A1200

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	TITLE : A1200		
ACTION	NAME	DATE	SIGNATURE
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REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

A1200

1.1 A1200 Hardware guide - Contents

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(           ···          The A1200 Hardware Guide        ···          )
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  |_____|
  '----------------------------------------------------------------------'
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1.2 Introduction

```
               _____
              |                                 |
              |     The A1200 Hardware Guide     |
              |_____|
```

Distribution

 This guide has been released as an information document. You are free to post it
or send it wherever you want as long as credit for the work remains with myself
and the people listed in the credits section. In addition, magazines wanting to
include this guide on cover disks should ask permission first. I think that
covers everything ;)

Introduction

 This guide is designed as a ultimate reference for A1200 Hardware queries. It
was written by me, but includes information from many sources, most importantly
the usenet comp.sys.amiga.hardware group, and quite a few individuals have
contributed directly. See the Credits for a complete list.

 I hope to be able to continue updating this for as long as I still own my
A1200.

Long live Macinto... erm... Amiga :)

History

v1.0: 02/02/97
     OK, so this version was released with a version string of "v0.999ß" but
     it was actually v1 :)
     Well, not much history here.

v1.5: 18/05/97   Internal Release
     Added a bit more on Zorro boards.
     Added some stuff on manual errata – thanks whoever suggested that!
     Took out the Monitors stuff, as it wasn't really relevant.

v1.8   21/06/97   Internal Release
     Scrapped anything that wasn't strictly A1200 Hardware
     (i.e. stuff on the history, bits slagging Escom off etc)
     More stuff on drives.

v2.0   September 1997
     Biiiiiig rewrite!
      No section is exactly like it was!
      Added Networking, Towers, Internal Pinouts.
      Added more stuff on the Motherboard
      Changed from external FAQ to my own internal one for ease of updating.
      Changed to manual guide creation, as the automatic program (no names)
      seems to get a perverse thrill from screwing my menus up.

Some ramblings....
It's now 10 past midnight and I think it's all finished. Only the music is
keeping me awake now. I've spent the past 3 hours fixing broken links, and if I
see another curly bracket I'll scream. You lot had better be happy. Already I've
been thinking about what goes into the next version.... who'll be the first with
a Blizzard 603e reference for me, eh? Oh, bugger, forgotten to create an index.
Wonder if Ged can do it with an Arexx script? Summat like 120 nodes... erk!
Goodnight.

1.3   Help with the A1200 Hardware Guide

Help:

You just sort of press the buttons and stuff? How hard can it be?

OK. Pressing "Contents" takes you to the most local Menu from wherever you are.
For example, whack it while in Removable Drive Options, and it takes you back to
the Drives menu. It's worth noting that two successive presses takes you back to
the main menu in all cases.

Help gets you here, while Index always takes you to the alphabetical index. It
cannot be more simpler.

1.4   The All-Important Disclaimer

Disclaimer

The information contained within this document is, as far as I know, correct.
However, I, or the people who contribute an individual section, cannot be held
responsible for any errors which may be contained within this document.
You are advised to check details before embarking on a big project armed only
with this guide. Be sensible!

1.5   Guide Availability

Guide Availability

This Guide is available from several locations.

AmiNET: hard/misc/A1200Hardware.lha

Pure Amiga:ftp://ftp.pureamiga.co.uk/information/hardware/A1200Hardware.lha

My Homepage: http://www.fuchal.demon.co.uk/amiga/index.html

I will post a notice to usenet comp.sys.amiga.hardware and the Pure Amiga
mailing list when a new version is released. If anyone is on any other lists
that haven't heard about this guide, spread the word! :)

1.6   About the Author, and Credits

About the Author:

   Chris Appleton, age 18 and currently studying/living in Norwich, UK although
I'm from Nottimgham. I've had an Amiga since about 1991, and an A1200 of some
description since 1993. I'm a terrible fidget, and I can't keep my hands off it,
hence the upgrade to my current system of an A1200T, Apollo 1240 with 8mb, 850mb
HD, 8x CD, Zip drive and various other bits.

I can be contacted via email : c.appleton@uea.ac.uk | In order of
                chris@fuchal.demon.co.uk | reply quickness!
                chrisf@pureamiga.co.uk   V

Credits:

   A huge thankyou and a pint of whatever to everyone who has helped with this

guide, from sending in accelerator references (most of which got in, despite my
wonderful ability to lose them) to giving little snippets of information. I'm
astounded to have recieved no negative comments, but whatever you have to say,
say it!

So, these wonderful people are:

Testers 'n' Suggesters who at various points checked the guide, found
errors and told me what else to add (to get wrong):

        Philip Ayres
        Warren Block
        Brad Rogers
        Madhu Surendranath

Contributors who bunged things in for me.

        Everyone who did accelerator references, who are:
            Andreas Vespermann
            Anthony Keeley
            Brad Rogers
            David Bump
            Duncan Gow
            PJ Goddard
            Stefan Gregson
        That bloke who wrote the A1200INFO docs and was suggesting stuff.
        That bloke who wanted the PCMCIA pinouts.
        That bloke... etc. Get the feeling I'm not good with names? :)

Greets must also go to:

        Everyone who ever worked on the Amiga - wheyhey!
        The author of GoldEd, which makes it so much easier.
        The Teletubbies.

Eh Oh, Time for Tubby ByeBye

1.7 Zorro Board Index


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                         _____
            |                              |
            |          Zorro Board Index   |
            |_____|



            ~Information~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

             Options Available

             Compatibility with Current Cards

            ~Frequently~Asked~Question~          ~~~~~~~
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Related Sections:

Expansion~Port~Pinout

1.8 Zorro Board Options

Zorro Board Options Available

 As mentioned before, there are two types of Zorro busboard available – those
featuring Zorro-II slots, and those with Zorro-III. Most also feature ISA and/or
PCI slots, although personally I can't figure out why! Also, the newer ZIII
board from MicroniK features such delights as a Video slot and even an A4000 CPU
slot!

Boards Available

| Manufactuer+Model | Number of Slots | | | | | Other | Approx |
	Z-II	Z-III	PCI	ISA	SIMM	Features	Price
Infinitiv Z1-i	5	0	2	2	0	Opt. Video Slot	£150
Infinitiv Z2-i	5	0	2	2	2	Opt. Video Slot	£200
Infinitiv Z3-i	0	5	2	2	0	Opt. Video Slot	£320
						A4000 CPU Slot	
						SCSI-2 Controller	
Eyetech 7x	7	0	0	5	0		£180
Eyetech 1x	1	0	0	0	0	With Keyboard I/F	£160

1.9 Zorro Board Information

Zorro Board Information

 Perhaps the biggest difference between the A4000 and A1200 is the smaller
machine's lack of expansion slots. The Amiga uses a custom slot called Zorro,
as opposed to the PC's ISA or PCI slots.

 Big-Box Amiga owners are quite used to slotting in a new card, and there are
many available – SCSI controllers, accelerators, GFX cards and sound cards are
available from many manufacturers. So what hope have all you little 1200 peeps
out there got? A while back the first A1200 Zorro Busboard hit the streets,
which was nice but had all sorts of problems with compatibility. Now we have
quite a wide range, explained in the
                Options Available
                 section, which are really
quite foolproof.

 Basically, they fit in the "trapdoor" expansion slot – although it's worth
noting that you must have some kind of tower csae for your A1200, so it's no
really a trapdoor any more. Anyway, they fit there, and have a passthrough for

your accelerator which theoretically remains unaffected.

 Then you have a rather large expanse of circuit board, broken up by a couple of
long slots – your Zorro slots. Now, theoretically again, software shouldn't be
able to tell your A1200 from an A4000, so all the drivers that come with SCSI
controllers, port expanders, GFX cards should work as normal.

 There are different versions of Zorro, the two notable ones being Zorro-II and
Zorro-III, the latter being found in the A4000 and A4000T. It is possible to get
cards which feature either one of these, however the Zorro-II boards are at the
minute more reliable.

1.10   Zorro Board FAQ

Zorro Board Frequently Asked Questions

Can I use xxxxxx card in my xxxxx busboard?

  Erm, that's a good question! I don't know, ask around – usenet, retailers,
  friends. If you still can't find out, there's a good chance it will work
  (that's why they are called Zorro boards after all), and if it does, tell me
  so I can add it here :)

Is that Zorro-III board any good?

  Supposedly, yes. You should note however that you will need to insert an A4000
  accelerator or whatever into the A4000 CPU slot to enable the ZorroIII
  functions, otherwise it works as a ZorroII board.

1.11   Zorro Board Compatibility

                 Zorro Board Compatibility

 There are two sources of incompatibility which must be overcome. The first is
the obvious incompatibilities between some Zorro cards, and the busboard. I have
to say I haven't heard of any major problems, although in this version of the
guide I haven't conducted any major enquiries to reinforce this. I would
appreciate anyone with compatibility comments
                 dropping me a line
                    .

 The other compatibility problem is with the accelerator you'll be plugging into
the busboard. Most accelerators work fine, although this depends on the model
and revision busboard you are using. However, I have heard some stories about
Apollo cards not working as they should sometimes (a bit disappointing since I
have an Apollo 1240), so it's definately worth checking with dealers of both
your card and the board.

I'm afraid I'm not able to bring you any definate compatibility problems –
manufacturers are unwilling to say what works with their cards and there don't
seem to be many firm reports on usenet. However, I am interested in compiling a
list of three problem areas:

  Which Zorro cards work in which Zorro busboards
  Which Accelerators work with which Zorro Busboards
  Which A4000 Accelerators work in the new MicroniK Z3i busboard.

If you want to add your experiences, please
                contact me!

1.12   Towers Index

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              |                               |
              |            Towers Index        |
              |_____|
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          Information

          Frequently Asked Questions
                 Options Available

          DIY Towers

          Tower Kits

          Tower Systems

          Prebuilt A1200T's
          Related Sections:
        Zorro Board Index

1.13   A1200 Tower Systems

A1200 Towers – Systems Available

 A Tower System, as I see it, is a set of modular items which have been custom
designed to accept an A1200 motherboard, with none of the hacksaw modification
found with the kits on offer.

 These have really one main advantage – they are tried and tested and usually
have a warranty. If you get all your kit bits from different sources, exactly

where do you go if you get a problem? Exactly, you don't get that with a system.

Infinitiv Case
  These days, there is one main option – the MicroniK Infinitiv system. This
 features:

   · Zorro II or III boards
   · Video Slot Option
   · Custom Designed Plastic Case
   · 200W Power Supply with power converter – no wire splicing
   · 1.76Mb Floppy Drive Available
   · And some other stuff too

 It's available from Blittersoft, with price depending on specs.

Other Cases

    There were some other cases available some years ago. However, these should
 be seen as a last resort – even though they were a good quality metal case with
 Zorro and other stuff, they were quite beta-ish – the Zorro compatibility was
 specially iffy. They were turned out by a few manufacturers, one of them being
 Ramiga, and (I think) Eagle.

1.14 Prebuilt A1200 Towers

A1200 Towers – Prebuilt Models

One of Amiga International's actions was to licence the Amiga technology out to
other developers – in short, this meant other people could use the Motherboard
or various parts to make "clones".

While the towers features below don't really fall into the Clone bucket, they
are sort of developed A1200's, as they now have Zorro slots, SIMM sockets and
even an A4000-style CPU slot. They are available from MicroniK, in the UK that
means contacting Blittersoft.

```
Model  |    Features                                     | Approx. Price
-------+-------------------------------------------------+---------------
       |                                                 |
 A1300 |  OS3.1, 2Mb Chip Memory, 200W PSU, Mouse,       |
       |  External Keyboard, 880k Floppy                 |     £350
 A1400 |  As above plus 5x ZorroII slots, 2x ISA, 2x PCI |
       |  and option of Video Slot (adds £40)            |     £470
 A1500 |  As A1300 but 5x ZorroIII, 1x ISA, 2x PCI,      |
       |  Video Option, A4000 CPU slot, SCSI-II, 1x SIMM |     £600
```


   Note that you will still need to add the price of a decent processor, some
Fast RAM, a hard drive, CD-Rom drive and a monitor. Expect complete packages to
appear soon.

1.15   A1200 Tower Kits

A1200 Towers - Kits Available

 There is very little difference between "kits" and "systems", but I hope to
keep them apart as they are different to assemble.

 The Kits are generally PC Full-Tower Cases, which have been modified in some
way to accept the A1200 Motherboard. Often this is slid in complete with the
base of the plastic case, to serve as a mounting point, but I think some are
available which just take the stripped-down motherboard. There are many
different ways of mounting the motherboard, with each having advantages and
disadvantages. These usually involve the placing of ports - a design which has
an accessible CPU slot will often leave the PCMCIA port unusable.

 Zorro is often available for these cases, and generally it works. You should
note though it is often difficult to fit in a DIY Kit option, more so than for
the custom-designed systems.

Options Available

Eyetech Tower

   This takes the whole motherboard and bottom case, and slides it into a
   modified PC case. The ports are accessible, as is the PCMCIA slot. Zorro is
   available in two different configurations: single-slot or multiple-slot.

   Contact Eyetech for more details.

Intrinsic Tower

Chroma T-Case

   A fairly new design, the T-Case is again a modified PC case, but this time
   you can either convert it yourself or pay a little extra and get a converted
   case. It takes the entire motherboard and lower case for mounting ease. All
   the ports are available, including the PCMCIA port, and Chroma state that
   plenty of room is available for busboards and Zorro, although they don't sell
   them themselves.

   For more info and prices, contact Chroma

1.16   A1200 Tower Information

A1200 Towers - Information

   The A1200 Tower these days is a bit like a modem or a hard drive - everyone
has one! Well, it can seem like that occasionally, as Aminet is full of

conversion guides and lots of magazines have done features on how to
hack-your-own. So what does it offer? The best features are:

· Built-in 200W power supply – more than enough for your Amiga and drives
· Plenty of drive bays – my full tower for example has 10 bays in total!
· Everything internally, no squirrel, CD-Rom, external floppy cluttering the
  desk.
· Ability to use the Blizzard 1240T/ERC – a big bonus in itself!
· Zorro cards, video cards and even A4000 CPU cards can all be used.

   There are two starting points – either buy a PC case and hack-it-yourself, or
get one of the growing number of aftermarket cases. The latter is more
expensive, but it is often re-assuring to have someone to ring up and ask for
assistance if it doesn't all work! But the hardy bunch of hackers out there like
to do it their own way – my tower was concieved in 1995, when it was a pretty
novel idea – and this can save lots of money.

1.17   A1200 Tower FAQ

A1200 Towers Frequently Asked Questions

Hey, what's the advantage of a DIY job?

  Well, the only real advantage is cost. Typically a PC case will set you back
  £60 with cabling another £20. The basic tower systems such as the Infinitiv
  start at around £150. You can see there is a large cost advantage, however you
  do have to be competent and occasionally you'll wonder if it's all worth it
  (usually when you have your computer in bits...)

Is there anything between these, for a scared DIY-er?

  You might want to try one of the kits now appearing. Retailers/manufacturers
  like Eyetech, Chroma and Infinity Systems will sell you a pre-converted PC
  tower case, suitable for slipping a motherboard into, along with all the
  cabling. This is probably the best method, since it also gives you limited
  backup if it goes wrong.

Is it worth getting a Zorro thingie for my tower?

  Maybe. I don't have one, but then again I don't really have a need for one at
  the minute. You might if you are into graphics or networking, as I see these
  two to be far far easier with a Zorro board and the right card plugged in.

1.18   DIY A1200 Towers

A1200 Towers - The DIY Way

 So, you're wondering about doing it yourself eh? Well, for a starter I'm not
going to give you a complete step-by-step on how to do it, so nur. But then
again, the best idea is to track down as much information as possible, look on
Aminet and in magazines - then if anyone has got something wrong or slightly out
of place, you can compare it to others and get a feel for the whole job.

 Finding a tower case is pretty simple - most PC cases are fairly similar
inside, whatever the outside looks like, so it's not a problem just to go for
the cheapest one. Mine cost £55 from a computer fair (a great source of items,
look in your local papers for venues), and it's worth paying the extra for a
"Full Tower", as the extra space is a real boon when it comes to mounting.

 Mounting the motherboard is a bit tricky, and it pays to take your time here.
Basically, it needs to be solid so it won't fall or move. A good hint is to
leave the metal sheilding on - it makes it far easier to handle, and ensures
stray wires and screws don't attack your board.

 The keyboard is a fun bit - I really recommend buying a external keyboard
interface like the Eyetech EZ-Key, which lets you connect a PC keyboard and
features remapping of the special Amiga keys. The alternative is to wire an Amiga
keyboard (like the A2000, 3000, 4000 or CDTV models) directly in - the route I
took, since it was before the days of converters. It involves somehow conencting
a socket to two pins on a chip on the motherboard (KBData and KBClock) - either
by soldering, which is very scary, or by clipping a PLCC socket onto the top of
the chip, and soldering onto there.

 Finally, just extend the ports to the back of the case (easily done using IDC
cables and sockets) and put all your drives in. There are a few solutions to the
floppy drive - either use the original one and make do without a facia, or get
an EZ-DF0 from Eyetech which lets a PC floppy work on the Amiga (DD mode), or
sometimes you can use an external drive internally, minus it's housing.

Like I said, the DIY method is a lot of work but worth it if you're low on
funds. Get hold of stacks of information - from Aminet, the WWW, or both
CU-Amiga and Amiga Format have done guides detailing the ins and outs.

DISCLAIMER - No-one's forcing you to do this, so don't if you feel unsure. I do
not guarantee the correctness of any fact I've just mentioned. Don't blame me if
you blow your entire neighbourhood up.

1.19 Power Supply Index


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                    _____
            |                            |
            |       Power Supply Index   |
            |_____|
```

            Information

        Uprated Supplies

        DIY Convertions
          Related Sections:

        Power Input Pinouts

1.20 Power Supply Options

Aftermarket Power Supplies

A number of Amiga developers have released aftermarket power supplies for the
Amiga range. Most of these are actually PC units, with an Amiga cable and often
a case to keep it all nice. If you're a hacker you may find it cheaper to
hack-your-own, but these models will keep everything neat and tidy, and
ultimately have a warranty if you're not too sure of your abilities!

| | | | | | | HD |
Retailer	Model	Rating	Switch	Monitor	Lead	Lead	Price
Wizard	Power Box	250W	Yes	Yes	1m	Lots	£50
Power Computing	PSU	200W	No	Yes	1m	1*	£70
Prima	Atom	200W	Yes	Yes	??	None	£60
Datel	Goliath	200W	Yes	Yes	1m	None	£60

Key: Switch = Is the unit switching?
   Monitor = Does the unit have monitor power passthrough?
   HD Lead = Does the unit have any provisions for connecting drives?

* The Power Computing unit doesn't have a lead for drives as such, but it does
  have a 12v/5v/GND output socket.

1.21 Power Supply Information

Power Supply Information

 The powersupply supplied with the A1200 is a similar design to the one supplied
with all smallbox Amigas... the everpresent brick. But it does its job and it
keeps your feet warm as well. Actually, it's different in that it only supplies
23W, less than the A500 – the reason for this is that the A1200 was designed to
be more energy efficient than the A500.

 Unfortunately, Commodore probably never predicted how far we'd take our 1200's.
The original power supply is OK usually, and can normally handle a hard drive as
well. Add an external disk drive, an 030 and more Ram and you'll definately have

problems. It just runs out of juice. Luckily, the A500 supply can be used
instead, and supplies rather more... the other alternative is either converting
a PC supply to work with an A1200, or buying one of the aftermarket
super-supplies available.

 The 5-pin square DIN plug is a rather special design, and very hard to get hold
of. However, if you have a little chat with Intrinsic they apparently can sort
you out with the cables and plugs, and other bits like a PC PSU -> Amiga Socket
converter.

1.22   Power Supply Conversion

Converting PC Power Supplies

 If you're running out of power, but don't want to spend loads on a aftermarket
unit, then you could consider converting your own. The advantage is simply price
- if you look hard enough PC units can be had for a tenner, and the rest is just
work on your part. The only disadvantage is that usually you will have to cut
your original power lead off.... meaning there's no way back!


