



OpenConsole

LA PRIMA WEB-ZINE ITALIANA
SUL MONDO DELLE CONSOLE OPEN SOURCE

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English Version

For This Number

Collaborators (alphabetical order):

Farox

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Gab1975

The beginning of ARM architecture

Kayuz

Wiz/Caano Newsletter

RZZ

Sega Mega Drive / Genesis:
the best of – part 1

Zip

graphics & layout,
project development

TRANSLATION TEAM:

Amiga1200

Giulia

Vendetta

Kayuz

Introduction to Open Console

Open Console is a web-zine (a web-published magazine) born with the purpose of gathering all the news concerning Open Source consoles, and as second aim, trying to let everybody know this wonderful but also hidden world.

The web-zine is fully written by fans, and it's totally free.

You are free to share it, obviously it would be really appreciated if you could report the root:

www.zip.altervista.org/openconsole.html

(temporary download page) and also the community where the collaborators met <http://www.openconsole.it/forum/index.php>

For any questions, clarifications, doubts, we praise you to meet us in the forum of the above-mentioned community.

Enjoy the web-zine!

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Caanoo/Wiz Newsletter from 1st March to 15th April



THE WORLD OF PORTABLE OPENSOURCE CONSOLES

by Zip

Are You going to buy a portable console? Are You a programmer? A geek? Are You a fan of retro gaming? Or, more simply, You just don't want to give your money to Nintendo or Sony cashes? What are You looking for is yet reality!

The monopoly of the majors is been hit by the powerfulness of the Open Source!

In 2001 the anonymous south-Korean company GPH (game parking holding) introduced a revolutionary portable console, the gp32!



The idea was this: We just sell You the naked console, and you, a programmer that just wants to test his abilities, are going to buy it and You can start to work on it, then We will help you releasing the SDK to make the things easier. And so first games, old consoles and computers emulators get born, and as consequence the doors of console get opened to the retro gaming addicted.

Going forward, new products have been released, like the gp2x (name chosen by the winner of a contest promoted by GPH). Then, GPH made his own market small niche, and so in the 2009 They proposed the "Wiz" with a little old-fashioned look, strong and compact. It's a big success! With the firmware periodical updates, is also being implemented the Wi-Fi connection... At the same time, Chinese people (with a bit of late) smell the bargain: producing a console and not being forced to make games for It is a big deal! So the Dingoo (a less performance copy of the Wiz) get born.

Meanwhile, the GPH, running on enthusiasm, just 1 year later the great success of the Wiz, launches Caanoo with improvements like bigger screen and more ram, but the too much faster development of it causes some weakness (for ex. the cover is hiding a pixel line and it needs to get smoothed, or the long complained decision to put speakers behind).

How to not mention **OpenPandora** based on suggestions of gp2x community, going to be the open source console par excellence, but it's extremely rare to find.

While I'm writing this article, two colossus: Panasonic and Sony are working at 2 open source consoles project.

Jungle for the first and Zeus for the second (the Playstation phone android-based)..sneaky move in my humble opinion, trying to gain even the small niche market...

Open-Console Main Advantages

Operative system Linux based, and We know what is this about,

Possibility for a programmer to satisfy himself

And for who is not so good at game and apps programming: Possibility to re-play old-fashioned games through emulators (snes, neogeo, mame, even psx ecc.)

You don't even need to crack, unlock or doing nothing illegal, what are You looking for is yet here and it's FREE.

Sega Mega Drive / Genesis: the best of – part 1

The Best Games for the blue-porcupine console, with a particular focus on the less known ones.

By RZZ

Before We start:

-This is absolutely NOT a chart, because charts are one of the most stupid ideas of the human kind: to know if Alien Soldier is better or worst than Sonic doesn't really matter. What matters is that They are both great titles, and this is simply a list of games that deserve to be tried, no matter of the order.

