

**EXPAND**

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# Chapter 1

# EXPAND

## 1.1 Expanding the Amiga 1200. v2.00

Expanding the Amiga 1200 v2.00

by

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The Amiga 1200 may be a small computer but as developers and users have

found out, it has a surprising scope for expansion through the various ports it has at its disposal.

### PORTS AVAILABLE

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Power Socket

Parallel Port

Serial Port

Joystick/Mouse

Video

Audio

Floppy

IDE port

PCMCIA port

CPU Slot

Internal

## 1.2 Power Socket

The Amiga 1200 comes with a meagre and underpowered 23W PSU (Power Supply Unit). If you are expanding the 1200 with lots of peripherals that require power of the 1200 itself such as Hard Disks, Accelerators and floppy drives then it is advisable to replace it with a higher wattage PSU otherwise you may experience unexplainable crashes.

Suppliers:

200W PSU	Eyetech Group Ltd.
Heavy Duty 200W PSU	Power Computing Ltd.

Expect to pay 50 pounds or more.

## 1.3 Parallel Port

The Amiga uses a Centronics compatible parallel interface. The Amiga parallel port is NOT the same as PC parallel ports so Parallel tape drives and so on will NOT work.

Third party parallel cards can supply faster parallel and serial ports and some come with support for ECP or EPP enhanced ports like the PC. e.g. IOBlix, Hyperport, etc

Printers

The Amiga can work with any serial or parallel printer on the market except MS Windows GDI printers which are PC specific and Apple Appletalk printers. The types available are:

Daisy Wheel	Very old text old printers
Dot Matrix	Cheap and slow printers. Text & Graphics. Some modern ones are upgradable to colour.
Inkjet/Bubblejet	Faster and more colourful printers esp. suitable for graphics output.
Laser	Very fast and expensive printers. Usually only B&W. Some are capable of Postscript for DTP work.

Good software to use is either Print Studio II, TurboPrint or Enprint.

Clocks

The Amiga does not come with a battery backed up clock as standard and must be setup after every cold start. Clocks are usually provided on memory and accelerator boards but if you cannot afford those, special clock cartridges are available to plug in to save the date and time.

Suppliers: Siren Software.

Scanners

You can fit various hand driven or flat bed scanners through the parallel port. Although this is cheaper than SCSI it is a lot slower.

Suppliers:

PowerScan B&W or Colour	Power Computing
Epson GT Flatbed Scanner	Power Computing
Epson GT Flatbed Scanners	First Computer Centre
QuickCam Camera	Eyeteck Group
Epson GT/Artec Scanners	Gasteiners

Software is usually provided with the Handy Scanners. ImageFX has drivers for the Epson scanners and there is ScanQuix from Eyeteck for Flatbed scanners esp. SCSI scanners. There is also the BetaScan series of drivers from Aminet.

Peer-to-Peer Networks

It is possible to network two Amigas together using a cable and access each others files and devices using a peer-to-peer network. The parallel ports provide a very fast communication line.

The most common and freely available Peer networks are ProNet or ParNet. A commercial version is available called Liana which includes cables and SANA-II compatible software from Blittersoft.

## 1.4 Serial

The Serial port is the simplest port on the Amiga requiring less wires than parallel and conforms to RS-232. Unlike most PCs, the Amiga uses a full 25 pin socket instead of a 9-pin socket.

Modems

Any external Modem will work on the Amiga esp. those that use the Hayes command set (those that start with AT). The Amiga will work with upto v90 and the new 56k baud modems although a faster serial card will work better with 56k modems.

The serial port is capable of upto 32kb Baud (via Serial preferences) although it is possible to exceed this by replacing the Serial Preferences program from Aminet with the Extended version increasing speed to 64800 baud.

Peer-to-Peer Network

The serial port is ideal for peer to peer networks in particular the CD32 which has a simple serial port also used as a keyboard port. A simple null-modem cable is required.

i.e.	Port	Port	
	2	--//--> 3	Ports 2 & 3 are receive/send wires
	3	--//--> 2	
	7	-----> 7	Port 7 is a control wire

Software to use is either a Terminal program such as Term, Termite, or NComm or more specialised like SerNet or TwinExpress.

## MIDI

The Amiga does not include MIDI as standard like the Atari ST but it is possible to add a MIDI adapter via the serial port. MIDI allows many MIDI compatible musical instruments such as synthesizers, keyboards, drums etc. to be attached the Amiga.

## Faster Serial Ports

New expansions are out which provided even faster throughput for serial devices such as v90 Modems and ISDN. They can achieve upto 450Kb!

Surf-XS Zorro/Ethernet/IO Card	Eyetech Group
PortPlus (Jnr)	Eyetech Group
Surf Squirrel	Analogic Computers
Whippet	Analogic Computers
Silver Surfer	Analogic Computers
Twister Mk2	Power Computing

## 1.5 Joystick/Mouse

The two game ports on the Amiga are not serial ports but special digital ports to receive direction and fire button signals from a Mouse or Joystick input device.