```
,------------------------------------------------------------------------------,
|                                 Disclaimer                                   |
|                                                                              |
|    This information is, as far as I know, correct. However, I take no        |
|    responsibility for damaged caused to your equipment, property or yourself |
|    resulting in you attempting this conversion.                              |
|                                                                              |
'------------------------------------------------------------------------------'
```


Right. Firstly you need the PC unit. I suggest going to computer fairs, or
asking your local dodgy PC dealer, as they are often found lying around. A
secondhand one should be OK if it's cheaper. Also, look out for the new 65W
units, although these don't have a monitor passthrough they will also work and
are usually cheaper.

Open it up, and locate the wire bundle. This is usually opposite the power
input. You need one of each of these wires: +5v, +12v, -12v, GND, PWRGOOD. For
the normal colours used, see the table below. You can either desolder the rest
of the wires, or leave them in place (you can of course use the drive power
connections for external drives)

1.23   Connector Pinouts Index

```
                        _____
          |                               |
          |     Connector Pinouts Index   |
          |_____|
```

Internal Ports

~IDE~Controller~Port~~~~~~~~~~~~~~~~~~~~~~

~Floppy~Drive~Port~~~~~~~~~~~~~~~~~~~~~~~

~Floppy~Drive~Power~Port~~~~~~~~~~~~~~~~~~

~Expansion~Edge~Connector~~~~~~~~~~~~~~~~~

~Partial Clock~Header~~~~~~~~~~~~~~~~~~~~~

~LED~Connector~~~~~~~~~~~~~~~~~~~~~~~~~~~
    External

~Power~In~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

~Video~Out~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

~Parallel~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

~Serial~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

~Floppy~Drive~~~~~~~~~~~~~~~~~~~~~~~~~~~~

~Joystick~/~Mouse~~~~~~~~~~~~~~~~~~~~~~~~

 PCMCIA Connector
For internal IC pinouts, see
Internal Pinouts Index

1.24 Video Port Pinouts

Video Port Pinout


```
 ,---------------------------------,   Type: Male 23-way D
\  1  2  3  4  5  6  7  8  9 10 11 12  /   Used: Monitors
 \  13 14 15 16 17 18 19 20 21 22 23  /        Graffitti "Video Card"
 '-------------------------------'
```


```
 1: _XCLK      External Clock         13: GNDRTN     Return for /XCLKEN
 2: _XCLKEN    External Clock Enable* 14: _PIXELSW   Genlock Overlay*
 3: RED        Analog Red**           15: _C1        Clock Out*
 4: GREEN      Analog Green**         16: GND        Video Ground
 5: BLUE       Analog Blue**          17: GND        Video Ground
 6: DI         Digital Intensity*     18: GND        Video Ground
 7: DB         Digital Blue*          19: GND        Video Ground
 8: DG         Digital Green*         20: GND        Video Ground
 9: DR         Digital Red*           21: -12V       -12v DC (10mA)
10: _CSYNC     Composite Sync*        22: +12V       +12v DC (100mA)
```

```
11: _HSYNC      Horizontal Sync*       23: +5V        +5v DC (100mA)
12: _VSYNC      Vertical Sync*

Pin 13 can be considered Digital Ground

Signals marked * are 47 Ohm
Signals marked ** are 75 Ohm
```

1.25 Serial Port Pinouts

```
Serial Port Pinout


   ,-----------------------------------,    Type: Male 25-pin DIN
  \  1  2  3  4  5  6  7  8  9  10 11 12 13 /   Used: Modems / Slip links
   \  14 15 16 17 18 19 20 21 22 23 24 25  /          Printers
    '---------------------------------'             MIDI Carts


  1: SHIELD     Shield Ground          14: ---
  2: TXD        Transmit Data          15: ---
  3: RXD        Recieve Data           16: ---
  4: RTS        Request to Send        17: ---
  5: CTS        Clear to Send          18: AUDI   Amiga Audio In (Right)
  6: DSR        Data Set Ready         19: ---
  7: GND        System Ground          20: DTR    Data Terminal Ready
  8: CD         Carrier Detect         21: ---
  9: +12V       +12v DC (20mA Max)     22: RI     Ring Indicate
 10: -12V       -12v DC (20mA Max)     23: ---
 11: AUDO       Amiga Audio Out (Left) 24: ---
 12: ---        Speed Indicate (NC)    25: ---
 13: ---
```

1.26 Power Input Pinout

```
Power Input Pinout


   ,----,_,----,
   | 1      4 |     Type: 5-pin Female Square DIN
   |    3     |
   | 2      5 |
   '----------'


     1: +12v DC
     2: Shield Ground
     3: -12v DC
     4: Ground
     5: +5v DC

  Pin 2 is directly connected to the connector shield.
```

1.27   PCMCIA Slot Pinout

```
PCMCIA Slot Pinout

Type: PCMCIA Slot (Type 2), 68 pin
Used: Squirrel, Whippet.
```

```
 1  GND         Ground              35 GND              Ground
 2  D3          Data Bus Bit 3      36 CC_CD1           Card Detect?
 3  D4          Data Bus Bit 4      37 D11              Data Bus Bit 11
 4  D5          Data Bus Bit 5      38 D12              Data Bus Bit 12
 5  D6          Data Bus Bit 6      39 D13              Data Bus Bit 13
 6  D7          Data Bus Bit 7      40 D14              Data Bus Bit 14
 7  CE1                             41 D15              Data Bus Bit 15
 8  A10         Address Bus Bit 10  42 CE2
 9  OE                              43 --
10  A11         Address Bus Bit 11  44 RFU IORD         I/O Read
11  A9          Address Bus Bit 9   45 RFU IOWR         I/O Write
12  A8          Address Bus Bit 8   46 A17              Address Bus Bit 17
13  A13         Address Bus Bit 13  47 A18              Address Bus Bit 18
14  A14         Address Bus Bit 14  48 A19              Address Bus Bit 19
15  WE PGM                          49 A20              Address Bus Bit 20
16  BSY IREQ                        50 A21              Address Bus Bit 21
17  +V          +5v                 51 +V               +5v
18  VPP1                            52 VPP2
19  A16         Address Bus Bit 16  53 A22              Address Bus Bit 22
20  A15         Address Bus Bit 15  54 A23              Address Bus Bit 23
21  A12         Address Bus Bit 12  55 A24              Address Bus Bit 24
22  A7          Address Bus Bit 7   56 A25              Address Bus Bit 25
23  A6          Address Bus Bit 6   57 --
24  A5          Address Bus Bit 5   58 RESET            Reset
25  A4          Address Bus Bit 4   59 WAIT             Processor Wait
26  A3          Address Bus Bit 3   60 --
27  A2          Address Bus Bit 2   61 REG
28  A1          Address Bus Bit 1   62 BVD2 SPKR
29  A0          Address Bus Bit 0   63 BVD1 STSCHG
30  D0          Data Bus Bit 0      64 D8               Data Bus Bit 8
31  D1          Data Bus Bit 1      65 D9               Data Bus Bit 9
32  D2          Data Bus Bit 2      66 D10              Data Bus Bit 10
33  WP IOIS16                       67 CD2
34  GND         Ground              68 GND              Ground
```

1.28   Parallel Port Pinout

```
Parallel Port Pinouts


   ,-----------------------------------------,  Type: Female 25-pin D
  \  1  2  3  4  5  6  7  8  9  10 11 12 13 /   Used: Printer, Samplers,
   \  14 15 16 17 18 19 20 21 22 23 24 25  /          LED Display hack,
   '-----------------------------------------'        QuickCam Interface
```

```
                        NOT Zip Drive!!!!!


  1: _STROBE     Strobe                  14: +5V PULLUP  +5v DC (10mA)
  2: D0          Data Bit 0              15: ---
  3: D1          Data Bit 1              16: _RESET      Reset
  4: D2          Data Bit 2              17: GND         Signal Ground
  5: D3          Data Bit 3              18: GND         Signal Ground
  6: D4          Data Bit 4              19: GND         Signal Ground
  7: D5          Data Bit 5              20: GND         Signal Ground
  8: D6          Data Bit 6              21: GND         Signal Ground
  9: D7          Data Bit 7              22: GND         Signal Ground
 10: _ACK        Acknowledge            23: GND         Signal Ground
 11: BUSY        Busy                    24: GND         Signal Ground
 12: POUT        Paper Out               25: GND         Signal Ground
 13: SEL         Select
```

1.29   Mouse / Joystick Port Pinout

```
Mouse/Joystick Port Pinouts


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


  ,-----------------,
  \  1  2  3  4  5  /        Type: Male 9-pin D
   \   6  7  8  9  /         Used: Mouse, Joystick (Ana/Dig), Lightpen
    '-------------'                Performance Meter Hack.



    Mouse           Light Pen         Digital Joystick    Analogue Joystick

  1:    V-Pulse         --                _Forward            Button 3
  2:    H-Pulse         --                _Back               --
  3:    VQ-Pulse        --                _Left               Button 1
  4:    HQ-Pulse        --                _Right              Button 2
  5:    Middle Button   Pen Press         --                  Pot X
  6:    Left Button     _Beam Trigger     _Button 1           --
  7:    +5v             +5v               +5v                 +5v
  8:    GND             GND               GND                 GND
  9:    Right Button    Button 1          Button 2            Pot Y


  Not all buttons are compulsory in all devices
```

1.30   pinoutsled

```
LED Connector Pinouts

5-pin SIL Male


           ,-----------,        | Accelerator
           | 1 2 3 4 5 |        V  Slot
```

```
                        ’———————————’

                        1: Power LED
                        2: Floppy Access LED
                        3: Hard Drive Access LED
                        4: Key (No Pin)
                        5: Common Ground
```

1.31 Internal Floppy Drive Pinout

Internal Floppy Header Pinouts

```
 ,——————————————————————————————————————————————————,   Type: 34-way Male
 | 1   3   5   7   9 11 13 15 17 19 21 23 25 27 29 31 33 |        DIL Header
 | 2   4   6   8 10 12 14 16 18 20 22 24 26 28 30 32 34 |   Used: Internal DD Floppy
 ’——————————————————————————————————————————————————’
```

```
 1: GND       Ground              18: DIR        Head Direction
 2: _CHANGE   Disk Change         19: GND        Ground
 3: GND       Ground              20: _STEP      Step the Head
 4: _IN USE   Disk Access LED     21: GND        Ground
 5: GND       Ground              22: _DKWD0     Disk Write Data
 6:           ——                  23: GND        Ground
 7: GND       Ground              24: _DKWE0     Disk Write Enable
 8: _INDEX    Disk Index Pulse    25: GND        Ground
 9: GND       Ground              26: _TRK0      Head Over Track 0
 10: _SEL0    Select Drive 0      27: GND        Ground
 11: GND      Ground              28: _WPROT     Disk is Protected
 12: _SEL1    Select Drive 1      29: GND        Ground
 13: GND      Ground              30: _DKRD      Disk Read Data
 14:          ——                  31: GND        Ground
 15: GND      Ground              32: _SIDE      Side Select
 16: _MTR0    Motor Control       33: GND        Ground
 17: GND      Ground              34: _RDY       Disk Ready
```

1.32 Internal IDE Pinouts

Internal IDE Header

```
              Type: Male 44-way High Density DIL Header
              Used: IDE Devices
                  DataFlyer SCSI Controller
                  Catweasel HD Floppy Controller
```

```
 ,——————————————————————————————————————————————————————————,
 | 1   3   5   7   9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 |
 | 2   4   6   8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 |
 ’——————————————————————————————————————————————————————————’
```

```
 1: _RESET    Drive Reset        23: _IOWR      IO Write
 2: GND       Ground             24: GND        Ground
 3: D7        Data Bit 7         25: _IORD      IO Read
 4: D8        Data Bit 8         26: GND        Ground
 5: D6        Data Bit 6         27: WAIT       IO Channel Ready
 6: D9        Data Bit 9         28:            --
 7: D5        Data Bit 5         29:            --
 8: D10       Data Bit 10        30: GND        Ground
 9: D4        Data Bit 4         31: _IDE_IRQ   Interrupt Request
 10: D11       Data Bit 11        32:            --
 11: D3        Data Bit 3         33: A1         Address 1
 12: D12       Data Bit 12        34:            --
 13: D2        Data Bit 2         35: A0         Address 0
 14: D13       Data Bit 13        36: A2         Address 2
 15: D1        Data Bit 1         37: _IDE_CS[1] IDE CS 1
 16: D14       Data Bit 14        38: _IDE_CS[2] IDE CS 2
 17: D0        Data Bit 0         39: _IDE_LED   Drive active LED
 18: D15       Data Bit 15        40: GND        Ground
 19: GND       Ground             41: VCC        +5V DC
 20:           --                 42: VCC        +5V DC
 21:           --                 43: GND        Ground
 22: GND       Ground             44:            --
```

1.33   Floppy Drive Power Port Pinout

```
Internal Floppy Power Pinout


            ,---------,        | Accelerator
 Male Polarised 4-pin          | 1 2 3 4 |      V Slot
            '---------'



                1: +5v
                2: GND
                3: GND
                4: +12v
```

1.34   CPU Expansion Slot Pinouts

```
CPU Expansion Slot Pinout


   Type: 150-way Male Edge Connector
   Used: Accelerators, RAM Expansions,
     Failed Action Replay Cart, Commodore CD-Rom Drive


 1: Reserved     Address Bus Bit 31        76: D2          Data Bus Bit 2
 2: Reserved     Address Bus Bit 30        77: D1          Data Bus Bit 1
 3: Reserved     Address Bus Bit 29        78: D0          Data Bus Bit 0
 4: Reserved     Address Bus Bit 28        79: GND         Ground
```

```
  5: Reserved        Address Bus Bit 27     80: VCC           +5v DC
  6: Reserved        Address Bus Bit 26     81: _IPL2         Int Pri Lvl 2
  7: Reserved        Address Bus Bit 25     82: _IPL1         Int Pri Lvl 1
  8: Reserved        Address Bus Bit 24     83: _IPL0         Int Pri Lvl 0
  9: GND             Ground                 84: Reserved      --
 10: VCC             +5v DC                 85: _RST          Processor Reset
 11: A23             Address Bus Bit 23     86: _HLT          Processor Halt
 12: A22             Address Bus Bit 22     87: Reserved      --
 13: A21             Address Bus Bit 21     88: Reserved      --
 14: A20             Address Bus Bit 20     89: SIZE0
 15: A19             Address Bus Bit 19     90: SIZE1
 16: A18             Address Bus Bit 18     91: _AS           Address Strobe
 17: A17             Address Bus Bit 17     92: _DS           Data Strobe
 18: A16             Address Bus Bit 16     93: R_W           Proc. Read_Write
 19: GND             Ground                 94: _BEER         Bus Error
 20: VCC             +5v DC                 95: Reserved      --
 21: A15             Address Bus Bit 15     96: _AVEC
 22: A14             Address Bus Bit 14     97: _DSACK1       Data Send Ack.
 23: A13             Address Bus Bit 13     98: _DSACK2       Data Send Ack.
 24: A12             Address Bus Bit 12     99: CPUCLKA       CPU Clock
 25: A11             Address Bus Bit 11    100: E CLOCK       Perip Enable Clk
 26: A10             Address Bus Bit 10    101: GND           Ground
 27: A9              Address Bus Bit 9     102: VCC           +5v DC
 28: A8              Address Bus Bit 8     103: FC2           Function Code 2
 29: GND             Ground                104: FC1           Function Code 1
 30: VCC             +5v DC                105: FC0           Function Code 0
 31: A7              Address Bus Bit 7     106: _RMC
 32: A6              Address Bus Bit 6     107: Reserved      --
 33: A5              Address Bus Bit 5     108: Reserved      --
 34: A4              Address Bus Bit 4     109: Reserved      --
 35: A3              Address Bus Bit 3     110: Reserved      --
 36: A2              Address Bus Bit 2     111: _BR           Bus Request
 37: A1              Address Bus Bit 1     112: _BG           Bus Grant
 38: A0              Address Bus Bit 0     113: Reserved      --
 39: GND             Ground                114: _BOSS
 40: VCC             +5v DC                115: _FPUCS        FPU CS
 41: D31             Data Bus Bit 31       116: _FPUSENSE     FPU Sense
 42: D30             Data Bus Bit 30       117: CCKA
 43: D29             Data Bus Bit 29       118: _RESET        General Reset
 44: D28             Data Bus Bit 28       119: GND           Ground
 45: D27             Data Bus Bit 27       120: VCC           +5v DC
 46: D26             Data Bus Bit 26       121: _NETCS
 47: D25             Data Bus Bit 25       122: _SPARECS
 48: D24             Data Bus Bit 24       123: _RTCCS
 49: GND             Ground                124: _FLASH
 50: VCC             +5v DC                125: _REG          Register Enable
 51: D23             Data Bus Bit 23       126: _CCENA
 52: D22             Data Bus Bit 22       127: _WAIT         Interrupt
 53: D21             Data Bus Bit 21       128: _KBRESET      Keyboard Reset
 54: D20             Data Bus Bit 20       129: _IORD         IO Read
 55: D19             Data Bus Bit 19       130: _IOWR         IO Write
 56: D18             Data Bus Bit 18       131: _OE
 57: D17             Data Bus Bit 17       132: _WE           DRAM Write Enbl.
 58: D16             Data Bus Bit 16       133: _OVR          Override SysDec
 59: GND             Ground                134: XRDY          Ext. Data Ready
 60: VCC             +5v DC                135: _ZORRO
 61: D15             Data Bus Bit 15       136: _WIDE
```

```
62: D14             Data Bus Bit 14          137: _INT2         Interrupt Req.
63: D13             Data Bus Bit 13          138: _INT6         Interrupt Req.
64: D12             Data Bus Bit 12          139: GND           Ground
65: D11             Data Bus Bit 11          140: VCC           +5v DC
66: D10             Data Bus Bit 10          141: SYSTEM1       Ground
67: D9              Data Bus Bit 9           142: SYSTEM0       Ground
68: D8              Data Bus Bit 8           143: _xRxD
69: GND             Ground                   144: _xTxD
70: VCC             +5v DC                   145: _CONFIG OUT
71: D7              Data Bus Bit 7           146: AUDIO GND     Audio Ground
72: D6              Data Bus Bit 6           147: AUDIO L       Left Audio
73: D5              Data Bus Bit 5           148: AUDIO R       Right Audio
74: D4              Data Bus Bit 4           149: +12V          +12v DC
75: D3              Data Bus Bit 3           150: -12V          -12v DC
```

Signals marked "--" are shown not connected on the schematics.

Signals with no description are still present – I couldn't find the name.

Pins 1 to 8 are marked Reserved in the A1200 Manual but are shown connected to
the Address Bus.

1.35 Clock Header Pinout

```
                Clock Header Pinout
See
                Complete Header Pinout
                 also.
```

```
  ,---------------------------------,      Type: 22-pin Male DIL Header
  | 20 22 24 26 28 30 32 34 36 38 40 |     Used: Clock Cartridge
  | 19 21 23 25 27 39 31 33 35 37 39 |           Fast Serial Port
  '---------------------------------'           HD Floppy Controller
```

```
  19: GND       Ground                30: A2    Address Bus Bit 2
  20: +5v       +5v DC                 31: D23   Data Bus Bit 23
  21: INT6      Interupt Request       32: D22   Data Bus Bit 22
  22: _SPARE_CS                        33: D21   Data Bus Bit 21
  23: _RTC_CS   Real Time Clock CS     34: D20   Data Bus Bit 20
  24: _PWR_BAD                         35: D19   Data Bus Bit 19
  25: _IORD     IO Read                36: D18   Data Bus Bit 18
  26: _IOWR     IO Write               37: D17   Data Bus Bit 17
  27: A5        Address Bus Bit 5      38: D16   Data Bus Bit 16
  28: A4        Address Bus Bit 4      39: GND   Ground
  29: A3        Address Bus Bit 3      40: +5V   +5v
```

NOTES:

Why does it start at 19?

  Because the header does. Look closely and the marker for pin 1 is right
  down on a row of solder-holes (unless you have a very early release).

   Since the header starts at 19, I did too.

So why the blank holes on the PCB?

   I've explained this in the
                Miscallaneous
                  section.

What else goes in here?

   Apart from an aftermarket clock, there are two main bits which fit here.
   One is the HyperCOM fast serial port array (1 or 2 ports), with optional
   parallel port, and the other is a HD floppy drive adapter marketed by
   Eyetech. Oh, and there's the possibility of an Ethernet Controller being
   released in the future.

1.36 External Floppy Drive Pinout

External Floppy Header Pinouts


```
  ,--------------------------------------,    Type: 23-way Female D
  \  1  2  3  4  5  6  7  8  9  10 11 12  /   Used: External Floppies
   \  13 14 15 16 17 18 19 20 21 22 23   /          Copying Carts
    '------------------------------------'
```


```
 1: /RDY        Disk Ready          13: /SIDE     Select Disk Side - 0 Upper
 2: /DKRD       Disk Read Data      14: /WPRO     Disk is Write Protected
 3: GND         Ground              15: /TK0      Position Head over Track 0
 4: GND         Ground              16: /DKWE     Disk Write Enable
 5: GND         Ground              17: /DKWD     Disk Write Data        _
 6: GND         Ground              18: /STEP     Step Head - Pulse ( _|  )
 7: GND         Ground              19: DIR       Sel Head Direction - 0 In
 8: /MTRXD      Disk Motor Control  20: /SEL3     Select Drive 3
 9: /SEL2       Select Drive 2      21: /SEL1     Select Drive 1
10: /DRES       Disk Reset          22: /INDEX    Disk Index Pulse
11: /CHNG       Disk Removed        23: +12V      +12v DC (160mA Max)
12: +5V         +5v DC (250mA Max)
```


   Pins 8-10 and 16-21 are Open Collector

1.37 Networking Index


```
                      _____
              |                                |
              |         Networking Index       |
              |_____|
```

Information

The Internet

Ethernet Networks

AmiLink Networks

Serial/Parallel Networks

Linking Amiga->PC

Frequently Asked Questions

1.38   Networking with Parallel or Serial

Networking - Parallel and Serial Systems

This is really the starting point if you're getting into Networks. These systems
use the parallel or serial ports of two machines to run a connection
directly between. The way they are used is mostly the same, depending on the
software, but usually goes something like this:

The cable is hooked up and both machines boot. The software, such as Parnet or
Sernet, is run and one machine is designated master. The other machine is slave.
Then, the drives are remapped or assigned to be available to both sides. For
example, if the slave has a hard drive with two partitions - DH0: and DH1:,
then the master will be able to directly read or write to that drive, usually an
invisible system where the icons appear on the workbench, as if the drive was
connected to that computer.

Of course, it's going to be slow, especially with Serial. And with serial, more
problems are added - you need two pretty good machines to get good transfer
rates, perhaps 030's minimum. Also, the other big drawback is that only two
machines are allowed - really a living room solution.

Another Parallel solution is Liana, which has the bonus of being a SANA-II
compliant system. This means instead of using custom software like Parnet, you
can use any TCP stack, like Miami or AmiTCP. So it's very easy to create a Amiga
section of a network, such as

PC <---ethernet---> Mac <---ethernet---> A4000 <---Liana---> A1200

1.39   Networking Amigas to PCs