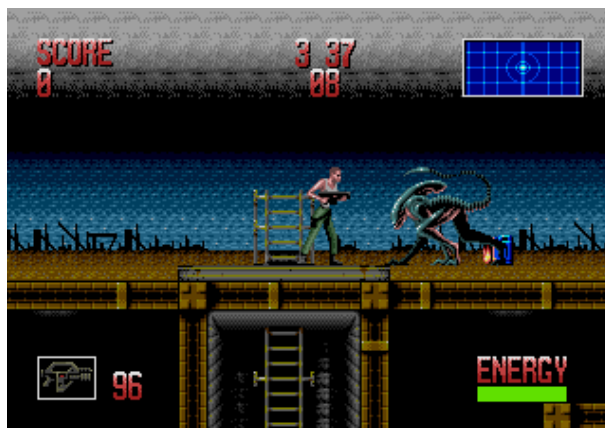
-The number of titles described is not immovable, to limit at 5, 10 or 100 the number of "cool" titles is pure madness. Why choose only 10 games for Mega Drive when They are surely more? It'd be like trying to find only 10 cool games for PlayStation 3: I bet You can't do it.

-I will not use votes, these games are almost compulsory to try, It doesn't matter if they worth A-, 7 or 87,4%!

-We will take in consideration just games that are compatible with the PicoDrive emulator for the GPH Wiz and Caanoo consoles.

Alien 3

Every video-entertainment transposition of any Media creates in the 90% of the cases to the birth of mediocre titles which have few or nothing to do with the game. It is with great joy, mixed to astonishment, that we receive the title of Probe Entertainment in the narrow club of tie-in worthy of the name that carries. Alien 3 immediately succeeds to recreate distressing atmospheres and of constant pressure, present even in the movies of the series. The aliens, in fact, will appear and attack with the speed of lightning, and only the ready finger on the key of the trigger will succeed in give them down the amount of bullets sufficient to kill them before that They succeed to overwhelm us. The claustrophobic and dark levels will become more and more complex and, together with the limited time, being left over along the same ones, maintaining the guideline useful to return in behind after having completed our submissions, It maintains the tension always alive. The only weakness: Ripley's animations are even more awful than the Aliens!!!!



Darius 2 / Sagaia

Classic-stamp Shoot'em up, it does not add and it does not remove nothing to the video-entertainment panorama of its kind, does not show a memorable sonorous, the graphic is in the average, but it boasts an impeccable level design. Pleasantly hard, it does not introduce banal sections or from the frustrating difficulty, thanks also to the generous presence of protective shields in the more furious moments of combat. Absolutely to try for the fan of this kind of games.



Mega Man: The Wily Wars

This title is for Hardcore nostalgics. Mega Man: The Wily Wars is the collection of the first 3 apparitions of the little blue dwarf incapable to fold itself on the knees, released for the NES. A graphical and sonorous honourable alteration renders it more enjoying for Mega Drive user, without weaken the 8 bit of the original titles. The structure is the usual: levels can be played by your favourite sequence, when you defeat the end-level's boss you'll acquire his weapon/ability, it is useful to approach to areas unattainable before in other levels. The difficulty is always highest and the possibility to save and to load in real time, given from the today's emulators, will be really appreciated by the gamer. Old-school game, you must hate or love it. But if you hate this kind of games, why are you wasting your time reading an article about retro-gaming about hand-held opensource consoles? Go back to play with your Wii-Fit and shame yourselves, infidels!!!



Ranger X

This action/shooter get distinguished for the possibility to control two independent units, present in the same time on the screen. Our main alter ego will be Ranger X, protect from a robotic gear, and equipped of classic upgradable weapons, followed faithfully from a not better identifiable monocled-vacuumcleaner-armored one, that totally looks like a mosquito that quickly has a frontal crash with Robocop. This faithful mean of transport shoots together our Ranger and at the occurrence can accommodate he to its inside, absorbing enemies' bullets instead of him. The confusion feeling due to the complex controls, above all on board of the moto, where the jump goes loaded with a pressure of a pair of second of the pad, prevents Ranger X to become a classic without time, but it deserves without the shadow of a doubt of being tried for the originality and the funny that can guarantee in the first sessions of game. Optimal colours choose, enormous sprite and pretty good mechanic design make Ranger X one of the better graphic games ever seen on Mega Drive.



