reproduce human voices, which was not common at the time, it uses the Electronic Speech System (ESS) system that will accompany us to the present day since it was born to give voice to the C64 and today implemented in the most important technologies of digitization and audio compression.

In '84 it was amazing to hear the synthesized voice of Atombender who at the start of the game says: "Another visitor. Stay awhile... staaaaay FOREVER!" .

Another phrase spoken from time to time is "Destroy him, my robots!" .

Equally characteristic is the scream of the protagonist when he falls off the screen, which fades more and more.

When the player manages to solve the game correctly you see the figure of Atombender who pronounces "No. No, no, no, NO!", while a female voice says "Mission Accomplished. Congratulations!".

If the player loses the game, you can hear Atombender laughing, not to mention the sound of footsteps in the corridor when we are in the elevator corridor.

The game was converted at the time for major formats, although not all versions have speech synthesis.

After the success of the game the ESS company increased prices significantly as a result Epyx no longer served them.

The versions

Among the other versions, noteworthy is the one for Atari 7800 (NTSC format), containing a bug that prevented its completion, corrected in the pal version.

In 2004 the game appeared on the C64 Direct-to-TV console.

Between 2007 and 2008, System 3 (which acquired the

rights to Epyx games) released the game for several modern systems, including PlayStation Portable, Nintendo DS and Wii.

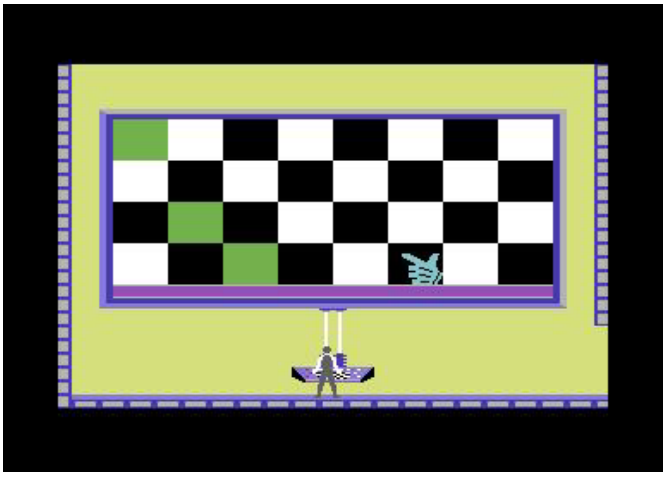
You can play both the original version and a version with updated graphics and audio.

Curiosity

The game had two sequels: Impossible Mission II (1988) and Impossible Mission 2025 (1994, for Amiga).
Neither has Caswell been contacted to be part of the development team.

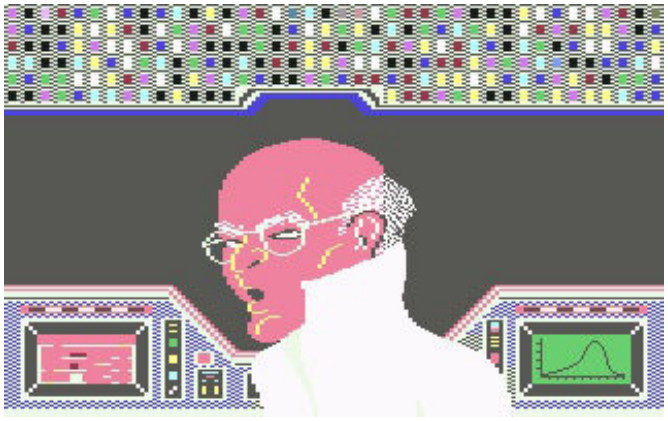
The same ESS audio technology was implemented in Activision's Ghostbusters video game for C64.

The same "running man" animation sprites were later used by EPYX for the California Games video game series and later for Mastertronic's Kane and Kane II video games although not officially.
Some of the 9-letter keywords that could appear at the

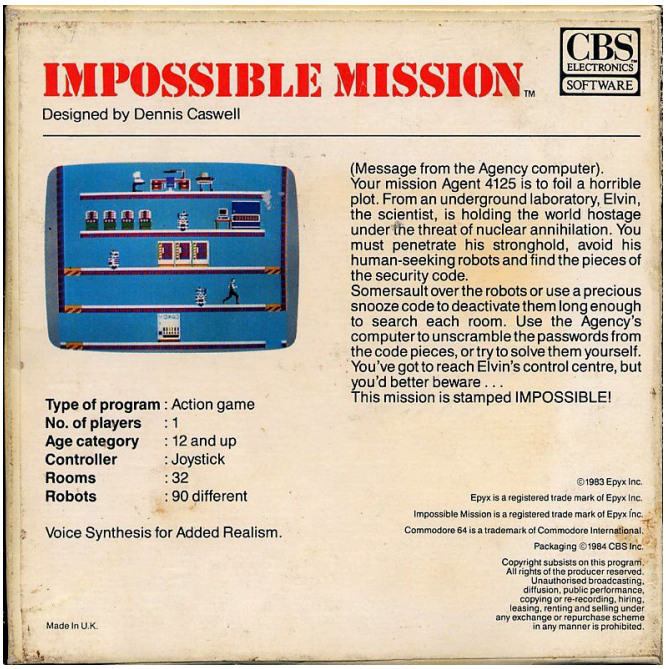


end of the puzzles are: SWORDFISH, CROCODILE, ASPARAGUS, ARTICHOKE, ALLIGATOR, ALBATROSS, BUTTERFLY and CORMORANT.

Note the similarity with the title of the film with John Travolta, "SWORDFISH CODE" which has a clear reference to the game.



When the game came out it was announced with critical acclaim and eventually won the prestigious British Microcomputing Award as the best game of 1985 especially for the excellent gameplay, in which a game leads to another.



Thank you Brothers of RetroMagazine World for following me in this digression!

Lady Pac

by Francesco "iononsoleggere" Bizzini

NEW GAME

In all its versions, from 1980 to today, Pac-Man is perhaps the most cloned video game in the history of the industry. There are those who have tried to ride the "Pac-man fever" (pray, sing the song when you read this quotation mark) and there are those who, especially in modern times, have honored the franchise for pure creative or celebratory spirit. Leaving aside the example given by Google that, for the 30 years of the Namco title, on May 21, 2010, released its version, branded BIG G and playable directly from a search engine, the examples are really dozens, from the beautiful K.C. Munchkin and Jawbreaker up to the obscene as parodic Pac-Guy. Today, however, we are talking about a real tribute, made with respect and dedication, to the beautiful sequel Ms. Pac-Man of 1982 (even on this seminal title it would be worth dwelling for hours and hours, even just mentioning the importance of the conversion kits from which it was born). In 2021, the prolific and talented Luca Carminati gave us, in fact, Lady Pac for Commodore 64, a gesture of coding-love towards the perhaps most successful incarnation of the iconic family of chewers of socks. For the occasion, RetroMagazine met him and interviewed him to understand from his words how and why, among his many projects, which range from many different platforms, he decided to commit to Lady Pac for our beloved breadbin.

Ah, before we go to the questions, we need to provide some necessary clarifications. This tribute is not a shameless copy of the title created at the time by those geniuses of the General Computer Corporation on behalf of Midway. No, in fact Lady Pac brings with it a revisitation that doesn't take away anything from the game but adds a lot of new things to an already immortal title. Let's talk about the fact that the labyrinths are generated in a completely random way (therefore adding an absolute replay value) and that every two screens passed, a bonus stage has been added where we have to peel fruit and thus increase our score. To these two changes is added the third really important for us who are voyeurists of the video game and who would stay all day with our beloved back machines on only for the taste of seeing pulsating in them the pixelated lymph: a sparkling attract mode! But let's get down to business and ask Luca how the idea of paying homage to a classic like Ms. Pacman was born and why that classic.

"Ms. Pac-Man – says the programmer - has always been one of my favorite games. WhenI was a boy (alas a long time ago) I played countless games with the original arcade. As you know (or maybe not) I made several other clones for Windows. One of the titles I had not yet cloned was Ms. Pac-Man."

What differences have you chosen to make in this reinterpretation? Why did you decide to detach yourself from the "pure clone" 1:1?

I define myself as a creative, and as such I do not feel sufficiently stimulated to reproduce a game such as the original. I always wanted to add something new, a personal reinterpretation, albeit minimal. In addition, I have always felt that the original arcade games had a level of difficulty that was too high for most players, including myself (on the other hand, they were slot machines). Instead I wanted to make clones with a higher degree of playability so as to ensure fun even for those who are less skilled and experienced. Hence the possibility to choose between different skill levels and a difficulty curve that increases slowly and slightly during the game.

For Commodore 64 we remember the good Ms. Pacmac Atarisoft. Your title has double frame rate and much more defined sprite, was it complex to get that result?

To be honest, I didn't have any big problems, neither with the frame rate (I didn't optimize the code much) nor with the graphic aspect (the sprites and the characters came to me quite naturally). However, I had some difficulties with the audio aspect. Some sound effects were more challenging than others, especially the sound of Lady Pac

swallowing the dots. The first attempt to play the original arcade sound was unsuccessful, so I opted for a different effect, the one in the very first version of the game. Unfortunately thateffect was not appreciated by some users, so I put in a lot of effort, I thoroughly re-analyzed the original sound and in the end I got a much more similar effect (although certainly not identical) and more suitable.

You have also developed games for Amiga and you are a very prolific coder: what drives you to engage on (commercially) deceased platforms? Do you work alone and at what/how many hours of the day/night?