Any Atari or Commodore compatible Joystick, Joypad (a good one is the CD32 Competition Pro) or tracker will work. Specialised devices such as steering wheels and foot pads will also work.

Other input devices are available such as Light Guns, Light Pens and so forth are available (the type of connector is dependant on the device). There are some Analogue joysticks available but they are not the same as PC ones.

The Amiga mouse is usually a two-button device although three button and optical mice may be used. PC mice need to be modified before they can be used on the Amiga.

If you wish to use two joysticks and a mouse, you can by a Roboshift which automatically detects which device to use connected to the same port. Ideal for two-players game players!

## 1.6 video

The video capabilities is much more flexible than other computers and has built-in video modes running at 15kHz Horizontal Scan Rate (PCs only work at 31.5kHz or higher).

### Monitors

The Amiga is designed as a home computer and the A1200 has a built in

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modulator for use with TV sets. It is also possible to use a cheap monitor such as Commodore 1084 series or the Philips CM8833 models. The disadvantage with these monitors, is that they do not work well at higher resolutions and in laced modes, flickery screens are a result.

The Amiga is capable to use VGA/SVGA Monitors as on the PC but unfortunately cannot cope with low-res screen modes which are normally used by games. So a cheaper monitor or TV screen is required in this case. A special adapter can be purchased to convert the smaller VGA plug to the Amiga's 23 pin socket.

Also you can buy ScanDoublers and FlickerFixers to allow native screen modes to be displayed on VGA monitors.

Alternately, the Amiga can use multi-sync Monitors which will cope with low and high resolutions can be used without flicker. These monitors do tend to be expensive but they are recommended by Amiga Technologies!

### Graphics Cards

The Amiga's custom chipset uses an Interleaved BitMap modes for graphics output. This is ideal for low colour screens but tend to run out of steam on high-colour 256 or more modes. PCs use Chunky graphics which is faster for lots of colours. To get these modes requires a graphics card. These are common for Zorro-based Amigas but for the A1200, the BlizzardVision and the Blizzard PPC card can give high resolution graphics and 3D acceleration!

Suppliers: CyberVision Cards                      Eyetech Group, Power Computing  
              BlizzardVision Cards                Eyetech Group, Power Computing

### GenLocks

The Amiga is well known as an excellent video mixer machine. To combine video and computer graphics requires a GenLock. There are many Genlocks around as well as other video equipment such as ChromaKey and so forth for placing graphics on blue backgrounds and so on.

Suppliers: Genlock                                  Analogic Computers

## 1.7 Audio

### Speakers

The Amiga supplies four channel stereo sound through two ports at the back of the Amiga. These can be directed through a monitor, TV, hi-fi or even better through dedicated speakers.

Suppliers: ZyFi 2 or Pro                              First Computer Centre  
              Multi Media 100-300w                GoldenImage (UK) Ltd.

### Sound Cards

It is possible to improve on the old 8bit 4 channel Paula chip in all

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Amigas and install the latest 16 bit CD quality sounds cards via the Zorro slots, PCMCIA and other places.

Cards include the Aura, Concercito, Delfina Lite, Prelude, Defina Plus, Tocatta, WaveTools and Sunrize.

AHI driver system allows different cards to use the same software.

## 1.8 Floppy drive

As well as the internal DF0: drive, the Amiga can have upto 3 external drives (DF1-DF3). The Amiga normally uses Double Density drive (880k) but can used specially made High Density drive (1.76Mb).

The Amiga differs from PC made drives in a number of ways: Paula custom chip controls the floppy drives and uses non-standard 11 sectors/track format (PCs use 9 sectors/track and is the reason why it is impossible for them to read Amiga disks), uses a disk-detection system when disks are inserted/removed and a non-standard interface. Paula cannot cope with high density drives at full speed and moved be slowed down to read/write high density disks. This explains why Amiga HD drives are much more expensive.

To combat the lack of HD support, new floppy drive controllers are available to provide access to High Density floppy drives including those used on PC systems such as the Catweasel and Kylwalda.

Suppliers: Analogic Computers, Marpet Developments, EyeTech, First Computer Centre, Power Computing and many more!

## 1.9 IDE Port

Unlike its predecessor, the A1200 and A600 came with an internal IDE port to use an IDE 2.5" Hard Drive. Due to lack of space beneath the keyboard it can be difficult to fit cheaper 3.5" drives although newer ultra-slim units can be fitter with no modification! IDE drives are driven by the scsi.device as it made it compatible with SCSI devices which were the norm in older Amigas. IDE and EIDE drives can be fitted to the Amiga, the current partition limit is 2Gb!!