Garfield: Caught in the Act:

Platform that does not introduce news or worthy particularity, but the sympathy that Garfield inspires, the variety of the acclimatization with consequent aesthetic and behavioural adaptation of the cat, renders this title a pleasure to play, along the sliding of all the levels, composed from famous movies parodies. The homogenizing with the atmosphere, thanks also to cured and fluid animations make to become the feline even more charismatic. Precise controls and very good characterized sonorous are the frame that render this game definitively enjoyable, above all if You are not looking for a platform in which You must center the jump with a "to the pixel" precision.

Typical case in which the final result is advanced than the sum of the single parts that compose it.



Alien Soldier

Technical, difficult and, as from Treasure tradition, perhaps also too much to being completely appreciated on a small display like the on of GPH console. Alien Soldier is a shoot'em up composed by short but intense levels, that make to prelude to an incredible amount of more and more large and pissed of bosses. They are the fulcrum of this game, case more only that rare, They are more than the common enemies. This bite-and-escape approach, joined to the attack variety renders the game faster, various and frenetic. It's like the levels are only an interval, in order to collect power-ups to trigger against the boss. The possibility to choosing weapon set at the level beginning, to remain suspended in the air, to execute fast evasive slides, to walk head down by the ceilings and changing in real time the weapon's tracking system, can only give an idea of the cure inside the design of the entire game.

One of the titles that make You proud to own a Mega Drive.



Elemental Master

Vertical slide Shoot'em up, this game is different from others cause in this our game, our hero isn't suspended in the air: he walks on rough terrain and he must juggle the obstacles encountered along the way. Enemies are typical figures we can face in all the others fantasy games: skeletons, bats, centaurs and wizards. We must be careful because they can hit us from behind. There's the ability to shoot from the front and from the back and i think this is providential. Difficulty is not perfectly calibrated, after the first few levels the wizard acquires new powers in the end of them and the difficulty decrease but we can see more difficult levels in the end of game. After all it's a good „kill time“ for all bored Thunder Force & co. gamer.



Donald in Maui Mallard:

Generally I don't like everything that comes from the Disney world, but It would be a serious mistake to ignore Donald in Maui Mallard. A game with optimal environment settings, equipped of double identity: shoot'em-up shaded when We will wear Donald's dress with a gun, beat'em up shaded when We will turn into Cold Shadow: ninja duck that uses a club as attack weapon and as mean to cross the obstacles. Big levels to explore, in seek of all the bonuses and the power-ups, are a common denominator for this genre of games, but the various stuff collection is made more interesting by the Shadow's growing skill to create huge and **lethal** combos with the rod. Optimal variety of game situations, boss and enemies cured in the minimum details by Disney **designers**, and sectors of levels explorations render this one an Action / Platform of first level.



Rock 'N Roll Racing

Driving game based on strengthening of own car. We can get our car stronger spending money we won and also thank to the misconduct committed against the three hapless opponents. We just have to become familiar with the isometric view, then keep curves and make their way by open door-car will be fun. In the background we hear instrumental version of famous rock-metal songs (like Paranoid by Black Sabbath, for example). This will increase our fun, especially when we will cross the finish line first, after hit with a missile the rear window of the car ahead of us!

The upgrading of the vehicles is surprisingly structured to be a purely arcade-style title (... were seen RPG less customizable) and the choice of the pilot, each with unique abilities, give further customization of the vehicle. Bad note: the annoying commentator's voice who want to mark the important moments of the race is really ugly!