What drove me to realize my clones were, first of all, passion but certainly also nostalgia (things that I think all those interested in retrogaming share). I've always worked alone, at least until now. I find it difficult to quantify the number of hours it takes to make my games. Some days I may have worked 6, 8, maybe 10 hours, and others I may not have worked at all. I can assume 2 or 3 hours a day on average, never at night anyway.

Also, as you mentioned, you have just released a revised version of Lady Pac with the change on aspects requested by users. How important is it for you to listen to the people who play your games and where, in your opinion, is the limit to be placed, the stake, so that a game is no longer touched?

The stake has been placed: I am not willing to make changes that affect the final result of a game, such as retouching the speed of ghosts or assigning different values to scores. I am certainly willing to correct any bugs or, at most, make marginal changes, but the limit is now close.

Next projects you're working on?

Since I liked to make Lady Pac for the C64, I thought of making a version also for Windows, so with a graphics and a layout much closer to that of the arcade game. For the rest, honestly, I don't know. I am evaluating some aspects of my life and I do not know if I will still have a chance to make other games. Only time will tell.

Your dream retro-project-coding, which you've always had in your head or in your drawer, but which you've never been able to start?

If I manage to make other games (clones), I would focus on a version of Donkey Kong (which was my first ever love) for Windows, with completely new levels and situations. But perhaps this will only remain an idea...

The indy game that you liked the most in 2020/2021 and the most overrated.

Unfortunately, I cannot comment on this. Programming games (and not only of course) does not give me time to evaluate work done by others.

Where can we follow you to stay up to date on all your releases? Do you also have social media profiles?

The only reference is itch.io. Regarding new releases, as I said before, it will be all to see.

We thank Luca Carminati for giving us this interview and we remind all readers and readers that Lady Pac is free to download, precisely, from the specific page lowcarb.itch.io/lady-pac with "name your own price" mode if you want to leave down even an obol (do not be stingy!). For the rest, in our opinion absolutely syndicable, Lady Pac is a very successful tribute that can not miss your "breadbin" collection.

GAMEPLAY: 99%

We're still talking about a clone of Ms. Pac-Man, so it's skyrocketing. The only drawback, if any, is that to fully enjoy these types of game you would need a joystick stuck in 4 directions only. In fact, with one free to move in 8 you risk making unintentional errors of precision, dying miserably. In any case, guaranteed playability with any "thing" you attach to the Commodore 64 or to the emulator.

LONGEVITY: 90%

With randomly generated mazes and the ability to set the difficulty, number of lives and number of socks, Lady Pac "speaks" to the whole family and therefore allows a very high longevity. If you then put the presence of the inevitable high score, your parties with friends and friends will literally catch on fire. You will often return to this title, in short. Trust me.

NEW GAME

DUNE II

Year: 2021
Developer: Westwood Studios/ Modern ZX-Retro Gaming
Genre: RTS
Platform: ZX Spectrum 128k
Website: https://vtrd.in/release.php?r=8665eca756acb5287ee6342c03bdaf3f

Dune II is one of the most influential games in the real-time strategy genre, originally developed by Westwood Studios and released by Virgin Games in December 1992 for PC dos.

In 1993 he was converted to Amiga and Mega Drive/Genesis. In 2013 it even arrived on Android systems and its engine became open for a series of derivative games.

Based on David Lynch's 1984 film Dune, an adaptation of the science fiction novel by Frank Herbert, author of the saga.

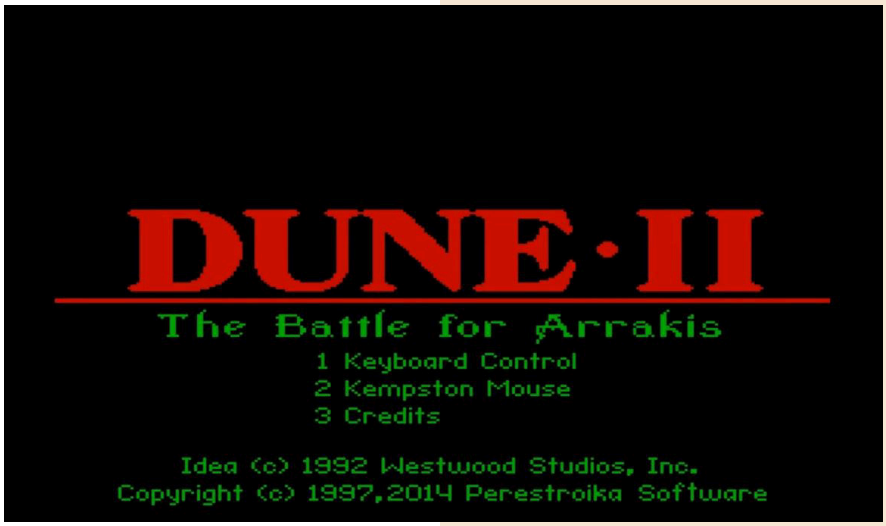
Although it is not the first real-time strategy video game, Dune II established the format that would be followed in the years to come.

As such, Dune II is the archetype of the game of "real-time strategy". Striking a balance between complexity and innovation, it was a huge success and laid the foundation for Command & Conquer, Warcraft and many other strategy games

The story of the game is simple, the emperor Frederick IV of the Corrino family is desperately looking for the collection of the precious drug melange (also known as "the spice"), which is found only on the planet Arrakis.

To achieve this goal, he now offers the only governorship of Arrakis to anyone of the three Houses (Atreides, Harkonnen and the non-canonical Ordos) who provides him with more spices. The war begins when the delegations of all three Houses arrive on Arrakis.

We players will be the commanders in charge of the house that we choose

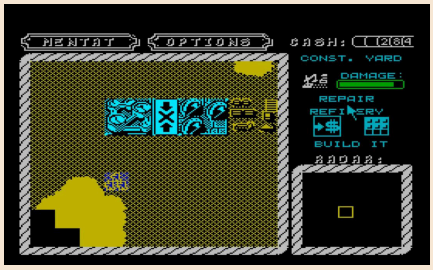


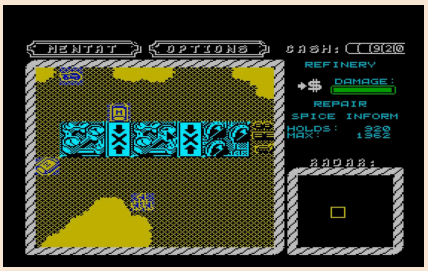
initially.

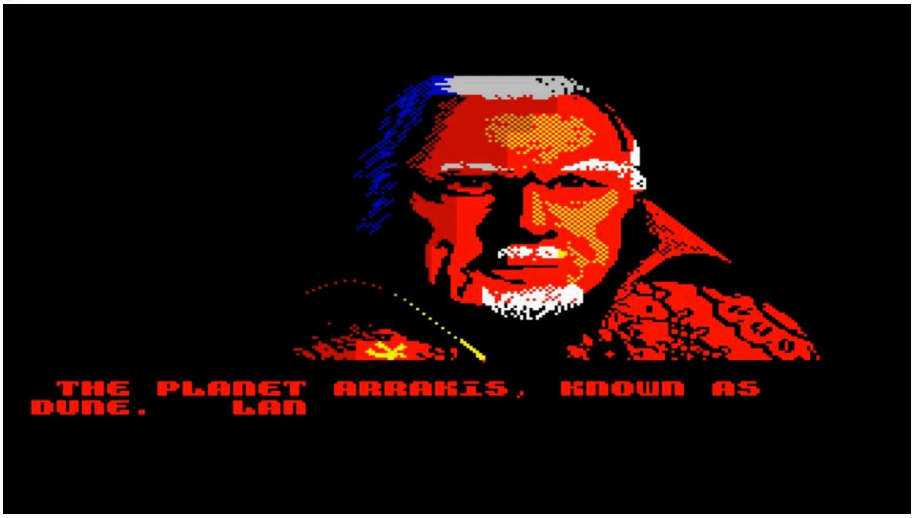
In the first missions, the objectives are to successfully establish a base on an unoccupied territory of Arrakis, collect spices and defeat intruders.

Later, when the three Houses divide between them Arrakis, we should storm and capture the enemy territories.

The final reckoning is the battle between the player's family against three enemy factions, including Frederick's forces, the fearsome Sardaukar (an elite force whose heavy infantry is particularly powerful).







The introduction, the mission briefing and the end-of-game footage are different for each household, in line with their very disparate worldviews. Weapons and units also vary from house to house.

This porting for Spectrum is fairly faithful to the original game and makes you scream at the miracle and keeps some features present such as the spoken championship and the gigantic sand worm, capable of swallowing vehicles and infantry.

Most of the introduction has been maintained, we can choose the language between English and Russian and the controls between keyboard and mouse Kempston.

The AI is pretty good, as in the PC game even here if we won't be able to carefully plan attacks, builds and troop management we will risk being destroyed by opponents with ease.

Despite some technical limitations (such as a non-fluid scrolling and some graphic imperfections) this version for Spectrum is a very solid real-time strategy game with many, many hours of play and the option to save and upload to disk as much as you want.

Have fun and remember ... The Sleeper has to wake up!

by **Carlo N. Del Mar Pirazzini**

GIUDIZIO FINALE

» Gameplay 95%

Almost everything has been put in. Excellent storyline, competitive opponent AI, the three houses.
Everything in just 128k. What more to say.

» Longevity 90%

It's a vast strategic game... and it's free!