```
Networking - Amiga to PC
```

Sometimes you'll have to network an Amiga to a PC, usually to transfer files to
large for floppy. In this situation, probably the best solution is PC2Amiga,
available from Aminet. It creates a network consisting of just the two computers
via a serial, parallel or serial+parallel cable, and then mounts the PC drives
as drives and drawers on the Amiga. For example, copying a file "foobar.txt"
from the Amiga's sys:tools directory to the PC C: drive would involve just

```
    "copy sys:tools/foobar.txt pc:c/foobar.txt"
```

The network speed is acceptable, but you'll never be able to pretend the drives
are local ones... evne a directory listing on a totally serial-based network can
take upto 30 seconds or more.

1.40   Internet Networking

```
Networking - The Good Old Internet
```

It's unarguable that the Internet is the worlds largest network. And the greatet
thing about it is that anyone can be a part of it. Don't let anyone tell you you
can't, either - the Amiga is well upto the job, perhaps better suited than some
other platforms. The biggest pity is that no-one has told this to some ISP's
(Internet Service Providers), who wil tell you the Amiga is about as useful as a
chocolate teapot.

All you really need is a modem. This device converts the digital signals your
computer lives on into analoge waveforms that phone lines can handle. There is
another one the other end, at your ISP, which changes the analogue back into
digital (or vice-versa, depending on the direction of data). Oh, and of course
an ISP - won't go into details, but there are some providers that don't mind you
using Amigas, such as Demon, and some that only support Amigas, such as Wirenet.
These are infinitely better than the ones who say "Amiga? Bwahahahaha!".

A fast serial port is a big bonus, but not required. It really depends on your
modem speed, 14400 is a complete minimum these days, 28800 is nice, 33600 is
lovely, but you should perhaps refrain from buying a 56k modem until it's sorted
out which standard is the dominant one. A normal A1200 serial port can handle a
DTE rate of 38400 no sweat, which is suitable for 14400 and 28800 modems. Add an
030 and you can see 57600 DTE, but with anything from fast (50MHz upwards) 030,
and especially with faster 040's and 060's you'll see big benefits from a fast
buffered serial port.

That's about as far as the hardware goes - add a TCP stack like Miami or AmiTCP
and you're away.

1.41   Networking Information

```
Networking Information
```

Networking is perhaps one of the quickest-growing subset of computing. With the
revolution of the Internet, where everyone wants fast connections and
information availability, networking is what everyone is sort of using, even if
they don't know it.

Of course, besides the Internet networking is also used to connect two or more
computers together locally (a LAN - Local Area Network) in order for them to
share resources, be it a hard drive, printer or processor. This kind of system
is often used in colleges and universities.

So what the hell can you do with your A1200? Well, like it shows in the index,
quite a bit. There is hardware available for everybody, from the cheap-but-slow
SerNet if you're a casual networker, to professional Ethernet cards if PC
compatibility is your game. Yes, that's right, you can network your Amiga to
lesser systems like PC's and Macs quite easily, either with Ethernet or, given
time and the right software, a parallel-based system. The world (or your
living-room) could be at your fingertips.....

1.42   Networking Frequently Asked Questions

                    Networking - Frequently Asked Questions

Can I use Ethernet on my A1200?

  Yes, but be prepared to look hard for a card. See
              Ethernet Networking
               for more
  information.

How can I conenct my A1200 to another Amiga to transfer files?

  The cheapest way is probably Parnet or Sernet - this just uses a straight
  connection between two Amigas where each others drives are directly
  accessible.
  See
              Serial/Parallel Networking
               for more information.

How do I connect my A1200 to a PC to transfer files?

  PC2Amiga is probably your best solution. It creates a serial or parallel
  network (or one using both) and transfers files as per Parnet or Sernet.

1.43   Ethernet Networking

Networking - Ethernet Systems

Think of Networking and a lot of you will think Ethernet. It's considered to be
a good system, because if its relatively cheap hardware for the PC and cheap
cabling. But you hardly ever hear of A1200 Ethernet hardware, so is it possible?

Well, yup. The A1200 was blessed with a PCMCIA port, which is underused except
for the Squirrel. Also, PC Notebook users have a wide range of Ethernet PCMCIA
cards available.... getting the picture? Unfortunately, it's like one of those
Magic-Eye pictures... not straightforward and very likely to give you a headache
:)

There do exist some PCMCIA Ethernet solutions for the A1200. One of these is the
Hydra Systems card, however I understand this to be no longer available. White
Knight" link "retailers_white-knight"} do sell a A1200 PCMCIA card, unfortunately ←
    I don't have any more details
on this. As you can see, it's a very hit-and-miss affair.

As far as other solutions go, it's very sparse. Nothing is available as yet, but
there are two systems reportedly in development:

 * The Ateo Busboard will eventually have a Ethernet card available for it,
  alongside the GFX card and SCSI controllers announced.
 * Digital Lightyear Technologies are producing some Ethernet hardware for
  other Amigas, and may well produce an Ethernet controller to fit on the
  A1200 "clock" port.

1.44   Networking with AmiLink

Networking - The AmiLink System

AmiLink has been called the "Poor Mans Ethernet", but it is a title it doesn't
really deserve. For a start it can be just as expensive :)

It was developed by AmiTrix, and uses the only port available on every
Amiga - the external floppy disk drive port. This 23-pin beauty is quite capable
of speedy transfer rates, not quite Ethernet but it certainly beats serial and
parallel based systems. It uses a small converter, which plugs into the floppy
drive port and has an Ethernet style BNC plug on the end. All you need is a
connector for each network node, and suitable lengths of cable to go between
them.

Using it is very simple. The drivers supplied are fully SANA-II compatible, and
therfore you can use Miami or AmiTCP to link the machines together. Quite a lot
of knowledge of network terminology will be required for this though.

1.45   Motherboard Index

```
                            _____
              |                         |
              |   Motherboard Index     |
              |_____|


                      Layout

                      Modifications

                      Standard Specs

                      Manual Errata
```
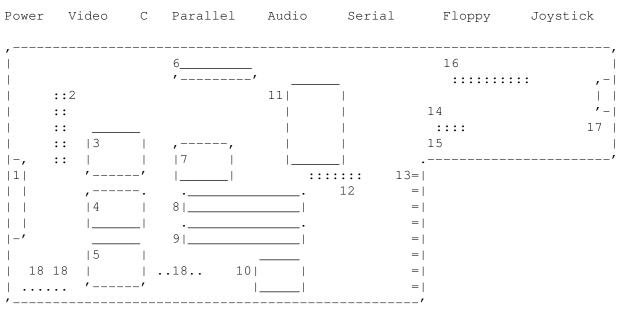
1.46 All About the Motherboard

```
The A1200 Motherboard
```

As motherboards go, the one found inside the A1200 is pretty boring. First thing you'll notice is that there are no jumpers. There is no SCSI or fast memory as standard, unlike its bigger cousins, so it doesn't need them. Second thing you'll notice is that, like the A600, it contains 90% surface-mount technology – only the ROM's are socketed. While this is bad news for hackers due to it's complexity, or for people who like blowing chips (even the CIA's are SMD), it offered greater reliability over the socketed motherboards of old.

```
Layout

 Power    Video    C   Parallel    Audio     Serial      Floppy     Joystick


  ,--------------------------------------------------------------------------,
  |                        6_____                     16                |
  |                         '---------'    _____            ::::::::::   ,-|
  |     ::2                         11|       |                          | |
  |     ::                           |       |        14                 '-|
  |     ::    _____                 |       |          ::::          17 |
  |     ::   |3      |    ,------,    |       |        15                 |
  |-,   ::   |       |    |7     |    |_____|     .----------------------'
  |1|       '------'     |_____|       ::::::::   13=|
  | |       ,------.     ._____.    12     =|
  | |       |4     |   8|_____|         =|
  | |       |_____|     ._____.         =|
  |-'       _____     9|_____|         =|
  |        |5      |      _____            =|
  |  18 18 |       |   | ..18..   10|     |      =|
  | ...... '------'                 |_____|       =|
  '-----------------------------------------------'
                                                   main board


   1: PCMCIA Port                    10: 68EC020 CPU (U1)
```

```
       2: IDE Connector (CN16)          11: 4x 512k 70ns RAM
       3: Lisa          (U4)            12: Clock Header
       4: Gayle         (U5)            13: 150-way Expansion Slot
       5: Alice         (U2)            14: Floppy Drive Power
       6: Keyboard Ribbon Connector     15: Pwr/FD/HD LED Output
       7: Budgie                        16: Floppy Drive Data
       8: ROM 1         (U6B)           17: Mouse Port Connector
       9: ROM 0         (U6A)           18: Test Points
```

   The mouse port is usually a seperate part. On some machines it is a
square bit of circuit board, which plugs into a right-angle connector, while
on others it is just a port on the end of a IDC cable, which plugs into a DIL
header on the motherboard. Both connections are in the position indicated
above.

On very early machines, it's part of an extended motherboard and so no
additional piece is used. I guess Commodore redesigned it because there was a
lot of wasted PCB there.

Revisions

Two main revisions of the A1200 motherboard were produced, Rev 1D and Rev 2B.
They only differed in the type of RAM chips used for the Chip RAM. There was
quite a shortage of RAM chips, and so measures were taken to ensure that
production could keep going whatever chips were available. One took 8bit RAM,
while the other took 16 bit and production was switched depending on what was
available.

(Thanks to Dr. Peter Kittel for that)

1.47 Motherboard Manual Errata

Motherboard Manual Errors

Page ix: "Features [...] Factory-installed Motorola Floating Point Unit (FPU)
     Available"
     This was never an option offered by Commodore, although the
     motherboard can take one if properly installed.

     "Built-in de-interlacing of NTSC and PAL video modes
     We wish! The A1200 has no provision for de-interlaced displays
     internally.

Page xi   States that A1200's come with 'The Amiga Hard Drive Users Guide'. Only
     HD models come with that.
     States that A1200's come with 'Arexx Users Guide'.
     Nope.

Page 1-7 "23pin to 15pin adapter included with the A1200"
     The A1200 never came with one of these, pity!

Page 3-1 "All RAM automatically configures"
     Not necessarily – some early accelerators needed software to add the

RAM to the system.

"Chip RAM on 1Mb machines......"
No A1200's were ever shipped with 1Mb Chip RAM, and the piggy-back
board was never produced.

Page 3-2 PCMCIA Expansion indicates that ROM applications can be used - no ROM
          applications were ever relased to the public.

Page A-1 Again, "optional FPU" was never offered.
          "Fast Memory: 4Mb in CPU slot": 8Mb is possible with no CPU changes.
          "Chip Memory: 1Mb or 2Mb": No 1Mb machines made it to the public.

Page A-2 "AT IDE (40-pin Header)" should read "44-pin header".

1.48 Motherboard Specifications

Motherboard Specifications

  The standard specifications of the A1200 are as follows:

  CPU: Motorola 68EC020 rated at 16MHz
  Speed: 14MHz (14.318MHz NTSC or 14.188MHz PAL)
  Memory: 2Mb "Chip" RAM, 70 or 80ns
  Drives: 880k internal Double-Density, Double-Sided floppy drive
  Keyboard: 96-key Amiga keyboard with processor on motherboard^1
  Ports: External
        PCMCIA - 68-way Card slot
        Power - 5-pin SqDIN
        Video - 23-pin Male D
        RF Output - Phono
        Composite Video - Phono
        Audio - 2x Phono (Left/Right)
        Serial - 25-pin Male D
        Parallal - 25-pin Female D
        External Floppy - 23-way Female D
        Mouse/Joystick - 9-pin Male D (2x)
       Internal
        IDE - 44-pin high density DIL header
        Clock Header - 22-pin DIL header^2
        Floppy - 34-pin DIL header
        Floppy Power - 4-pin polarised SIL
        Status LEDs - 5-pin SIL header
        Expansion Slot - 150-way male Edge Connector

  Expandability:
      Processor: Any MC680X0 on suitable accelerator card,
          Soon PowerPC cards will be available.
      Memory: 8Mb Fast on standard Machine
          Upto 256Mb on accelerated (030 or higher).
          Actual figure depends on accelerator used.

^{1} As opposed to the A500, where the processor was on the keyboard.
^{2} This header demonstrates Commodore's finest quality control – motherboards
  were shipped with the header on the wrong side of the port, the header twice
  the size or no header at all.

1.49 Modifications that can be made

Motherboard Modifications

As with most machines, the A1200 left the factory with a few design flaws. Most
of these won't affect anybody, but they can stop some accelerators from working.
Here are the modifications that should be made for a "perfect" A1200;


```
REV 1D.4
  Budgie REV -01
   > Remove E123C and E125C from the A1200 motherboard

  Budgie REV -02
   > Remove E123C and E125C from the A1200 motherboard
   > Remove XR358 470 ohm pull-up resistor
   > Add 470 ohm pull up resistor at pin 43 of U, ie the Alice chip


REV 2B
  Budgie REV -01 and -02
   > Remove E123C and E125C from the A1200 motherboard
   > Add 470 ohm pull-up at pin 43 of U2, ie the Alice chip
   > Change R118 from 470 ohm to 220 ohm
```


Many thanks to the unknown contributer! It was posted to Usenet, unattributed,
and I took it from there.

1.50 Internal Pinouts Index

```
                         _____
             |                            |
             |      Internal Pinouts Index       |
             |_____|


        Chips

                U1    68EC020 CPU

                U2    Alice

                U3    Paula

                U4    Lisa
```

```
                        U5      Gayle

                        U6A    ROM 0

                        U6B    ROM 1

                        U7      Odd CIA

                        U8      Even CIA

                        U20    Budgie
                                Other Stuff

                        Test Access

                        Complete Clock Header

                        Keyboard Matrix Plan
```

1.51 Test Access Points Pinout

Test Access Pinouts

 Type: All Cases 10-way solder buckets (no header)

```
+-----+-----------------------+--------------------+--------------------+
| Pin |      TP1 Pinout       |    TP2 Pinout      |    TP3 Pinout      |
+-----+-----------------------+--------------------+--------------------+
|     |                       |                    |                    |
|  1  | CPU Clock             | Colour Clock       | _DBR               |
|  2  | _Address Strobe       | Colour Clock Quad. | Register Addr Bus 8 |
|  3  | _Data Strobe          | _RAM Enable        | Register Addr Bus 7 |
|  4  | Processor Read/Write  | _Chip Register Enabl| Register Addr Bus 6 |
|  5  | _Data Send Ack. 0     | _Blitter Slowdown  | Register Addr Bus 5 |
|  6  | _Data Send Ack. 1     | _OEB               | Register Addr Bus 4 |
|  7  | _ROM Enable           | _Row Addr. Strobe  | Register Addr Bus 3 |
|  8  | _CDIS                 | _Col Addr. Strobe  | Register Addr Bus 2 |
|  9  | _Keyboard Reset       | _DWE               | Register Addr Bus 1 |
| 10  | Ground                | Ground             | Ground             |
+-----+-----------------------+--------------------+--------------------+
```

It is highly unadvisable to actually use these unless you know what you are
doing. Make sure you have the right end of the row for starters!

1.52 ROM 1 Pinout

ROM1 Pinouts

  Type: 62408
  Position: U6B

```
                          |
 1  i A20         Address Bus Bit 20      | 22   VCC          +5v
 2  i A19         Address Bus Bit 19      | 23 b D20          Data Bus Bit 4
 3  i A9          Address Bus Bit 9       | 24 b D28          Data Bus Bit 12
 4  i A8          Address Bus Bit 8       | 25 b D21          Data Bus Bit 5
 5  i A7          Address Bus Bit 7       | 26 b D29          Data Bus Bit 13
 6  i A6          Address Bus Bit 6       | 27 b D22          Data Bus Bit 6
 7  i A5          Address Bus Bit 5       | 28 b D30          Data Bus Bit 14
 8  i A4          Address Bus Bit 4       | 29 b D23          Data Bus Bit 7
 9  i A3          Address Bus Bit 3       | 30 b D31          Data Bus Bit 15
10  i A2          Address Bus Bit 2       | 31   GND          Ground
11  i _ROMEN      ROM Enable              | 32   VCC          +5v
12    GND         Ground                  | 33 i A18          Address Bus Bit 18
13  i _OE                                 | 34 i A17          Address Bus Bit 17
14  b D16         Data Bus Bit 0          | 35 i A16          Address Bus Bit 16
15  b D24         Data Bus Bit 8          | 36 i A15          Address Bus Bit 15
16  b D17         Data Bus Bit 1          | 37 i A14          Address Bus Bit 14
17  b D25         Data Bus Bit 9          | 38 i A13          Address Bus Bit 13
18  b D18         Data Bus Bit 2          | 39 i A12          Address Bus Bit 12
19  b D26         Data Bus Bit 10         | 40 i A11          Address Bus Bit 11
20  b D19         Data Bus Bit 3          | 41 i A10          Address Bus Bit 10
21  b D27         Data Bus Bit 11         | 42 i A1           Address Bus Bit 1
                          |
```

1.53   ROM 0 Pinout

```
ROM0 Pinouts

  Type: 62408
  Position: U6A
                          |
 1  i A20          Address Bus Bit 20       | 22   VCC          +5v
 2  i A19 + A1     Address Bus Bits 19 + 1*| 23 b D20          Data Bus Bit 20
 3  i A9           Address Bus Bit 9        | 24 b D28          Data Bus Bit 28
 4  i A8           Address Bus Bit 8        | 25 b D21          Data Bus Bit 21
 5  i A7           Address Bus Bit 7        | 26 b D29          Data Bus Bit 29
 6  i A6           Address Bus Bit 6        | 27 b D22          Data Bus Bit 22
 7  i A5           Address Bus Bit 5        | 28 b D30          Data Bus Bit 30
 8  i A4           Address Bus Bit 4        | 29 b D23          Data Bus Bit 23
 9  i A3           Address Bus Bit 3        | 30 b D31          Data Bus Bit 31
10  i A2           Address Bus Bit 2        | 31   GND          Ground
11  i _ROMEN       ROM Enable               | 32   VCC          +5v
12    GND          Ground                   | 33 i A18          Address Bus Bit 18
13  i _OE                                   | 34 i A17          Address Bus Bit 17
14  b D16          Data Bus Bit 16          | 35 i A16          Address Bus Bit 16
15  b D24          Data Bus Bit 24          | 36 i A15          Address Bus Bit 15
16  b D17          Data Bus Bit 17          | 37 i A14          Address Bus Bit 14
17  b D25          Data Bus Bit 25          | 38 i A13          Address Bus Bit 13
18  b D18          Data Bus Bit 18          | 39 i A12          Address Bus Bit 12
19  b D26          Data Bus Bit 26          | 40 i A11          Address Bus Bit 11
20  b D19          Data Bus Bit 19          | 41 i A10          Address Bus Bit 10
21  b D27          Data Bus Bit 27          | 42 i A1           Address Bus Bit 21
                          |
```

* Pin 2 has both bits 19 and 1 of the address bus connected to it, via

resistors.

1.54 Paula Pinout

Paula Pinouts

```
  Type: 8364
  Position: U3
  Function: Bit of Floppy, Joysticks, Audio


                      |
  1  b DRD24    DRAM Data Bus Bit 24   | 30
  2  b DRD23    DRAM Data Bus Bit 23   | 31 i CCK      Colour Clock
  3  b DRD22    DRAM Data Bus Bit 22   | 32 i CCKQ     Colour Clock Quadr.
  4  b DRD21    DRAM Data Bus Bit 21   | 33 o RIGHT    Right Audio Out
  5  b DRD20    DRAM Data Bus Bit 20   | 34 o LEFT     Left Audio Out
  6  b DRD19    DRAM Data Bus Bit 19   | 35 i P0X      Joystick 0 X Pot
  7  b DRD18    DRAM Data Bus Bit 18   | 36 i P0Y      Joystick 0 Y Pot
  8                                    | 37
  9  b DRD17    DRAM Data Bus Bit 17   | 38 i P1X      Joystick 1 X Pot
  10 b DRD16    DRAM Data Bus Bit 16   | 39 i P1Y      Joystick 1 Y Pot
  11 i _RST     Reset                  | 40 i _DKRD    Floppy Read Data
  12 o DMAL     DMA Request            | 41 o _DKWD    Floppy Write Data
  13 o IPL0     {Interrupt             | 42 o DKWE     Floppy Write Enabled
  14 o IPL1     {Priority Level        | 43 o _TXD     Serial Transmit Data
  15 o IPL2     {Bits 0,1,2            | 44 i _RXD     Serial Recieve Data
  16                                   | 45 b DRD31    DRAM Data Bus Bit 31
  17                                   | 46 b DRD30    DRAM Data Bus Bit 30
  18                                   | 47
  19 i _INT2    Interrupt 2 Request    | 48 b DRD29    DRAM Data Bus Bit 29
  20 i _INT3    Interrupt 3 Request    | 49 b DRD28    DRAM Data Bus Bit 28
  21 i _INT6    Interrupt 6 Request    | 50 b DRD27    DRAM Data Bus Bit 27
  22 i RGA8     Register Addr. Bus 8   | 51 b DRD26    DRAM Data Bus Bit 26
  23 i RGA7     Register Addr. Bus 7   | 52 b DRD25    DRAM Data Bus Bit 25
  24 i RGA6     Register Addr. Bus 6   |
  25 i RGA5     Register Addr. Bus 5   |
  26 i RGA4     Register Addr. Bus 4   |
  27 i RGA3     Register Addr. Bus 3   |
  28 i RGA2     Register Addr. Bus 2   |
  29 i RGA1     Register Addr. Bus 1   |
```


1.55 Odd CIA Pinout

Odd CIA Pinouts