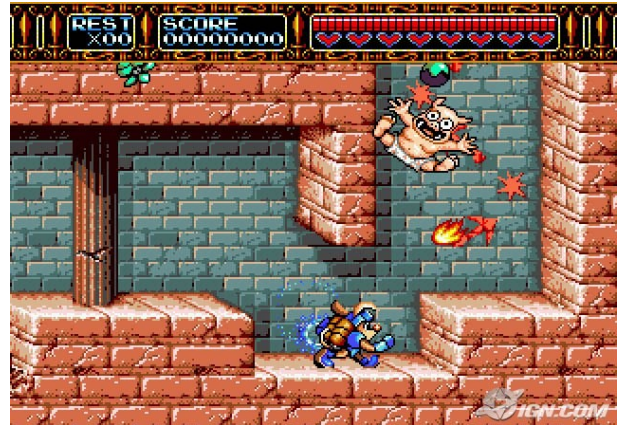
Vectorman / Vectorman 2

Tight controls, great sound, good variety of situations and the best graphic ever for Mega Drive from a technical point of view. All these features make Vectorman an action/shooter/platform promoted with honour, it's exemplar in every aspect. The main character, really poor of personality, can take advantage of temporary bonuses by changing his appearance to interact differently with the surrounding world. For example, he can change into an auger to drill the first floor and access to areas inaccessible or turn into a ball like in Metroid to approach secretly enemies and be detonated, and also transform himself in a fish to face the aquatic parts. I think you should try it, though you are not very fans of this game style, just to know about could do a Sega console.



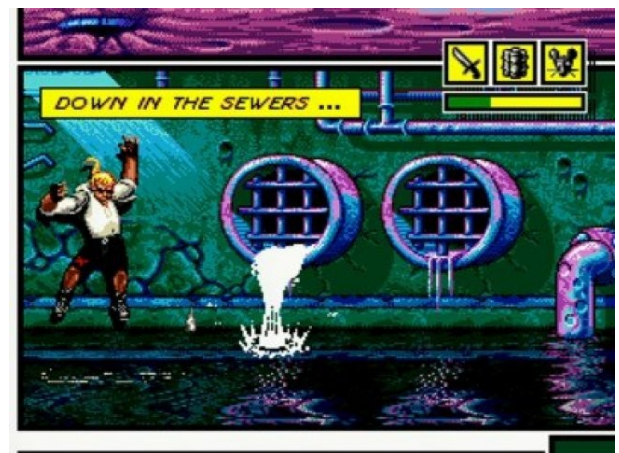
Rocket Knight Adventures:

Just few screens to understand that we are faced with a gem of its kind of game: the valiant knight-mouse, with his sword and jet-pack, stand alone on top of a cliff ready to challenge the enemy army composed largely of aggressive pig armoured. In a really funny mix of platform and shoot'em up sections with medieval sets with mechanical means that look like Metal Slug, we will face some of the craziest and funniest bosses of Mega Drive.



Comix Zone

You can not say that the graphics in a video game isn't important after trying Comix Zone. It have already passed 15 years from the exit of this game but you'll be fascinated by it since the presentation. The blond boor, the protagonist, gets sucked into the comic book he was drawing. He was confused and collect weapons he found in the first scene, then he jump off from that scene to enter in another one where the hand of the artist who is finishing the boy's enemy still lifeless but who's going to attack him. Like every respected comic balloons appear for many important events: shoots scored are shown by classic „POW“ and „WACK“. Enemies will challenge and the blond boor mocks them. We cannot hold back a smile after keep sensation to be in one oft he most popular Americans comics. What i really appreciate of this game style ist hat, in contrast to what happens in others scrolling beat'em up, we will not face waves of weak enemies, but we will fight with one or maximum two opponents, rather coriaceous, for each scene. This make every fight less trivial and always a clear situation under our control. Levels are few and shorts but these features oft he game aren't defects because after initial excitement of the title lose strength and the actions becomes repetitive. A scheme would be more redundant: Comix Zone must be played by instinct and appreciated for what it is without thinking more about.



