

Oric and other 8/16 bit computers

compiled from newsgroups <comp.sys.oric> by André C.

Bob B.: I think it goes without saying anything that we all think the Oric is the best 8bit out there but I believe that there are others out there that, like myself, like to collect and play around with other older machines. My question is what other machines do people like using? Of course, my personal favourite is the Telestrat and Atmos and that is the reason that out of all the newsgroups out there this is the only one that I frequent on a regular basis. I would have to say that the my choice of 3 other top 8/16 bit machines that I like to use are as follows: 1. Dragon 64

2. Sam Coupe

3. Apple 2 GS

And the one that I use everyday is my PowerMac G5
So what about the others ?

Peter 'TheSpider' P.: I am on some other computer based Usenet News Groups also, but like yourself <comp.sys.oric> is the only one I really take part in. The others are: Amiga, CBM, CPM, Tandy. I also subscribe to ELO on Usenet. Outside Usenet, I am a staff member on Annexcafe, and moderate my own ChristianSanctuary News Group. [Dragon 64] Owned a Dragon 32 and loved it. Best 'Chuckie Egg' machine there is! [Sam Coupe] Never heard of. [Apple 2 GS] Did use the Apple II at school to learn some BASIC on, but never really used them that much. Do remember seeing 'Choplifter' running on one, and being amazed by it. [PowerMac G5] You need that powerful machine to run all your emulators! He! He! [So what about the others?] 1) Enterprise 128. No surprise there. Wonderful 8-bit machine. Pity it came out 2-3 years too late. It would have been a killer if it had come out on time, and had been marketed correctly. 2) Amstrad PCW8512. I actually loved that machine. It came complete with monitor, printer, wordprocessor, CPM, BASIC. 3) Amiga 1200. Still own one, but it needs put back together!

Anders C.: [Sam Coupe] It was a third-party much-improved Spectrum clone which got some hype and press in 1990ish. It is highly rated over in c.s.s., but I do not know how powerful it really is. [Apple 2 GS] The GS (game system) has a 2 MHz 65816 and I believe improved graphics which makes it almost Amiga-like (or maybe Atari ST-like). I do not know to what extent it resembles the old Apple II-line (II, IIE, II+ etc).

Ventzislav T.: [Sam Coupe] It not just improved Spectrum, it's claimed to be the best 8bit computer and by hardware specs it is, despite the words of the C64 fanatics. [Apple 2 GS] GS did not mean Game System. It is abbreviation for Graphics Sound, because it's improved much these sectors on the Apple 2 line. In fact, it never was meant for the games market. It has 4096 colours and Ensonic sound chip and backward

compatibility with the Apple 2. It was released in 1986 and it got bad reviews in the magazines, saying that this set the end of the 8-bit era. It came too late and was expensive. The Atari ST and Amiga 1000 were released more than 1 year prior and they were faster. The main CPU of Apple IIGS is 65816 which is the same one used in the SuperCPU upgrade for the C64, because it have backward compatibility with 6502, but on the GS it was clocked to 2.8 Mhz, which was way toooooooo slow for 1986. (The Amiga was running at 7.16 MHz and the Atari ST at 8Mhz).

No need to say that the GS was a big failure (like the Apple III) and it was orphaned even by it's father (Apple computer inc.), in favour of the Macintosh line. That decision made many Apple 2 diehards cutting their relationship with Apple, and moving to the other alternatives by that time (They were many - PC, Atari, Amiga, Sinclair, Amstard, Oric etc..). Here we used some slang for the Apple 2 series calling them «osmitza», which translated is something like «eighty», because it was the most popular 8 bit computer at the time. The 8 bit Apples were in every school and the Pravetz 8D was only in the homes. But we laughed at the GS calling it the 16 bit eighty, which mostly describes it. Hope this clears some questions.

Mickael P.: [Apple 2 GS (game system)] Funny, I always believed it meant «Graphic & Sound» :) [2 MHz 65816] Is that not a 2.5 mhz processor?