```
  Type: 8520
  Position: U7
  Function: Parallel Data, Keyboard Stuff, Some Floppy functions
                   |
```

```
1    GND         Ground                | 23 o _INT2     Interrupt Request
2                                       | 24 i R_W       Read/Write
3  o _LED        Power LED             | 25 i _ODD_CIA  Timing Signal
4  i _CHNG       Floppy Media Change   | 26 i _ACK      Par. Acknowledge
5                                       | 27 i E         Peripheral Clock
6                                       | 28
7  i _WPROT      Floppy Write Protect  | 29 b D23       Data Bus Bit 23
8  i _TRK0       Floppy Track 0        | 30 b D22       Data Bus Bit 22
9  i _RDY        Floppy Ready          | 31 b D21       Data Bus Bit 21
10 i _FIRE0      Joystick 0 Fire       | 32 b D20       Data Bus Bit 20
11 i _FIRE1      Joystick 1 Fire       | 33 b D19       Data Bus Bit 19
12 b PPD0        Parallel Data Bit 0   | 34 b D18       Data Bus Bit 18
13 b PPD1        Parallel Data Bit 1   | 35 b D17       Data Bus Bit 17
14 b PPD2        Parallel Data Bit 2   | 36 b D16       Data Bus Bit 16
15 b PPD3        Parallel Data Bit 3   | 37
16 b PPD4        Parallel Data Bit 4   | 38 i A11       Address Bus Bit 11
17 b PPD5        Parallel Data Bit 5   | 39 i A10       Address Bus Bit 10
18 b PPD6        Parallel Data Bit 6   | 40
19 b PPD7        Parallel Data Bit 7   | 41 i A9        Address Bus Bit 9
20 o _STROBE     Parallel Strobe       | 42 i A8        Address Bus Bit 8
21 i _VSYNC      Vertical Sync         | 43 i _KB_DATA  Keyboard Data
22   VCC         +5v                   | 44 i _KB_CLOCK Keyboard Clock
                      |
```

1.56 U4 Lisa Pinout

Lisa Pinouts

```
  Type: 4203
  Position: U5
  Desc: AA Denise
  Function: Video is just about it, really.
                   |
1    GND         Ground                 | 43 o CLOCK
2  b DRD6        DRAM Data Bus Bit 6    | 44 o G4         Green Bit 4
3  b DRD5        DRAM Data Bus Bit 5    | 45 o G5         Green Bit 5
4  b DRD4        DRAM Data Bus Bit 4    | 46 o G6         Green Bit 6
5  b DRD3        DRAM Data Bus Bit 3    | 47 o G7         Green Bit 7
6  b DRD2        DRAM Data Bus Bit 2    | 48 o R0         Red Bit 0
7  b DRD1        DRAM Data Bus Bit 1    | 49 o R1         Red Bit 1
8  b DRD0        DRAM Data Bus Bit 0    | 50 o R2         Red Bit 2
9  i _BCAS_XX                          | 51 o R3         Red Bit 3
10 i CCK         Colour Clock          | 52 o R4         Red Bit 4
11                                      | 53   GND        Ground
12 i RGA8        Register Addr. Bus Bit 8| 54 o R5        Red Bit 5
13 i RGA7        Register Addr. Bus Bit 7| 55 o R6        Red Bit 6
14 i RGA6        Register Addr. Bus Bit 6| 56   VCC       +5v
15 i RGA5        Register Addr. Bus Bit 5| 57 o R7        Red Bit 7
16 i RGA4        Register Addr. Bus Bit 4| 58 o _BURST    NC
17 i RGA3        Register Addr. Bus Bit 3| 59 b DRD31     DRAM Data Bus Bit 31
18 i RGA2        Register Addr. Bus Bit 2| 60 b DRD30     DRAM Data Bus Bit 30
19 i RGA1        Register Addr. Bus Bit 1| 61 b DRD29     DRAM Data Bus Bit 29
20 i MDAT                               | 62 b DRD28     DRAM Data Bus Bit 28
21 o _MLD                               | 63 b DRD27     DRAM Data Bus Bit 27
22 o SCLK                               | 64 b DRD26     DRAM Data Bus Bit 26
```

```
23 o 14MHZ      14MHz Clock Signal    | 65 b DRD25     DRAM Data Bus Bit 25
24                                     | 66 b DRD24     DRAM Data Bus Bit 24
25 i 28MHZ      28MHz Clock Signal    | 67 b DRD23     DRAM Data Bus Bit 23
26                                     | 68 b DRD22     DRAM Data Bus Bit 22
27                                     | 69 b DRD21     DRAM Data Bus Bit 21
28                                     | 70 b DRD20     DRAM Data Bus Bit 20
29 o B0         Blue Bit 0            | 71 b DRD19     DRAM Data Bus Bit 19
30   VCC        +5v                   | 72 b DRD18     DRAM Data Bus Bit 18
31 o B1         Blue Bit 1            | 73 b DRD17     DRAM Data Bus Bit 17
32 o B2         Blue Bit 2            | 74 b DRD16     DRAM Data Bus Bit 16
33   GND        Ground               | 75 b DRD15     DRAM Data Bus Bit 15
34 o B3         Blue Bit 3            | 76 b DRD14     DRAM Data Bus Bit 14
35 o B4         Blue Bit 4            | 77 b DRD13     DRAM Data Bus Bit 13
36 o B5         Blue Bit 5            | 78 b DRD12     DRAM Data Bus Bit 12
37 o B6         Blue Bit 6            | 79 b DRD11     DRAM Data Bus Bit 11
38 o B7         Blue Bit 7            | 80 b DRD10     DRAM Data Bus Bit 10
39 o G0         Green Bit 0           | 81 b DRD9      DRAM Data Bus Bit 9
40 o G1         Green Bit 1           | 82 b DRD8      DRAM Data Bus Bit 8
41 o G2         Green Bit 2           | 83   VCC       +5v
42 o G3         Green Bit 3           | 84 b DRD7      DRAM Data Bus Bit 7
                             |
```

1.57   U5 Gayle Pinout

```
Gayle Pinouts

  Type: 4145F023A
  Position: U5
  Desc: AA Gayle
  Function: Oooh, lots of control stuff
                    |
1  o PE12                              | 43 b A14       Address Bus Bit 14
2  o PE5                               | 44 b A15       Address Bus Bit 15
3    GND        Ground               | 45   GND
4  o NOISE                             | 46 b A16       Address Bus Bit 16
5  o _CC_RESET  PCMCIA Reset          | 47 b A17       Address Bus Bit 17
6  o _CC_ENA    PCMCIA Enable         | 48 b A18       Address Bus Bit 18
7  o _REG                             | 49 b A19       Address Bus Bit 19
8  o _WE        DRAM Write Enable     | 50 b A20       Address Bus Bit 20
9  o _OE                              | 51 b A21       Address Bus Bit 21
10 o E          Peripheral Enable Clk | 52 b A22       Address Bus Bit 22
11 o _FLASH                           | 53 b A23       Address Bus Bit 23
12 i _IDE_IRQ                         | 54 b D15       Data Bus Bit 15
13 i _IDE_CS1                         | 55 b D14       Data Bus Bit 14
14 i _IDE_CS2                         | 56 b D13       Data Bus Bit 13
15 o _SPARE_CS                        | 57 b D12       Data Bus Bit 12
16 o _NET_CS                          | 58 b D11       Data Bus Bit 11
17 o _RTC_CS                          | 59 b D10       Data Bus Bit 10
18 o _IOWR      I/O Write             | 60 b D9        Data Bus Bit 9
19 o _IORD      I/O Read              | 61 b D8        Data Bus Bit 8
20   VCC        +5v                   | 62 i _BEER     Bus Error
21                                     | 63 i _KB_RESET Keyboard Reset
```

```
22 o CPUCLK      CPU Clock            | 64
23 o CCK         Colour Clock         | 65   GND        Ground
24   GND                              | 66
25 i XRDY        External Data Ready  | 67 o _MTR0      DF0: Motor On
26 i _OVR        Override Sys. Decoding| 68
27 o _CC_AO                           | 69 b FC1        Function Code Bit 1
28   _DEB                             | 70 b FC0        Function Code Bit 0
29   _DBR                             | 71 i _MTR       Floppy Motor On
30   _BLS                             | 72 i _SEL0      Floppy Select 0
31   _REGEN      Chip Register Enable | 73 o _ODD_CIA   {CIA Timing
32   _RAMEN      RAM Enable           | 74 o _EVEN_CIA  {Signals
33 b _AS         Address Strobe       | 75 i _CC_CD1
34 b _DS         Data Strobe          | 76 i _CC_CD2
35 i _DSACK1     Data Send Acknowledge1| 77 i _CC_BVD1
36 b R_W         Processor Read/Write | 78 i _CC_BVD2
37 i _DSACK0     Data Send Acknowledge0| 79 i _CC_WP
38                                    | 80 i _CC_BUSY_IREQ
39 b _HLT        Processor Halt       | 81 i _WAIT      Processor Wait
40 b _RST        Processor Reset      | 82   VCC        +5v
41 b A12         Address Bus Bit 12   | 83 o _INT6      {Interrupt
42 b A13         Address Bus Bit 13   | 84 o _INT2      {Requests
                              |
```

1.58 Even CIA Pinout

```
Even CIA Pinouts

  Type: 8520
  Position: U8
  Function: Serial Port, Some Floppy functions, a bit of Parallel
                      |
  1    GND        Ground               | 23 o _INT6      Interrupt Request
  2  i BUSY       Parallel Port Busy   | 24 i R_W        Read/Write
  3  i POUT       Parallel Paper Out   | 25 i _EVEN_CIA Timing Signal
  4  o SEL        Parallel Select      | 26 i _INDEX     Floppy Index
  5                                    | 27 i E          Peripheral Clock
  6                                    | 28
  7  i DSR        Serial Data Set Ready| 29 b D31        Data Bus Bit 31
  8  i CTS        Serial Clear To Send | 30 b D30        Data Bus Bit 30
  9  i CD         Serial Carrier Detect| 31 b D29        Data Bus Bit 29
 10  i RTS        Serial Ready to Send | 32 b D28        Data Bus Bit 28
 11  i DTR        Serial Data Terminal Rdy| 33 b D27      Data Bus Bit 27
 12 o _STEP       Floppy Head Step     | 34 b D26        Data Bus Bit 26
 13 o DIR         Floppy Head Step Dir | 35 b D25        Data Bus Bit 25
 14 o _SIDE       Floppy Read Side     | 36 b D24        Data Bus Bit 24
 15 o _SEL0       Floppy Select Unit 0 | 37
 16 o _SEL1       Floppy Select Unit 1 | 38 i A11        Address Bus Bit 11
 17 o _SEL2       Floppy Select Unit 2 | 39 i A10        Address Bus Bit 10
 18 o _SEL3       Floppy Select Unit 3 | 40
 19 o _MTR        Floppy Motor         | 41 i A9         Address Bus Bit 9
 20                                    | 42 i A8         Address Bus Bit 8
 21 i _HSYNC      Horizontal Sync      | 43 i BUSY       Parallel Port Busy
```

```
 22   VCC              +5v                        | 44 i POUT     Parallel Paper Out
                        |
```

1.59 Complete Clock Header Pinout

Complete Clock Header Pinout

 This is the pinout for the complete "clock" header – the space for which is
visible above and below the Chip Mem IC's.
 Note that only the P9B pins 19-40 actually have a header soldered in in most
machines, although some earlier revisions (such as 1B) had a complete P9B, and
the earliest of prototypes had both P9A and P9B complete, probably in
conjunction with 1mb Chip RAM.


```
     P9B (Bottom)                 |         P9A (Top)
  ------------------------------------+------------------------------------
                      |
  1: GND         Ground             |   1: GND         Ground
  2: VCC         +5v DC             |   2: VCC         +5v DC
  3: DRD0        DRAM Data Bus Bit 0 |   3: DRD16       DRAM Data Bus Bit 16
  4: DRD15       DRAM Data Bus Bit 15|   4: DRD31       DRAM Data Bus Bit 31
  5: DRD1        DRAM Data Bus Bit 1 |   5: DRD17       DRAM Data Bus Bit 17
  6: DRD14       DRAM Data Bus Bit 14|   6: DRD30       DRAM Data Bus Bit 30
  7: DRD2        DRAM Data Bus Bit 2 |   7: DRD18       DRAM Data Bus Bit 18
  8: DRD13       DRAM Data Bus Bit 13|   8: DRD29       DRAM Data Bus Bit 29
  9: DRD3        DRAM Data Bus Bit 3 |   9: DRD19       DRAM Data Bus Bit 19
 10: DRD12       DRAM Data Bus Bit 12|  10: DRD28       DRAM Data Bus Bit 28
 11: DRD4        DRAM Data Bus Bit 4 |  11: DRD20       DRAM Data Bus Bit 20
 12: DRD11       DRAM Data Bus Bit 11|  12: DRD27       DRAM Data Bus Bit 27
 13: DRD5        DRAM Data Bus Bit 5 |  13: DRD21       DRAM Data Bus Bit 21
 14: DRD10       DRAM Data Bus Bit 10|  14: DRD26       DRAM Data Bus Bit 26
 15: DRD6        DRAM Data Bus Bit 6 |  15: DRD22       DRAM Data Bus Bit 22
 16: DRD9        DRAM Data Bus Bit 9 |  16: DRD25       DRAM Data Bus Bit 25
 17: DRD7        DRAM Data Bus Bit 7 |  17: DRD23       DRAM Data Bus Bit 23
 18: DRD8        DRAM Data Bus Bit 8 |  18: DRD24       DRAM Data Bus Bit 24
 19: GND         Ground             |  19: GND         Ground
 20: VCC         +5v DC             |  20: VCC         +5v DC
 21: INT6        Interupt Request   |  21: _BWE
 22: _SPARE_CS                      |  22: _ROE
 23: _RTC_CS     Real Time Clock CS |  23: _BRAS0
 24: _PWR_BAD                       |  24: _BRAS1
 25: _IORD       IO Read            |  25: _BCAS_UU
 26: _IOWR       IO Write           |  26: _BCAS_UM
 27: A5          Address Bus Bit 5  |  27: _BCAS_LL
 28: A4          Address Bus Bit 4  |  28: _BCAS_LM
 29: A3          Address Bus Bit 3  |  29: BDRA0
 30: A2          Address Bus Bit 2  |  30: CCK_A       Colour Clock
 31: D23         Data Bit Bit 23    |  31: BDRA1
 32: D22         Data Bit Bit 22    |  33: BDRA8
 33: D21         Data Bit Bit 21    |  33: BDRA2
 34: D20         Data Bit Bit 20    |  34: BDRA7
 35: D19         Data Bit Bit 19    |  35: BDRA3
 36: D18         Data Bit Bit 18    |  36: BDRA6
```

```
37: D17          Data Bit Bit 17        | 37: BDRA4
38: D16          Data Bit Bit 16        | 38: BDRA5
39: GND          Ground                 | 39: GND        Ground
40: _RESET       Reset                  | 40: VCC        +5v DC
                                |
```

1.60   Budgie Pinouts

```
BudgiePinouts

 Type: 391425
 Position: U20
 Function: Memory Stuff


                    |
 1                                       | 65
 2  b D7          Data Bus Bit 7         | 66 b DRD26     DRAM Data Bus Bit 26
 3  b D6          Data Bus Bit 6         | 67 b DRD27     DRAM Data Bus Bit 27
 4  b D5          Data Bus Bit 5         | 68 b DRD28     DRAM Data Bus Bit 28
 5  b D4          Data Bus Bit 4         | 69 b DRD29     DRAM Data Bus Bit 29
 6  b D3          Data Bus Bit 3         | 70 b DRD30     DRAM Data Bus Bit 30
 7  b D2          Data Bus Bit 2         | 71 b DRD31     DRAM Data Bus Bit 31
 8  b D1          Data Bus Bit 1         | 72
 9  b D0          Data Bus Bit 0         | 73
 10                                      | 74
 11 o _UDS        Upper Data Strobe      | 75
 12 o _LDS        Lower Data Strobe      | 76
 13 i _DS         Data Strobe            | 77
 14 i A1          Address Bus Bit 1      | 78
 15 i A0          Address Bus Bit 0      | 79
 16 i SIZE_1                             | 80
 17 i SIZE_0                             | 81
 18 i R_W         Processor Read/Write   | 82
 19 o _BCAS_XX    Budgie Col. Addr. Strobe | 83
 20 o _BCAS_LL    Budgie Col. Addr. Strobe | 84
 21 o _BCAS_LM    Budgie Col. Addr. Strobe | 85
 22 o _BCAS_UM    Budgie Col. Addr. Strobe | 86
 23 o _BCAS_UU    Budgie Col. Addr. Strobe | 87
 24 i _CAS        Column Address Strobe  | 88
 25                                      | 89
 26 o _BRAS0      Budgie Row Addr. Bit 0 | 90 o CPUCLK    CPU Clock
 27 o _BRAS1      Budgie Row Addr. Bit 1 | 91 o _COAC     7MHZ Quadrature Clk
 28 i _RAS        Row Address Strobe     | 92 o 7MHZ      7MHZ Signal
 29                                      | 93 i _RST      Reset
 30 o _BWE                               | 94 i OSC       Oscillator Input
 31 i _DWE                               | 95 o 28MHZ     28MHZ Signal
 32                                      | 96
 33                                      | 97 i XCLK      External Clock
 34 i _DBR                               | 98 i _XCLKEN   External Clk Enable
 35 o CCOA        Colour Clock Quadrature | 99
 36 o CCK         Colour Clock           | 100
 37 b DRD0        DRAM Data Bus Bit 0    | 101 i _OEB
 38 b DRD1        DRAM Data Bus Bit 1    | 102 b D31      Data Bus Bit 31
 39 b DRD2        DRAM Data Bus Bit 2    | 103 b D30      Data Bus Bit 30
 40 b DRD3        DRAM Data Bus Bit 3    | 104 b D29      Data Bus Bit 29
```

```
41 b DRD4         DRAM Data Bus Bit 4      | 105 b D28        Data Bus Bit 28
42 b DRD5         DRAM Data Bus Bit 5      | 106 b D27        Data Bus Bit 27
43 b DRD6         DRAM Data Bus Bit 6      | 107
44 b DRD7         DRAM Data Bus Bit 7      | 108 b D26        Data Bus Bit 26
45 b DRD8         DRAM Data Bus Bit 8      | 109 b D25        Data Bus Bit 25
46                                         | 110 b D24        Data Bus Bit 24
47 b DRD9         DRAM Data Bus Bit 9      | 111 b D23        Data Bus Bit 23
48 b DRD10        DRAM Data Bus Bit 10     | 112 b D22        Data Bus Bit 22
49 b DRD11        DRAM Data Bus Bit 11     | 113 b D21        Data Bus Bit 21
50 b DRD12        DRAM Data Bus Bit 12     | 114 b D20        Data Bus Bit 20
51 b DRD13        DRAM Data Bus Bit 13     | 115 b D19        Data Bus Bit 19
52 b DRD14        DRAM Data Bus Bit 14     | 116 b D18        Data Bus Bit 18
53 b DRD15        DRAM Data Bus Bit 15     | 117 b D17        Data Bus Bit 17
54                                         | 118 b D16        Data Bus Bit 16
55 b DRD16        DRAM Data Bus Bit 16     | 119
56 b DRD17        DRAM Data Bus Bit 17     | 120 b D15        Data Bus Bit 15
57 b DRD18        DRAM Data Bus Bit 18     | 121 b D14        Data Bus Bit 14
58 b DRD19        DRAM Data Bus Bit 19     | 122 b D13        Data Bus Bit 13
59 b DRD20        DRAM Data Bus Bit 20     | 123 b D12        Data Bus Bit 12
60 b DRD21        DRAM Data Bus Bit 21     | 124 b D11        Data Bus Bit 11
61 b DRD22        DRAM Data Bus Bit 22     | 125 b D10        Data Bus Bit 10
62 b DRD23        DRAM Data Bus Bit 23     | 126 b D9         Data Bus Bit 9
63 b DRD24        DRAM Data Bus Bit 24     | 127 b D8         Data Bus Bit 8
64 b DRD25        DRAM Data Bus Bit 25     | 128
                                     |
```

1.61 U2 Alice Pinout