The origins of ARM architecture

Di Gab1975

In today's market of hand-held about 75% of CPU is based on the ARM architecture (*Advanced RISC Machine*), This predominance comes from the mix of structural simplicity (and also a low energy demand) and computational efficiency.

It isn't a coincidence that most of open-source consoles use it; for example, Caanoo/Wiz's hardware implements a core with ARMv5TEJ architecture (ARM926EJ), instead Pandora's hardware implements a core with ARMv7-A architecture (Cortex-A8).

Even though the big diffusion of ARM architecture began since 2000, it has its roots in the early 80s, especially in search and development laboratories of the lost English society Acorn (first ARM was the acronym of „Acorn Risc Machine“).

During 1983 the Acorn, already manufacturer of BBC Micro home computer, in strict confidence wanted to begin a new project about 32-bit computer, it was able to set new performance standards.

Initially they thought to use a CPU already existing for the heart of machine, but after tested many microprocessors and found it not really good, they decided to develop a new microprocessor.

The idea was to create a new CPU based on simplicity and efficiency. Main consideration, as the foundation for this choice, was that most of the CPU of time „wasted“ several transistors for a complex ISA (instructions set), when, in truth, many software consume only a fraction of it (estimated about 30-35%) what was spared in number and complexity instructions will be used for computational efficiency.

In this regard, the association with RISC architecture (*Reduced Instruction Set Computer*) was a natural choice (the starting point was taken from Berkeley RISC project).

The research and development of Acorn department created first working CPU on April 1985, it was signed ARM1 (ARMv1) and it was just a prototype, not a definitive unit yet. The only actual use was as a co-processor in the external module Tube „ARM Evaluation System“ for BBC Micro (CPU ARM1 a 2 MHz + 4 Megabyte DRAM + dedicated operative system).

First „real“ CPU was produced in mid-1986 and was called ARM2 (ARMv2). Compared to ARM1 there were no upheavals, the „unique“ notable differences were the addition of two for operations of multiplication (MUL [Multiply] e MLA [Multiply-Accumulate]) and processor to 2 micron and the production process to microns instead of 3 microns.

This CPU was totally 32-bit, from ALU (Arithmetic Logic Unit), to the internal register, also ISA RISC and data bus. Only the address bus was limited to 26 bit with ability to direct and manage up to 64 Megabyte), we can say that it was a value very generous for a microprocessor of the second half of the 80's.

ARM2 became the heart of Archimedes' computer. These systems are not well known by the mass but „worshipped“ by home-personal computer's fans of the late 80's and early 90's. At its inception ARM2 represented the „state of art“ in terms of structural simplicity and computational efficiency, developers were able to obtain a 32-bit RISC CPU extremely fast and powerful adding just 30000 transistors.



Foto del primo processore ARM, denominato "ARM1"

I will make a comparison to help you understand: Commodore Amiga's CPU (Motorola 68000 at 7,16 MHz) had a capacity of nearly 1 MIPS computing (Millions of instructions at second), while the ARM2 at 8 MHz, that equipped the Archimedes, exceeded 4MIPS! However, we must say that „68000“ was a CISC micro-processor (*Complex Instruction Set Computer*) so the instructions are obviously more complex than ARM2's „RISC“. All this means that, in some cases, to perform the same operation carried out with a CISC instruction takes 2 or more RISC instructions, resizing, in this way, the actual performance gap. (with same conditions and in real use conditions, the ARM2 is about 2.5 times faster than the Motorola 68000).

Obviously actual CPU ARM are more advanced than previous' ARM2, anyway the concept of the structural efficiency/simplicity is still one of the important thing today. For example, base core of CPU ARM926EJ integrated on Caanoo/Wiz, has not „virtually“ transistors dedicated to additional instructions (Thumb, DSP e Jazelle), memory cache and memory management unit (MMU), consist of just 36000 transistors!