THE ASTYANAX

Publisher: JALECO
Year: 1989
Platform: Arcade
Genre: Platform

One of the reasons I like to write reviews for Retro Magazine World is to try to discover forgotten or even unknown gems. That's why today I want to talk to you about The Astyanax, an excellent platform that unfortunately has been crushed by the giants of the genre and that many have not been able to appreciate.

Released in 1989 under the Jaleco brand, in this title we play the role of the hero Roche who moves in a world between the Middle Ages and fantasy, armed only with his mythical axe of fire.

The purpose of our trip is to reach the castle of Algerine to defeat the sorcerer Algos and bring peace to the kingdom.

To do this we have to cross six lands full of mythological monsters and traps of all kinds, without forgetting the boss fights that await us at the end of each level.

But just when we're in front of Algos and we think we've beaten him, that's when we'll notice that the developers have come up with an incredible surprise. From a wall a passage will open and we will suddenly find ourselves in a futuristic world made of aliens that our enemy raised in great secrecy.

In this hidden world we should face terrible creatures from space before we reach the final alien monster and try to eliminate it.

To move our hero we have a key dedicated to jumping and one to hit the enemies with our axe, but if we wait before hitting and we charge an energy bar, our axe will become fire and will inflict more damage to the enemies. At our disposal we also have a third button for a magic shot that we can only activate by collecting particular items.

The possibility of recovering a shield is also excellent, but it is destroyed after some blows from the opponent monsters.

From a graphic and sound point of view, The Astyanax has nothing to envy the most famous titles, with colorful and detailed sprites, beautiful backdrops and with music and sound effects that are the background and accompany every single action of the game.

But The Astyanax also has another winning card that we find in a few titles of this category, that is, the possibility of playing in a cooperation with a friend and making this adventure even more engaging.

In 1990, a conversion was also published for the Nintendo but with a plot and a graphic creation that differ a little from the original arcade, although it is still a very fun title to play.

by **Querino Ialongo**

GIUDIZIO FINALE

» Gameplay 90%

The Astyanax has one button for jumping, one for attacking, and one for magic strike. The colorful sprites, sound effects, and excellent collision system make it still very playable despite the fact that more than thirty years have passed since its release.

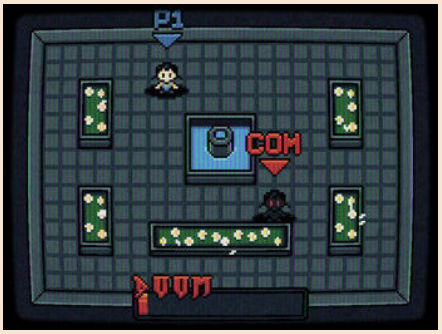
» Longevity 90%

The Astyanax is finished in about thirty minutes, but the option to play it cooperatively with a friend greatly increases the fun and involvement.

NEW GAME

POCKET WONDER SPORT 10 IN 1

Year: 2021
Developer: Harley Wilson
Editor: Indie
Genre: Multi
Platform: PC - PS Vita



A super cartridge (virtual of course) given by its author on the web to all of us who collected the newsstand cassettes of the C64 or Spectrum. To us who wanted the cartridges with dozens and sometimes hundreds of games for Nes, DS, 3DS and whoever else has it. In short, if times have changed and today with all the offers there are on the web, hacking games in addition to a crime is even a waste of time, as you can say no to a dozen simple but fun retro games ready to be played for free on our PCs? And, if you know how to do it, even on the never forgotten PS Vita?

So here you are Pocket Wonder Sport, a mega compilation from the English developer Harley Wilson who, in addition to working for Ubisoft, also seems to be a prolific author of indie games with an authentic retro flavour.

Once you start the game on PC or PS Vita we will find ourselves in front of the classic menu typical of the mega compilation of the past, with many titles at our disposal. Simply choose one and start it with enter, use Z as the focus key and ESC to exit and try another immediately. The gameplay of the ten games is simple, immediate and does not even need instructions: it will take a few seconds to learn the rules of the ten video games that although in their simplicity will be able to keep us glued in front of the monitors offering us moments of healthy fun. How about a duel at Ice Hockey with the zombies trying to skin you? Or drive a car ready to turn into a powerful robot capable of destroying everything? Did you ever think you could play a breakout lying by the pool or face an RPG-style duel using the mechanical arts of those bar games where the purpose was to pick up gadgets and toys?

In short, a pleasant dive into a retro world full of surprises and small touches of class that will perhaps keep you busy for more than a few minutes without even spending a token!

To download the full version of the game, please visit:
https://hwilson.itch.io/pocket-wonder-sport

The author's official website is here:
https://www.artstation.com/harleywilson/profile

by **Flavio Soldani**

GIUDIZIO FINALE

» Gameplay 80%
All games have simple mechanics but still manage to entertain. Like the good games of yesteryear!

» Longevity 70%
Since these are mini-games I do not think we will spend hours, but a game every now and then as a stress reliever I think we can widely fit.

NEW GAME

XENOCIDER

Year: 2021
Editor: Retro Sumus
Genre: Shoot em up
Platform: Sega Dreamcast

Space Harrier has his heir!
Xenocider, like most shooters, has a story that takes a back seat to the main action. We all know that shooters are about high scores and progression on a credit!

In this game we will be Xara, a world-destroying cyborg who loves to destroy things.
The mission is to explore the planets by eliminating everything on our path. These planets constitute the seven levels of Xenocider, each of which has the usual battle with the bosses. There's a little more to the story, but for the most part, we're going to blow up things and monsters in a classic "rail" shooter.
Despite the almost nothing and obvious plot, there is a lot of longevity in Xenocider. With different branching paths you can play in different ways. But let's go in order.

When we start the game we will be greeted by impressive graphics. Majestic! It's always nice to see a new 3D game on Dreamcast. Powerful, colourful and really moves with incredible fluidity. The level of detail that the developer has put into this title is commendable.
There are several modes in Xenocider, but we'll start with the standard story mode.

In this mode we will make our way through the levels with limited lives. How limitless lives? Well yes Xenocider is difficult, very difficult, and requires precision and memory to understand how to deal with levels and track weapon upgrades.

After completing the main game, new modes open up.
The first with a higher level of difficulty and one with two mini games.

There is a lot to discover about the two mini games that are unlocked after getting so far in the main game. The first is a Space Harrier clone that exudes nostalgia. Just like the classic Sega, we're gonna fly up on the screen and shoot everything that happens.
The second mini game is a Rez-like shooter with wireframe-style graphics, similar to the bonus phases of the main game, where as a goal we will have to survive as much as possible and get very high scores.
But all Xenocider is full of objectives to unlock and levels to explore.
It's a pure arcade. Born to be noisy and not to last a long time. Frenzied.

GIUDIZIO FINALE

» Gameplay 85%
Difficult but rewarding! A control system initially "different" but very fun. Incredible the mini-game similar to Space Harrier.

» Longevity 75%
It's really hard and merciless. Not suitable for "soft" players. For them, there is Pokemon Go!

One of the most interesting features of Xenocider is the control system. Whoever played Charge 'N Blast on Dreamcast will understand the concept. The analog lever points the weapon while the triggers make it fly to the left or right. If you've never played a game with this setup before, it may take a moment to figure out how it works. The front buttons consist of jumping, automatic fire on/off and secondary powers.

Graphically, Xenocider is detailed with solid polygons and psychedelic colors. Several enemies and effects cover the screen in an explosion of colors and the inspirations from Fantasy Zone to Space Harrier are numerous.
Speaking of Space Harrier, the mini game inspired by him is gorgeous. Full, blocky trees and dragons fill the screen. There is such attention to detail that it will leave you speechless.
The rest of the graphics are detailed and some bosses are charming. My favorite is a big worm who seems to be fighting Del La Rol from Phantasy Star Online.

Techno music mixed with sound effects typical of arcade halls will keep you company during your exploration. Excellent and in perfect combination with the graphics. A joy for those looking for something that remembers the arcades of the good old days.
In all this chaotic fun there are some painful notes. Some collisions between objects are not really convincing, especially in the third level where we will often be hit by objects that we have actually avoided. This is very frustrating and will make you swear not a little.
Even the level of difficulty is not for everyone. Let's say it is one of those titles not suitable for those looking for something calm and relaxing.
In conclusion, it is a great product, reminiscent of the first Sega games of the early 2000s. Fragrant, difficult and well-developed in the technical sector. Suitable for all lovers of arcade challenges.
Word of Bardo

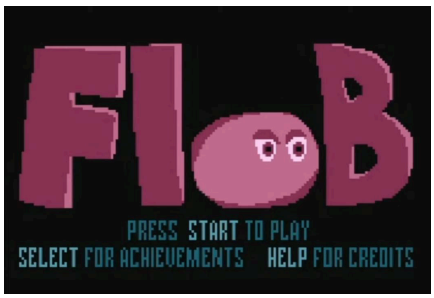
by **Roberto "Il Bardo" Pirazzini**

Website: https://retrosumus.com/

NEW GAME

FLOB

Year: 2021
Developer: Bocianu Boczansky
Genre: Puzzle
Platform: Atari XL/XE

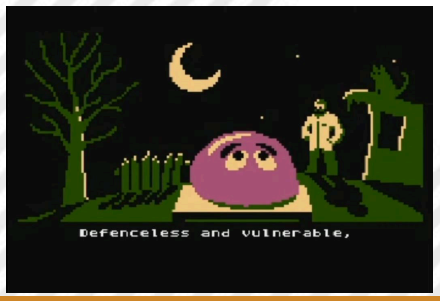


A nice platformer for the 8 Atari bits! Colorful, fun and quite challenging. Made in Mad-Pascal a 32-bit Turbo Pascal compiler for XL/XE computers made by Vasiliy Tereshkov.

