

Part 1 - [Part 2](#)

Amiga CD32 Frequently Asked Questions (FAQ) - Part 1 of 2

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 Newsgroups: [comp.sys.amiga.cd32](#), [rec.games.video.cd32](#)
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| Amiga CD32 Frequently Asked Questions - Part 1 of 2 |
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| Maintained by Stuart Tomlinson           Version 3.5 |
| Email: stuart@spasm.clues.com       5th May 1996 |
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Due to Dan Cannon leaving his Demon Internet account, he has granted/suckered me with the pleasure of maintaining this FAQ. A lot of the work in it I owe to him.

Anyone still wishing to reach Dan can find him at his new Uni address <CM-D.J.CANNON@tees.ac.uk>.

NOTE: My e-mail address is due to change some time during this month. Any CD32-FAQ modifications should be posted to stuart@spasm.clues.com for this month only. After this month my new address will be casper@gconnect.com.

[---- Subjects Covered -----]

Part 1...

- Introduction
- Tech Spec
- Controllers
- Software
- Audio CDs
- CD+Gs/Karaoke CDs
- Photo CDs
- Video CDs
- Magazines
- Internet
- Jargon

Part 2...

- Expansion
- Emulating a CD32
- Software Developers
- Pinouts
- Addresses

[---- Introduction -----]

This is the FAQ for [comp.sys.amiga.cd32](#) and [rec.games.video.cd32](#). It's posted on the first weekend of each month. A lot of it is based upon the earlier FAQ by Edward D. Berger <eb15+@andrew.cmu.edu> - thanks go to him for doing all the hard work. Another equally sized hand of thanks must go to Dan Cannon <CM-D.J.CANNON@tees.ac.uk>, who was the maintainer before I. Who has done the rest of this FAQ so far.

It's split into two parts. The first part holds the contents and the more general stuff. The second part holds the more technical stuff.

This document is freely distributable, but it's compilation copyright. No changes should be made to it and it can't be sold for profit or used as part of a commercial document without the author's permission. So there. If you're reading this on a CD-ROM collection then it could be out of date.

Some sections have wiring diagrams or details of how to connect non-CD32 specific peripherals to your CD32. These are taken from postings from Usenet or Email and the only guarantee is that it worked for the authors. There is a very good chance you could fry both your CD32 and the peripheral by accident. If you're not knowledgeable in electronics, have somebody who is double check everything before turning the power on or buy a ready made adaptor instead.

As well as news postings, you can get copies of this FAQ though...

E-Mail To: mail-server@rtfm.mit.edu

Subject: Doesn't matter
send usenet/news.answers/amiga/CD32-FAQ/part1
send usenet/news.answers/amiga/CD32-FAQ/part2
quit

FTP [rtfm.mit.edu/pub/usenet/news.answers/amiga/CD32-FAQ/part1](ftp://rtfm.mit.edu/pub/usenet/news.answers/amiga/CD32-FAQ/part1)
[rtfm.mit.edu/pub/usenet/news.answers/amiga/CD32-FAQ/part2](ftp://rtfm.mit.edu/pub/usenet/news.answers/amiga/CD32-FAQ/part2)

WWW <http://www.lut.fi/~veijalai/faq/CD32-FAQ.html>
<http://uptown.turnpike.net/B/blender/cd32-faq.html>

More detailed CD32 pinouts are available...

E-Mail To: ftpmail@doc.ic.ac.uk

Subject: Doesn't matter
open ftp.demon.co.uk
get /pub/amiga/docs/cd32-pinouts.txt
quit

FTP <ftp://ftp.demon.co.uk/pub/amiga/docs/>

WWW <file://ftp.demon.co.uk/pub/amiga/docs/cd32-pinouts.txt>

And to get a copy of the CD+G list...

E-Mail To: ftpmail@doc.ic.ac.uk

Subject: Doesn't matter
open ftp.demon.co.uk
get /pub/doc/misc/cdplusg.txt
quit

FTP <ftp://ftp.demon.co.uk/pub/doc/misc/>

WWW <file://ftp.demon.co.uk/pub/doc/misc/cdplusg.txt>

For the Email methods of getting files, you can put 'help' in the body of the message (without the quotes) for more info about how to use that Email server (including how to split the message into parts for anyone who has an incoming Email limit).

Thanks to these people who supplied answers (either by Email or, er, borrowed from the newsgroups). If you think I've left you out then put me right...

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Allan Duncan	<a.duncan@trl.oz.au>
Anders Stenkvist	<ask_me@elixir.e.kth.se>
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[---- Key -----]

Q: A question.
 A: An answer (there may be more than one answer per question).
 * A change since the last version.
 + An addition since the last version.
 - An answer is missing or incomplete - this will (hopefully) be sorted out by the next version.

To skip through questions, set your text viewer to search for the string 'Q:'. To skip through subjects, search for '[-'.

[---- Tech Spec -----]

Q: What are the technical details of the CD32?

A: Internal...

CPU Motorola 68EC020 clocked at 14.32Mhz.
 32 bit data path. 24 bit address space
 (limited to additional 8M of 'fast' RAM due to CD32 system design).

FPU None.
 MMU None.
 ROM 1M (8 megabits) of operating system.
 RAM 2M (16 megabits) of 'chip' RAM.
 1K of 'flash' RAM.

CD drive Multi-session, double speed, top loading,
 caddy-less design. Max transfer about 330K/s.
 Custom controller based (not IDE or SCSI).

Operating system Kickstart/AmigaDOS version 40.6, release 3.1.
 Customisations for CD32 specifics.

Custom chipset AGA custom chipset from 4 chips.
 Chips are called Akiko, Alice, Lisa, Paula.
 See the Jargon list for what they do.

External...

Aux port 1 x 6 pin mini-din type.
 Combined serial/keyboard connector.
 Controller ports 2 x 9 pin D type.
 Accepts CD32 joypads, Amiga mice, joysticks,
 Megadrive joypads, Master System joypads.
 Video outputs Composite, S-Video, RF (for televisions).
 French CD32s have a combined SCART & S-Video
 port in place of the S-Video port.
 Audio outputs 2 x RCA standard fixed output level.
 1 x mini stereo headphone jack adjustable
 output level.
 Expansion port 1 x microchannel.
 For FMV cartridge or other system expansions.

Add-ons...

CD32 joystick Custom 11 button wire based, 9 pin D style.
 1 supplied, additional joypads can be
 purchased separately.
 CD32x & SX-1 Adds enough connectors and ports to make it
 possible to use your CD32 as a computer.
 FMV cartridge Play CD-i Digital Video or Video CDs.
 Keyboard Most Amiga keyboards can be plugged into a
 CD32.
 Mouse All Amiga mice can be plugged into the CD32.
 Some games will be easier to control.
 Serial link Connected to the Aux port, allows you to use
 the CD32 as an external CD-ROM drive for
 other computers.

[---- Controllers -----]

Q: What's the Competition Pro CD32 joystick like?

A: It's completely compatible with the C= CD32 joystick.

Some good things said about it are that it's shaped like a Megadrive joystick, the diagonals are easier to get to, it feels less delicate, it has turbo and auto fires, and it has a slow motion button.

Some bad things said about it are that it's shaped like a Megadrive joystick and the diagonals are more difficult to get to.

Obviously a bit subjective.

Q: Is it possible to plug other types of controller into the controller port?

A: Yes, but you'll lose access to most CD32 joystick buttons.