```
U2 Alice Pinouts

  Type: 8374
  Position: U2
  Desc: AA Agnus
                      |
  1  b DRD29        DRAM Data Bus Bit 29   | 43 o DRA0        DRAM Addr. Bus Bit 0
  2  b DRD28        DRAM Data Bus Bit 28   | 44 o DRA1        DRAM Addr. Bus Bit 1
  3  b DRD27        DRAM Data Bus Bit 27   | 45 o DRA2        DRAM Addr. Bus Bit 2
  4  b DRD26        DRAM Data Bus Bit 26   | 46 o DRA3        DRAM Addr. Bus Bit 3
  5  b DRD25        DRAM Data Bus Bit 25   | 47 o DRA4        DRAM Addr. Bus Bit 4
  6  b DRD24        DRAM Data Bus Bit 24   | 48 o DRA5        DRAM Addr. Bus Bit 5
  7  b DRD23        DRAM Data Bus Bit 23   | 49 o DRA6        DRAM Addr. Bus Bit 6
  8  b DRD22        DRAM Data Bus Bit 22   | 50 o DRA7        DRAM Addr. Bus Bit 7
  9  b DRD21        DRAM Data Bus Bit 21   | 51 o DRA8        DRAM Addr. Bus Bit 8
  10 b DRD20        DRAM Data Bus Bit 20   | 52   VCC         +5v
  11 b DRD19        DRAM Data Bus Bit 19   | 53
  12 b DRD18        DRAM Data Bus Bit 18   | 54 o _CAS        Column Addr. Strobe
  13 b DRD17        DRAM Data Bus Bit 17   | 55 b A20         Address Bus Bit 20
  14 b DRD16        DRAM Data Bus Bit 16   | 56 o DRA9        DRAM Addr. Bus Bit 9
  15   _RESET       Reset (tied to GND)    | 57 o _RAS        Row Address Strobe
  16                                       | 58   GND         Ground
  17 o _INT3        Interrupt Request 3    | 59 b A19         Address Bus Bit 19
  18 i DMAL         DMA Request Line       | 60 b A1          Address Bus Bit 1
  19                                       | 61 b A2          Address Bus Bit 2
  20                                       | 62 b A3          Address Bus Bit 3
  21 o _DWE         Disk Write Enable      | 63 b A4          Address Bus Bit 4
```

```
22 b R_W        Read/Write         | 64 b A5      Address Bus Bit 5
23                                 | 65 b A6      Address Bus Bit 6
24                                 | 66 b A7      Address Bus Bit 7
25                                 | 67 b A8      Address Bus Bit 8
26 o RGA8       Register Addr. Bus 8 | 68 b A9     Address Bus Bit 9
27 o RGA7       Register Addr. Bus 7 | 69 b A10    Address Bus Bit 10
28 o RGA6       Register Addr. Bus 6 | 70 b A11    Address Bus Bit 11
29 o RGA5       Register Addr. Bus 5 | 71 b A12    Address Bus Bit 12
30 o RGA4       Register Addr. Bus 4 | 72 b A13    Address Bus Bit 13
31 o RGA3       Register Addr. Bus 3 | 73 b A14    Address Bus Bit 14
32 o RGA2       Register Addr. Bus 2 | 74 b A15    Address Bus Bit 15
33 o RGA1       Register Addr. Bus 1 | 75 b A16    Address Bus Bit 16
34 i SCLK                          | 76 b A17     Address Bus Bit 17
35 i 14MHZ      14MHz Signal       | 77 b A18     Address Bus Bit 18
36                                 | 78 i _FIRE1  Joystick 1 Fire
37   _CDAC      7MHZ Quadrature Clock * | 79 b _VSYNC  Vertical Sync
38   7MHZ       7MHz Signal *      | 80 o _CSYNC  Composite Sync
39 o CCKQ       Colour Clock Quadrat. | 81 b _HSYNC Horizontal Sync
40 o CCK        Colour Clock       | 82   GND     Ground
41 i _NTSC      NTSC/PAL Display   | 83 b DRD31   DRAM Data Bus Bit 31
42   GND        Ground             | 84 b DRD30   DRAM Data Bus Bit 30
                       |
```

```
* 7MHz means 7.15909MHz on NTSC systems
    and  7.09378MHz on PAL systems
```

1.62 68EC020 Pinouts

```
68EC020 Pinouts

 Type: 68EC020 16MHz
 Position: U1


                   |
1  i _BR        Bus Request        | 50 b D10    Data Bus Bit 10
2  o _BG        Bus Grant          | 51 b D9     Data Bus Bit 9
3    GND        Ground             | 52   NC     --
4    GND        Ground             | 53 b D8     Data Bus Bit 8
5  i CPUCLK     CPU Clock          | 54 b D7     Data Bus Bit 7
6  b _RST       Processor Reset    | 55 b D6     Data Bus Bit 6
7    VCC        +5v                | 56 b D5     Data Bus Bit 5
8    VCC        +5v                | 57   VCC    +5v
9  o _RMC                          | 58   GND    Ground
10 b FC2        {Function          | 59   GND    Ground
11 b FC1        {Code Bits         | 60 b D4     Data Bus Bit 4
12 b FC0        {0,1,2             | 61 b D3     Data Bus Bit 3
13 b SIZE_0                        | 62 b D2     Data Bus Bit 2
14 b SIZE_1                        | 63 b D1     Data Bus Bit 1
15 i CDIS                          | 64 b D0     Data Bus Bit 0
16 i _AVEC                         | 65 i IPL0   {Interrupt
17 i _DSACK_0   {Data Send         | 66 i IPL1   {Prority Level
18 i _DSACK_1   {Acknowledge 0,1   | 67 i IPL2   {Bits 0,1,2
19 i _BEER      Bus Error          | 68   GND    Ground
20   GND        Ground             | 69   GND    Ground
```

```
21   GND           Ground              | 70   VCC        +5v
22 b _HLT          Processor Halt      | 71   VCC        +5v
23 b _AS           Address Strobe      | 72   GND        Ground
24 b _DS           Data Strobe         | 73 b A2         Address Bus Bit 2
25 b R_W           Read/Write          | 74 b A3         Address Bus Bit 3
26   GND           Ground              | 75 b A4         Address Bus Bit 4
27 b D31           Data Bus Bit 31     | 76 b A5         Address Bus Bit 5
28 b D30           Data Bus Bit 30     | 77 b A6         Address Bus Bit 6
29 b D29           Data Bus Bit 29     | 78 b A7         Address Bus Bit 7
30 b D28           Data Bus Bit 28     | 79   NC         --
31 b D27           Data Bus Bit 27     | 80 b A8         Address Bus Bit 8
32 b D26           Data Bus Bit 26     | 81 b A9         Address Bus Bit 9
33 b D25           Data Bus Bit 25     | 82 b A10        Address Bus Bit 10
34 b D24           Data Bus Bit 24     | 83 b A11        Address Bus Bit 11
35 b D23           Data Bus Bit 23     | 84 b A12        Address Bus Bit 12
36 b D22           Data Bus Bit 22     | 85 b A13        Address Bus Bit 13
37 b D21           Data Bus Bit 21     | 86 b A14        Address Bus Bit 14
38 b D20           Data Bus Bit 20     | 87 b A15        Address Bus Bit 15
39 b D19           Data Bus Bit 19     | 88 b A16        Address Bus Bit 16
40 b D18           Data Bus Bit 18     | 89   GND        Ground
41 b D17           Data Bus Bit 17     | 90   VCC        +5v
42 b D16           Data Bus Bit 16     | 91 b A17        Address Bus Bit 17
43   GND           Ground              | 92 b A18        Address Bus Bit 18
44   VCC           +5v                 | 93 b A19        Address Bus Bit 19
45 b D15           Data Bus Bit 15     | 94 b A20        Address Bus Bit 20
46 b D14           Data Bus Bit 14     | 95 b A21        Address Bus Bit 21
47 b D13           Data Bus Bit 13     | 96 b A22        Address Bus Bit 22
48 b D12           Data Bus Bit 12     | 97 b A23        Address Bus Bit 23
49 b D11           Data Bus Bit 11     | 98 b A1         Address Bus Bit 1
                   | 99 b A0        Address Bus Bit 0
                   | 100  GND       Ground
                   |
```

1.63 Interfaces Index

```
                    _____
           |                       |
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           |_____|
```

```
SCSI Interfaces

          Information

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          Improved IDE Ports

          Information

          Available Models

          Frequently Asked Questions
```

1.64   Serial Interface Information

Serial Interface Information

 The A1200 has a bit of a flawed serial port. It's all good and fine, but it
only has a single byte buffer. That's one byte. Not a lot, is it? This can cause
problems, as it needs to be cleared out into memory when full – for a 1Mb file,
this means clearing it out 1024^2 times! And all this while your Amiga could be
getting on with something else.

 But now there are faster ports available. These have larger buffers, so they
don't need to be serviced quite so often. Because of this, they can get up
higher speeds – while the internal port bottoms out at 115200BPS (relax, it's
still equal or better than a PC), these fast ports are well off the scale!
Typically they can easily handle 460800BPS (exactly four times the speed of the
internal port), and are even cooler because they can do this without the
problems of high bandwidth screens, disk access etc slowing them down.

So in short, even if you have a 28k8 or 33k6 modem, a faster serial port is a
very good thing. There are plenty of options, with/without SCSI, PCMCIA or Clock
ports, with/without parallel ports. Prices range from about £50 to £100.

1.65   Serial Interface FAQ

Serial Interface Frequently Asked Questions

What's all this buffering lark about anyway?

The standard A1200 only has a single byte buffer on the serial port – that is, it can only hold 1 byte before it has to be taken away and store in memory somewhere. If you have something else taking a lot of DMA time, such as a high bandwidth display or something taking a lot of CPU time like a hard drive transfer, then the serial port rate will suffer as the buffer soon gets filled. The new "fast" serial ports generally have 32 or 64-byte buffers.

Can I use one of these with my terminal/internet program?

As long as your program lets you change the device used, yes, no problems. You just type in "HyperCOM1.device" or "surfserial.device" or whatever, instead of the internal "serial.device".

What's the deal with these 9-pin sockets? My A1200 has 25-pins on the original port.

The 9-pin standard is just a cut down port, it has all the pins used for modem communication but leaves out a lot of the junk of the 25-pin standard. 25-9 and 9-25 converters are readily available from places such as Maplins.

1.66 Fast Serial Port Options

Available Serial Port Expansions

Whippet Fast Serial Port
  The Whippet fits into the PCMCIA slot of your A1200, and provides a single 9-pin serial port. It's basically a Surf Squirrel, without a SCSI controller, bit is physically quite large and bulky.

  The CPU time used is very low, because of the large buffer, but it still uses some because of the software interrupts.

  The Whippet costs around £50, and is available from HiSoft.

The HyperCOM1 Serial Port Add-on
The PortPlusJNR Serial Port Add-on
  I've stuck these together, as essentially they are the same product. They fit onto the "clock" header inside the A1200. Sprouting from the board is a IDC cable, on the end of which is a standard 25-pin serial port. This fits neatly into the little spare port beneath the floppy drive.

  Speed-wise, it's apparently the fastest available (although there isn't much in it) because it uses hardware interrupts (which the Whippet and Surf Squirrel apparently can't). It also has a huge 32-byte buffer for faultless transfers.

  The PortPlusJNR costs about £50 and is available from Eyetech
  I don't have any information about HyperCOM1 availability.

Surf Squirrel Fast Serial Port

The Surf Squirrel is a combined fast serial and SCSI controller, which plugs
into the PCMCIA slot of the A1200. It provides a well-buffered 9-pin serial
port, along with the necessary drivers. Installation and operation is reported
to be very easy, and the drivers are updated often and are well-tested.

 The Surf Squirrel was actually the first fast serial port add-on, and as such
should be thoroughly tried and tested by now. If you don't require the SCSI
controller, then the Whippet is more or less a SCSI-less version of the Surf
Squirrel.

The Surf Squirrel costs around £80, and is available from HiSoft.

1.67   SCSI Interface Information

SCSI Interface Information

 SCSI controllers are often mislabelled as confusing, temperamental and
over-complicated. It's true that it isn't easy to set up, but when properly
setup they can offer so much it's worth it.

 There are many ways of adding a SCSI interface. The fastest, but often most
expensive is via a accelerator add-on: most accelerators have some provision for
a SCSI interface. Then there are the PCMCIA options – the Squirrel and Surf
Squirrel, finally the Dataflyer+, an elderly design which uses the IDE
interface.

 Once you have it, there are many devices which can use it. There are the
obvious hard drives and CD-Rom drives, which are fairly similar in operation to
their IDE counterparts, except for the fact that the HD's offer greater transfer
rates. You can also connect a wide range of removable media drives – Zips,
Jaz's, Dittos, Travans, Flyers, Mos, the whole lot. Most drives are available in
SCSI format, primarily for Mac compatibility, and these generally work
off-the-shelf. Finally, there are scanners which will work on a SCSI chain, and
these have good, if limited, support for the Amiga.

1.68   SCSI Controller FAQ

SCSI Controller Frequently Asked Questions

Can I autoboot from a SCSI hard drive?

  This depends on your controller. Some, such as the Surf Squirrel and some
  accelerator controllers allow SCSI booting, others require that you load some
  drivers first and thus cannot boot.

Where can I find some information on SCSI chains, especially termination?

  There is a document, by Warren Block, which is an excellent resource if you

intend to busy yourself with matters of SCSI chain layout. Entitled the "SCSI
Examples Document", it is available from Aminet and includes examples of SCSI
terminations.

1.69 Available SCSI Controllers

Available SCSI Interfaces

Squirrel SCSI Controller
 The Squirrel is probably the most popular SCSI controller available for the
 A1200. It has been bundled with many CD-Rom expansions and Zip drives as well
 as being sold individually.

 It comprises of a PCMCIA interface and controller, which sits in a box about the
 size of a couple of matchboxes, and a cable terminating in a 50-pin Centronics
 style plug. It comes with drivers, mounting software as well as CD^3^{2} ↩
    emulation
 software, and Audio CD players.

 In short, it's a tried and tested controller, although the Surf Squirrel adds
 things like AutoBoot and the serial port.

 The "Classic" Squirrel costs around £50, and is available from HiSoft.

Dataflyer+ SCSI Controller
 Opinions seem to be divided on the usefulness of the Dataflyer+. It's a board
 which sits on the IDE controller, with a passthrough for your IDE drives, and
 can handle upto 5 SCSI drives. It does this by fooling the A1200 into thinking
 it has more IDE drives on, so when the OS sends stuff to them, the logic
 catches this, converts it into SCSI data and sends it to the drives. It's kinda
 clever.

 However, since the OS uses SCSI calls which are converted into IDE calls
 already, it means that it's converting them back - not good for speed. Also,
 I'm not sure how it would fare with a CatWeasel and/or 4-IDE Controller in
 addition.

 I'm not even sure of anyone who sells it any longer.

Accelerator Controllers
 This is sort of a generic section. Most accelerators have a SCSI option
 available for them. Because I couldn't hope to put a bit in about each one,
 I'll just point out their collective good and bad bits.

 Basically, they're dead quick. Usually faster than any PCMCIA or the Dataflyer.
 This is really because they are on a dedicated port, and the device driver can
 take full advantage of this. They are also permenant - PCMCIA controllers can
 be a problem if you have a memory card, and the IDE one can be a problem if you
 have a slightly unusual setup, but you can always be guaranteed that a
 accelerator controller will fit.

 On the downside, well, not much. Sometimes pricey, they range from £30 (for the
 Falcon) to about £100 (for the Apollo).

Contact your dealer to see about one for your card.

1.70   Parallel Interface Information

Parallel Interface Information

The parallel ports available are usually options on serial ports, and as such
are perhaps not as developed as they could have been. To be honest, there isn't
a big point in getting one to use instead of the internal parallel
port, as they don't offer much over it. Instead, the best reason for getting one
is to use multiple parallel devices without the use of switchers.

For example, while a switcher to control two printers is good, what if you use a
scanner and a printer, both on the parallel port? In this case you may want to
scan and print at the same time, and a switcher can't do this. However, get a
parallel port add-on and you can, just point the printer to the new port and the
scanner stays on the old port.

We'll have to wait and see what else becomes available for the parallel port,
but it's also useful for samplers that don't have a passthrough – these can be
left on the internal port while th printer occupies the new port.

Technically, I don't see much difference in the new ports. They still can't run
EPP devices like Zip drives, and they don't seem to offer a great speed
increase. So if you just want another port, perhaps this is for you.

1.71   Parralel Interface FAQ

Parallel Interface Frequently Asked Questions

Can I use samplers on an aftermarket parallel port?

  Generally no. The sampler software supplied with most samplers is hardcoded to
  use the internal parallel port, usually for speed reasons (it's deemed more
  efficient than using the device drivers).
  However, printers typically can use the aftermarket port, so just stick your
  sampler on the internal one, problem solved.

Can I plug in my PC's parallel port Zip drive to this new parallel port I've
got?
  No! Aaaaaaaaaargh!
  As far as I know, the hardware difficulties were not resolved when these
  devices were designed, so it still isn't possible to run a PC EPP device on an
  Amiga parallel port. And there aren't any drivers anyway.
  There is a slight possibility that a device will be released to get around
  this problem, which will use the parallel port plus another port to make up
  the number of programmable lines. I'll wait and see, but at present, see the

```
 bold bit :)
```

1.72   Available Parallel Port Interfaces

```
                        Available Parallel Port Expansions
```

```
HyperCOM3 Parallel Port
PortPlus Parallel Port
```

 As with the serial ports, the PortPlus and HyperCOM models features are near as
 darnit itentical, so again I've bundled them together.

 Although these are stuck in with the Parallel ports, it actually has two serial
 ports on it as well. The serial ports are like those found on the
                   PortPlusJNR
                   , apart from
 a smaller 16byte buffer which doesn't make too much operating difference.

 The Parallel port is squidged onto a tiny board along with the other ports,
 which fits internally onto the clock header. On flying leads are the ports
 themselves, bolted onto a pair of PC-style blanking plates. Ideal for a tower,
 less so for a desktop "wedge" machine.

 At the time of writing, there seems to be some confusion about whether drivers
 are available for the parallel port - a magazine did a review and found there
 were no drivers, but Eyetech seem to have sorted this problem, for the PortPlus
 model at least.

 This device will not let you use PC Parallel port (EPP) drives, such as the
 Zip, on the Amiga. It will NOT WORK!

 The PortPlus costs £99 and is available from Eyetech Group.
 I don't have any information about HyperCOM availability at present.

1.73   IDE Interface Information