In the game we'll be the pink slime Flob and we will be forced to find ingredients and gelatin formulas hidden by our own creator through 140 levels. A job made even more difficult by the total inability to jump and reach the most difficult places. To overcome this lack we can use some gravitational switches in each game box that will change the path and allow us (whenever possible, you have to think about it! NDN) to reach the gelatin.

The game is freely downloadable from the author's website, but if we want we can help with a small donation to receive a physical copy.

Each map has a very specific style and an increasing level of difficulty. Our pink jelly will be controlled through the joystick to move and thanks to the fire (or shift) key we can switch the level and "flip it". There is also a "CHEAT MODE" option to view each level without too much effort.



It is a game that requires a certain commitment to be completed. The level of difficulty is quite calibrated even if some levels will make you swear not a little.

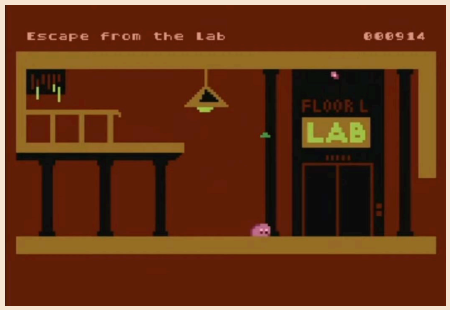
Graphically it is a jewel of pixel art. Well animated and very colorful and characteristic. Even the soundtrack is not bad and if we want to concentrate more we can also disable it in the game options.

Sorrowful notes: 140 levels may seem like a lot but I assure you that they are not so challenging once you memorize the pattern to follow to complete them.

However, Flob is a nice product and deserves your attention. A puzzle game like in the old days.

by **Carlo N. Del Mar Pirazzini**

Official Website:
https://bocianu.atari.pl/blog/flob?fbclid=IwAR1Q8Lblgik2aHQfuBLMoUxw5ycEnhcLO8OpdC30AihDGYO25YGMhnyZV_c



GIUDIZIO FINALE

» Gameplay 80%
The lack of jumping may be limiting, but the switches make up for it big time.

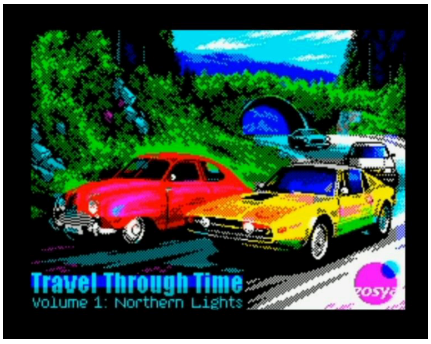
» Longevity 80%
It is a puzzle game. It is not impossible but it is well calibrated. You will replay it

NEW GAME

TRAVEL THROUGH TIME
VOLUME 1: NORTHERN LIGHTS

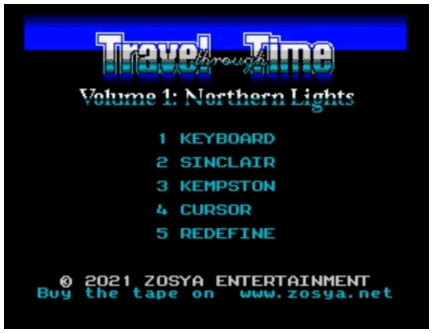
Year: 2021
Editor: Zosya Entertainment
Genre: Driving game
Platform: ZX Spectrum 128k

Zosya Entertainment is a Russian independent software house specialized in Spectrum games.
All products are made with passion and with great care like Drift!, Valley of Rains, Gal and the Bonnie & Clyde platform.



Travel Through Time Volume 1: Northern Lights is another excellent product developed with great capacity. The game comes free in digital download, downloadable from the official website of the software house. It runs on all 128k models and, if you want, you can order the "physical" version on tape to support developers.

A driving game that reminds us a bit of Chase HQ or Out Run and that will take us through the history of cars through the decades (from 1950 to the 80s).



Graphically fluid and impressive. Very detailed both in the details of the game and in the numerous intermezzo screens that are presented in the story mode.

During the race we will not only run, but we will also face natural obstacles and more (railway crossings, crossing pedestrians, billboards).

I have to admit that I had a great time wandering through the Swedish streets (yes, it's strange, but it's set in Sweden).

A pain point, the lack of a rescue system. There is no password system or similar that can allow us to move forward. It's actually frustrating to start all over again.

For the rest I highly recommend you try it and support Zosya's TEAM.

by **Carlo N. Del Mar Pirazzini**

Official site: https://www.zosya.net/2021/06/24/travel-through-time-volume-1-northern-lights/

GIUDIZIO FINALE

» Gameplay 90%
Great control system, lots of options to play, six available vehicles and bridges, underpasses with dynamic shadows, tunnels, level crossings. Shoots at 25fps. A little gem.

» Longevity 80%
I would have liked to give more but the lack of a password system lowers the grade by ten points. Too bad. Still, it's a very fun game that will hardly bore you.

NEW GAME

METAL GEAR

Year: 2021
Developer: Hoffman
Genre: Stealth game
Platform: Amiga
Versions: MSX 2 – Commodore 64 e NES

The Metal Gear saga also lands on Amiga. A saga that has fascinated many players, especially with the release of Metal Gear Solid on Playstation or the title that made Snake known to the general public.

But Metal Gear comes from far beyond time, since 1987 and was born on the platform preferred by Konami and Kojima, the MSX 2.

Metal Gear puts us in the shoes of a rookie soldier named Solid Snake. His job is to infiltrate a place called "Outer Heaven", rescue the hostages and destroy a new weapon capable of launching nuclear warheads on the world called Metal Gear. A revolutionary game at the time, little known in the American sound but with many fans in Japan and the old continent.

It is a stealth game with 2D graphics from above where to move forward we must not only shoot or punch enemies, but explore the area with circumspection, solve small puzzles and collect items and weapons. This Amiga version is a direct port of the MSX 2 version.

The graphics belong to that time period and obviously suffer from it compared to other conversion operations, but it performs its work excellently.

The audio sector was the real strength of the title and even in this conversion it is well done. Music creates tension and is well developed.
But as with the original, it is the playability and longevity that roar strongly.

Metal Gear is not a very long game, but it suffers a lot of backtracking and times when you will have to spend your meninges to figure out where to go. It is a game that requires attention and precision. Nowadays there are numerous guides available on the internet and not only, but in those days we had to arm ourselves with holy patience and mark every route explored.

To conclude, Metal Gear also deserves to be played in this Amiga version as in its previous incarnations. It is a game that has invented a concept of "playing" never seen before and that will be standard in the following decades.

by **Roberto "Il Bardo" Pirazzini**

Website: https://www.pouet.net/prod.php?which=89034

GIUDIZIO FINALE

» Gameplay 80%
Simple to manage and well developed and calibrated.

» Longevity 75%
The game isn't long but it is tough. Might scare off those looking for something easier.

NEW GAME

SPACEGULLS

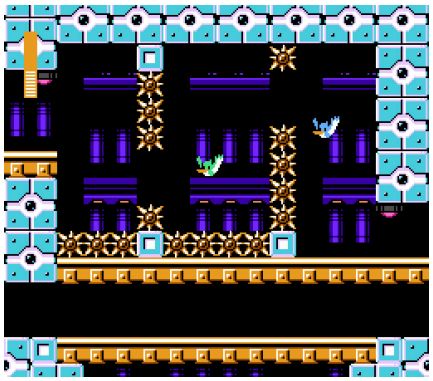
Year: 2021
Editor: Morphcat games
Genre: Platform
Platform: Nintendo Nes

Spacegulls was created for the NESdev Compo 2020/21, a developer competition and won the 1st place. It is a nice and fun platform realized in its first version in a single week of work.

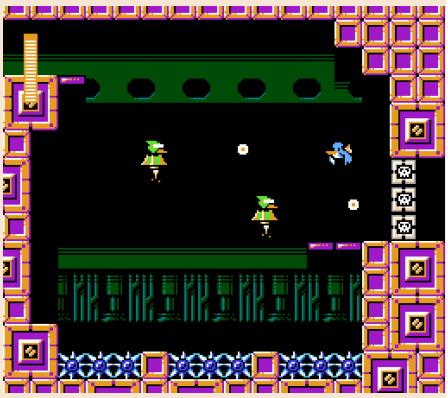
Given the success of the first version, the Morphcat games guys decided to make it a little more robust and put it on the market for free by correcting some bugs and adding new music.
We are seagulls and we have the task of bringing home prehistoric eggs hidden by the evil Dr. Beak of the O.V.O. (The Odious Villains Organization) in order to search for the secret of eternal life.
The eggs are hidden in a series of layers filled with traps and terrible robot feathers.
Spacegulls is a short platform and you see it, it ends in about 15 minutes of play once you learn the mechanics. But it's done well and reminds a bit of Mega Man (in the style of exploration) and Joust (in the way of moving).