CD32 Megadrive Master System Joystick Amiga mouse

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Select  B      A      Fire      Left button
Stop    C      B      (Second fire)  Right button
Play                    (Third fire)  Middle button
Shuffle
Loop
Rewind
Forward
```

Q: Is it possible to connect a 6-button Megadrive or SNES joystick to the CD32?

A: As far as I know, it can't be done unless you're good with a soldering iron, but if anyone has managed to do this then I'll stick the details in here.

Q: Is it possible to use the CD32 joystick on normal Amigas?

A: It works fine. Some newer Amiga games are even taking advantage of the extra buttons (shuffle, loop, etc...). Many older Amiga games that use the keyboard for weapon select will use the stop button instead (eg. Project-X, Apydia, Turrigan 2).

Q: Is it possible to both connect both a joystick and a mouse and use them

together?

A: The joypad should be plugged into controller port 1 and the mouse should be plugged into controller port 2.

Q: Is it possible to connect more than two controllers?

A: There are rumours of being able to daisy-chain 8 or even 16 CD32 joypads together, but nothing's been seen.

What will work is if you connect some kind of interface that gives you a parallel port (eg. SX-1) and plug in an Amiga four-player adaptor in there.

The good point is that you can play the Amiga version of Dynablasters, if you have a floppy drive.

The bad points are that it's a bit expensive and CD32 joypads won't work when plugged into the four player adaptor (but they still work if you plug them into the side controller ports).

[---- Software -----]

Q: What CDs will work with the CD32?

A: CD32 ones (um), many CDTV ones, music CDs, Karaoke CDs, CD+Gs (like a music CD but it has pictures or lyrics displayed in time with the music), Photo CDs (if you load up a photo CD reader first), and Video CDs (if you have the FMV cartridge plugged in).

Also it can read CDs meant for other computers such as the PC and the Mac, but it's up to you to tell it how to make sense of the files on the CD (maybe by using something like datatypes). You won't be able to play games for other computers though.

Q: How can I try to convince a game to work in PAL or NTSC?

A: Connect an Amiga mouse into controller port 2, hold down both mouse buttons, and press the reset button. You'll be given a boot menu where you'll be able to choose either PAL or NTSC. If you have a keyboard then you can press any key to switch the boot menu between PAL and NTSC so you can see what you're doing.

This is useful for NTSC CD32 owners who want to run games that use the PAL area of the screen.

Multisystem TVs connected to any video output on or 1084s connected to the S-Video output will work.

TVs/monitors connected to the CD32 through the French CD32's or SX-1's or CD32x's or TP9's (see diagram at end of FAQ) RGB connector will also work fine.

TVs/monitors connected to the CD32 through the composite or S-Video outputs won't work though. The problem is that the PAL colour signal is still sent at the NTSC frequency.

Q: Are there any games with NTSC problems?

A: Lock 'n' Load - most of the games (about 80%) are PAL only.

Nick Faldo's Golf doesn't let you see the bottom of the screen, so you can't even take shots properly because the meters are covered up.

Video Creator has the bottom of the screen missing. Also the animations become slowly out of sync with the music because of the difference in speed between NTSC/PAL machines. Almathera MAY work on an NTSC version of Video Creator - Email them at the address at the end of the FAQ to convince them.

Q: Are there any games definitely without NTSC problems?

A: Here's a list...

Alien Breed Tower Assault	Battle Chess
Banshee	Bubba 'n' Stix
Bubble 'n' Squeak	Chaos Engine (NTSC)
Defender of the Crown 2	Fire and Ice
Global Effect	Guardian
Gunship 2000	Insight Technology

Labyrinth of Time Lilit Divil
 Lotus Trilogy Microcosm
 Pinball F./Sleepwalker (NTSC) Super Stardust
 Ultimate Body Blows Winter Olympics
 Zool

Q: What CD32 bundles are available?

A: Original...

Diggers Oscar

Dangerous Streets...

Dangerous Streets Diggers
 Oscar Wing Commander

Spectacular Voyage...

Chaos Engine Microcosm
 (Early versions also had the games from Dangerous Streets included.)

Critical Zone...

Cannon Fodder Diggers
 Liberation Microcosm
 Oscar Project-X
 Ultimate Body Blows

Q: What multimedia software is available for the CD32?

A: CD32 specific...

Grolier's Encyclopedia II
 Guinness Book of Records II
 Insight: Technology (released for CD32, CDTV compatible)
 Video Creator
 Video Creator Update 1 (Amiga CD32 issue 2)
 Video Creator Extras (AUI December 1994 - on floppy)

Various CDTV titles...

Advanced Military Simulator American Heritage Dictionary
 Animals in Motion Connoisseur of Fine Arts
 New Basics Electronic Cookbook Stamps of France and Monaco
 Timetable of Business, Politics Timetable of Science, Innovation

Various CDTV titles that require a mouse...

Dr Wellman Fruits and Vegetables
 Garden Plants Guinness Disc of Records
 Illustrated Holy Bible Illustrated Works of Shakespeare
 Indoor Plants Musicolor
 Trees and Shrubs Women in Motion

Various CDTV titles that require a keyboard and disk drive...

Inter Office

Q: What educational software is available for CD32?

A: CD32 specific...

MicroFrench CD32
 (Contains video sequences, but you don't have to own a FMV cartridge to view them. More languages are planned.)

Various CDTV titles...

A Long Hard Day at the Ranch Cinderella
 Fun School 3 (under 5's) Fun School 3 (5 to 7)
 Fun School 3 (over 7's) Heather Hits a Home Run
 Moving Gives me a Stomach Ache Mud Puddle
 North Polar Expedition Scary Poems for Rotten Kids
 Tale of Benjamin Bunny Tale of Peter Rabbit
 Thomas' Snowsuit

Various CDTV titles that require a mouse...

A Bun for Barney Barney Bear Goes Camping
 Barney Bear Goes to School LTV English
 My Paint Paperbag Princess

Various CDTV titles that require a keyboard...

Asterix English for French 1 Asterix English for French 2
 Asterix French for English 1 Asterix French for English 2

[---- Audio CDs -----]

Q: Is it possible to directly read the audio data from music CDs into memory?

A: Nobody's managed to do this. The next best thing is to buy an SX-1, plug a sampler into the parallel port, start a CD playing with one of the CD players from aminet:/disk/cdrom, then sample directly to hard drive.

[---- CD+Gs/Karaoke CDs -----]

Q: Where do I get CD+Gs from?

A: CD+G discs used to have a little sticker on the case, but the companies stopped this on the grounds that it confused the general public... The only places you'll probably find them now are in bargain bins or the odd mail order music store.

You can download a list of CD+Gs released from the place mentioned at the start of the FAQ, so you at least know what you're looking for. If you find a CD+G not on the list you can also send an addition (have a look on the list for how to do this).

Q: Can I use Karaoke CDs?

A: Yep. They're the same thing. If you work or you know anybody working in a pub then you could get hold of the CDs for their Karaoke machine.

Q: How do I play CD+Gs/Karaoke CDs?

A: If you have a CD+G disc, you'll be able to tell immediately - the music player will disappear and the graphics will appear as soon as you press play.

Use the up and down directions to change language and select to return to the music player. The rest of the controls work as normal. Once you're back at the player, a "CD+G" button will appear in the bottom left corner - hit select on that to return to the graphics.

Q: How do CD+Gs/Karaoke CDs work?

A: They fill up the spare 25M that is empty on a regular music CD with the graphics. They're limited to 16 colours low-resolution so that they stand a greater chance of working on a lot of different systems.

[---- Photo CDs -----]

Q: Is it possible to display Photo CDs without expanding to a computer?

A: Yep, use one of these CDs before the Photo CD...

Network CD	Weird Science
Photolite	Eureka

A: Olaf Barthel wrote:

In Winter 1994 I wrote a commercial program for this purpose. It can read both plain Photo CDs (such as the golden Photo CD Master discs) and interactive Photo CD portfolio discs. The program uses technology licensed from the Eastman Kodak Corporation. It is called "FolioworX Player" and retails for about DM 100,-. Blittersoft is the official distributor in the UK.

A: This is a quick description made after reading Asimware's info sheet (it's probably better to read the full thing for yourself if you're interested before making up your mind):

Asimware's Photo CD Manager costs US \$39.95/CDN \$47.95 and works on the CD32 and any Amiga with Kickstart 2 or above. It displays thumb nail images in groups of 10 on a sort of tape deck display. From this you can choose one or as many pictures as you want and view them as a slide show in any order. If you've got a CD32 or an AGA Amiga it displays them in 262144 colours, otherwise 4096.

[---- Video CDs -----]

Q: What does the FMV cartridge do?

A: If you plug in the FMV cartridge, you can play Video CDs in almost the same way as you play music CDs. It's really a 24 bit display card that

can be genlocked with normal CD32 graphics, so you can superimpose your own images over it (this is a feature of Video Creator, apparently).

Q: Where do I get Video CDs from?

A: Any decent computer/music/video shop.

Q: Can I use CD-i Digital Video CDs?

A: Yep. Some don't quite follow the standard though, so if you get rubbish on certain ones you can upgrade your FMV cartridge's ROM to the latest version (40.30) which can cope with the non-standard CDs. The dealer that you bought the FMV cartridge from should be able to do this for you at a cost of about 5UKP.

Q: What are the differences between Video CDs and CD-i Digital Video CDs?

A: You won't get the bookmarks that you find on the CD-i. That's because the bookmarks are really a CD-i program. Instead you can search through the disc using the normal music player controls.

[---- Magazines -----]

Q: Are there any Amiga/CD32 magazines with CD-ROMs?

A: In the UK (check your usual sources of foreign Amiga mags elsewhere)...

Amiga CD! (included with Amiga User International)...

Monthly. Some sections of issue 3 are CDTV and A570 compatible. Issue 3 was the last issue. They're still waiting for the Commodore issue to sort itself out, so maybe it'll start up again now that it has.

Amiga CD32 magazine...

Not regular. Issues 1 and 2 are available through Amiga Format's back issues page. Issue 3 was planned to be out on December 1st. It hasn't been seen yet.

Amiga Power CD32 version...

Not regular. Issue 49 has a CD32 version with some demos, a load of PD games, and a load of reviews of the all time top 100 games. It sounds like there could be more CD32 versions some time soon(ish).

Amiga Shoopier...

One off. Has a CD on the front with a load of graphics, fonts, sound samples, music, etc... You really need a CD32x or SX-1 to do anything useful with this.

CD Gold...

One off. A CD-ROM based magazine for CD32, CDTV, A570, and any CD Amiga. There was only one issue published, the pilot issue.

CD32 Gamer.

Monthly. There are two versions - the normal one and one which costs 5UKP more and has a full game attached to the front of the mag.

Q: Are there any other magazines for the CD32?

A: Amiga Pro/32 is now Amiga Pro. No more CD32 specific section. Most other Amiga mags have a small 1 or 2 page CD32 specific section each month.

[---- Internet -----]

Q: What Usenet newsgroups are dedicated to CD32 discussion?

A: Two...

- comp.sys.amiga.cd32 Using the CD32 as a slave drive.
- Add-ons for the CD32 (eg. FMV addition).
- Technical talk about the CD32.
- Serious issues for the CD32.
- rec.games.video.cd32 Games on the CD32.
- People's opinions about games.
- Hints and tips for games.
- Rumours and lists of new/future games.

If your site doesn't carry the groups, ask your system admin.

Q: What on-line mags are available?

A: Three...

Amiga Report aminet:/docs/mags/ar*.lha
 CD32 Bits aminet:/docs/mags/cd32bits*.lha
 CD32 View aminet:/docs/mags/cdvw*.lha

Q: Are there any CD32 pages on WWW?

A: Yep. It's run by Kimmo Veijalainen and you can Email him articles, reviews, hints and tips, digitised pictures of games, and so on to fill it up. Kimmo's Email address is Kimmo.Veijalainen@lut.fi. The home page is at <http://www.lut.fi/~veijalai/cd32.html>.

A: There is also the Archos Overdrive home page. It contains brief descriptions of games, lists of games that work and don't, tips on getting stubborn games to work, and so on. It's run by Michael Cox, and his Email address is mcox@access.digex.net. The home page is at <http://access.digex.net/~mcox/zappohome.html>.

A: And there's Grendel's Games lists which holds more Archos Overdrive info. From Jukka Kauppinen. Jukka's Email address is Grendel@Freenet.hut.fi.

A: Martin Chantler wrote:

I have just seen your latest CD FAQ and thought I will let you know that I have a homepage with lots of CD and Zappo information on it. The area also covers a lot of normal CDs etc.

URL: <http://www.pncl.co.uk/~martinc/main.html>.

[---- Jargon -----]

AFAIK

As Far As I Know. The CD32 expansion connector pinout is only available to registered CD32 developers, AFAIK.

AGA

Advanced Graphics Architecture. The name given to the latest custom chipset for Amigas, which allows 8 bit (256) and HAM8 (262144) colour graphics from a palette of 16.7 million. The CD32 uses AGA chipset as do the Amiga 1200 and 4000 computers.

Akiko

This chip handles the data coming from the CD drive and includes the functions of the CIA chips in other Amigas.

It's also more famous for chunky to planar conversion. Chunky and planar are two different methods of storing the screen in memory. Chunky is often used for 3D games. Planar is useful for scrolling games, and it's the method used by the CD32. This chip quickly converts from one t' other, helping developers to port code across from other platforms that use chunky.

Alice

The replacement for Agnus in older Amigas. Contains the Blitter and Copper, amongst other things.

AmigaDOS