Normally, IDE is designed to use 2 items although with ATAPI or IDEFIX it is possible to increase this to 4 devices using a special IDE Buffer interface. Besides Hard disks, the IDE port can also handle the cheaper IDE CD-ROM drives that are available.

The IDE port also allows you to fit a SCSI adaptor, called the Data Flyer+ which is a simple board that fits inside the A1200 and provides a SCSI connection as well as allowing you to fit IDE hard disks on the pass-through port!

Another new device is the PowerFlyer or EasyFlyer which provides high speed IDE performance like those on the PC and Mac with PIO 3 and 4 modes which can be fitted to most Amiga models.

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Suppliers:	4way Buffer Interface	Power Computing, Eyetech
	PowerFlyer (A1200/A4000)	Power Computing
	Buddha Flash	Power Computing
	EasyFlyer	Eyetech Group

## 1.10 PCMCIA Smart card port

With the A600 and the A1200, the A500 expansion port was replaced with a PCMCIA port. This allows you to attach PCMCIA peripherals that conform to PCMCIA type 2 specifications.

Originally, only memory cards were the only thing available to run on the A1200, they can be set up as fast RAM or disks using the PrepCard Tool.

The PCMCIA can be expanded to use hard disks such as the SuperStor hard disks with PCMCIA interface, OverDrive CD-ROMs such as the Archos Zappo and the Q-Drive.

The best use is to attach a Squirrel SCSI (Classic or Surf) interface which allows you to attach upto seven SCSI peripherals such as hard disks, CD-ROMs, Tape Drives, Scanners and so on!

If you require Ethernet adapters then the PCMCIA card from Hydra Systems or NE2000 compatible cards are the only ones currently compatible with the Amiga. Use the CNET driver from Aminet.

Most makes of PCMCIA Modems will work on the Amiga with the exception of WinModems, HSP and HCF modems which are designed for Windows-only platforms. You can download PCMSER and MODEMTEST software from Aminet to check compatibility.

Suppliers:	Classic/Surf SCSI Squirrel - Analogic
	CD-ROMs, Hard drives - Various
	Ethernet Cards - Hydra Systems

## 1.11 CPU Slot

Trapdoor slot underneath the A1200 allows you to improve the performance of the system many fold by installing a memory card or accelerator.

Memory cards are cheaper and allow you to add fast 32-bit ram to the system, options include a clock and possibly a FPU (Floating Point Unit). Adding fast ram will double the speed of the CPU by not restricting it to Chip RAM which is shared by the custom chips. The A1200 with a 68020 can have a maximum of 8MB of fast RAM. Having more than 4Mb can disable the PCMCIA port as it shares some of the fast ram memory addresses.

An accelerator board allows you to replace the standard 14Mhz 68020 processor with a much faster version. You can have a cheap 28MHz 68020 or a fast 25/33 or 50MHz 68030 or even a 68060 the fastest available processor available (50/66/75Mhz). It is not recommended to use a 68040

processor due to overheating problems (a fan may help). These processors will allow you to add more memory upto 256Mb in some cases and provide a FPU and a MMU (Memory Management Unit) to access virtual RAM with the exception the the EC/LC and 75MHz 060 processors.

On the A1200 it is now possible to connect a Zorro daughter board to provide Zorro slots to allow Zorro cards to be fitted to the A1200 such as the Zorro IV board. A tower is required.

Suppliers:

- Power Computing
- Eyetech Group
- DCE Computers
- White Knight
- Software Hut

## 1.12 Internal Expansion

Just to further the Amiga's expansion capabilities there are internal expansions available to expand the Amiga further by utilitising ports inside the Amiga that were supposed to be used for future expansion but forgotten about.

PortPlus (Jnr)

This device attaches to the clock connector near the floppy drive in the Amiga 1200 and supplies two fast serial ports and a parallel port. The Jnr version just supplies one fast serial port. Ideal for high speed communications either using a modem or a network.

## 1.13 The Author

I hope this brief list of possible expansions options will allow A1200 users to expand their Amiga to the limit. I am sorry, if I haven't covered every possible avenue in this document but scanning the Amiga magazines will help you to shop for the item you want. It may be cheaper to shop at non-Amiga retailers or mail order firms for generic peripherals such as RAM, Hard Disks, CD-ROMs, Scanners etc.

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Other Guides written by me:

- PCTaskGuide
- Workbench 1.3 Guide
- Workbench 3.1
- Printer Guide
- Upgrading Workbench (freely)
- HardDrive Guide

Graphics Cards  
Accelerators

History of this guide:

- 1.0 First release
  - 1.1 Fixed guide bug in Serial section.  
Corrected spelling.  
Added internal section.
  - 1.2 Cleaned up content. New info added.
  - 2.0 New hardware information included
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