```
IDE Interface Information
```

 The A1200 already has a internal IDE interface, so you may be a bit puzzled why
so many owners go out and buy a new one. Especially when the new one just sits
on top of the old one!

 Well, the internal interface was only ever designed for a single, 2.5" hard
drive mounted very near to the interface. As such, and unlike PC's or the A4000,
it's unbuffered - certain pins are connected straight to the CPU. No problem on
Commodore's spec, but now users are bunging big hungry 3.5" drives on, and
CD-Rom drives too. Certain retailers have identified the buffering problems, and
released buffered interfaces.

 Typically, these allow you to connect 4 devices, two "chains" of two drives
with a slave and master on each. Some have options to connect a single 2.5"

drive instead of the two primary 3.5" drives as well. To run a hard drive on the
second channel, you'll need some additional software as the device "masks" the
second channel drives from the OS – IDEFix97 will see hard drives on this
channel and use them. Sometimes a better option is to put your two hard drives
on the primary channel, and CD-Rom drives on the secondary.

 There are also unbuffered devices available, which I would hesitate at
recommending, since they aren't much cheaper

1.74   IDE Interface FAQ

IDE Interface Frequently Asked Questions

How many devices can I reliably run on a buffered interface?

  Typically four: the old AlfaDuo only ran two, and the AlfaQuatro was only
  guaranteed for three (but could run four) but all new devices such as the
  Eyetech, GI-Quatro and Blittersoft models can safely run four IDE devices.

Are there any limitations on what devices I can run?

  Usually you will need IDEFix97 (a demo of which is on Aminet) to run a Hard
  Drive or Removable Drive on the secondary channel, and in this case the drive
  will not be bootable.
  Other than that, you can usually run whatever drives you want, as long as the
  proper master-slave configuration is observed.

Can I use a Catweasel with a buffered IDE device?

  Possibly, although some present physical or logical difficulties. Contact your
  retailer, who will have probably done tests on your particular device.
  I can confirm now that the Eyetech Mk1 does not work with a
  Catweasel.

1.75   IDE Interfaces Options

Available IDE Interfaces

Eyetech Buffered Interface
  There are two versions of this device. The Mk1 is a small device which sits
  on top of the IDE port, while the Mk2 has a cable to connect it to the port,
  and is compatible with 060's.

  They have three outputs – normally you will use the two 40-pin outputs, each
  of which can handle a slave and master drive. There is also a unbuffered,
  44-pin direct passthrough which is used if you have a 2.5" hard drive. If you
  use this, it disables the entire primary channel, so it reduces your maximum
  to three devices.

It's fully buffered and so reduces the risk of running multiple devices. On my
system, where I run a Mk1, I have had no problems. One thing to note is that
for towers systems with PCMCIA, you must have a Mk2 as the earler version
physically blocks the right-angle connectors used in towers.

This is available from Eyetech for about £40.

Blittersoft Interfaces
  Blittersoft sell two types of IDE interfaces. The first is simply a tiny
  board which pushes over the IDE header and provides 44-way and 40-way
  interfaces, for four devices.

  The second is a buffered version of the first, again with seeming the same
  connectors. It's only other feature is the buffering, and a registered copy
  of AtapiPnP, which probably makes it the best choice if you're specifically
  wanting to run CD-Rom drives.

  Available from Blittersoft for £20 or £30

GI-Quatro
  The GI-Quatro is a newish device, and unfortunately I don't have much
  information on it. All I know is it's buffered and it comes with IDEFix97,
  which makes it the best choice if you want Hard Drives and Zip drives and
  everything on it. Having said that, it does seem a bit pricey. Still, get in
  touch with Golden Image and I'm sure they'll tell you all about it.

  Available from Golden Image for £60, including full
  IDEFix97 software.

1.76   Floppy Interface Information

Floppy Interface Information

The A1200 is rather at a loss these days because it only has a Double Density
(DD) floppy disk drive. All PC's, and the A4000 (not the A4000T) have a High
Density (HD) drive as standard, which is able to store twice as much data on a
similar disk. For an Amiga, that is 1.76Mb, as opposed to 880k for the DD
drives.

We are also suffering because the Amiga uses a special floppy drive, which has
some differences to the DD PC drives. There are a few signals missing, and also
the disk change signal is swapped from pin 34 to pin 2. As such, we can't use
the £15 PC floppies, instead we have to splash out on a £40 Amiga floppy.

There are however devices which solve both these problems. The first, the
EZ-DF0, allows you to connect a super-cheap PC floppy to the Amiga's motherboard
header. It's a cheap solution – a PC floppy plus this board is still less cash
than an Amiga floppy.

The other devices solve the first problem. They sit on an interface (ones are
available for the IDE port and the Clock port) and by using special drivers and
hardware, control a standard PC HD floppy transparently – the icons appear on

workbench like it was an internal floppy. They also are controlled faster,
unlike the A4000 HD drives they don't slow down for HD floppies (the A4000 does
this because Paula can't handle the increased transfer rate).

1.77 Floppy Interface FAQ

Floppy Interface Frequently Asked Questions

Will drives connected to the floppy interface be bootable?

  Depends on which controller it is. For the Catweasel and Diskplus, the answer
  is no because it has to load in drivers for these disks first.
  For the EZ-DF0, this just slightly alters the floppy port signal, so these
  drives are bootable.

Will they appear as DF0:?

  Again, the EZ-DF0 drives are just on the internal port, so these will appear
  as DF0:.
  The Catweasel and Diskplus drives don't as default, but if you don't have an
  internal drive on the motherboard plug, then you can issue some commands on
  bootup which dismount the current non-existant DF0: and remount the
  controller's drive as DF0:.

The following questions apply to the Catweasel and Diskplus only.

Do they slow down on HD disk accesses?

  Nope, both controllers will read at 300rpm on HD disks, compared to 150rpm for
  the A4000 accessing HD disks.

Can I reliably expect games to work on these floppy drives?

  Not really - for one they aren't bootable, and they will have some signals
  missing (like the Escom drives did). Also, games which hit the hardware
  directly won't be able to use the controller's custom drivers, and so won't be
  able to find the drive.

1.78 Options for Floppy Controllers

Floppy Drive Controllers

The Catweasel
 The CatWeasel is an ingenious little device designed to solve the problem of
 getting fast, reliable high density disk access.

 It's a little L-shaped board which plugs onto the IDE port on your A1200, and
 has an IDE pass-through, plus a standard 34-way floppy drive header. Support

is via a software driver, and an install script is provided.

Supported disk drives / formats include:

>   > Amiga DD
>   > Amiga HD
>   > PC DD
>   > PC HD
>   > Commodore 1541
>   > Commodore 64

Also of benefit is the ability to boot from a Catweasel disk, through use of
a utility, and the fact that it doesn't slow on HD disk accessing – it's
300rpm all the way.

Sadly, owners of a buffered IDE port, and also possibly the DataFlyer+ SCSI
Controller will have problems using this device, for physical or software
reasons.

The Diskplus
The Diskplus seems to be a rebadged version of the Catweasel – it's a HD floppy
controller that sits on the IDE port. As such, I won't discuss it again.
However, it does have another variant which uses the Clock Port as it's chosen
interface. I don't have much information, but I think I'm right in saying it
can handle different floppy formats (as per the Catweasel) and will read HD
disks at full speed.

For more info, contact Eyetech.

The EZ-DF0

The EZ-DF0 is a little device which connects over the floppy drive interface on
your 1200, and provides a more standard floppy drive interface.

As anyone who's tried to get a cheap floppy drive will know, you can only use
either real Amiga drives, or make do with a hacked/dodgy PC drive. I believe
Escom know this last one well :) Anyway, this interface turns your Amiga floppy
drive header into a more industry-standard version, which you can plug any PC
drive into.

It's cunningly simple. A single logic chip, a few more components on a board
only slightly bigger than the components. This means a small price, but it
works! It only provides access to a DD floppy, but it's really good for those
with a new tower who need a faceplate, or for those who can't afford a real
Amiga floppy.

The EZ-DF0 costs £15 and is available from Eyetech

1.79 Expansion boards Index


```
                         _____
                    |                        |
                    |      Expansion Board Index      |


    _____
```

                    |_____|

Information:

                ~Processor~Frequently~Asked~Questions~~

                ~Memory~Frequently~Asked~Questions~~~~~
                Reference:

  RAM Cards: Amitec
        Prima
        Magnum

68020 Cards: Apollo 1220
        Blizzard 1220

68030 Cards: Apollo 1230 Lite
        Apollo 1230 Pro

                Blizzard 1230-I

                Blizzard 1230-II

                Blizzard 1230-III

                Blizzard~1230-IV~   ~

                M-Tec 1230

                Magnum~030~~~~~~   ~~~~

                Microbotics~M1230XA   ~

                ViperI~1230~~   ~~~~~~~
                        ViperII~1230~
        Viper Mk4
        Viper Mk5

68040 Cards:
                Apollo~1240~   ~~~~~~~~

                Blizzard 1240T/ERC

                Falcon 040
                        Magnum 68040

68060 Cards:
                Apollo~1260~~   ~~~~~~~

                Blizzard 1260
                        Falcon 060   (No reference but similar to
                Falcon 040
)
        Magnum 68060

```
                 Notes on Adding your own reference!
                 Also see some preliminary specs on the
                 Blizzard PowerPC Cards
                 ....
```

```
Relevant Sections:
                 Expansion~Slot~Pinouts

                 Power~Supply~Index
```

1.80   Phase 5 Blizzard 1/2

```
Phase 5 Blizzard 1/2 Jumper Settings
                          |
                          |
          ---------------------------------
            ######          ..   ......
            ######    ...    |    ......
               FPU Clk |     RAM Config
                       |
                     MapROM


 MapROM: On:  Normal
     Off: Kickstart ROM copied to Fast RAM.
 FPUClk: 2-3: FPU Runs synchronously with CPU
     1-2: FPU runs at another speed. Needs additional crystal installed.
 RAM:
     Bank 1      Bank 2      Jumpers

       0Mb         0Mb          ##··##
                   ......

       1Mb         0Mb          ##··##
                   ......

       2Mb         0Mb          ····##
                   ·##···

       4Mb         0Mb          ##··##
                   ......

       8Mb         0Mb          ····##
                   ##····

      16Mb         0Mb          ##··##
                   ......

      32Mb         0Mb          ·##·##
                   ......

       1Mb         1Mb          ##··##
```

······

2Mb	1Mb	····##
		##····
4Mb	1Mb	##··##
		······
8Mb	1Mb	····##
		·##···
16Mb	1Mb	##··##
		······
32Mb	1Mb	·##·##
		······
2Mb	2Mb	······
		##··##
4Mb	2Mb	##····
		····##
8Mb	2Mb	······
		·##·##
16Mb	2Mb	##····
		····##
32Mb	2Mb	·##···
		····##
4Mb	4Mb	##··##
		······
8Mb	4Mb	····##
		·##···
16Mb	4Mb	##··##
		······
32Mb	4Mb	·##·##
		······
8Mb	8Mb	······
		·####·
16Mb	8Mb	##····
		···##·
32Mb	8Mb	·##···
		···##·
16Mb	16Mb	##··##
		······
32Mb	16Mb	·##·##

```
                     ......

      32Mb        32Mb                ·####·
                     ......
```

1.81 Power Computing Viper Mk1 Reference

Power Computing Viper Mk1 Reference

Reference by: Chris Appleton

```
     _____                                        _____
[|         |                                  |          |]
[|         |                                  |          |]
[|         |                                  |          |]
[|         |_____  _____|  J1      |]
[|                                  ||,---------------------,  J2     |]
[|        :::::::::::::::::  ##    |||    SIMM Socket    J5 |  J3      |]
[|        SCSI Module   ####   ||                        J6    J4    |]
[|        connector     ##   ||,----,,----,          J7  ,------,  |]
[|                    Battery |||PLCC||PGA |          J8  |68030 |  |]
[|                            |||   ||    |          J9  |      |  |]
[|_____||+====++====+_____J10__+======+__|]
```

```
        CPU: 68030              Jumpers: J1: RTC
 Manufactured Speeds: 28,40,50mhz               J2: 14mhz      } FPU
   FPU Socket: PGA and PLCC             J3: 28mhz      } Speed
    SIMM Socket: 1 x 72-pin            J4: Sync       } Set
   Total Memory: 8mb                   J5: MEM 0
                            J6: MEM 1
 Autoconfig: Not memory - Jumpers      J7: MEM 2
      MMU: Not Guaranteed.             J8: Cache
  Real Time Clock: Yes.                J9: MEM 3
                   J10: Turbo
```

```
 To Set Memory:                 MEM0 MEM1 MEM2 MEM3

        0mb       Off  Off  Off  Off    ****************
        1mb       On   Off  Off  Off    * The writing on *
        2mb       On   Off  Off  On     * the card about *
        4mb       On   On   Off  Off    * this is wrong! *
        8mb       On   On   On   Off    ****************
```

 Notes:

    Loose fitting on A1200 trapdoor connector. Often leads to CPU failure
and memory failure. Has obscure memory jumper settings. MMU was very
hit-and-miss, but seemed to have more chance of being present on 28mhz models.
28mhz model was overclocked 20mhz CPU. Inludes both PGA and PLCC FPU sockets.

1.82   RAM Frequently Asked Questions

RAM Frequently Asked Questions

How can I expand the RAM in my A1200?

  Use a trapdoor card to expand the RAM. Youcan either get a straight RAM card,
  which have either fixed RAM or a SIMM socket for up to 8Mb, or the better
  option is to go for a combined Accelerator and RAM Expansion, which add a
  faster processor. This usually gives you a SIMM socket which can take higher
  capacity memory – depending on the board, anything upto 128Mb.

Can I use PCMCIA memory cards?

  Well, yes. These can be used in an A1200, and configured as RAM. However, the
  PCMCIA slot is only 16-bit, whereas trapdoor RAM is 32-bit. There is quite a
  severe speed disadvantage with the card slot RAM.

Can I expand my Chip Mem?

  Nope.

Can I use EDO/Fast Page/BEDO/Other SIMMs on my accelerator/RAM card?

  Usually, yes. However some cards don't like it – personally my Apollo 1240
  reacts violently to EDO RAM. Check with the manufacturer or dealer.
  Also note that you are unlikely to see any advantage, the vast majority
  (possibly all) A1200 accelerators don't take advantage of EDO or anything.

Can I make my computer faster by putting 60ns SIMMs in it?

  No. Some accelerators (typically 040's and 060's) prefer 60ns RAM, and
  sticking 70ns in could slow these down slightly. However, if you can
  work fine on 70ns, then 60ns will make no difference at all.

1.83   M-Tec T1230/28 RTC

M-Tec T1230/28 RTC Reference

Reference by Andreas Vespermann


```
        _____                                              _____
[|               |                                          |             |]
[|               |                                          |             |]
[|               |                                          | J6          |]
[|               |_____   _____| J7          |]
[|                                      || SIMM             |J8           |]
[|                                      ||_____J1_|J9          |]
[|                                      ||                 J2  _____     |]
```

```
[|            XXXXXXXXX               || ----   ----          J3  |       | |]
[|                                    |||PLCC| |PGA |         J4  | CPU   | |]
[|                                    |||____| |____|         J5  |_____| |]
[|_____||_____J6_____|]
```

                 XXXXXXXX -> connector for SCSI-II (backpack)

            CPU: 68030   Jumpers: J1 Turbocard off
    Manufactured Speeds: 28 MHz   J2 MEM 3
    FPU Socket? Type?: PGA and PLCC   J3 Instruction Cache on
   No of SIMM Sockets: 1 x 72 pin SIMM (70ns +)   J4 MEM 0
 Total Possible Memory: 8 MByte (only 4 with PCMCIA?)J5 MEM 1
                          J6 MEM 2
       Autoconfig: Not Memory   J7 CoPro async
              MMU: Y   J8 28 MHz
      Real Time Clock: Y   J9 14 MHz
                     J10 RTC

Notes:

SCSI-II host-adaptor availiable, 25 pin SUB-D connector extern
44 pin connector intern

Memory: 0 MB   no jumper (J2, J4, J5, J6)
     1 MB   J4 set
     2 MB   J4 and J2 set
     4 MB   J4 and J5 set
     8 MB   J4, J5 and J6 set

Notes by Author:

This card bears a remarkable resemblence to the Viper mk1, spurred on by this
I raided the junk cupboard for my old Viper and sure enough, in little
letters, it says "Manufactured by MTec". This card should be able, therefore,
to use the old Viper Mk1 SCSI kit, and it shares the obscure jumper memory
settings.

1.84 Magnum 68030 Reference

Magnum 68030 Reference

Reference by PJ Goddard


```
      _____                                        _____
[||--------||                                        |          |]
[||        ||                                        |          |]
[||  CPU   ||                                        |          |]
[||        ||_____  _____|          |]
[||--------|  |------|                ||                                    |]
[|           | FPU  |                ||         UNDERSIDE                   |]
[|           |      | |-----|         ||          (BLANK)                    |]
[|           |------|  |-SCSI|        ||                                    |]
[|              |------SIMM------|     ||                                    |]
[|                                    ||                                    |]
```

```
[|_____||_____|]
```

```
          CPU: 68030                Jumpers:SCSI Autoboot Y/N, RAM Y/N, Wait State Y ←
             /N
   Manufactured Speeds: 33, 40 mhz
      FPU Socket: PLCC/PGA
       SIMM Socket: 1 x 72/32-pin
      Total Memory: 32 mb(max), mine has 8Mb fitted.

      Autoconfig: Y
           MMU: Y
     Real Time Clock: Y
```

 Notes: Has space for a SCSI kit, the 33MHz version is now the entry-level model, ←
    not the 25MHz
as specified in advertisment! (Oh, and is only £100 for the bare board- MMU, 33MHz ←
    FPU and 33MHz
'030!)

Clocks in at about 7 MIPS- ridiculously fast for a 33MHz board- outruns my mate's ←
    40MHz GVP!
0.95 FLOPS, about 9Mb/sec memory transfer rate. Supports FASTROM through "CPU" ←
    command.

1.85   Microbotics M1230XA Reference

Microbotics M1230XA Accelerator Card

Description by David Bump

```
          CPU: 68030                Jumpers:  TEST
   Manufactured Speeds: 30, 40, 50mhz                 FPU Speed
      FPU Socket: PGA
       SIMM Socket: 1 x 72-pin
      Total Memory: 128mb

      Autoconfig: No - Utilities supplied
           MMU: Only on 30mhz and 50mhz
     Real Time Clock: Yes
```

 Notes:

   Two programs supplied to configure memory. SetXA takes the specification
values as arguments and configures the board at startup (every time), while
AddXAMem automatically adds just the memory every time. A better option is
AutoXA, which installs itself, reboots and configures the memory automatically
on subsequent boots.

 Wait states can also be set with SetXA. It will automatically set the
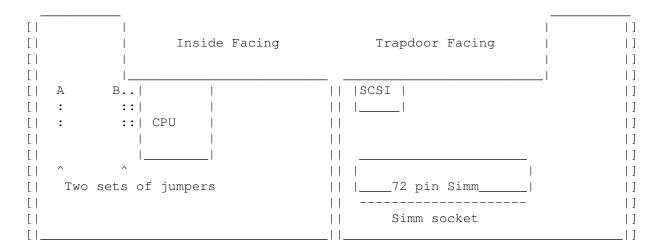"proper" value, but this can be overridden.

(Anyone got a layout for this card? Much appreciated – Chris)

1.86   Falcon 68040 Card Reference

Reference By: Anthony Keeley
Card & Manufacturer: Falcon 040 25MHz   Macrosystems
Purchase Date: 06/08/96 (279.95)

```
        _____                                          _____
[|       |         |            Inside Facing        Trapdoor Facing      |          |]
[|       |         |                                                      |          |]
[|       |         |_____   _____|          |]
[|  A      B..|        |            || |SCSI |                            |]
[|  :        ::|        |            || |_____|                           |]
[|  :        ::| CPU     |           ||                                   |]
[|           |        |            ||                                     |]
[|           |_____|            ||  _____             |]
[|  ^        ^                     || |                    |             |]
[|   Two sets of jumpers           || |____72 pin Simm_____|            |]
[|                                 ||  --------------------              |]
[|                                 ||       Simm socket                  |]
[|_____||_____|]
```


            CPU: 68RC040
  Manufactured Speeds: 25MHz
    FPU Socket Type: FPU built-in
   No of SIMM Sockets: 1 x 72pin (accepts all 72pin variants
                    eg Non-Parity – Parity – EDO)
Total Accessible Memory: Manual states 128 Mb, (I suspect this is only
              limited to the max size of a single memory simm)

      Autoconfig: Yes, comes with 68040.library and other files
          MMU: Yes, forced FAST-ROM on bootup.
    Real Time Clock: NO definitly no clock (pity!)

 Notes:

 This card does enable the 1200 to beat the 4000 in most of AIBB's tests,
and it maps rom into ram automatically, the manual i was provided with by
POWER COMPUTING, didn't label any of the jumper setting but did say that
tampering with the jumpers could damage the board, so i couldn't disable
this option.

 The board is run on a single and a very precise 50.000 MHz crystal with
the clock signal being halved before reaching the CPU, I suspect that the
jumpers marked 'A' would rebuild the signal back to 50MHz.

 Installation of the board was extremely hard until you realise that the
onboard SCSI connector makes a nice thumb hold to give a good push on.

An internally fitting fan helps to keep the CPU cool.

 The SCSI chip and a connector is already present on the card, but the
device drivers and Connector to the outside world are still missing, and
have been since i purchased the card, something to do with Macrosystems
getting it right (or was that FINGER OUT?). As to the upgrade option to
turn the card into an 060, I wouldn't like to say if that is available or
not.

 A very reliable card upto now, It has had some teething problems, but they
went away as I got more bug-fixed software.

Marks - 9/10

1.87   CPU Frequently Asked Questions

Processor Frequently Asked Questions

What's my A1200 got in at the minute?

  All A1200's came from the factory with a surface mount 68EC020 processor,
  rated at 16MHz, running at around 14.2MHz.
  The EC designation indicates that it contains no MMU (Memory Management Unit,
  see below).

Can I upgrade this?

  Yes, although it requires an accelerator card plugged into the trapdoor port.
  These are available for a wide range of processors - starting at 28MHz 020's
  and going up through 030's and 040's to the current range-topper, a 66MHz 060.
  It is not possible to upgrade the CPU by swapping it for another one.

Can I fit an FPU into the FPU space on the motherboard?

  Erm, probably not advisable. Although there is a space for it (U0, next to the
  CPU), AFAIK no A1200's were ever supplied with one and it's possible there are
  flaws in the design. And anyway, who's gonna solder it? If you do do it and it
  works however, drop me a line! :)

I currently have a EC030 chip, can I upgrade this to a 030 with MMU?

  Maybe. If it's socketed then you should just be able to swap them, although
  getting hold of the chips is tricky. If it's soldered it's going to be more
  tricky, and you could well be better off taking the opportunity to upgrade to
  an 040 or 060, which mostly have MMU's and FPU's as standard (look for the
  68RC0x0 chips).

Can I overclock my CPU?

  It definately isn't advisable in the case of the standard 020, as lots of
  changes will have to be made to the rest of the motherboard timing.

However, if you feel lucky it's possible to overclock most CPU's, and some
accelerators actually do this as standard (look for the ones with bonded
heatsinks such as the Vipers – usually a clue).
All you usually have to do is replace the crystal with a higher rated one.
Some boards run at half-speed, i.e. a 25MHz chip will use a 50MHz crystal, in
this case you need to double your desired speed.
Points to note:
· Ceramic packages disperse heat better than plastic ones
· Test it thouroughly, including the FPU and MMU at cold and hot stages.
· The 68040 runs very hot already, and responds to overclocking less
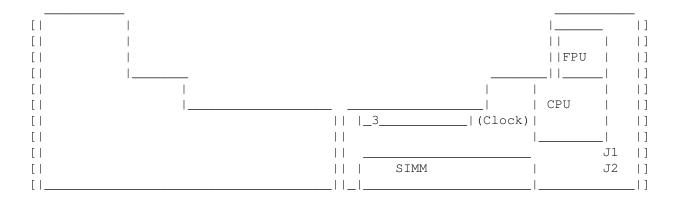 favourably than 030's and 060's.

I want stacks of power and am drooling over PPC... how about it?

  Well, Phase 5 (at time of writing) have announced their A1200 PPC cards to be
  not far away. They will be called the Blizzard603e and Blizzard603e+, with the
  former taking a 68030 as co-processor and the latter a 68040 or 68060. They
  will also feature two SIMM sockets and best news of all, they can accept a
  modified CyberVisionPPC card! It'll be called the BlizzardVision and feature
  the same Permedia chipset.

1.88   Phase 5 Blizzard IV Reference

Phase 5 Blizzard IV Reference

Reference by Duncan Gow