The part of the CD32's operating system that's on CD-ROM (or floppy or hard drive). Developers must obtain a license to distribute even a small part of AmigaDOS on their CD-ROMs - it's copyrighted.

Audio CD

Your normal CD that holds music. Given a different name for computers because there's so many different types of CD about. The CD32 can play these.

Blitter

Block Image TransFER. Special part of the graphics chip hardware which speeds up many operations, by moving blocks of chip RAM around with DMA, while performing logical operations on them. Lines and area fills are among the most popular uses for the Blitter.

Boot

Putting the CD-ROM in the drive and automatically launching a program without having to go through the operating system (eg. Workbench, MS-DOS, Finder, etc...) and all the messing around with keyboards and mice that it entails.

CDs will only boot for the computer that they were written for, even though the files on the CD are readable on all CD-ROM machines (ISO-9660).

If you intend to use the CD32 as a CD-ROM for other computers and you don't have other storage devices (such as floppy or hard drives) available, you must find CD-ROMs that boot up and load communications software (such as Parnet, Sernet, or Twin Express).

Bootblock

A small piece of copyrighted code that must be on a CD-ROM in order for it to boot. Developers must have a licence to use the bootblock.

C-Cube

This is supplied in the FMV cartridge. It decompresses the MPEG-1 picture from the Video CD and puts it on the screen. It's also found in the CD-i's FMV cartridge.

CD+G

Compact Disc + Graphics. A standard music CD with the addition of graphic pictures that can be viewed with an appropriate player. CDTV and CD32 both play CD+G discs. CD+G discs were never plentiful, and may not even be produced any more.

CD-i

Compact Disc - interactive. System for multimedia developed by Philips; made available to the public shortly after CDTV was. Not expandable to a popular computer platform such as CD32 is expandable to an Amiga. CD-i software titles cannot be played on a CD32 and vice-versa.

There is a new cut-down version of the CD-i (smaller box, less connectors) that looks remarkably similar to the CD32...

CD-i Digital Video CD

A Video CD for the CD-i. The difference is that they also have bookmarks of interesting parts of the film on them. These can also be played on the CD32 with FMV cartridge, but the bookmarks are missing.

CISC

Complex Instruction Set Chip. Contains lots of nice instructions, but it ain't so good in the speed department.

CD+MIDI

Similar to a standard music CD, but it also holds information for driving MIDI instruments.

CD-ROM

Compact Disc - Read Only Memory. A 5 inch polycarbonate disk with aluminium coating, laser etched with holes for storing computer data. ISO-9660 CD-ROMs can also hold music tracks that can be played with a normal music CD player as well.

CDTV

Commodore Dynamic Total Vision. The previous CD based machine by C=. It wasn't exactly a storming success, mainly due to poor marketing. Many CDTV discs will work on the CD32, but some need a mouse and others need a keyboard.

Microcosm was originally a CDTV project. C= gave Psygnosis some financial backing to develop it, but the CDTV version never saw the light of day, except for some promotional demos.

CDXL

C='s attempt at getting motion video on the CDTV before low cost MPEG decoder chips became available. The CD32's version of CDXL can cope with more colours and cover more of the screen.

CDXLs can be about two-thirds of the size of the screen (although they can be scaled up slightly to fill more, but the side effect is that they look blocky) and they can also hold mono or stereo sound.

Chip RAM

Random Access Memory available to both the CPU and Amiga custom chipset inside the CD32 (and all previous Amigas). The CD32 ships with the maximum amount of chip RAM that the AGA chipset can handle - 2M.

Copper

CO-ProcEssonR. All Amigas feature a special co-processor as part of their custom chipset, which allows some graphic chip functions such as colour palette manipulation to happen asynchronously to other tasks, freeing the CPU for other work.

CPU

Central Processor Unit. The brains for managing data and its manipulation inside a computer. Amigas, CDTV, and CD32 have all used the Motorola 68000 series of CPUs.

Datatype

Allows the OS to support any graphic, sound, text, or animation format, once the datatype information is copied to the proper folder on the Workbench disk or hard drive. Programs can ask the OS to load the file for them without knowing anything about the file format themselves.

This can come in very useful if you want to read ISO-9660 CDs generated on other computers (once you've upgraded your CD32 to a computer, of course).

DMA

Direct Memory Access. Allows other chips apart from the CPU to access the RAM, at the same time as the CPU. This frees up the CPU for doing other work, whilst the Blitter is copying memory for example.

Fast RAM

Random Access Memory available to the Amiga's CPU, but not the custom chipset, thus faster for compute intensive tasks as no time sharing between the custom chipset and CPU is involved. Adding fast RAM should almost double the speed of the CD32 for non-graphics intensive work.

The CD32 ships with no fast RAM, but third party expansion boxes may allow for up to 8M of fast RAM expansion if you do not have the FMV cartridge, or 4M if used with the FMV cartridge.

Flash RAM

RAM which can have data stored such that it survives being powered down. CD32 uses flash RAM to allow saving high-scores or game position information for the next time you play. Also known as NVRAM (Non Volatile).

FMV

Full Motion Video - just what it says. Full screen moving pictures.

Often mis-used by journalists to mean any picture, including those that have 10 colours and are around the size of a postage-stamp, that's spooled from the CD-ROM.

FMV Upgrade

A plug in cartridge that gives the CD32 capability to play MPEG-1 encoded CDs such as CD-i Digital Video (Star Trek VI, Top Gun) or Video CDs.

GIF

Graphic Interchange Format. GIF compression is a standard for storing still pictures with 8 bit colour (256 colours on screen at once) and no loss in picture quality.

HAM6 or HAM

An earlier version of HAM8, found on A500s, A2000s, and A3000s, that remains for compatibility. This allows up to 4096 colours on screen at once.

HAM8

Hold And Modify - 8 bit. An Amiga screen mode which can have up to 262144 colours on screen at once by changing some colour registers on each succeeding pixel on a given scanline. This is most useful for static pictures or predefined animation sequences, as it is difficult to constantly compute the best pixel colours in constantly changing action games.

HAM8 is often used to display JPEG format pictures or predefined animations (CDXLs) with better than 8 bit colour (256 colours), often up to near 18 bit (262144 colours) quality.

IFF

Interchangable File Format. Developed by Electronic Arts and put into the public domain. Any IFF file can be read in by any program that understands the IFF format (if it's suitable - there's no point in a graphics package loading in an IFF sound file, for example).

Took off on the Amiga in a big way, so much so that any program that doesn't understand IFF is guaranteed not to sell. Didn't do so well on the PC for some reason (perhaps it was too good an idea...).

IMHO

In my humble opinion. The CD32 is the best inexpensive multimedia delivery platform, IMHO.

ISO-9660

The different computer manufacturers got their act together and agreed on a standard format for CD-ROMs, unlike the mess that we're still left with today for floppy disks.

You can read any CD32, CDTV, Mac, or PC CD-ROM in any of the others. Although the files are readable, the file formats are still different for each computer (unless it's the CD32/CDTV), but if you have some conversion programs or datatypes you can display the graphics, play the sounds, or show the text from the CD-ROM.

ISO-9660 CDs are also cunningly compatible with Audio CDs, so you can play tracks 2 onwards (track 1 is computer data) in a hi-fi, and computers can mix the music from the Audio CDs with the sound output.

JPEG

Joint Photographic Expert Group - JPEG compression is a standard for storing still pictures with 24 bit colour (16.7 million colours on-screen at once).

Kickstart

The part of the CD32's operating system that's in ROM.

It contains all the code needed to access the CD-ROM and multitask, as well as other things that will never see the light of day unless you add a keyboard and some kind of storage (floppy or hard drive).

Lisa

Handles the screen display. There's a palette of 16.7 million colours - each colour made of one of 256 shades of red, green, and blue. From that any power of 2, up to 256, or 4096 (HAM6), or 262144 (HAM8) colours can be displayed. The resolution can be most combinations of 320, 640, or 1024 across and 256, 512, or 1024 down (although there are other modes available).

MPEG

Motion Picture Expert Group - they've decided the format of MPEG-1 and MPEG-2 compression.

MPEG-1 is the accepted standard for video compression on CDs... It uses a variety of techniques to achieve staggering compression ratios while still maintaining good picture quality. Other parts of the MPEG standard include synchronized digital audio to make the format useful for movies on CD-ROM.

MPEG-2 isn't used on CDs but it looks even better.

NTSC

The television standard used in America.

NTSC screens cannot be as deep PAL screens. This can lead to problems when some software written in PAL countries is run on a CD32 using a NTSC screen. The software may use the bottom section of the screen that NTSC owners cannot see.

This is entirely the fault of software companies, there are enough ROM routines in the CD32 to tell the program what TV standard it is running under and the program should make allowances.

PAL

The television standard used in most of Europe and Australia.

Parnet/Sernet

Freely distributable networking solutions for Amigas. Uses the parallel ports (Parnet) or serial ports (Sernet) to allow one to mount drives on multiple machines. In this way the CD32 can access the keyboard and hard drives of another Amiga, and the Amiga can access the CD32's CD drive.

CDTV was often used as an external CD drive for Amiga computers via Parnet.

A version of Parnet is now available for PC computers, allowing you to link from CD32 to PC.

ParNFS

An Amiga only update to Parnet. This new version is faster and has some bug fixes.

Paula

Gives you four channel stereo sound. Each channel can have 64 volume levels and can play either waveforms or sound samples at almost any pitch or octave from RAM. This chip is used to create sound effects, or play music from memory often when the CD-ROM is tied up for some reason (a CD-ROM cannot be used to load game code AND play CD music

at the same time).

Photo CD

Transferring pictures taken from a camera onto CD. These can be read by the CD32 if you can find a CD-ROM with a photo CD reader on it, use it as a slave drive, or expand it to a computer and download the proper (freely distributable) software.

The Communicator is bundled with a Photo CD reader called Photolite - this is available seperately too. Also Weird Science's Network CD has a Photo CD reader on it.

RAD

RecoverAble RAM Drive. An area of RAM that doesn't lose its data when reset. Any area of RAM can be used as RAD. Games can use it to save data in, so it's possible to play a game of Liberation, save your place in RAD, reset, play another game, then return to Liberation later. Some games don't like RAD being there though.

RAM

Random Access Memory. Specialized computer chips that can store information for as long as they powered on or the CD32 isn't reset. RAM chips and be read and written to by the CPU or the AGA chipset.

RISC

Reduced Instruction Set Chip. A CPU that contains only a limited set of instructions. The idea is that each instruction is so simple that it doesn't take long to execute and any of the more complicated ones that are missing can be built up out of the simple ones.

ROM

Read Only Memory. Specialized computer chips that store data and instructions for computer operation and cannot be erased or written over.

Shovelware

Taking an Amiga game, putting it on CD-ROM with no improvements whatsoever, and usually charging more than the original disk version.

Slave drive

Connecting the CD32 via serial or parallel link to another computer and using networking software such as Parnet, Sernet, or Twin Express so that the other computer can read the CD-ROM in the CD32.

Spool

Quickly taking data from the CD-ROM and shoving it on the screen or sending it to the audio output, or both. Eg. CDXLs or the Microcosm tunnels.

3DO

Three Dimensional Objects (I think). Another CD-ROM based multimedia/games system developed by Electronic Arts and former Amiga people. This also is not expandable to a regular computer system. Slightly more expensive for the both hardware and software than the CD32. It has more limited screen resolutions. Only just released in Europe.

Twin Express

A program to transfer files from one computer to another through a serial link. The front end works similar to FTP. There are versions of Twin Express for the PC and Amiga.

Video CD

If you have a FMV cartridge you can play these. There were 100 films available in August '94, much more now.

Part1 - [Part2](#)



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Amiga CD32 Frequently Asked Questions (FAQ) - Part 2 of 2

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From: Stuart Tomlinson <casper@tomonet.demon.co.uk>
 Newsgroups: [comp.sys.amiga.cd32](#), [rec.games.video.cd32](#)
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 Reply-To: Stu - CD32-FAQ Mailbox <cd32-faq@tomonet.demon.co.uk>
 Summary: Frequently Asked Questions about the Amiga CD32 - includes how to expand the CD32 to a computer and how to use the CD32 as an external CD-ROM drive for other computers.
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 URL: <http://www.lut.fi/~veijalai/faq/CD32-FAQ.html>
 URL: <http://uptown.turnpike.net/B/blender/cd32-faq.html>