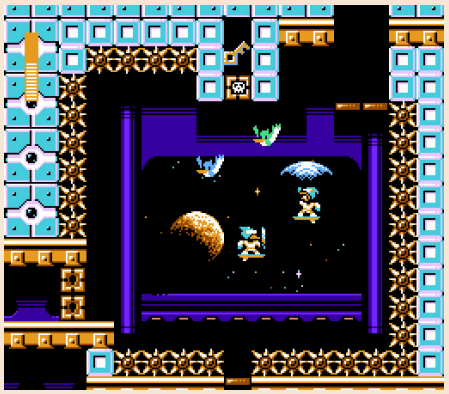
It uses the same engine as another Morphcat games product, Bobl. An engine that uses physics for movement. Innovative on this platform.
It is animated with great care, very colorful and equipped with a good soundtrack like all the products of this software house (such as Micromages or Bobl itself). It takes full advantage of the small Nintendo console.
The control system is perfect and you can easily learn what to do in the various levels.
Too bad about the very short longevity.
Too simple to complete.
Too bad.

by **Carlo N. Del Mar Pirazzini**



Website: https://morphcatgames.itch.io/spacegulls

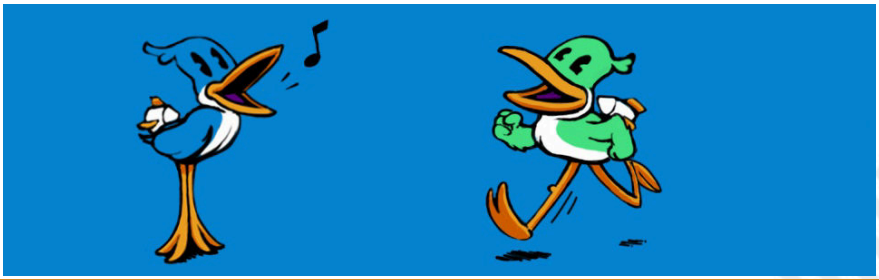




GIUDIZIO FINALE

» Gameplay 80%
Nice to play. Great control system and good difficulty.

» Longevity 50%
It is true, it was created for a competition, but something more could have been done. Only 15 minutes of gameplay to complete it... too short.



CHICKIN CHASE

Year: 1985
Developer: Jawx
Genre: Action
Platform: Commodore 64

For originality and comedy. The task may seem challenging at first, but once you take familiarity with it you will not only get to the end, but you will want to replay it whenever you need a little entertainment and some extra laughter.
On a graphic level it is done quite well as good is also the playability. The music is nice, even if it seems to be running against time: and the little chicken knows something about it, right?

Even this summer is punctually sultry in Italy, but we certainly can not complain after the restrictions due to covid and its curfew have been removed (hopefully forever) and in any case nothing takes away the desire and the stimulus to try, play and replay even a somewhat bizarre title like Chickin chase.

It was one of the games of the economic line distributed by Firebird, at least I always found it in that version and from there I could deduce if the game was a huge success or if it was another mediocrity. In this case, I was very doubtful, given the cover that depicted a chicken that was clubbing the lazy cockerel reading the newspaper... In fact the game has a bit of comedy.

We find ourselves in a chicken coop wandering around with the sole purpose of catching on the ground, but here comes our beloved clerk to lay an egg; just one? I believe that our chicken wants a large family and we will have to defend our future son (are we sure of his paternity?) from invading animals greedy for fresh eggs such as hedgehogs, foxes and snakes. Once the intruder is kicked out, we have to run to the alcove to flirt with the chicken, otherwise being just one second late, she will come out with a rolling pin in the direction of our head! Never leave a lady waiting, especially in an alcove.

Obviously we have a recoverable energy limit thanks to worms that come out of the ground but we have to be fast there too, since they will not remain with their head out of the ground forever. The further you go in the game the more eggs will be laid, the more chicks will come out and bigger and smarter animals will come. I discovered the game by chance like many others on a newsstand drawer and it was one of the few that caught my attention. For those of you who have the chance, take it with you at the seaside (not the Commodore 64 with all the accessories, eh!).

It seemed to me to see other games similar to these with chickens as protagonists, but this in my opinion is the best on the field and you will see it soon; the only problem perhaps will be that the wife, girlfriend, mother or friend could take some hints from the chicken... Maybe it is better to hide them some of those scenes... :-)

By this issue of August, I wish all readers who have been following us for years, good holidays and a future return to normality as well as a prosperous economic recovery.

by **Daniele Brahimi**

GIUDIZIO FINALE

» Gameplay 78%
As funny as you want. Be careful about showing it to your wives!

» Longevity 75%
Pure entertainment. And for relationship life, ehm...

Modena NERD 2021

by Carlo N. Del Mar Pirazzini

On Saturday the 3rd and Sunday the 4th of July 2021 the fifth edition of Modena Nerd took place in Modena (Italy), the first real post-pandemic "playful-comic" event.

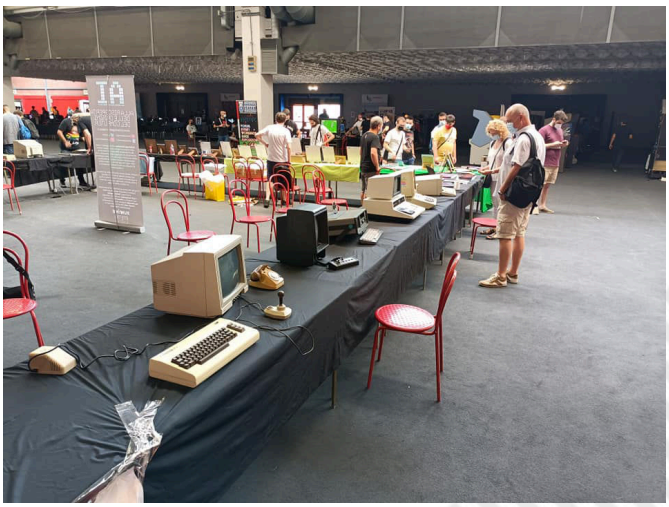
It was an edition hel with the maximum safety to avoid ourselves to be constrained again in the canvas of the pandemic. In fact, access to the fair was allowed only to those who had purchased tickets online on the official website. At the entrance the body temperature was checked and it was mandatory to wear a face-mask.

I will not dwell on describing the many exhibition areas, all themed (comics, cosplay, Lego...) but I must admit that they were a beautiful sight for the eyes. Especially after the greyness of this period, a breeze of smiles and the desire to meet.

Let's talk about the area of our interest, the video-games. I have to admit that compared to other fairs in the sector, the space reserved for retrogaming was really nice and well equipped.
Lots of cabins of all kinds (from Pac Man to the latest arcades) and lots of places to play and with the possibilities for the little ones to try consoles and computers with 8, 16 and multiple bits.

I stopped by to attempt a speed run at SUPER MARIO for NES, unfortunately it ended with a not optimal time (8 minutes).

Really beautiful was the VINTAGE COMPUTER FESTIVAL ITALIA area. Between Vectrex and Commodore 64, passing through ZX and many "open" computers that showed



their insides. A fantastic zone to watch and learn.

In short, a very successful event, not too technical (there will be other events for tech enthusiasts) but very well organized and performed!

Looking forward to attend the next edition in 2022.

Interview with Pierluigi Fresia AKA PierSoft

by Giorgio Balestrieri

The history of computing, beyond the main line drawn by great academic names, such as Alan Turing, John von Neumann, Federico Faggin, Grace Murray Hopper, Dennis MacAlistair Ritchie and many others, primarily developed in research laboratories and large companies, but it was also conditioned by many events whose protagonists are a handful of enthusiasts who gave enormous contributions to the development and the spreading of computer software and IT as we know it today. People like Richard Stallman, Bill Gates, Steve Jobs, Steve Wozniak, Linus Torvalds and many others, have changed the way computers and programs are perceived and used, allowing the transition of computing from something unknown to most, i.e. basically the privilege of a small circle of insiders, to an essential and permeating aspect in our everyday lives.

In the process of spreading the computer culture, an important part has been the distribution and availability of software, which has allowed computers to change from basically useless metal boxes and become valuable collaborators, able to increase productivity and efficiency in virtually any human activity, even the most futile.

In particular, the distribution of software, together with the birth of official sales channels, has always been accompanied by "parallel" forms of circulation. It started with a simple swapping among the first users and enthusiasts and then evolved into a sort of "industrial" methods of distribution, initially fostered by the general lack of perception of the real intellectual and economic value of software. What we want to tell here, through the speaking voice of one of these submerged protagonists, is the story of Pierluigi Fresia, better known in the 80/90s as Piersoft, whose trademark colonized newsstands throughout Italy and whose intro screens in PETSCII characters are well impressed in the memory of those who owned a C64.

The interview reported here has been extracted and adapted, for editorial reasons, from the video interview that Pierluigi has kindly granted us. The full interview (in Italian only) can be seen through RetroMagazine World Youtube channel (link at the bottom of these pages).

Fig.1 - A Piersoft intro added on top of unprotected games. Note the phone number.

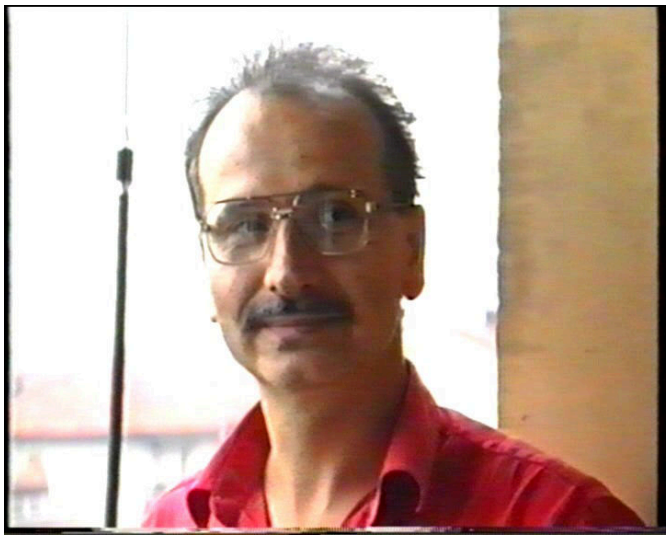


Fig.2 - A young Pierluigi Fresia

RMW: Hi Pierluigi and thank you for meeting us for an interview. Like many ex-young boys (me, Giorgio, I'm over 50, and Francesco is close to that milestone as well), we lived the golden age of microcomputers in which you were somehow a protagonist under the name of Piersoft. We kind of took advantage of the fruit of your work. At the time the software for our beloved home computers was hard to find and very expensive, especially for the tiny pockets of passionate kids like we were. How did your adventure begin? Who was Pierluigi at that time?