The A310 (1 Megabyte of RAM) of the picture, with the A305 (512 kilobyte of RAM), were the firsts Acorn Archimedes to be produced in series (July 1987). They are also the first personal computers sold who adopted a CPU with RISC architecture (ARM2).



The Apple Newton Message Pad (OMP) was the first PDA (*Personal Digital Assistant*) ever to be produced (August 1993), it also was the first portable device who integrated an ARM's CPU, more exactly an ARM610 (ARMv3) at 20 MHz.

Discovering Pandora

Di Farox

I'll show you Pandora (of [Open Pandora Ltd](#)) the last coming in order of time in the world of Open Source console.

Pandora is a unique device, in fact there are no other similar devices with same game control and Qwerty keyboard. But i think it is a big mistake talking about Pandora just as a game console, it is a mix of 7^o generation console and a mini computer with an operating system (*Ångström* based on kernel Linux) it is also able to run many software - properly compiled and adapted to the size of your screen - who run also on any computer with a Linux-based desktop.

Let's take a look to the characteristics:

- CPU Texas Instruments OMAP3530 at the official frequency of 600MHz
- Cpu core based on ARM® Cortex™-A8
- 256MB DDR-333 of SDRAM
- 512MB of memory NAND FLASH
- Audio/video processor IVA2+ with TI's DaVinci™ technology (430MHz C64x DSP)
- GPU PowerVR SGX530 with 3D OpenGL ES 2.0 support
- Wifi 802.11b/g module integrated
- Bluetooth 2.0 integrated + EDR (3Mbps) (Class 2, + 4dBm)
- Video resolution of 800x480 on LCD screen (resistive) with touch screen, 4.3" wide-screen, 16.7 million colours (brightness 300 cd/m2, contrast 450:1)
- Dual analogic controller
- Complete controls game pad type with back buttons
- Double-slot for SD cards (SDHC type with 64 GB support at the moment)
- Headphone output (150mW/canal at 16 ohms), 99dB SNR (untill 24 bit/48KHz)
- TV output (composite and S-Video) (via adapter)
- Internal microphone with the possibility to connect an external one on the headphone output. Audio signals input and output in stereo format
- QWERTY keyboard with 43 keys and numbers
- USB 2.0 OTG port (1.5/12/480Mbps) with ability to charge other devices
- USB 2.0 HOST port (480Mbps) capable of delivering 500mA to attached devices (for example, it supports USB memories, external keyboards, mouse, Modem 3G, GPS ecc)
- 2 UART port accessible from the outside and 4 lines PWM with signals for controlling such robots, debug, experiment hardware etc
- Designed so as not to corrupt the firmware easily (through a secure boot) so you can experiment different operating systems and software
- Power button (switch) with the possibility of going into stand-by mode and/or key lock (useful to use the console as a media player on the move) o ras reset (in combination with other keys) to restart.
- OS based on Linux (kernel 2.6.x upgradeable)
- Dimensions: 140x83.4x27.5mm
- Weight: 335g (with 4000mAh battery)

It is useful to use like game console, with the possibility to emulate different types of machines and/or past consoles, or run a series of games natives or imported from other systems and the classic use like a computer (to surf the internet, listen to music, watch videos etc).

How born the Pandora ?



Everything starts in 2007 from the need of forum community gp32x.com to have a console with evolve hardware and completely open source. Before there was only the GPH (Game Park Holding) with its consoles GP32 and GP2X as console open but this was not enough, they wanted more.

So led by 3 users of this forum Craig, Fatih and EvilDragon (importers and distributors of GPH), also supported by others like MrWeston (who designed the motherboard) and DaveC (who designed the complete body control), and excellent software developers as notaz, DJWillis, skeezix, vimacs, Pickle, cpasjuste and Squidge (who have worked and continue to develop the kernel, drivers and operating system), has begun to design and produce all the various components and details required to conduct.