```

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| Amiga CD32 Frequently Asked Questions - Part 2 of 2 |
|-----|
| Maintained by Stuart Tomlinson           Version 3.5 |
| Email: stuart@spasm.clues.com       5th May 1996 |
|-----|
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```

[---- Expansion -----]

Q: Is it possible to use the Aminet, Fred Fish, etc... CDs without an expanded CD32?

A: Yes, Maarten Ter Mors has written a step by step guide of how to do this. It's available from aminet:/docs/misc/Aminet4_CD32.txt. There can be problems booting from some CDs if you use an unexpanded CD32 though. Maarten wrote:

There was a little something I missed in the CD32 FAQ. Because of (yet another) strange oddity in the Commodore 3.1 CDFileSystem, you can only use CD-ROMs with a *lower* or equal ISO revision than the disc you booted from (this is irrelevant to SX-1 users, for they are likely to boot from harddrive or floppy).

The Aminet 4 CD and the GoldFish CD-ROM set by Fred Fish are two examples of discs that use a higher revision than, say, the Weird Science Network CD. This means that you can't access the discs properly or at all. The solution is booting from a RAD: recoverable RAM disk. I was asked by Urban Mueller (who does a lot of the good work on the Aminet CDs) to write a step-by-step guide to set one up.

A: Joop van de Wege has another answer (Aminet 5 & Communicator)...

I haven't read the notice yet but I found out for myself how to do it and its not a hassle. I'm just too lazy to write a small script file to copy the 2 files and execute the mount command.

Step 1: copy your mountlist entry CR0: to snet:ram
 Step 2: copy L:amicdromfilesystem to snet:ram
 Step 3: mount cr0: on the cd32 side
 Step 4 and last one: start copying files from cr0: to wherever you want them, run programs, read guide files, search for

A: And another from David Law of Weird Science (Aminet & Network CD)...