Piersoft: Well, Pierluigi at that time, as almost everyone knows, was a hairdresser for ladies in Milan. My adventure with computers began as a game; I was one of the first owners of a Commodore 64 in Italy, together with "DNS" (I can only tell you his initials for privacy reasons) and we basically began trading the only game we had. Then we met "2703", a German guy who lived in Milan, and he also had a Commodore 64. He was a very good coder and was even able to crack games. At that time the game protections were very simple, like those in the Activision games, for example. A simple JMP instruction was enough to get them passed. We quickly found out that this way we were able to expand our stock of games. Other members, such as "5406" and "Roby One Kenobi", were later added to our group, which reached the number of about 8 people. Unfortunately, today two of the members are no longer with us and I guess I will join them soon. I am suffering from several rather complex diseases and I don't think I have much time left. That's also why I decided to give this interview.

After the initial amateur swapping of the games we had in our list, we began a sort of "business". We used to go to London to buy and collect the new titles appeared on the market and take them to Milan, where we were able to unprotect them and copy them for other friends/users. In order to recover travel and original copies' expenses

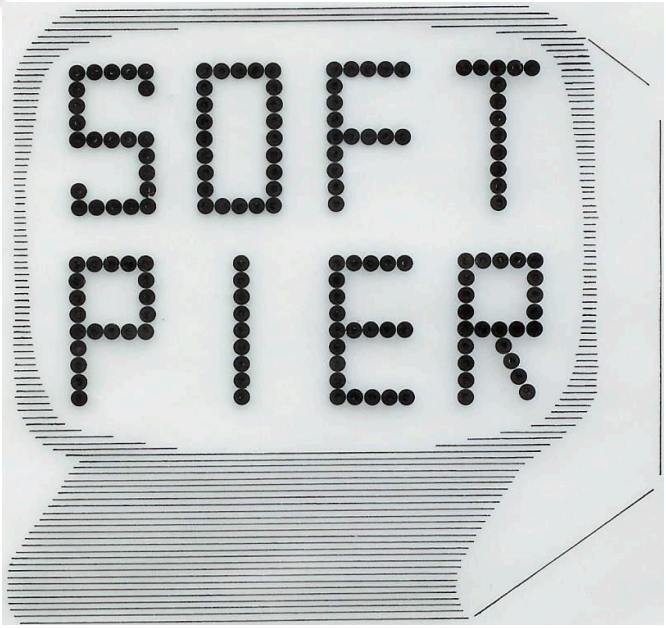


Fig.3 - One of the Piersoft's advertisements

(Ryanair and low-cost air companies did not yet exist, RMW note), we started to ask money for duplicate copies. Then, with the passing of time, other players entered this business, such as "Niwa". I was the oldest and already running a business, so I had the right experience to take care of the organization and coordination of the group. Each of us were assigned the tasks according to our abilities: some were dedicated to crack the software, others translated it in Italian, etc. I was in charge of the commercial part (but not only) and I was the only one to expose myself. Our activity rapidly became well known, so much indeed that it reached the point that the games we used to sell were copied and redistributed by basically everyone, even by those editorial companies that sold compilation of games through newsstands. This was the case of a publisher in Sicily, they used to sell tapes without any agreement with us. I did not take it well. It's true that in Italy there was a legislative hole and it was not strictly illegal to duplicate and spread games and software, but if caught you could still get in trouble. Selling tapes in the newsstands in my name, it meant pointing trouble at me, without me having any advantage.

RMW: You told us about how you arranged to go to London to retrieve new games and software. In fact, you were acting as an "unofficial importer", in a sense. You were bringing software to Italy that had not yet arrived in our country.

Piersoft: Yes, exactly, what we brought back from England to Italy did not exist, we got original copies to which we removed the protection and started selling it to our contacts. Personally, I gave away a bunch of original software. Just today (June 30, 2021, Editor's note) a dear friend came to me and I donated him a lot of stuff that I still had with me. Seeing my Commodore 64, equipped with Speed Dos and so many other nice things gathering dust in the corner, I felt sorry, so I gave it away too. They were a piece of my story.

Then in time, I switched to Amiga and the BBSes. Mine was one of the first and I managed it personally. Afterwards, many others were born, but I remember that we did a good job with the BBS. I no longer own the hardware and software of those times, as we are talking about the years around 2000 and the Italian law had now filled the gaps that had allowed us to operate undisturbed or so. I had reached that point where it was no longer worth it. I was fine financially, I had my own store, so I decided to quit.

RMW: In fact, what you were doing in the 80s and 90s in Italy wasn't strictly illegal. Without going into technical/legal details, which could bring us to a long discussion, due to a lack of a specific act on software copyright, your activity was not totally legal but could not be punished. The legislator fixed this anomaly much later, around the second half of the 1990s, starting in 1994 with the well-known "Italian Crackdown", which led to the closure of the unofficial distribution channels existing at that time, so software piracy became illegal in all respects. Concerning this topic, we can report a testimony collected during one of the events of "Once Upon a Sprite", a yearly event organized in Italy by Andrea Ferlito of Codemotion, where a former hacker told us much bolder stories, such as the phone phreaking or the credit card database trading of the time. Beyond the legal issues, this interview is useful to reconstruct a piece of the Italian history of computing, to which we are all connected. For example, I am a software developer, and Francesco was too, even if now he has gone to "the other side of the fence" (that is, he now torments the developers by telling them what and how to do it), but we both started with great curiosity and interest as kids. Italy entered the world of computing with great delay and for those interested in the IT to be able to obtain software and games to feed their passion was essential but not easy. In my case, for example, I started with video games but soon I began to wonder how they were created and studying the few resources available (BBSes weren't there yet and the Internet was not even an idea) and studying the disassembled code of games, I started the path that led me to find my place in the IT world. So I must say that without your activity of "unofficial importer" and that of many other organizations like yours, it would have been a lot harder to find software resources and documentation. In fact, you told us that

Fig.4 - Ghost'n'Goblins, hacked by 2703

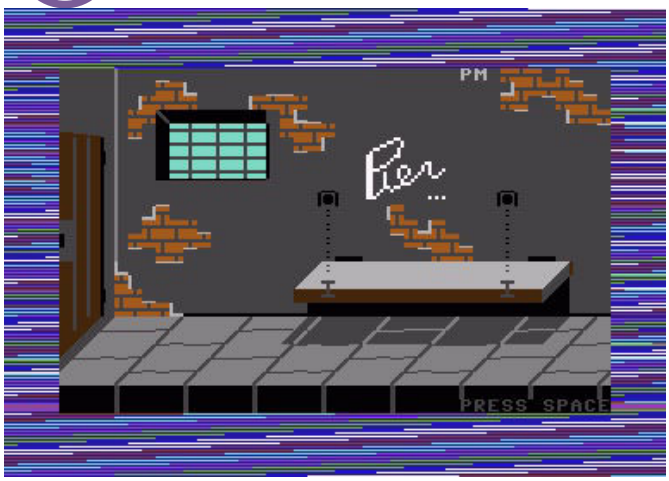


Fig.5 - Another Piersoft intro

coding and programming studies were assigned to your friend "2703" who had to learn first from the code he'd seen in the original games, understand how it was made and how protection worked in order to crack them up.

Piersoft: All true, yes, but after a while I learned how to unprotect games too. As a group we all used to work together and I have always been the one who "steals with his eyes" (learns by watching, Editor's Note). So watching how "2703" used to do with machine code, I learned something from him and became able to override the simplest protections. When more complex protection systems came out, "2703" learned more about them and he was able to bypass those as well.

RMW: So you weren't just a retailer or a passive gamer, you also got your hands "dirty" with the code, a real enthusiast then.

Piersoft: Yes, I used to do something with code too. Then, since I was the one with the most experience, I was also the one showing his face in the distribution. Even if it was not illegal, problems arose all the same, especially when it came to the BBS systems. I've been sued and seized by the Guardia di Finanza (Italian Revenue Guard Corps, E.N.), but it's all overdue now, because they didn't find any evidence. When I had already activated the BBSes, and one of these was located in Turin, they came there to seize my computers but thanks to a routine that erased the disks, which was activated by pressing a certain combination of keys, they did not find anything useful against me in those systems. I got away with it because at that time the officers were not experienced enough in computer crimes and computing in general. I was able to activate the wiping routine when the agents were already in my house. Anyways, my activity was not yet considered illegal, the frisks and computer requisitions were more due to the fame I had created around me and to the complaints of my "competitors", who repeatedly tried to harm me and put me out of the market.

RMW: Let's talk about your personal experience with computing. In what languages did you ever enjoy programming, if any?