Ventzislav T.: There is ZX emulator on the Amiga, which reaches 33% of the original speccy speed. And the Sinclair is 3.5 MHz machine, which means that I had 1.155 MHz emulated Spectrum on 7.159 MHz 68000 powered computer. Take in account that's a whole computer, not just it's CPU. And it still multitasks so it doesn't use all the CPU resources. Too bad the author stopped developing it back in 1997 because I believed it can be made even faster, by switching of the multitasking for example. And on my A1200 with 14 Mhz 680EC20 I easily reach the 100% speed of the real spectrum. The 6502 is little harder to emulate on 680x0 processors because the first is low-endian and the second is high-endian, which requires some overhead in the instructions emulation core. AmOric is slow even on 28Mhz 68000.

Anders C.: [2.5 mhz processor?] Well, Ventzislav just wrote 2.8 MHz. I guess 2 or 3 MHz doesn't matter too much for a brief overview, but of course correct information is always preferred (just the other day I found some page where one had acquired what he thought was a 2 MHz Commodore 64). Btw, the SNES is supposedly 2 MHz 65816 but it was 4-5 years later than the Apple IIGS.

Fabrice F.: Well, I am not sure that a 8 MHz 68000 would always beat a 2.8 MHz 65816... The 68000

needs 4 clock cycles for a memory cycle, the 65816 needs only one... Sure, the 68000 has a 16-bit data bus, so it can fetch words from memory faster than the 65816, but the minimum instruction size is also one word, so fetching the code from memory quickly becomes a limiting factor. In the other hand, the 65816 is never delayed by this code fetching. Well, the 68000 is a very nice architecture anyway (much more symmetric than the 65816) and its numerous registers help him alleviate the memory bottleneck. But again, you could be surprised of the power of a 65816: I was able to write a sort of Midway arcade emulator on a SNES (3.5 MHz 65816). I can't imagine emulating a 1 MHz 8080/Z80 on any 8 MHz 68000 platform in real time... The only problem with the 6502/65816 IMHO is that they are just too fast :-) I mean, some of the people in this group recently bought W65C02S and W65C816S from WDC, they are rated for 14 MHz and it is very difficult (at least for me) to design a system at this speed. For a simple design, running a 6502/65816 at 14 MHz means a memory access of less than 35ns: you can find cache memory that complies with this constraint, but not Eproms (same for peripherals, it's hard to find peripherals that run at this speed). In fact, a 14 MHz 6502/65816 puts the same constraint on memory than a synchronous 56 MHz 68000 (well, the 68000 can reduce this constraint thanks to its asynchronous bus features)...

Mickaël P.: Like Atoric, that basically is not usable on any non accelerated Atari machine.

Fabrice F.: I am also talking about a complete arcade machine, with 50 full-screen builds per second on my PAL SNES. I am pretty sure the ZX emulator you are talking about was not refreshing the screen in real time, i.e. building 50 images per second... Add to this the different screen format of the ZX Spectrum versus the Amiga, a bare 68000 just can not do it... (a bare 65816 can not do it either, but the SNES has a powerful DMA feature :-) So, this means that the ZX emulator on the Amiga was only refreshing a part of the screen at each frame, or updating the Amiga screen when a byte was written in the ZX screen memory. In both cases, the emulator cannot cope with large modifications of the screen during a single frame... Anyway, Ventzislav, I was not attacking the Amiga :-) And the author of AmOric is a friend of mine, he is a big supporter of the Amiga, like you... But there's always a performance point where our beloved computers can not go beyond, you have to admit it :-) It is not a problem; we live with their limitations and still build incredible programs like D'bug and al. demos... [low-endian versus high-endian] The Z80 is low-endian like the 6502...