We have found that CBM's filesystem in general does not cope too well with the Aminet CDs. This may be due as you say to ISO revision numbers. The easiest fix is to remount the CD drive as CD1: with AmiCDRom filesystem and access the Aminet CD's as `CD1:` or `Network:CD1/` with Sernet. When trying this be sure to set the 'T' flag in the line 'Startup' of the mountlist. This will ensure that the

trackdisk device is used to access the CD drive. AmiCDRom filesystem for some reason thinks that the CD drive is a SCSI device otherwise and will probably crash the machine.

The best way to do this is setup a drawer on your amiga with the following files in. [Call it RAM:CD1 for the mount list below - Dan.]

```
CD1           AmiCDRom Mountlist file.
CD1.info     An icon for the above.
cdrom-handler The filesystem handler.
Mount       WB3.1 Mount command.
```

Just ensure that the mountlist points to 'Ram:cdrom-handler' and not 'L:cdrom.handler' and that the icon points to 'Ram:Mount' as the mount command on the NetworkCD is WB1.3 and is not suitable.

The Mountlist file is...

```
/* AmiCDROM filesystem */

Handler = Ram:CD1/cdrom-handler
Stacksize = 10000
Priority = 10
GlobVec = -1
Mount = 1
Startup = "DEVICE=cd.device UNIT=0 ML T R"
```

The version of Mount should be 38 or above (use 'Version Mount' to check).

Q: How do I stop my CD32 resetting when I take the CD-ROM out?

A: If you boot from CD-ROM, the CD32 resets when the lid is opened. You can either run a program such as NoReset that disables this or boot from another device, such as RAD, floppy, or hard drive.

Q: How do I use my CD32 as a CD drive or slave drive for another computer?

A: Connect a serial link (buy a ready-made link or make your own - see the diagram for the Aux port) between the CD32's Aux port and the other computer. Then run either Sernet or Twin Express on the other computer and the CD32. You'll have to find a bootable CD-ROM with one of these programs on it and you may need to run NoReset unless Sernet and Twin Express are on the same CD as the files you want to transfer.

A: If you have an interface attached that gives you a parallel port, you can connect a parallel link between the CD32 and the other computer, remembering to use a special Parnet cable and not a normal parallel cable (otherwise you could easily fry everything). Run Parnet on the other computer and the CD32. You'll have to find a bootable CD-ROM with Parnet on it and you may need to run NoReset unless Parnet is on the same CD as the files you want to transfer.

ParNFS is a replacement for Parnet, with bug fixes for Workbench 2 or above machines (that includes the CD32). It fixes the Dir, List, and Directory Opus bugs.

A: You can use The Communicator. This is a link from the CD32's Aux port to the Amiga and a CD-ROM with a series of utilities on it...

```
Communicator...
Display text and graphics on the CD32.
Play Audio and Video CDs.
Transfer files to and from the CD32.
```

```
Twin Express...
Serial file transfer program, Amiga and PC versions.
```

```
Workbench...
Modified to allow the joystick to be used as a mouse.
```

```
Photolite...
Display Kodak Photo CDs.
```

```
Scala driver...
Allows Scala, running on another Amiga, to control the CD32.
```

There are two versions available. The Communicator Lite doesn't have a keyboard through port or MIDI in/out/thru.

A: There is a new version of The Communicator, with the original title of The Communicator 2. Improvements to the previous version are...

Virtual CD...

Appears to make more than one CD-ROM accessible to the host Amiga, also stops resetting.

File Transfers...

More reliable - Zmodem.
Faster - apparently it can reach up to 210000 baud.
More compatible - works better with ISO-9660 CDs.

AGA Viewer...

View pictures and anims in any mode, including AGA.
Will also work for non-AGA machines.
Supports datatypes.

Workbench...

A newer version (doesn't say which).

Mediapoint driver...

Allows Mediapoint, running on another Amiga, to control the CD32, including Audio and Video CDs.

Hardware...

Added A2000/A3000 keyboard port.
Serial lead is DB25 to RJ10 (telephone) and is easier to remove.

The Communicator Lite 2 doesn't have a keyboard through port, MIDI in/out/thru, or status LEDs.

Q: How do I attach a keyboard to my CD32?

A: IBM keyboards won't function without a custom add-on to translate IBM keycodes to Amiga keycodes (the SX-1 has this).

Plug in an Amiga keyboard into the CD32's Aux port. Amiga keyboards are all exactly the same inside but just have a different case or plug on the end of the lead, so you'll probably need an adaptor...

A500/+ Open up the case and build your own lead from the keyboard ribbon to the CD32. The pinouts are at the end of the FAQ.

A600 Not possible.

A1000 Build your own adaptor from RJ-11 to mini-din. The pinouts are at the end of the FAQ.

A1200 Not possible.

A2000 Buy an AT to PS/2 keyboard adaptor from any PC clone shop and plug that inbetween.

A3000 Buy an AT to PS/2 keyboard adaptor from any PC clone shop and plug that inbetween.

A4000 No adaptor - just plug it in.

CDTV Buy an adaptor - eg. from Almathera or MultiMedia Machine. Or modify the CDTV keyboard yourself. The pinouts are at the end of the FAQ.

A: Plug in an IBM keyboard into the SX-1's keyboard port. F11 and F12 are used instead of the Left-Amiga and Right-Amiga keys. Print Screen is used instead of the Help key.

A: Create a Parnet or Sernet link (see above) and run PNetKeys. This re-directs all keyboard and mouse input from an Amiga window down the link to the CD32. You'll have to run a version that does a 'Mount MOUSE:' on the CD32 - no problem if you can create your own boot disk but it could be if you're using a version from a CD-ROM.

A: Use Patrick Van Beem's CD32 Keyboard program. It's similar to PNetKeys but it's smaller, faster, works over Twin Express or even by itself, and converts controller input to mouse input. The program is shareware - if you find it useful you should pay \$5 or fl7.50. Patrick's Email address is patrick@aobh.xs4all.nl.

Q: How do I use my CD32 as a computer?

A: Use a SX-1. This has...

IBM-PC AT keyboard port.

9-pin serial port.

Amiga standard parallel port.

Amiga standard RGB port.

Amiga standard floppy drive (use an external drive as DF0:. For more drives, daisy chain them from the first one).

2.5" internal IDE connector (drive fits inside the SX-1).

3.5" external IDE connector.

SIMM socket for up to 8 meg additional RAM (restricted to 4 meg if you intend to use the FMV cartridge too).

Audio input (karaoke).

Internal battery backed clock.

Pass through connector (for other devices, eg. FMV cartridge).

If you add the SX-1, the Aux port will not work as a serial connection any more, but you can still attach Amiga keyboards to it, even if you have a PC keyboard plugged into the SX-1.

Some external drives do not like the SX-1. Roctec and M3-A-1 drives are a problem.

If you use a file recovery program on the SX-1 disk, you'll get more utilities.

If you intend to have more than two devices attached to the SX-1, you should think about getting a better power supply. These can be bought separately, or you can modify another Amiga one (eg. A500) by replacing the connector at the end of the lead.

If you add extra memory to it, it should be at least 80ms fast.

A: Use a SX32. It's small so it fits *in* the CD32 like the MPEG module. You have a parrallel, serial, floppy, RGB and VGA-Port. You can put a 2.5" HD on it and a 2-8 MB PS/2 Simm module. Unfortunatly FMV cannot be used with it. It is also rumoured to come with an A1200 manual. Apart from that it fixes the voltage problems it is more or less like the SX-1.

Alan Redhouse wrote:

"Standard Amiga serial, parallel, FDD, RGB ports and a 15 pin VGA port.
Uses standard Amiga K/b
Has standard Simm socket for up to 8MB
Has 2.5" HDD interface and mountings for an internal unit

Everything (inc HDD) fits inside the CD32 (sockets protrude about 10mm)
Supplied with WB3.0 on CDROM (obviously has K/s 3.1 already)

VERY reliable - it must be the only Amiga accessory that we've picked up & plugged in and its worked perfectly first time and ever since.

It really does become a portable Amiga.

Price 199.95 inc VAT"

A: Use a CD32x. This is a 19" rack mounted system for CD32s used in professional applications. It includes remote monitoring of CD32x units, fault detection, and options for genlocking and MPEG. There are connectors available for...

Networking.

RGB port.

Scart port.

Floppy port.

IDE connector.

Volume control.

Stereo input and output.

Internal battery backed clock.

Mick Tinker of Index said that they're working on a home version of the CD32x. The release date depends on when Escom starts selling the CD32 again.

Q: What are the SX-1 jumper descriptions?

A: Jumper number...

1 OFF = If you have 1 or 4 megs.

ON = If you have 2 or 8 megs.