Piersoft: I started with BASIC, like everyone else, I think. Then when I met "2703", I approached the assembly and the use of an assembler. I was doing pretty well, of course not at the same level of "Roby One Kenobi", who is still a programmer today. After a while "2703" left to America and now he works for NASA. "5406" instead has moved to Puglia, but is a very discreet person, he does not want to be interviewed and generally he refuses to talk about this old part of his life.

RMW: When you started your activity as Piersoft, in Italy the BBS-based communications were not even born yet. How did you members of the group keep in touch?

Piersoft: Look, "2703" lived a kilometer from me, I mean from my shop. The others lived within 7-800 meters from my place, so basically we were all in the same neighborhood. Between San Siro and Primaticcio there is not much distance so we used to meet in person to play games and swap copied tapes. Our meetings soon became a small organization and so the business was born, basically when "2703" began to crack games.

RMW: In other words, in a square kilometer or so, three people with the same passion and expertise in programming met together. I would consider it almost a sign of destiny, because in those years what happened to you was not so obvious. When you went to London to get new titles, how did you get them back to Italy? I mean, in your travel bags or were you shipping them from UK? Did you encounter border checks? Did you have to pay customs taxes when returning to Milan?

Piersoft: We simply put them all in our suitcases and as far as I remember, there were no customs costs involved. We did not carry tons of software with us, we just came back with 4-5 games each time and that did not arouse anyone's interest. Later, we took contact with UK people who sent us larger volumes of software, but during our first trips, when we went to retrieve games and programs, we returned with a few titles only. That's also because the production of new titles was not as high as it later became. When the modems became available, transferring the games was just a matter of having one on a phone

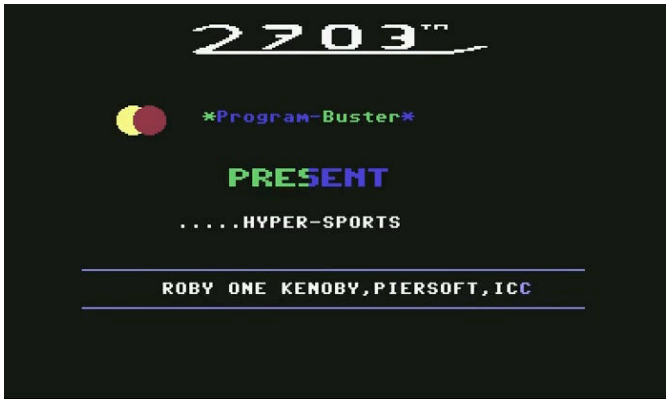


Fig.6 - Intro of 2703 to Hyper Sports, with credits

Fig.7 - Piersoft, during one of his London trips

line. I started with a mere 300 baud modem connection, connecting from my place in Lavagna to 2703's home in San Siro. Then faster modems became available on the market and I created the BBS to exchange software on the BBS circuit. We also used to connect to US BBSes in order to exchange software, and they often were just crack programs of a few KB.

RMW: A few kilobytes that would have cost you a fortune in telephone charges. At that time the tariff was regulated by the TUT (Tariffa Urbana a Tempo = Local Rate, E.N.), which provided for the application of different costs depending on the distance and geographical location of the two parts and it was very expensive to maintain a telephone communication, especially between two continents.

Piersoft: Actually it didn't cost us anything, as we used the blue boxes so we could call for free.

RMW: Why don't you tell us more about the volume increase of the software library you were handling. You told us how you collected a few titles going to London in person but then you used to manage a much larger quantity. The cassettes sold in newsstands, for example, included many titles with your own brand. When did you sense about the leap in terms of quantity of games that circulated under your name?

Piersoft: Well, a lot of time has passed since the beginning in 1983, but I remember that thanks to the many swaps I used to do with others having unpublished titles, my distribution (my "round" so to say) slowly expanded. It was precisely thanks to swapping with other people that the software unprotected by us started to circulate at the speed of light. And soon it became out of our control. Therefore we even created our own protection system, or rather "2703" actually put it together. Its name was Bunker! *(E.N. We did some research and Bunker! was coded by another Italian group. "The Wizard" was actually coded by Piersoft/2703. More on this in the next issues of RMW)*. It was capable of forcing the drive head to slam against its limit, if it noticed that the program was copied (again). It seemed a good idea at first, but then it revealed to be a disaster, because this technique, on some 1541 drive models, prevented the drive head to get back in position, actually making the drive itself unusable. The protector was withdrawn as soon as we realized the trouble it caused to disk drives. I remember that another protection system, called "Sentry", was also available and sometimes used by other groups to protect already cracked software.

RMW: Let's talk about how Piersoft titles got to the newsstand distribution. How did the transition from swapping to newsstand distribution take place? Was it planned or did it happen naturally, following the expansion of the local hand-to-hand exchange?

Piersoft: Actually we did NEVER distribute directly our titles on newsstands. There were publishers who did it and who came looking for us to get the software that they then sold on disk and cassette. Often they also dealt with translation and I admit that they paid us well. It was all legal for them because they had not cracked the games, so they had much less responsibility than us. It was a

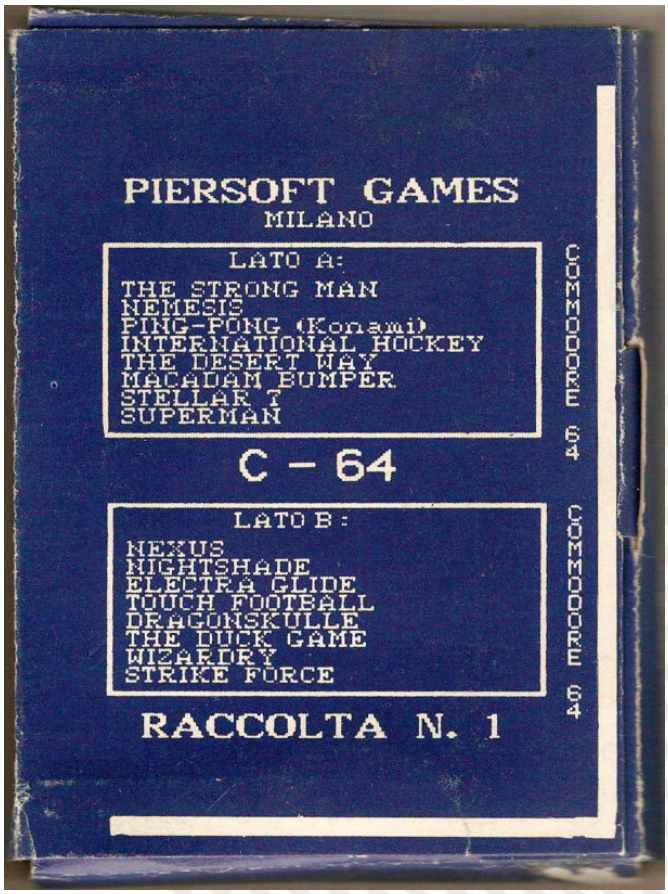


Fig.8 - One of the tapes distributed in Sicily without agreements with Piersoft

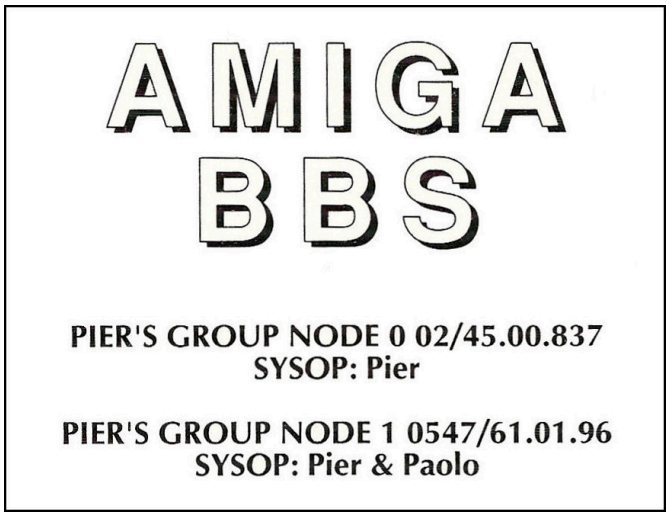


Fig.9 - Amiga BBS

perfectly transparent activity for them. On second thought, it was a mistake not to proceed directly with the publication in the newsstands, because the big money was actually there. I took a percentage for the games I provided, of course, but I know some of those who have become really rich by selling disks and tapes in newsstands. But then again some also got their fingers burnt, because instead of quitting as I did when this type of activity was declared completely illegal, they kept going, so at the end the law punished them harshly, even on the criminal side. I came out of this business with a clean record and the remaining part of the charges dropped for statute barred.

RMW: So, after all, you weren't the notorious distributor who colonized newsstands all over Italy, as we always believed because of your brand name on the pirated games!

Piersoft: Yes, that's right, I never distributed software through newsstands, I was just the supplier of those who then recorded it on tape and disk and sold it through newsstands. There were also unfair publishers, particularly in Sicily as I said earlier, who used to sell cassettes with our brand name, diverting attention and risks on us. Anyway, most of their games were ours because they worked flawlessly, unlike those of other groups whose cracking jobs were generally low quality. Piersoft became very popular, they even contacted me from France for an interview on the Actuèl magazine. Several distribution groups such as Niwa and Fanta-soft, they used to stock up from PierSoft.

RMW: Speaking about Niwa, do you want to tell us something about them?