Steve Marshall: [Dragon 32] Chuck them away and they crack like on egg! ;o) [other machines] Sure there are plenty more and many of us have others. The one that I really like to use though is the Oric. [Dragon 64] Hmmm, can have smooth graphics in 4 colours. [Sam Coupe] Very rare and probably mostly used for it's

Spectrum cloning abilities (?). What about the Enterprise? That was quite similar. Then again what about the Einstein 256? [Apple 2 GS] I like Apples, but never owned one. I used to use an Amstrad a fair amount. With some 29 colours, decent Basic, stereo sound and CPM compatibility it was quite a good package. Commodore 128 was a great machine with colour 80 column screen options and compatibility with C64. The improved BASIC made for a machine that was very versatile and this must be one of the best - apart from rather poor construction. Keys keep falling off mine! The machine I have most enjoyed apart from the Oric has to be the Atari ST. It has great music options, superb graphics, a good user interface, all the software you could want. Excellent! Like the Oric-1 and Atmos, the Atari St came in two main forms - the STfm and STe. Like the Oric Telestrat, Atari released the Falcon, which also used the same keyboard as the ST, (the Telestrat having the Atmos keyboard). Every Oric fan should have an Atari ST!!!!

André M.: How about a PDP-11 running version 7? I think some of them had graphics capability.

Bob B.: [Sam Coupe] I have a Sam Coupe upgraded to 512k ram and it has a hard disk as well, A real nice machine and good fun to use as far as 8bit machines goes I think it was one of the last great 8 bits out there. [Atari ST] I have several Atari ST's 512's and a Mega ST 2, agreed they are nice machines but you need multiple monitors to get the most out of them!

Kamelito: I was impressed by The Pawn the first time I saw it on Atari ST, IK was also great but when I saw Defender of the crown and Marble Madness I bought an Amiga :) So it was Oric1, Spectrum (just for games like Knight Lores), Amiga500, C64 (too expensive that's why I choosed the Oric in the first place, but I loved to hear SID songs so...), A3000; A1200, 3DO, then very very late in the game I bought a PC :(

Mickael P.: [Atari ST] I have a 10 megabytes MegaSTE, a Spektrum True Color VME graphic card that allow 800x600 in 32 bits or 1024x768 in 256 colours on a VGA monitor, an RJ45 Ethernet card, and one gigabyte SCSI hard drive :)

Bob B.: Sounds like a nice system you have there Dbug, I would really like to get hold of an Atari TT now that would be nice :)

Peter 'TheSpider' P.: [Sam Coupe] I have searched out 'Sam Coupe' on Google, and have even downloaded 'Sim Coupe'. Good emulator indeed. It ran the demos no problem at all, and I got to see fully what this machine is capable of. What I could not really find though was a list of specs for the computer.

Ventzislav T.: [Sam Coupe] Here is a verbatim extract from the Miles Gordon Technology plc Sam Coupe Technical Manual version 3.0:

General Specifications

CPU Z80B microprocessor running at 6MHz. Special Customised VLSI 10,000-gate ASIC chip.
ROM 32K x 8 ROM, 150nS, containing SAM BASIC, disk bootstrap, BIOS.

RAM 256K upgradeable to 512K (256K x 4 100ns DRAM)

Sound Philips SM 1099 Synthesizer: 6 channels, 8 octaves, stereo with amplitude and envelope control, plus choice of wave form.

Graphics Motorola MC 1377P video Chip. ASIC serves as graphics processor, offering four modes:

Mode 1 32 x 24 character cells per screen, each cell capable of 2 colours; 16 colours selectable from 128; Spectrum-attribute compatible.

Mode 2 As mode 1, but with 32 x 192 cells, each cell capable of 2 colours: 16 colours selectable from 128.

Mode 3 80 column text display - 512 x 192 pixel screen; each pixel selectable for colour; 4 colours per line selectable from 128.

Mode 4 256 x 192 pixel graphics screen; each pixel selectable for colour; 16 colours selectable per line from 128.

In all modes, colours may be redefined at line interrupt, allowing all 128 colours to be displayed on-screen.

UHF (TV channel 36), through power supply unit. Colour composite video, digital and linear RGB, all through SCART.

Atari-standard joystick (dual capability with splitter cable).

Mouse - Coupe standard.

Light-pen, Light-gun - Coupe standard. Audio output socket.

Domestic cassette recorder.