2 OFF = If you have 1 or 2 megs.

ON = If you have 4 or 8 megs.

3 OFF = If you have memory.

ON = If you have no memory (or defeat autoconfig).

4 OFF = Normal boot time.

ON = Add 10 seconds to boot time (for slow HDs).

5 OFF = If keyboard has two Alt keys.

ON = If keyboard has no Right-Alt (Right-CTRL used instead).

Q: How do I connect up an external 3.5" IDE drive to the SX-1?

A: Make your own connector using the pinouts given in the manual. There's no +12V supply on the 37 pin IDE plug, but you can wire in your own power supply or take the +12V supply from the floppy port instead.

A: Make a 2.5" to 3.5" conversion cable, and wire in your own power supply. Conversion cables can be bought as part of A1200 3.5" kits.

A: Or you can buy a box (don't know the name) from Hi-Q that sits in place of the SX-1's lid. It lets you plug in 3.5" IDE drives and it has a

better power supply. The cost is 129.95UKP without any drive.

Q: Sometimes I have problems with my SX-1 and CD32 setup, causing freezing, and HD lock ups. They seems to be power related, how do I solve these?

A: They are indeed power related, but it's voltage, not wattage.

Garry Cardinal <cardinal@ARC.AB.CA> wrote:

"My SX-1 enhanced CD-32 began hanging when I added an IDE drive to it. When using the hd the system would suddenly freeze. I had a 2Mb SIMM installed, going to another SIMM or hard disk did not correct the problem. This was all independent of FMV card presence.

My SX-1's strange behaviour persisted until I bypassed the connections between the CD-32 power switch and the SX-1."

I soldered a standard PC power supply female molex connector to the power switch on the CD-32 (switched side) and soldered a standard male molex connector to the SX-1 +12 and +5 power supply distribution system as close as possible to the 2.5" hard disk connector and ram socket.

(Of course, observe antistatic precautions. Those faint of heart, take this text to a qualified service provider for the appropriate action.)

When I was done, my problems disappeared.

My configuration:

```
CD-32
SX-1 (with extra switch for memory test jumper plugging DB25 hole)
20Mb Connor 2.5
4Mb 32 bit simm
FMV card
A500 Power Supply"
```

Q: How do I read Mac CD-ROMs?

A: Get aminet:/disk/cdrom/AmiCDROM-1.15.lha, unarchive it, use the following options in the installer...

```
Device    cd.device
Unit      0.
Memory options  Use any memory available.
Other options  Use Rock Ridge names, if possible.
              Use trackdisk.device instead of SCSI-direct.
Map filenames  Don't map filenames.
General buffers  5.
Read() buffers  5.
Diskchange time  3.
CD-DA icon command None.
CD-DA icon position  Workbench chooses.
Configure Mac options Yes.
Mac options  Convert Mac characters to Amiga characters.
              Examine CD first for a HFS partition.
Data fork extension Leave empty.
Rsrc fork extension Leave empty.
AmigaDOS device name CD1:, MAC0:, whatever you like.
Automount Yes: Mac CDs are recongnised all the time.
No: You must click on the Storage/DOSDrivers/
    CD1 (or whatever) icon before using Mac CDs.
```

Two icons will appear for each CD you insert - one is the CD32/CDTV/PC partition and the other is the Mac partition. If there is no Mac partition then both icons will be the same CD32/CDTV/PC partition.

Q: Is there an RGB output on the CD32 to connect my multisync monitor?

A: There are easily accessable RGB signal test points on the CD32's circuit board. The diagram is at the end of the FAQ. The SX-1 and CD32x both have RGB connectors on them.

A: Peter Kittel wrote:

If you have the French version of the CD32, you have RGB at the S-Video jack. In this case, this jack is no more of standard "Hosiden" type, but is a Mini-DIN with 8 pins. The four extra pins carry R,G,B, and CSync.

<an159209@anon.penet.fi> wrote:

Cables (maybe with extra logic) are being sold in France, which allow you to connect your CD32 to a 1084, presumably using that SCART-RGB output.

Q: Can Amiga 1200 trapdoor or PCMCIA expansions be used with CD32?

A: No. The CD32 does not have the same expansion connectors as the A1200.

Q: Where can I find the programs mentioned above?

A: CD32 Keyboard Patrick Van Beem
 NoReset Communicator (CDReboot OFF) Eureka
 Network CD Weird Science
 Video Creator * Almathera
 Parnet Amiga CD! 3 AUI
 Network CD Weird Science
 Photo CD reader FolioworX Player Olaf Barthel
 Network CD Weird Science
 Photo CD Manager Asimware
 Photolite Eureka
 Sernet Network CD Weird Science
 Twin Express Amiga CD! 3 AUI
 Network CD Weird Science
 Workbench 3.? CDPD 3 Almathera
 Demo 2 Almathera
 Workbench 3.0 CDPD 4 Almathera
 Lock 'n' Load North West PD
 Workbench 3.1 Demo Disc V2 * Commodore
 Legendry Design demo CD Creative Computers

For CDs marked with a *, you'll need to connect an Amiga mouse into controller port 2, hold down both mouse buttons, and press the reset button. You will be given a boot menu where you should boot with no Startup-Sequence. Then use the keyboard to run the program wanted.

If you want to run Workbench, you've already got Kickstart 3.1, so you just need to get hold of the Workbench software. All of the versions work work, but the later the version the better.

The C= Demo Disc V2 is available from Claude Mueller - Email him for prices. Claude's Email address is claude.mueller@hdclick.link-ch1.ch.

[---- Emulating a CD32 -----]

Q: Which machines stand a chance of running CD32 games?

A: You may get away with running shovelware stuff if you have an OCS or ECS Amiga, but many CD32 games expect at least an '020, 2 meg of chip RAM, and an AGA chipset - an A1200 or A4000.

The A1200 might be more compatible than the A4000 - some programs may fall over because of the differences in memory and CPUs.

Q: What are the differences between the Archos, CD1200, CD4000, and Squirrel CD drives?

A: The Archos drive uses the PCMCIA slot, emulates Akiko through software (but as far as I know only Wing Commander uses it and that crashes, hmm...), needs you to install the CD-ROM file system to your Workbench before you can use the drive, needs a utility (supplied) to boot CD32 CDs, and doesn't have FMV capability.

The CD1200 isn't available yet. It uses the A1200's trapdoor slot, has Akiko, has Kickstart 3.1, boots straight from CD-ROM, and doesn't have FMV capability.

Peter Kittel wrote:

The CD1200 is a prototype CD-ROM drive for the A1200, which makes the A1200 CD32-compatible. This is still in prototype, was shown on a few fairs, and as of now it's uncertain whether it ever will get produced. With it you get CD32 software compatibility, but no hardware compatibility. Especially there is no chance to add the FMV cartridge to it.

The CD4000 isn't available yet. It's a card that fits into one of the A4000's Zorro 3 slots and a CD drive that slides into a drive bay, has Akiko, has Kickstart 3.1, boots straight from CD-ROM, and has FMV capability.

The Squirrel uses the PCMCIA slot, doesn't appear to emulate Akiko, needs you to install the CD-ROM file system to your Workbench before you can use the drive, needs a utility (supplied) to boot CD32 CDs, and doesn't have FMV capability. It's also a full SCSI interface. If you'd like to add other SCSI devices (such as tape storage, scanners, etc...) then it could be a better choice than the Archos. Also software updates

are regularly uploaded to Aminet (unlike Archos' where you have to try to convince your dealer to give you a free copy).

Q: What's good/bad about a CD drive using the PCMCIA or trapdoor slots?

A: If your CD drive uses the PCMCIA slot, you've got a RAM board in the trapdoor slot, it's got more than 4 meg of fast RAM, and it doesn't Autoconfig properly, then the drive may refuse to work or you could lose all memory above the 4 meg barrier because the PCMCIA slot and the memory both try to use the same address space. You could only use 4 meg or you could ask your dealer for an upgrade.

Some trapdoor accelerators don't Autoconfig properly either. Notably Amitek, Blizzard, and GVP ones. Amitek offer a free upgrade to fix this problem. The Blizzard 1230III and the GVP 1230 '030 boards work fine, don't know about other Blizzard and GVP boards. All of the Microbotics boards work.

If your CD drive uses the trapdoor slot then you can kiss goodbye to RAM expansions and accelerators.

Q: What do I need to do to run a CD32 game if I don't have the Archos, CD1200, CD4000, or the Squirrel CD drive?

A: If you have a SCSI CD drive then you can assign CD0: to the CD drive (if it isn't already), assign the standard directories (C:, DEVS:, ENVARC:, FONTS:, L:, LIBS:, S:, SYS:) across to the CD-ROM and execute S:Startup-Sequence.