Produce this type of device is clearly a serious obligation in term of money and experience, our 3 users first mentioned did not have large availability but they were determined to create Pandora, for this they decided to found much oft he project with the money of users through pre-orders.

Who wanted Pandora must necessarily pay first and wait for its realization.

Pre-orders starts on 30th September 2008 and after a few days had already been sold about the 3000 items (after they became 4000) of the first batch to found the start oft he project. First, inexperience on the production, did the team think that the delivery could take place in December 2008, but clearly couldn't be so.

So it was some time, much more than 2 years before they could finally touch an assembled Pandora.

This time would surely have lasted for less, but in the meantime have happened many problemsnatural disasters (including earthquake, volcanic eruptions) financial disasters and mishaps of various kinds (faulty design, defective supplies) this has delayed the development and production.

The final production (followed by deliveries) starts in May 2010 (but stopped shortly after due to an incorrect delivery of the analogical controllers and then to a problem with some cable connections between the motherboard and LCD screen) and then recovered towards the end of December 2010.

All this is now past and from the beginning of the year 2011 (exactly from the last of February 2011) it is possible to buy Pandora and have it delivered in about 7 working days.

Clearly is not possible pre-order Pandora but only buy it by going to:

http://www.openpandora.org/index.php?option=com_content&view=article&id=97&Itemid=34&lang=en

The price is about **440 Euro** (VAT included) excluding shipping charges.

If you want to have an idea of what is Pandora or how run many games and programs i recommend you to go to see this link

<http://www.gp32x.com/board/index.php?/topic/57444-one-vid-per-day/>

where there are about thirty video showing various emulators, games and various programs running on Pandora.

Here other links to have more info:

<http://www.openpandora.org/> Official page

or open this link which collect, thanks to the work of a user, all links usefull to find news relating to Pandora

<http://www.fillsites.com.au/pandora/index.html>

Where you can find software for Pandora :

<http://apps.openpandora.org/>

<http://dl.openhandhelds.org/cgi-bin/pandora.cgi>

Release Bullettin Wiz/Caano

01/03/2011 – 14/04/2011

By Kayuz & Zip (translation by Amiga1200)

>>14 april 2011

Pocketsnes 7.2.0 [W/C/G]

Finally released, by Bitrider, the long-awaited
snes emulator for caano, updated also for the
other open consoles

>>12 april 2011

PCSX4ALL and MAME4ALL [W/C/G]

New updates by Franxis for this two emulators

>>10 april 2011

TONG! [W]



Tetris and

Pong, at the same time,
a classics mix to trying

>>23 march 2011

PDFviewer 0.9.1[W/C]

Excellent PDF viewer, by Hardyx

>>22 march 2011

Caano-Vectrex

Coder Zx-81 release for Caano an update of
VecX , Vectrex emulator, it comes to version
1.1.1 . This is the changelog :

- CPU over-clock options (it's now 633Mhz by
default)

- Overlays support !

>>13 march 2011

Wind and water,[C]

Bubble Train,[C]

Amoebax [C]

Porting for caano, of this 3 fantastic puzzle
games

>>9 march 2011

Giana's Return [W/C/G]

Released a small update for Giana's Return ,
unofficial sequel of the famous platform game
The Great Giana Sisters .

Pokemini 0.4.4 [W]

Emulator by JustBurn of the console Nintendo
Pokèmon-mini.

>>4 march 2011

Mplayer [W/C]

Port for wiz of the famous open source video
player, it plays many video formats that's not
supported natively by console.

>>28 march 2011

SDLLopan [W/C]

Coder Rikku2000 release the porting of
SDLLopan , a mahjong game



**I WANT YOU
FOR**

OpenConsole

Our intention is to create an international webzine where to talk and promote OpenSource console and their world.

Help us sending review, info, FAQ, article news, ideas and suggestion

WWW.OPENCONSOLE.IT