MIDI In, MIDI Out (MIDI Through, via software switch). Network - screened microphone cable with 7 pin DIN connectors.

RS232 and parallel printer via external }4GT interface connected at expansion port.

64-pin Euroconnector for further peripherals.

Disk Drives 1 or 2 removable and internally mounted 3.5" ultra-slim Citizen drives, 1 Mb unformatted, 780K formatted.

Keyboard 72 full travel keys, membrane type, including 10 function keys (software defined).

Power Consumption 11.2 Watts.

Component Life: >5 years

Weight 2.26Kg (4.97 lb)

Power Supply: Primary Input voltage 240v AC 50Hz
Secondary Output voltage 5v DC 2A Maximum
Rating 12v DC 200mA Maximum

The full manual + some other docs are available on <ftp://ftp.nvg.unit.no/pub/sam-coupe/docs/>

The Sam-coupe appeared late in 1989 when then 16 bits were already taking a big part in the computing world, mostly dominated by Atari and Amiga. Firstly it came without disk drive which was standart by that time, and wrong misunderstanding about it being just a ZX on steroids, and all the other factors of the market led to it's failure to gain the desired attention.

Here are some articles: <http://www.ysnry.co.uk/articles/samcoupe-intro.htm>, <http://

www.crashonline.org.uk/71/sam.htm>, <http://www.mono.org/%7Eunc/Coupe/Info/about.html>, <http://www.mono.org/%7Eunc/Coupe/Info/timeline.html>. Hope these are helpful.

Peter 'TheSpider' P.: [Z80B microprocessor running at 6MHz] Pretty fast for an 8-bit chip. I think the Enterprise was only running at 4MHz at the same time. .../... [Graphics] Not too bad - Mode 4 is on a kinda par with the most used Enterprise mode. See <http://www.world-computers.com/museum/computer.asp?st=1&c=153>. .../... [The Sam-coupe appeared late in 1989 when then 16 bits were already taking a big part in the computing world...] Sad to say it was the same story with the Enterprise. Both machines deserved much more respect than they got, but both arrived far too late on the scene.

Ventzislav T.: [Enterprise] I saw the technical specs for the Enterprise. Both computers - the Sam and the Enterprise - are very nice computers, and still being truly 8 bit machines. The jump between the 8 and the 16 bits (having 8 bit as well as 16 bit features) must have been the Sinclair QL (Powered by 68008 - the little 8 bit brother of 68000, the PC XT clones with (8088), the Apple GS (65816 have 6502 mode) and on the console scene - the Atari Lynx - MOS 65C02 processor running at up to 4MHz (~3.6MHz average) (8 bit), but having Suzy - (16-bit custom CMOS chip running at 16MHz).

Steve M.: [Sam Coupe Technical Manual] Hmmm, The Einy256 is comparable. From <www.oldcomputers.freemove.co.uk>. The Tatung 256 was the follow on to the TC-01 it was launched at the PCW show at Olympia in September 1986. As the review in the Einstein user said it was launched while the home computer market was in the Doldrums, this could be why it was not the success it should have been. As the name suggests the Einstein 256 has 256K of RAM the memory is partitioned into 64K of CPU memory 192K of video RAM (VRAM) The Large amount of VRAM and the V9938 MSX 2 display chip means that the 256 is capable of very impressive graphics for this reason the 256 came with a dedicated monitor. The machine is built round the Z80 running at 4MHz and as previously mentioned 256K of RAM, it has 7 graphics modes the highest of which has a resolution of 512 x 424. The text modes allow 40 or 80 columns in up to 512 colours. The machine has a Matsushita EME-150 3" disc drive with a formatted capacity of 376K. There are a number of I/O ports including Serial, Parallel, user, two joystick, cassette and the VAMP which is a combined port for Video Mouse and Light pen. The Master disc supplied with the computer contains the Basic, Dos, utilities, demonstration programs and five arcade games. Although the machine came with a 14" Colour monitor which supplied the power for the computer there was plans for a Power supply unit, I am not sure whether this was a third party item or not.