Piersoft: Niwa's story is simple: they started selling their tapes on a single newsstand. They distributed the first games obtained from other retailers. One day they contacted me, it was easy to do it because at the time I put my phone number on the introductory screens of the games. We met at my house and we made an agreement for the supply of the software. After a while our relation broke up in a bad way, because they hired programmers who changed the brand on the software unprotected by us, the same games by Piersoft but obtained from other sources. They replaced our logo with theirs, not respecting our agreement. Over time, they even opened a store in Milan where they sold computers, accessories and software (both original and cracked games), but I knew they failed a few years later. I never contacted them again nor was I. As far as I know, that's Niwa's story.

RMW: Did you only deal with software for Commodore 64 or other systems as well?

Piersoft: Together with the Commodore 64, we took care, or, rather, I also worked with software for Amiga and Atari ST. For the ST the business was very small, it was not a popular machine and the number of titles available was very few. It was mainly used in music, because to the MIDI port that was supplied in the stock model. The Amiga, on the other hand, received a great success in sales and quickly presented a huge software library, productivity software included, not only games.

RMW: Let's go back at the BBS systems again. Today we see many fans, obviously nostalgic fans, that go back using this type of communication technology, so much that new BBSes are being created for the old Commodore 64. How did yours work? What hardware and software did you use to run them?

Piersoft: My first BBS ran on an Amiga Tower 3000 that I had brought from America. Up to three users could connect at the same time. The BBS software was named AmiExpress. I had actually started with the Amiga 2000, but the Tower 3000 offered better performance, the ability to connect hard drives and the BBS used to work very well there. I was the Sysop, of course. I also had external co-sysops, but most of the management was done by me. I also suffered cyber-attacks from jealous competitors,

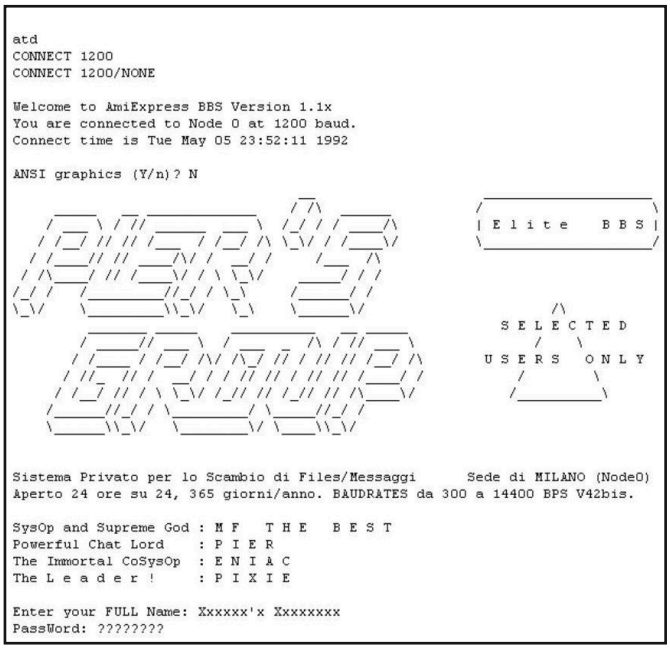


Fig.10 - Login screen of the Piersoft BBS which was based in Milan

some of which actually worked and compromised my system because of the crazy bugs of AmiExpress. The result of the attack was destroying all the contents of the BBS hard drives. When this happened, I always managed to put it all back on and it was a great success! The three lines were basically always clogged. The BBS itself was divided into seven areas, one of which required a fee to be accessed and another one was reserved only to a small number of users. This area was used to talk about weird things, such as how to build bombs (at the time there was a manual, called the Jolly Roger, written by anarchists, very well-known and popular despite the illegality of the topics treated, E.N.), but it was basically a reserved area. About 30 people had an account and it was mainly about technology and hacking. I also had contacts abroad, both in Europe and the US. The BBS actually reached a high degree of popularity.

RMW: So Piersoft wasn't just newsstand tapes that, as we found out, weren't even your business. Ironically, you've become famous for the wrong thing.

Piersoft: Yes, as I said, I only was a supplier. The main publishers were “DNS” and another guy, who made a great career, becoming director of several magazines and some years ago unfortunately passed away. Piersoft consisted mainly of a group of enthusiasts who were interested in computers and programming. One of the members of the group, Peter, he was an excellent programmer. He helped me a lot with cracking and translating software and I remember he was always eating at my place. Unfortunately, I've lost any contact with him.

RMW: Now an uncomfortable question. Of course you are free not to answer if you don’t want to. Can you tell us something about the deal of money that Piersoft generated?

Piersoft: Well, I admit there was a lot of business going on. We could easily earn 10 or 20 millions of Italian Lire per month (roughly 5.000 or 10.000 euros nowadays), which of course I couldn’t keep for myself. In the beginning, money was certainly few, but over the years they increased significantly. A much larger volume was generated by the distribution in the newsstand, that’s the reason I say it was a mistake not to enter in that business either. Of course the costs involved would have been higher, but I’m sure they would all come back with a great profit. I know some who really have gotten rich with this activity.

RMW: And now a fairly predictable question: did you have fun?

Piersoft: As I told you, in the beginning, it all started as a game following my passion, so yes, I had fun in that period. The software that was in our hands I initially redistributed it for free, then it became a business. I also assumed all the risks and all the trouble involved because

Fig.11 - Piersoft today, on his birthday

I was the only one in the group to be exposed, but I was ruthless and had enough guts. With the help of a lawyer, plus the fact that I quit in time, I came out clean record. But we were a close group and we did what we liked, it was a good adventure.

RMW: In your opinion, was piracy an aid for spreading the culture and the use of computers or was it an absolute damage? Today there are opinions in support of both theses. Given your experience and involvement in the field, what do you think?

Piersoft: The way I see it, well, in the beginning it was surely a help. A help because not everyone could afford to spend the amounts of money to purchase original software. Often there was no way to get it either though the official sale channels. In those years, the ability to find software easily and cheaply for me has contributed to computers popularity and computer science affirmation in Italy.

With this last question, we close the interview with Pierluigi "Piersoft" Fresia, whom we thank for his patience and for the opportunity for an interview. Our little chat has allowed us and the readers to know better the events related to the unofficial distribution of software in Italy, which was slightly different from other countries in Europe, as said, because of the lack of a good software copyright act.
We encourage you to watch the full video interview, which contains much more, especially on the personal and human aspects of Pierluigi. You will get a much deeper look and emotions than those you could receive reading this article.Here’s the link to the full video interview (in Italian only, sorry about that):
https://www.youtube.com/watch?v=CTQf4sQLdlA

We end this interview by expressing to Pierluigi all our solidarity for the struggle with his health problems, wishing him all the best. We hope to have him with us for a long, long time to come.

THE MULTIVERSE OF RETROGAMING

We all know that the world of retrogaming is "magical", and you the gamers certainly have always the feeling of being inside something that is different from everything else. And it's true: we often feel like we are immersed in a parallel reality, and we're seen from the outside as eternal children, never fully grown, and as nerds in old age. If you begin to have doubts, start thinking that perhaps they may be right. Just stop for a moment and sit down: answers will come to you. Sometimes they arrive as a shock, or, as in this case, His Majesty the Science comes knocking at your door. It teaches us the existence of the Multiverse, that is, a set of coexisting universes provided for by several theories, such as that of Linde's eternal inflation or that according to which a new universe would arise from every existing black hole. There are several levels of multiverse, such as Level III, where multiple universes all have the same physical constants but differ in what happens within them. Among them there is a reality that differs from ours only for one particular item: the SIXTY-FOUR-ISM, better known as the cult of the Commodore 64. Here is the most widespread religion and its leader is ZotterGod, the one who discovered the dimensional bridges. ZotterGod wanted to create ZZOT! Magazine, the official bridge to spread sixty-four-ism in every reality of the multiverse. This faith is based on five dogmas that we do not tell you here, we leave you the pleasure of discovering them by yourself looking for and reading the magazine. The mood is inspired by the publications of video games of the 80s, which will deal exclusively with new games for the C64, since the scene has re-exploded in a definitive way and in which there are games of crazy quality, sometimes unattainable in the golden years of eight-bit computers. But ZZOT! is also a fiction: a crazy interdimensional fantasy that is shown for the first time through a magazine and a web series. No one knows who is behind this crazy idea, their faces are hidden behind beautiful caricatures and invented names. A webzine that the day before it was put on sale was "pirated" by the famous group called Hokuto Force and this, for those who have been on the scene since the 80s, is a crazy deja-vu, a return home, to things done well. Obviously the digital magazine is available in two languages, because ZotterGod cares about sixty-four-ism and wants to make it available to as many people as possible. But where can you find this metaphysical magazine? Here are the links to enter this multiverse from which it will be impossible to escape:

• WEBSITE: https://www.zzot.it
• FACEBOOK: https://www.facebook.com/RedazioneZZOT
• YOUTUBE: https://www.youtube.com/channel/UCjDL-lZVvo-tr7bVMs59QTw
• PATREON: https://www.patreon.com/ZZOT
• INSTAGRAM: https://www.instagram.com/zzot_c64
• ETSY SHOP: https://www.etsy.com/shop/REDTRONCO

Erm...ok, you're right, the link to the pirated version of the first issue of the webzine is missing: https://csdb.dk/release/?id=205280

ZZOT! The fundamentalist magazine of the extremist sixty-four-ist.

Things from the other world friend readers: think that there, in that multiverse, the magazine that comes from the other dimension is ZZAP!, perhaps you have already heard of it...

Mic the Biker Novarina

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RetroMagazine World-English
Year 2 - Issue 9 - AUGUST 2021

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