A: If you have a Parnet or Sernet link to a CD32 or CDTV, you can assign CD0: to NET:CD0, assign the CD-ROM's name to NET:<name>, assign the standard directories, then execute S:Startup-Sequence. It's slow though, so if you have a big hard drive, it's probably better to go for the next option...

A: It should be possible to copy all of the CD-ROM to your hard drive by using a Parnet, Sernet, or Twin Express link to a CD32 or CDTV, assign CD0: and the CD-ROM's name to the directory that you copied to, assign the standard directories to the equivalent place on the hard drive, and execute S:Startup-Sequence.

A: The game may have an icon to double click to run it. In that case you don't need to assign or execute anything.

A: There's a program called Cache-CDFS that's distributed in Germany. It works on the A1200 or A4000. It sits between the CD32 game and the Amiga's SCSI, IDE, or PCMCIA CD-ROM drive. Most CD32 games should work once it's installed, but there have been some problems reported with NEC 3x CD drives. It's commercial. Nobody's said how good the emulation is. You can contact the author, Oliver Kastl, by Email. Oliver's Email address is 100447.3361@compuserve.com.

Almathera are selling a bug-fixed and English language version. Video Creator will also work once it's been installed.

A: There's another available, called CD-Boot. This works on the A1200 or A4000. It sits between the CD32 game and Amiga's SCSI, IDE, or PCMCIA CD-ROM drive. You can create config files for each CD. It's commercial. One person said that the success rate was 2 out of 7 games. You can contact the author, Thomas Kessler, by Email. Thomas' Email address is kessler@fim.uni-erlangen.de.

A: This is a quick description made after reading Asimware's info sheet (it's probably better to read the full thing for yourself if you're interested before making up your mind):

Asimware's AsimCDFS can emulate CDTVs and CD32s, but the how good it is depends on the individual machine. But it also has a music CD player, music CD support (so the music looks like AIFF, MAUD, and RAW files), and Photo CD support (so the pictures look like normal IFF ILLM files).

Q: What can go wrong?

A: Make sure the game can access lowlevel.library in LIBS:. If not, the game can't use the CD32 joypad, or may not even work. If it can, you can plug the CD32 joypad straight into the joystick port.

A: You may not be able to play the games that use the extra joypad buttons properly if you don't have a joypad to press them with...

A: The game tries to use nonvolatile.library to save to the CD32's NVRAM. Make sure that this can be accessed in LIBS: and you create a file

called "ENVARC:sys/nv_location" - a single line of text that is the directory name of where you would like saved data to be stored.

- A: The game could try to call some 3.1 functions that don't exist in 3.0. Upgrading your Kickstart should fix this problem.
- A: You won't hear any CD music. There's no way around this. Sometimes the game may decide to keel over because it can't play the CD music.
- A: The game tries to use Akiko. If you've upgraded to 3.1 and it still goes wrong then there's no way around this.
- Q: Are there any incompatibilities when using an Archos CD drive?
- A: Here's a list. If you've got an update, let me know and I'll put the change in here...

Work...

Alien Breed Special Ed.	7	Alien Breed T. Assault	11
Arcade Pool	11	ATR	11
Banshee	7	11 Brutal Sports Football	7
Bubba 'n' Stix	7	Bubble 'n' Squeak	7
Chaos Engine	7	D/Generation	7 11
Defender of the Crown	2	7 Diggers	7
Emerald Mines	7	11 Fields of Glory	11
Fire and Ice	11	Flink	11
Fly Harder	11	Frontier	7
Heimdall	2	7 Microcosm	7
Labyrinth of Time	7	Lemmings	11
Lost Vikings	11	Oscar	7 11
Overkill/Lunar C	11	Pinball Fantasies	11
Rise of the Robots	7	Roadkill	11
Sabre Team	11	Sensible Soccer	7
Super Stardust	11	Superfrog	7 11
The Clue	11	Trolls	11
UFO	11	Ultimate Body Blows	11
Zool 1	7	Zool 2	7

Works with a bit of messing around...

Arabian Nights	11	Disable fast RAM
Beneath a Steel Sky	11	Use a Joypad in port 1
Microcosm	11	Load from Workbench
Jungle Strike	11	Disable fast RAM
Kid Chaos	11	Switch music off
Quick Thunder Rabbit	11	Disable fast RAM
Zool 2	11	Switch music off

Sort of works...

Guardian	7	Crashes after one game
Project-X	7	Crashes after a few levels
Ultimate Body Blows	7	Crashes after one game

Doesn't work...

Alfred Chicken	11	Battle Chess	7
Beavers	11	Cannon Fodder	11
Chaos Engine	11	Chuck Rock	1 11
Chuck Rock 2	7	Defender of the Crown	11
Diggers	7	Disposable Hero	11
Fire Force	11	Frontier	11
Global Effect	7	Guardian	11
Gunship 2000	7	Impossible Mission	2025 7
James Pond 3	7	Lemmings	7
Lotus Trilogy	7	Liberation	11
Litil Devil	11	Nick Faldo's Golf	11
Nigel Mansell	11	Morph	7
Out to Lunch	11	Pinball Illusions	11
Pirate's Gold	7	11 Ryder Cup Challenge	7
Simon The Sorcerer	7	11 Sabre Team	7
Soccer Kid	11	Striker	7 11
Super Putty	7	Universe	11
Video Creator	7	Wembley International	7 11
Whale's Voyage	11	Wing Commander	7 11

The numbers are for the version of the software. Some work on 7 but not 11, some work on 11 but not 7. There's nothing listed for version 9 at the moment, but if it works on 7 or 11 then it maybe it could work on 9, and if it works on 7 and 11 then it definately should work on 9. There's no version 8 or 10. Anyone confused? Good.

- A: Also check out the Archos Overdrive home pages. Have a look in the Internet section for details.

[---- Software developers -----]

Q: Are there any licence agreements that have to be made to produce CD32 software?

A: The first real problem is in making a bootable CD32 disc. This requires special software and license/royalty agreements which were available from the C= developer programs.

Developers who obtained these rights before the C= liquidation may be able to master the CD-ROMs with the appropriate boot/system files, for you - as your publisher.

On the other hand, now that the C= liquidation is over, you should be able to apply for your own developer status and publish your own CDs.

Escom are the new owners. It seems they're only going to market the CD32 as a set-top box, but they could start making more early 1996 or do a proper Amiga CD system.

Q: How do I master my own CDs?

A: This is a quick description made after reading Asimware's info sheet (it's probably better to read the full thing for yourself if you're interested before making up your mind):

Asimware's Master ISO costs US \$550.00/CDN \$720.00 and works on an Amiga with Workbench 3, a SCSI controller, 1.3 gig of HD space, 16 meg of RAM, and a CD recorder. It can create ISO 9660 CD-ROMs with 8.3 and long file names from one or more volumes, Music CDs (Red Book) from CDDA, MAUD, or AIFF files, and CDs which are a mixture of the two. It can also make CDTV and CD32 bootable CDs (you need a developer licence though). It supports Yamaha CDR100, Pinnacle RCD-202, Philips CDD-521, and CDD-522 CD recorders.

Q: What are the authoring capabilities available for the CD32?

A: Theoretically, any standard Amiga development tools for AGA machines should be useful for developing applications that run on a CD32. This would include Multimedia tools with freely distributable players, C compilers, assemblers, etc.

Q: What are the popular development tools?

A: Popular Multimedia authoring packages for the Amiga include...

AmigaVision Professional CanDo
HELM Interplay
SCALA Multimedia

Popular C compilers include...

DICE GNU C
SAS/C

Popular 68K assemblers include...

DevPacIII Macro68

Popular image manipulation software include...

AdPro ImageF/X
ImageMaster

Popular music related software include...

AudioMasterIV Bars&Pipes Pro
Deluxe Music 2 MusicX
OctaMED professional Sonix
SuperJAM! Trackers - too many to mention

Popular 3D modelling software include...

Caligari Imagine
LightWave (Video Toaster) Real3D

Popular 'video painting' programs include...

Brilliance Deluxe Paint IV AGA
DCTV Paint EGS Paint
Opal Paint TV Paint
XI Paint

Contact the software company involved with your favourite authoring software for more information regarding CD32 specific development.

[---- Pinouts -----]

```

    CD32 Aux port... View straight on. 6 pin mini-din.
    Female type. Combined kboard/serial.
1 I / O Keyboard data
2 O Serial transmit  . ̄ V ` .
3 Ground / 6 5 \
4 +5V DC | 4 0 3 |
5 (I)/ O Keyboard clock `-. 2 1 .-'
6 I Serial receive `-----' Shield

```

Written by Klaus Hegemann, posted as part of 'CD32 expansion port info' by Anders Stenkvist in comp.sys.amiga.hardware, forwarded by Michael King.

If you wire up a keyboard and get characters constantly appearing on the screen then you've wired up the keyboard clock and data pins the wrong way around.

There are no RTS/CTS pins for high speed modems.

The serial pins are at 0/5V, if the computer you're connecting it to has a different voltage (eg. the Amiga serial port's pins are at +/-12V) then you need a level converter between the two.

The serial pins may not be properly buffered to use safely with some external devices. You could damage your CD32 if you try to hook them up without an external buffer. A diagram of a buffer is given in the posting mentioned above.

CD32 combined SCART/RGB port (only on French CD32s)...

Well, first you must make sure that you really have the 8-pin version of that S-Video connector (mini-DIN), this is only existant on the French version of the CD32. Now if that's ok, then here is the pinout:

1=Red, 2=Blue, 3=Audio (L or R, don't know), 4=Green, 5=Audio (L or R), 6=Luminance, 7=CSync, 8=Chroma

Taken from an Email by Peter Kittel, forwarded by Olivier Cremel.

CDTV keyboard connector...

```

1 Ground
2 I / O Keyboard data
3 (I)/ O Keyboard clock
4 +5V DC
5 Unused

```

To modify the CDTV keyboard to connect to the CD32...

Cut the plastic pin from the connector.
Open the case.
Find the connector where the cable is located.
Switch leads 1-4 and 2-3.
Close the case.

Taken from a posting by Paul van der Heu.

A500 keyboard connector... * = link

```

1 black Keyboard clock  -----
2 brown Keyboard data      A500 keyboard cable ---> 12345678
3 red Res  -----
4 orange +5V DC  ||| |||
5 yellow Unused 5  -----*| | |
6 green Ground 1  -----*| |
7 blue Power LED 4  -----* |
8 violet Disk LED 3 -----*
    ||| |||

```

```

Connect like this...  -----
    A500 motherboard connector ---> 12345678
A500 CD32  -----
1 5
2 1
4 4
6 3

```

Taken from an Email by Kimmo Veijalainen.

A1000 keyboard connector...

```

1 +5V DC Viewed looking straight on into
2 (I)/ O Keyboard clock socket. RJ11 connector. Female.
3 I / O Keyboard data
4 Ground

```



1 2 3 4

Usual stuff: I'm not responsible for blowing up Ami, etc; use at own risk, etc, etc. Having said this, it did work for me. :)

Ref's used: Amiga Hardware Reference Manual (A1000) & the good ol' CD32-FAQ.

Taken from an Email by Chris Naylor.

CD32 power port... View straight on. 4 pin din.

```

1 +5V
2 +12V
3 Ground
4 Unknown Shield

```

Put a ground jumper from pin 3 to the shield.

You can modify another Amiga power supply (eg. A500) for this by replacing the connector at the end of the lead.

Taken from a posting by Michael Litchfield.

CD32 RGB signals...

The RGB signals are available from a test port, TP9...

```

| | | <--- Kickstart ROM .-. Desc Equiv pin #s
| | | |o|
| | | |o|
| `---' .----- <--- Akiko |o|
| | | | |o| HSync 159
| | | | : <--- TP9 |o| VSync 160
| | | `-----' : |o| Red 163 and 164
| | | .. :O.--. |o| Green 165 and 166
`-----' `-----' | |o| Blue 167 and 168
^ ^ `----- |o| CSync 157
| | | |o| Ground 161 and 162
Expansion port Pin 182 `-'

```

The RGB signals come from the D/A conversion unit and lead directly to the expansion port. These signals are, however, not amplified. In addition they are weakened by the S-Video output unit.

As a result I (aim to) insert a 47 Ohm resistor to each colour signal connection. You may also reduce the load by interrupting the signal supply to the S-Video unit. Set pin 174 of the expansion port to GND to achieve that (174 --> u36 (4066) signal switches).

The sync signals connected to the expansion port are unbuffered. As a result you may re-synchronize your Amiga by an external tact source. You should at least buffer the CSync line; there is no external synchronisation possible on this pin.

Hint: make use of an XOR gate chip. You may negate certain sync line(s) to adapt your Amiga to (old? :- () multiscan-monitors (the A4000 monitor adapter box will do the same; without the possibility of selected negation).

Written by Klaus Hegemann, posted as part of 'CD32 expansion port info' by Anders Stenkvist in comp.sys.amiga.hardware, forwarded by Michael King.

[----- Addresses -----]

Almathera, Video Creator, keyboards, serial adaptor kit,
 Southerton House, Cache-CDFS (a CD32 emulator).
 Boundary Business Court, Phone: +44 (0)181 687 0040
 92-94 Church Road, Fax: +44 (0)181 687 0490

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Surrey, almathera@cix.compulink.co.uk (sales)
CR4 3TD,
England.

Amiga CD32 Magazine, Phone: +44 (0)1225 442244
Future Publishing, Fax: +44 (0)1225 318740
30 Monmouth Street, Email: amformat@cix.compulink.co.uk
Bath, amformat@futurenet.co.uk
Avon, <http://www.futurenet.co.uk/>
BA1 2BW,
England.

Amiga Game Zone, Phone: +1 (217) 344 3478
103 W. California, Fax: +1 (217) 344 3478
Urbana, Email: gamezone@prairienet.org
IL 61801, <http://uxa.cso.uiuc.edu/~razmataz/agz.html>
USA.

Amiga User International, Phone: +44 (0)171 487 1076/1072
48 George Street, Fax: +44 (0)171 224 0547
London, Email: amigauser@cix.compulink.co.uk
W1H 5RT, gary@auiimag.demon.co.uk
England.

Asimware, AsimCDFs, Master ISO, Photo CD Manager.
600 Upper Wellington St, Phone: Canada (905) 578 4916
Unit D, Fax: Canada (905) 578 3966
Hamilton,
Ontario,
L9A 3P9,
Canada.

Brian Fowler Computers, Distributes communicator and other things.
11 North Street, Phone: +44 (0)1392 499755
Exeter, Fax: +44 (0)1392 423480
Devon, Hours: Mon-Sat 9:30-6:30 GMT
EX4 3QS, Email: brian_fowler@cix.compulink.co.uk
England.

DCE Computer Service, Distributes the SX32 for 400DM.
Kellenbergerstrasse 19a, Phone: +49 208633151
46145 Oberhausen, Fax: +49 208630496
Germany.

Direct Computer Supplies, Cheap Parnet/null modem/etc... cables.
36 Hope Street, Phone: +44 (0)1782 642497
Hanley,
Stoke On Trent,
ST1 5BS,
England.

Epic Marketing, A4000 keyboards, probably sold out by now.
Victoria Centre, Phone: +44 (0)1793 490988
138-139 Victoria Road,
Swindon,
Wilts,
SN1 3BU,
England.

Eureka, Frank Hoen, Communicator, Communicator 2, Photolite.
Adsteeg 10, Phone: +31 (463) 70800
6191 PX Beek (L), Fax: +31 (463) 60188
The Netherlands. Email: hoen@iaehv.iaehv.nl

Goldtech Computer Systems, CD Gold magazine.
67 Turner Road,
Walthamstow,
London,
E17 3JG,
England.

Hi-Tech. Took over Paravision/Microbotics.
But Jaytron does SX-1 support.
Phone: +1 (805) 681 9961

Index Information Ltd, CD32x.
60 High Street, Phone: +44 (0)1256 703426
Odiham, Fax: +44 (0)1256 701023
Hampshire, Email: index@cix.compulink.co.uk
RG25 1LN,
England.

Jaytron. SX-1 support.
Phone: +1 (214) 644 1689 (Michael Miller)

Fax: +1 (214) 669 0021

Multimedia Machine, CDTV -> CD32 keyboard adaptors,
59 Bridgeman Place, SX-1/drive/keyboard bundle.
Bolton, Phone: +44 (0)1204 387410
BL2 1DE, Fax: +44 (0)1204 380952
England.

North West PD, Lock 'n' Load, other CD32 software.
PO Box 1617, Phone: +1 (206) 351 9502
Auburn,
WA 98071-1617,
USA.

Optonica, Interplay - authoring system, Insight CDs.
1 The Terrace, Phone: +44 (0)1455 558282
High Street, Fax: +44 (0)1455 559386
Lutterworth,
Leics,
LE17 4BA,
England.

Paragon Publishing Ltd, CD32 Gamer.
Durham House, Phone: +44 (0)1202 299900
124 Old Christchurch Rd, Fax: +44 (0)1202 299955
Bournemouth,
BH1 1NF,
England.

Stefan Ossowski's CD-Boot (a CD32 emulator).
Schatztruhe GmbH, Phone: +49 (0)201 788778
Veronikastr. 33, Fax: +49 (0)201 798447
D-45131 Essen, Email: stefano@tchest.e.eunet.de
Germany.

Weird Science, Network CD, Sernet cables.
1 Rowlandson Close, Phone: +44 (0)116 234 0682
Bracken Field Chase, Email: david@weirdscience.co.uk
Leicestershire,
LE4 2SE,
England.

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