```
           _____                                           _____
[|        |                                          |_____    |]
[|        |                                          ||    |    |]
[|        |                                          ||FPU |    |]
[|        |_____                          _____||____|    |]
[|           |                             |    |        |    |]
[|           |_____ _____|    | CPU     |    |]
[|                  || |_3_____|(Clock)|    |         |    |]
[|                  ||                        |_____|    |]
[|                  || _____            J1   |]
[|                  || |   SIMM             |           J2   |]
[|_____||_|_____|_____|]
```


            CPU: 68030   Jumpers:J1 MAPROM Jumper off
                             Kickstart copied to Ram
 Manufactured Speeds: 50mhz   J2 RamSpeed Jumper off 70ns SIMM
    FPU Socket: PGA   on 60ns +
     SIMM Socket: 1 x 72-pin
    Total Memory: 128mb

    Autoconfig: Y
         MMU: Y
    Real Time Clock: Y

 Notes:
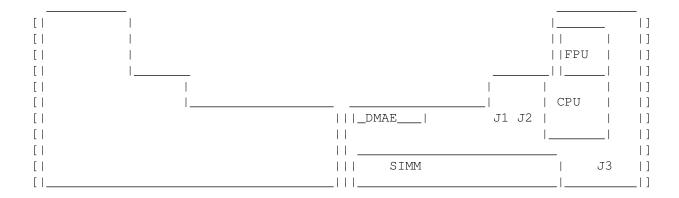 3 is a DMA expansion connector for SCSI-II controller(+ another 128M simm)

 Blizzard IV can take 32Bit or 36 Bit SIMMS (it just ignores the extra 4 Bits)

1.89 Phase 5 Blizzard III Reference

Phase 5 Blizzard III Reference

Reference by Harry Sintonen

```
   _____                                                 _____
[|          |                                             |_____    |]
[|          |                                             ||    |    |]
[|          |                                             ||FPU |    |]
[|          |_____                               _____||_____|    |]
[|          |      |                              |       |     |    |]
[|          |_____  _____|     | CPU  |    |]
[|                             |||_DMAE___|    J1 J2 |     |      |    |]
[|                             ||                    |_____|    |]
[|                             || _____        |]
[|                             |||    SIMM             |    J3  |]
[|_____|||_____|_____|]
```


              CPU: 68030/68EC030   Jumpers: J1 Co-pro Clock left=syncron
                                            right=async
  Manufactured Speeds: 40MHz, 50MHz   J2 MAPROM Jumper
     FPU Socket: PGA   Kickstart copied to Ram
      SIMM Socket: 1 x 72-pin   J3 MMU_OFF set=disable MMU
     Total Memory: 32mb   not set=enable MMU

      Autoconfig: Y
           MMU: Y/N (see J3)
     Real Time Clock: Y

Notes:
DMAE is a DMA expansion connector for BLIZZARD 1230-III Fast SCSI-II
controller (dunno if it takes extra SIMM). This is not same device as
for 1230-IV/1260!
J1 is for running FPU with independent clock frequency (separate quartz
oscillator required if J1 is set to right position).
J3 must be set if 40MHz 68EC030 CPU is present and should not be set for
50MHz 68030 CPU (it can be though :).
Blizzard 1230-III can take 32Bit or 36Bit SIMMs (it just ignores the extra
4 Bits). AFAIK clock frequency (40 or 50 MHz) depends on quartz oscillator
installed.

1.90 Blizzard 1260 Reference

Reference by: Brad Rogers
Card & Manufacturer: Phase 5 Blizzard 1260
Purchase Date: 19/12/96

```
  _____                                                 _____
[|          |                                               |          |]
[|          |         Inside Facing        Trapdoor Facing  |          |]
[|          |                                               |          |]
[|          |_____   _____|         |]
[|                                   || Edge Conn for SCSI card   CPU   |]
[|                                   ||                                 |]
[|                                   ||                                 |]
[|         Solder, and bugger all    ||                                 |]
[|           else, essentially       ||                            1    |]
[|                                   ||        SIMM Socket               |]
[|_____||_____|]
```

```
          CPU: 68060              Jumpers:  1 MapROM (see below)
  Manufactured Speeds: 50MHz
    FPU Socket Type: Internal '060
  No of SIMM Sockets: One (or two with SCSI card)
Total Accessible Memory: 128MB (more with SCSI card)

      Autoconfig: Y/N           Yes
            MMU: Y/N/Sometimes   Yes
    Real Time Clock: Y/N            Yes
```

 Notes:

Configuration

First thing to do with this card is figure out whether or not you wish to
use the MapROM feature. For most users, this will be yes. What it does is
move the KickStart ROM code into Fast RAM, gaining a small speed increase.
Bizzarely, to enable the feature, you leave the jumper *open* to copy the
code to RAM.

Memory

Installing SIMMs is the usual easy affair, but note that the card only takes
single sided SIMMs, because there simply isn't enough space to fit double
sided ones. Either parity or non-parity SIMM modules are useable, with the
partiy bits being ignored. No reference is made to the more recent EDO
memory, so I can't say whether it's useable or not. A word of caution;
Ensure that any SIMM you fit complies fully with the PS2 "standard".
Failure to do so will probably result in your memory appearing to be half
what it should be. A 16MB SIMM appearing to be an 8MB one, for example.
I fell foul of this, sad to say. The manual makes no mention of this fact.

Software

Only one item is essential, the 68060.library. Obviously, this goes in
SYS:Libs, or wherever your LIBS: assign is. A second program (CPU060) is
desireable, for setting/providing information about your CPU that the
Commodore CPU command can't. Furher software is provided, but isn't
required to run the board.

Fitting

If you've never fitted anything into an Amiga 1200's trapdoor expansion

slot, this is going to frighten the hell out of you! It requires an
enormous amount of pressure to fit the card onto pins. Despite the fact
that I work with electronic equipment, I found the pressure required
alarmingly high. On the plus side: It's unlikely that the card will shake
loose.

Operation

Just turn your Amiga on, and the 1260 takes over. It is possible to disable
the card by holding down the '2' key (but not the numeric keypad 2), but it
also means you lose access to any Fast RAM added, and the SCSI port, if
fitted.

In use

It's fast! When you first power up, you'll notice one hell of a speed
increase over a basic Amiga's speed. If you're upgrading from something a
bit faster that a 68020/14MHz, you notice the speed increase correspondingly
less.

Fortunately, most software will run on an '060 these days, without crashing,
unlike the situation in the early 90's where several programs crashed. Also,
there are several bits of software that are compiled with the '060 in
mind (optimised code, to you). The things that are most likely to fail on
an '060 are, perhaps unsurprisingly, demos. Not really being into the demo
'scene', that is of little consequence to me. On the other hand, demo fans
will probably not be averse to trying all sorts of tricks to get their
favourite demos to play. The most noticeable speed increases I found were
in things like MPEG decoding, archiving, etc: All tasks which are highly
processor intensive. For example, on my previous machine ('030/25MHz) it
took nearly an hour to archive my SYS: partition. With the same software,
running on the 1260, it now takes a shade under half an hour. Quite an
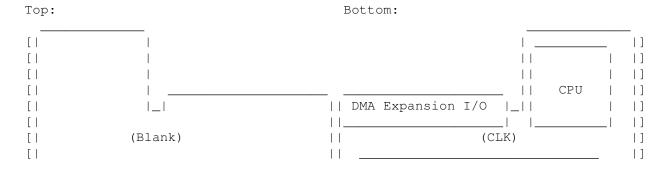improvement, I think you'll agree.

Support

phase 5 have a web/ftp site where information about products, and software
updates can be obtained. (www.phase5.de)

1.91   Phase 5 Blizzard 1240T/ERC Reference

Phase 5 Blizzard 1240T/ERC Reference

Reference by Stefan Gregson

```
Top:                                      Bottom:
     _____                                              _____
 [|  |           |                        |  _____     |]
 [|  |           |                        ||          |   |]
 [|  |           |                        ||          |   |]
 [|  |           _____  _____ ||   CPU    |   |]
 [|       |_|    || DMA Expansion I/O |_||          |   |]
 [|              ||_____| |_____|   |]
 [|     (Blank)  ||              (CLK)              |]
 [|              ||  _____         |]
```

```
[|                                      || |                        |:J1|]
[|                                      || |          SIMM          |   |]
[|_____||_|_____|___|]
```

```
         CPU: 68040        Jumpers: J1, MapROM Jumper off
Manufactured Speeds: 40 MHz
         FPU: 68882 (on chip)
         MMU: Yes

No of SIMM Sockets: 1 x 72-pin (or 2 with optional SCSI-II kit IV board)
Total Possible Memory: 64MB (or 192MB with 128MB on SCSI board)

    Autoconfig: Yes
Real Time Clock: Yes
```

Notes:
Can disable accelerator by holding down '2' on keyboard during reset.
SIMM has to be single sided 32 or 36 bit, 70 ns or less.
A Fan is attached to the top of the CPU to keep it cooler, runs VERY hot!
Cannot be used in an unmodified A1200 because of fan.
No software supplyed just need 68040.library for correct operation.
SCSI-II kit plugs into DMA expansion bus interface.
Solid build quality, and tight fit into expansion slot on A1200.
Upgradable to full Blizzard 1260 (1260 actually printed on circuit board!)

Sysinfo (v3.24) reports 29.94 MIPS, 7.59 Mflops
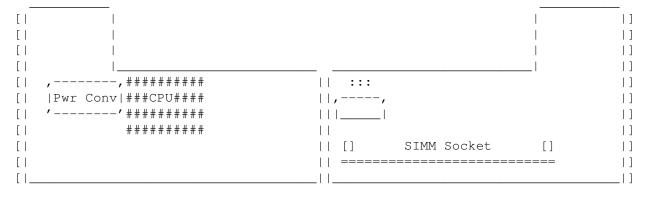(with one 16MB 60 ns SIMM, and MapROM on)

Good value for money considering performance gain.

No real software problems other than CPU caching problems with some games
and Demos etc. No problems running Linux Version 2.0.28 operating system.

1.92 Apollo 1260 Reference

Apollo 1260 Reference

Reference by: Chris Appleton


```
   _____                                            _____
[|          |                                          |          |]
[|          |                                          |          |]
[|          |                                          |          |]
[|          |_____   _____|          |]
[|  ,-------,##########   ||  :::                                |]
[|  |Pwr Conv|###CPU####  ||,-----,                              |]
[|  '-------'##########   |||_____|                              |]
[|          ##########    ||                                     |]
[|                        || []       SIMM Socket      []        |]
[|                        || ============================        |]
[|_____||_____|]
```

 "Pwr Conv" is the power converter board

```
          CPU: 68RC060          Jumpers: RAM - FastRAM on/off
  Manufactured Speeds: 50mhz.             SCSI - Autoboot on/off
    FPU Socket: FPU on 060      060 - Processor
   SIMM Socket: 1x72-pin fitted        (Closed = 060)
  Total Memory: Upto 32mb on one socket.

    Autoconfig: Yes.
           MMU: Yes.
Real Time Clock: Yes.
```

 Notes:

  Badly designed - Pins from CPU protrude into SIMM space leading to
problems with double-sided SIMMs, which bend slightly. Tall SIMMs won't fit
as there is a chip just behind the socket, but this seems to be on some models
only.

 If you require SCSI, you have to send the card off as the SCSI controller
needs soldering on, as does the extra SIMM socket. With the additional
socket, you can have upto 64mb autoconfiguring memory.

 It features a power converter, which steps the power down to the 3.3v needed
by the 060. This should never be removed.

Late Notes: A newer version, called the Apollo 1266, is now available. It
"features" an overclocked 50MHz CPU, running at 66MHz. It retails for slghtly
more, but currently reviews of it are not favourable.

1.93   Apollo 1240 Reference

Apollo 1240 Reference

Reference by: Chris Appleton

```
   _____                                                     _____
[|            |                                               |          |]
[|            |                                               |          |]
[|            |                                               |          |]
[|          |_____   _____|          |]
[|            #########   || :::                                          |]
[|            ###CPU####  ||,-----,                                       |]
[|            #########   |||_____|                                       |]
[|            #########   ||                                              |]
[|                        || []      SIMM Socket      []                  |]
[|                        || ============================                 |]
[|_____||_____ |]
```

```
          CPU: 68RC040          Jumpers: RAM - FastRAM on/off
  Manufactured Speeds: 25 or 40mhz.       SCSI - Autoboot on/off
    FPU Socket: FPU on 040      060 - Processor
   SIMM Socket: 1x72-pin fitted        (Open = 040)
```

```
     Total Memory: Upto 32mb on one socket.

       Autoconfig: Yes.
             MMU: Yes.
   Real Time Clock: Yes.
```

 Notes:

   Badly designed - Pins from CPU protrude into SIMM space leading to
problems with double-sided SIMMs, which bend slightly. Tall SIMMs won't fit
as there is a chip just behind the socket. Fits well, has built in fan and
heatsink, however Apollo have ground the edge of the fan down to make it fit
better, which makes it vibrate as they weren't too careful near the blades. A
Pentuim fan will fit if installed skewed and is more than enough to keep the
chip cool.

 If you require SCSI, you have to send the card off as the SCSI controller
needs soldering on, as does the extra SIMM socket. With the additional
socket, you can have upto 64mb autoconfiguring memory.

 It is upgradeable to an 060, however it needs to be returned since the
processor is not socketed.

1.94   Adding your own Acclerator Reference

How to add your own reference

 Depressed because your favourite accelerator isn't in this guide? Don't
despair! If you own an accelerator that I haven't featured, and you think you
could do the world a service by doing a reference for it, please do!

To make this dead easy, there's a file in the archive called
"Accelerator.blank", which is a ascii drawing of both sides of a card. Just
sort of fill in where the bits are - the jumpers are the most important - and
then fill out the details below, with details of what each jumper does. Add
notes if you can. Then email it to me! Don't worry if you can't ascii-draw,
I'll clean it up if needed. It's easiest to do it on "overwrite" mode, as
well.

For this you get to see your work up on Aminet and in people's homes. You also
get your name in the credits*, and of course the good old feeling of inner
satisfaction.

* Assuming I don't forget to add you, which happens a lot.

1.95   Drives Index

```
                              _____
             |                                        |
```

```
          |                  Drives Index              |
          |_____|
```

Floppy Drives

           Internal Information

           External Information

           Escom Drive Problems

           High Density Drives

           Twin Internal Drives

           FAQ
             IDE Hard Drives

           Information

           2.5'' vs 3.5''

           Installing 3.5'' Drives

           FAQ
             CD-Rom Drives

           Information

           Options Available

           Requirements

           FAQ
             Removable Drives

           Information

           Options Available

           Requirements

           Compatibility

           FAQ
             Related Sections

           IDE Port Buffering

           Interfaces
                 (for aftermarket drive interfaces - Catweasel etc)

1.96   Removable Drive Requirements

                         Removable Drive Requirements

 The actual hardware requirements for a removable drive are much the same as the

                     requirements for a CD-Rom Drive
                   , so you should take a look there. Hey, it
saves me the bother of pasting it here :)

I'll not dwell too long on the software side of things, but it depends on the
drive. For example, an IDE Syquest EZ135 will work out of the box, while the
IDE Zip drive needs some kooky software and IDEFix97 to get the eject functions
to work. You should ask your retailer for help on specific drives.

1.97   Removable Drive Options

Removable Drive Options

If you're looking at adding a removable drive to your system, there's quite a
bewildering range of drives to choose from. You first have to decide which
interface you will be using. IDE you already have, but you may want/require a
4-device buffered interface which will add cost. SCSI you may have, otherwise
it's usually quite expensive for a controller but it's very fast and low CPU
usage. It's really only straight-cut if you already have SCSI.

SCSI Drives

    Iomega Zip Drive Int/Ext   Reasonably fast, rugged media, SCSI address only
               switchable between 5 and 6.
    Syquest EZ135   Int/Ext   Reasonably fragile media, quite fast. No longer
               in production
    Syquest Flyer   Ext   Large storage size (230Mb), fast.

IDE Drives

    Iomega Zip Drive Int IDE   Quite rare, slow writing, problems with disk
               changing (software fix available).
    Iomega Zip Drive Int ATAPI Still Rare, uses IDEFix, disk change OK.
    Syquest EZ135   Int   Pretty much same as SCSI version.
    LS120   Int   Uses floppy-sized media, needs IDEFix
               to work, can read/write PC HD Disks!

The IDE drives are generally slower, and usually have problems with disk changes
because AmigaOS sees them as hard drives, and doesn't expect the contents to
change. You may find using IDEFix removes some problems.
SCSI drives are generally better supported, and faster.

1.98   Removable Drive Information

Removable Drive Information

A removable drive is basically a storage device (other than floppy and CD-Rom)
where the actual storage material is removed, and can be replaced with others.

They work on a number of different systems. Some, like the EZ135, are based on
Winchester Disk technology which means they have solid disks inside and floating
heads. Others use floppy drive technology (like the Zip), although it is much
more precise, and finally there are tape drives, which use a roll of media which
it can scan through and write stuff to - much like a C64, only faster :)

The most common use is for backup devices - copying your hard drive onto disk or
tape every so often is a must! Other devices are promoted as oversized disks,
which can be chopped and changed and things saved to them at random.

There is usually a choice of interfaces. Most are SCSI devices, while for the
cheapskates among us (!) some have IDE alternatives. Devices which fit on the
parallel port will NOT WORK! Get over it! There is a chance of a multi-port
adaptor, but the speed will be awful and it'll take up two ports. Get another
version!

1.99   Removable Drive FAQ

Frequently Asked Questions - Removable Drives

Can I use a Parallel Port Zip/Syquest/Ditto/#? drive on my A1200?

  No!
  There are hardware incompatibilities. They will not work. Get the SCSI or IDE
  versions of the drive instead, they are much better anyway.
  (A company is reputed to be working on a converter to allow these drives to
  work, but it will actually take up two ports and thus be slow and clumsy)

Can I read/write removable carts formatted for the PC?

  Yup! There are many mountfiles available on Aminet, especially for the Zip
  drive, which allow use of CrossDOS to read and write PC formatted disks.

1.100   Removable Drive Compatibility

Removable Drive Compatibility

Both SCSI and IDE removables are quite good at one thing - pretending they are
hard drives. In fact, some IDE drives go a little too far and won't eject their
disks, but more on that later.

The general idea is that you plug them in and then use a HD prepping program to
prep a disk. Prepping a disk involves reading the information (no of sectors,
unit number, size etc) from a disk, then saving it either onto an RDB (Rigid
Disk Block – what the Amiga reads to find out about the drive) or into a
mountlist or mountfile (the same, except it's held in devs: on your boot drive).
Once this is done, the Amiga can read the disk just like it was a hard drive.

SCSI drives are better at being removable because it's easier to handle. Custom
software can handle IDE drives being removed, but this isn't always available.
An example is the IDE Zip disk, where you have to swap the disks then power down
and back up again to get it to totally re-read the disk. Failure to do this
results in the IDE bus acting funny. New software attempts to fix this, but on
my system at least just does nothing to help.

1.101   Installing 3.5inch Drives

Installing 3.5" Drives

The art of installing a 3.5" hard drive in an A1200 has got considerably easier
in the past few years. New drive technology means the drive are now very slim.
But here are the typical sizes you will come across:

```
  A  "Full height" drives       – generally 30mm tall, give or take.
  B  "Low Profile" or "Slim"    – these are generally 25mm tall.
  C  "Super Slim" or "Ultra Slim" – typically less than 20mm tall.
```

Firstly, it will be quite hard to install a full height drive. It'll involve a
lot of hacking but it can be done. The steps below are sometimes separated into
sub-steps – in this case A refers to Full-height, B refers to Low Profile and C
refers to Super Slim – just choose the one that applies to your drive.

1 You need to find a cable. The A1200 header is a 44-pin high density DIL,
   otherwise found on PC laptops. The 3.5" drive connector is 40-way regular
   density DIL. All the cable does is go from the high density to the regular
   density connectors on a 1-1 basis – the extra four pins on the motherboard
   are for power and can be left unconnected.
   Various types are available, from a straight cable to ones with little bits
   of PCB in the middle. Get whatever you can.

2 You also need a power cable, this replaces the floppy power cable (currently
   a short small4 -> small4) with a longer cable with a "spur" off it to power
   the hard drive. The HD will have a larger connector on it. You can often find
   this cable and the one described above in a kit from Amiga dealers.

3 Open up the 1200 and locate the IDE header. It's up near the RF Modulator, on
   the left hand side of the motherboard. Now earth yourself before touching the
   1200. A good way is either to touch a central heating pipe, or plug your 1200
   in and switch it OFF at the plug – this will connect the whole sheild to the
   mains earth. You need to take the keyboard off, BTW – slide up the collar on
   the ribbon plug, slide the ribbon out then remove the keyboard by pulling it
   towards the rear of the machine.

4 Sit the drive in the machine. It'll shove upto the left hand edge, and
   probably wedge nicely against the PCMCIA slot. Cover the metal rails in

        insulating tape, and again make sure it sits steadily and securely. The
        cables will be on the right hand side of the drive.

5   A You'll need to junk the sheilding for this. Remove the floppy drive (take
        the cables out, then there are two screws under the case and one at the
        front), the undo all the little metal tabs. Pull the sheilding off.
        You might get away with cutting the sheilding, cut a hole out where the
        drive will sit.
    B Follow A or C, depending on how high your drive is.
    C Lucky you, your drive will sit on top of the sheilding. Cover all the
        sheilding in that area with insulating tape, not over all the holes
        though. Make sure all the metal is covered! Then place the drive on, to
        make sure it'll be secure. You'll probably have to use sticky pads or
        something to stop it slipping.

5   Plug your data cable in, making sure the red stripe is the same end as pin 1
    (which is marked on the motherboard). Lay it flat, going towards the floppy
    drive. Plug the power cable in. Then mount your hard drive where you decided
    it would go. Now replace the keyboard and the top part of the case. If the
    case goes on completely, with no bulging, feel very happy. If it bulges, you
    need to sit the drive lower down – cut or remove the sheilding if you haven't
    already done so, and/or cut the strenghtening lugs out the inside of the top
    of the case.

6   Disassemble again. If you haven't already done so, securely mount the drive
    so it won't slip. Make sure the metal rails are covered with tape, and if
    you've still got it the sheilding is too. Plug the cable into the drive
    (remembering the red line is pin 1) and plug the power in too. Route the
    cables safely – don't kink the data cable.

7   Reassemble. The floppy drive must go back in if you've taken it out, and then
    the keyboard. Slide it in, then route the very fragile ribbon cable
    over the HD cables, back round into the connector. Slide the collar up, stick
    it in then push the collar back down again. Then put the case lid back on and
    screw it together.

8   Well, since this is the hardware guide the rest is upto you. Here's a clue –
    it involves HDToolbox or RDPrep to prep the drive. Then you're done!

1.102 Hard Drive Information

Hard Drive Information

Hard Drives really are indespensible. I really don't see how anyone can
survive without one... having to boot Workbench from floppy is like Chinese
water torture.

The A1200 from factory was designed to take a 2.5" hard drive. These are more
commonly found in PC notebooks, and were also sold for Atari Falcons. All
A1200's had a small cradle, mounted near the IDE port, to take a drive safely
and keep it level. Only the 1200's shipped from Commodore with a standard
drive (A1200HD machines) came with a cable and WB3 Install disks, though.

It's now more popular to stick a 3.5" drive in. These used to require the

installer to cut or remove the metal RF sheilding, and to make a cable to
convert the A1200 44-pin high-density connector to the 3.5" drive's 40-pin
connector. New advances with drives mean it's now possible to leave the shield
in, and the drive still won't hit the keyboard – these are typically sold as
"super-low profile", "ultra-low profile" or "super-slim" drives, and are less
than an inch high.

It's also possible to have two hard drives, set as master and slave. Although
Commodore never allowed for this in the design (the 2.5" drive meant to go in
is always the only drive on it's chain – they are hardwired to master), with
at least one 3.5" drive and careful cable-making it is possible, although any
2.5" drives present need to be master.

IDE Buffering is a confused matter – many people seem that it is not needed with
two devices, but there are slight risks to your CPU when using two devices on
the IDE port. I cannot stress how small these risks are... probably less than
the risk of you being hit by a thunderbolt. But still, the buffered ports take
the risk away, and usually allow you to operate another two devices as well. And
most now come with some software bonus, like IDEFix or AtapiPnP.

1.103 Hard Drive FAQ

                    Frequently Asked Questions – Hard Drives

OK, I've got this internal SCSI hard drive, and.....

  Wait right up there. Are you sure? It's very rare for a SCSI drive to be
  internal, you know. What's more likely is that you're using an IDE drive,
  which the A1200 controls with scsi.device, hence the confusion.

Can I bung a 3.5" drive in my A1200?

  Yeah, sure. It won't fit as well as a 2.5" drive, but it'll work. You need a
  power cable which splits the floppy power into two, and a 44-40 way IDE cable.
  Many dealers sell these two in kits. You also need the thinnest drive
  possible, the thinner the better. See my
                Installation Guide
                  for details.

My drive isn't recognised on powerup, but if I reset it will boot.

  You have a common problem – your drive isn't spinning up fast enough to be
  ready by the time the Amiga wants to boot. So it ignores it and looks for a
  floppy instead. The cheapest fix is just to do a reset, it won't hurt at all.
  A more expensive fix is to upgrade to OS3.1, which has a waaay longer timeout.

My Drive isn't recognised after I reset, but it is on a cold power-on boot.

  You have another common problem, but one that is dying out. What happens is
  that on a reset, the Amiga pulls pin 1 of the IDE cable (Reset) low. Most
  drives ignore this, but some older ones will actually take this as a signal to

spin down and shut off. All you have to do is locate line 1 on the IDE cable
(it's the one nearest the front edge of the motherboard, not always red!) and
cut it. Tape the ends back. Really. It won't hurt it to have this cut, even
if you change the drive later on.

What's a MaxTransfer Rate?

  Thwack. It isn't a rate, it's a size.
  MaxTransfer is the largest block of data that can be transferred from the
  drive's on-board cache to the Amiga memory. It is set when you prep the drive
  in HDToolbox or RDPrep. It should be just slightly less than the cache on the
  drive - check your drives specs for this (it is usually 64k, 128k or 256k).

I get corruption of data when transferring stuff to/from my hard drive.

  Say hello to Mr MaxTransfer Problem. Basically what's happening is you have
  your MaxTransfer set to high, so the drive is trying to fit (say) 128k of data
  into 64k of cache. The Amiga just can't pull it out fast enough, so bits get
  lost. To fix it, see the next bit.

How do I set the MaxTransfer correctly.

  For new drives, you can safely use a MaxTransfer size of 0x0001FE00. For older
  drives, a figure of 0x0000FFFF or maybe 0x0000FE00 may be more suitable.
  To test it, copy a file where corruption will be easily noticable, but make it
  large - say over 128k. Good filetypes are IFF pictures, IFF sounds and ASCII
  text.

1.104   2.5inch VS 3.5inch Drives

2.5" Drives vs 3.5" Drives

Many of you will have had to decide between a 2.5" drive and a 3.5" drive
sometime. It's a difficult decision, but here's what each has to offer;

2.5"
   + No bulging cases common with large 3.5" drives^1
   + "Safe" - A1200 was designed to safely run one
   + Fits safely in custom-designed cradle
   + Don't need a larger power supply
   + No need to trail power cables from floppy port
   + No need to pay lots for a hacked cable

3.5"
   + Cheaper^2
   + Faster^3
   + Everywhere sells them

So, in conclusion, a 3.5" drive is ideal for people who want most bang for their
money, and don't care if it isn't meant to go in. For those worried about power,

space or heat limitations then a 2.5" drive is ideal.

Notes:
^{1} Newer ultra-slim 3.5" drives also fit well, but still slope
^{2} Based on single retailers selling both drives - for example, taken from
  August 1997 magazine, £230 gets you either 1.8gb 2.5" or 2.5gb 3.5"
^{3} According to respected people who have used both.

1.105   Twin Internal Drives

Twin Internal Drives

With big-box Amigas, it's fairly simple to add another drive to the internal
chain, for whatever reason you may have. Not so with the A1200, for the chain
only supports a single device. No amount of wire-twisting and jumper-jumpering
will help you. Extra drives, up until recently, had to be added via the external
port, which is sometimes a pain for tower systems.

All you can hope to do is get hold of a device like the Catweasel or the
DiskPlus, and that will let you add two drives. It also supports high-density,
which is a complete bonus. Sorry, but no cheap hack on this one.

1.106   Internal Floppy Drive Information

Internal Floppy Drive Information

The A1200 was fitted with the standard Amiga 880k double-density double-sided
drive. The most common (for the older, more common Commodore-produced machines)
is the Panasonic, which is generally reliable.

I have one 1200 with a Citizen drive and another with a Panasonic drive, both
work fine. The Citizen was sourced from a Cumana External drive, but operates
well internally. I believe some machines had Chinon drives.

Note that you can't just take any old external drive apart and use the drive
internally. In particular, the popular AmiTek drives uses Sony mechanisms,
with some cunning logic to make it work - it won't work if you just put it on
the 34-way plug.

1.107   High Density Drives

High Density Drives

While the 880k floppy drive we know and love was revolutionary in the A500's
time, it was already kinda long in the tooth by the time the A1200 arrived. In
these days of hard, compact disk and removable drives it may not be so
important, but a lot of you will find some need for a High Density Drive.

The A1200, as with all Amigas, has problems with high-density drives. Because
there is twice as much data packed on, the drives normally read twice as much
data. But the disk drive handling logic in Amigas cannot handle this, so Amiga
drives have to be special. The usual method to get around this, and the one used
by Commodore for the A4000, is to slow the disk rotation speed when an HD disk
is inserted. It halves it, from 300RPM to 150RPM, and the data is read at the
same speed as a DD drive.

So what options are there?

 Complete Internal Drives
   There are a couple of internal high-density drives available for use in an
   A1200. They both work on the same principles - to slow the drive speed for HD
   disks. However, there may be many dealers rebadging these and selling them,
   so you have a good chance of finding one. One dealer is MicroniK, who sell a
   drive suitable for their Infinitiv tower system. But, they also work on the
   desktop A1200 as they fit into the standard drive bay.

 Complete External Drives
   There is slightly better choice here, but again a lot of dealers are selling
   rebadged versions of other drives. The first is the Power Computing drive,
   which has been around for a while now. It uses a software patch, without
   which it can only read DD disks, but apparently works well, if a little
   unreliably with the patch. This drive has been rebadged by GVP at some point.
   Also available is the 4-Square drive, which is a slightly hacked Dell
   Notebook drive. As such it's design is very compact, barely bigger than three
   stacked disks. This is also sold as a Brian Fowler Computers drive, and needs
   no software patch to work.

 Kits to add PC drives
   There are a couple of ways to add your own PC drive to your A1200, for
   different ports so it doesn't matter if your IDE port is already overflowing
   with goodies.

    The Catweasel - This device sits on the IDE port and provides a standard
            interface for PC HD floppy drives, as well as providing
            access to other formats such as C64 disks. It allows PC HD
            access at full speed and can support >1 drive.
    The DiskPlus - This comes in two flavours, one is a Catweasel type IDE
            port floppy interface (might even be a rebadged Catweasel),
            the other fits onto the suddenly popular A1200 Clock
            header. Unfortunately no other details were available,
            but both are available from Eyetech

1.108   Floppy Drive FAQ

Frequently Asked Questions - Floppy Drives

Can I use an PC High-Density drive on my A1200?

  Sort of. If you're talking just plugging it straight in, then no. However,
  adaptors exist to connect them, most notably the Catweasel. This costs around
  £60 and will allow drives of many formats to be used.
  If you want to use HD disks, then alternatives are the external HD drives

  such as the Four-Square and the PowerXL, or Blittersoft's internal and
  external HD drives.

Can I use PC Double-Density drives on my A1200?

  Again, sort of. They are not pin-for-pin compatible, as Escom proved with
  their little excursion. However, they can be made to work, typically the main
  setback is the swapping of the CHNG line from 34 (Amiga) to 2 (PC). Devices
  such as Eyetech's EZ-DF0 will happily convert floppies for you, as will the
  CatWeasel.

Can I read an Amiga disk on a PC?

  Nope. It's a hardware problem and it will remain unfixed for ever.
  If you want to transfer stuff, as usual we have to go to their standards and
  use CrossDOS to format 720K PC disks (or 1.44Mb if you have a HD drive).

1.109   External Floppy Drive Information

External Floppy Drive Information

 Many manufacturers made external drives for the Amiga range, and indeed any
Amiga external drive will work, including the new high-density drives.

These consist of a drive mech, which is often Amiga-specific, and an adaptor
board which converts the 23-way External Drive output into the 34-way data and
4-way power inputs. The drives have enable switches on the back, and if you don't
require the drive it can be disabled to save memory – usually between 30kb and
50kb per drive. Also, some A1010 (The original Commodore external drive) had the
power passthrough conenctions left unsoldered to "protect" A500 users from
blowing their power supplies.

Cumana drives are generally reliable, as they use a high quality Citizen
mechanism. Drive are also available with built-in virus protection (which stops
writes to track 0) and the highly dubious Synchro disk copier – "Can Copy Any DD
Disk". Also look out for Amitek drives, which use Sony internals as these have a
very long life, as well as features like Virus Protection, which disables
track 0 accesses..

 The 1200, as with all other Amiga models can handle upto 4 drives, one
internally and 3 externally via "daisy chaining". You should be careful not to
exceed the limit of your power supply when adding more drives.

1.110   Escom Internal Drive Problems

Floppy Problems with Escom Machines

When Escom re-released the A1200, they couldn't track down the drives used in
the original Commodore machines. So, being the mega-global-super-corp they were,
they skimped and bought a job load of PC drives instead :))

They usually work fine, except when you run a program which looks for the DSKRDY
signal. These are usually demos, and sometimes games. Very rarely will a utility
fail. What happens is the program looks for this signal to know that the disk is
ready for reading. This signal isn't there, so the program just waits. And
waits.

There is a hardware hack to fix this problem, which was also recognised by Escom
and fixed – later Escom machines aren't affected. For an aftermarket fix (seeing
as asking Escom to fix it will be a little hard...), there's a file on Aminet
which describes how to build a little hardware adaptor which "re-creates" the
DSKRDY signal.

1.111 CD-Rom Drive Requirements

                    CD-Rom Drive Requirements

The first thing you need for a CD-Rom drive is some sort of controller. You
should have already decided which type is for you (see
                    Options
                    ),
so you know exactly what you're letting yourself into.

IDE Drives

   The IDE port on the A1200 is perfectly capable of driving a CD-Rom drive with
   the right software. However, Commodore did connect this port directly to the
   CPU and a few retailers will have you believe that the world will end if you
   don't use a buffer in there somewhere. Well, specifically if you don't use
   their buffer :). Anyway, there is a extremely small risk that
   connecting two devices to the IDE port can fry your CPU – I know of a single
   case of this happening, in all the time I've been researching this document.
   So, a buffer will prevent this from happening, and usually let you control
   four devices off one port (2 channels of 2 devices).
   So you need to add an extra 40-pin port to your existing cable somehow.
   Exactly how depends on what HD you have already, if you've got a buffered
   interface or not etc, but it's just connected on the same cable as your HD.
   Simple. Then use the software described below.

SCSI Drives

   Unless you already have a SCSI controller, you'll need one now. I'm not going
   into which one is best, but there are many kinds – PCMCIA, IDE port
   translators, accelerator mounted ones...
   Once you have this, it's a case of getting the cable, setting up the
   controller and drive and using the software supplied with the controller to
   mount it.

ATAPI Software

 To use an IDE drive you'll need some appropriate software, since support for
them isn't built into OS3.0*. There are some demos of drivers on Aminet - do a
search for "atapi" in disk/cdrom, but the best ones are probably IDEFix97
(disk/misc) which is a kind of patch for the IDE controller, or AtapiPNP which
is purely for CD-Rom drives. Both are demos which will timeout with varying
degrees of nag requestors.

* I know Amiga International have been working on ATAPI drivers and have been
released in a beta, and I know OS3.1 has better CD support, but I don't know
whether OS3.1 actually has ATAPI support. Get the software just in case :)

1.112   CD-ROM Drive Options

CD-ROM Drive Options Available

   Up until quite recently the only feasible way to add a CD-Rom drive to an
Amiga A1200 was to buy a custom unit, which usually plugged into the PCMCIA port.
These were made by Archos (Zappo in the UK) and consisted of an IDE drive, most
commonly a Mitsumi and an interface. The same principle is applied to the brand
new Amiga Technologies Q-Drive.

   The times, they are-a-changing however. With the prices of bare SCSI units
dropping weekly, many 1200 owners are turning to them. A SCSI interface is
required, the most popular being the Squirrel which slots into the PCMCIA slot.
Any SCSI adaptor will work however, including the Dataflyer which sits on the IDE
port, and the range available to fit on Expansion boards.

   They haven't stopped changing yet. Suddenly IDE drives are as cheap as muck -
a double speed drive can now be picked up for the same price as a cable used to
connect it. PC owners are to "thank", since that's where IDE CD-Rom drives are
most commonly found. After getting hold of a special cable, it's s simple job of
plugging the drive in and running a custom driver, a demo of which is available
on Aminet. Cheap and easy, but they can never hope to match the speed of SCSI
devices. As a rule single speed drives reach 150kb/s maximum, double speed drives
300kb/s, quad speeds 600kb/s and so on. However, as with all rules it can be
broken, usually by very early drives which can fail to get anywhere near the
speed and take these figures with the pinch of salt you normally reserve for
transfer rates. Other factors affecting the transfer rates are the size of file
transferred, and the seek speed between parts of the file.

```
   Type         Interface        Notes


Custom Unit     PCMCIA           Very expensive, but simple to install
SCSI            Squirrel         Easy to install, quite fast, cheap.
SCSI            Surf Squirrel    Fast, can autoboot, easy to install.
SCSI            Dataflyer        Only as fast as IDE, but more expensive
SCSI            Via Accelerator  Depends on accelerator.
                  Usually expensive.
IDE             Internal IDE     Cheap and quick, but sometimes problematic
                  software.
IDE             Via PCMCIA       Reasonably quick, but what's the point?
```

1.113 CD-Rom Drive Information

                      CD-ROM Drive Information

CD-Drives are now beginning to take off in a big way. In fact, they are like
Hard Drives were a few years back – viewed as fast, huge amounts of storage
and very useful. But now they are as cheap as old muck, can you afford not to
be without one?

Most Amiga mags now have a cover-mount CD of some kind. Couple these monthly
gems with the whole of Aminet, then add the huge collections of software,
pictures, music, samples etc from the likes of Epic, Weird Science et al. Oh,
and there's the CD-only software now, such as PPaint7, Wordworth Office, Big
Red Adventure.... get the piccie?

So, how much will it cost? The answer to that is "How much can you afford?"
The options are explained in
                  another secion
                  , but the cheapest option is
probably an IDE drive, a bit of shareware software and a cable. Typically the
drive will be minimum of £30 for a double speed, the cable perhaps £15 – quite
a cheap option! If you're a flash git, how about a fast SCSI drive, maybe a
24x one, slapped onto a accelerator SCSI port – this may set you back around
£300 or more – there's really something for everyone.

The drive needs a driver to be readable. For an IDE drive this is probably one
of the shareware atapi devices, from Aminet – there are a few different
versions including the complicated-but-comprehensive IDEFix97. For a SCSI
drive it's usually down to the actual SCSI controller driver, such as
"apolloscsi.device", which can cope with all kinds of drives.

If you're getting a IDE drive, it's imperative that it's an ATAPI compliant
drive. A lot are, some don't quite make the grade and some just totally
aren't. It will usually state whether it is – on the manual, the model label
(the bit with all the warnings on) or on the driver disks. A good rule of
thumb is to ask people what they have – typically if one model is, others from
the same manufacturer will be. Good drives to go for are Mitsumi's (4x or
higher), any Sony, Wearnes or Aztech. Another popular drives is the Hitatchi
CDR7730, I had one and a lot of Amiga dealers sell it.

1.114 CD_Rom Drive FAQ

Frequently Asked Questions – CD-Rom Drives

Can I use PC IDE CD-Rom drives on my A1200?

   Possibly. There are drivers available (such as AtapiPNP and IDEFix97) which

allow use of a true IDE-ATAPI drive, however you have to make a careful choice
of drive, it has to be fully ATAPI compliant. Most will say somewhere, a lot
are (such as Mitsumi, Sony and Wearnes drives), some are nearly (Vertos drives
- steer clear!) and some are nowhere near.
You just need the drivers (Aminet disk/cdrom or disk/misc) and a cable - all
drives will need a 40-pin connection, and you can just get a longer cable from
your hard drive. This brings in it's own problems such as data transfer
problems on long cables and buffering worries, but it works.

What alternatives are there?

  Good old SCSI! Using a Squirrel (Surfing or otherwise), a DataFlyer+ or other
  SCSI controller, any SCSI drive can be connected and will work. For this you
  need a driver such as AmiCDFS (Aminet) and the appropriate cabling/SCSI
  Software/jumper settings/termination.

  Also, there are plenty of ready made drives from retailers, which underneath
  are actually IDE or SCSI, but are just plug-and-play and you don't need to get
  your screwdriver out :)

1.115   Obtaining New A1200's

                    Obtaining New A1200's

Please note this information was correct at the time of writing, but due to
Sod's Law it isn't at the time of reading :)

 Amiga International, well Gateway 2000, bought a lot of A1200's when they
obtained the Amiga rights from whoever owned them previously. They were all
complete and ready to go, and indeed a few retailers now sell them,
incidentally at a much lower price than Escom ever did.

 In addition to this, many retailers have taken the initiative and are starting
to sell specced-up A1200's. A local retailer to me has ones available with Ram
expansions, bigger hard drives all the way up to the top-of-the-range 34Mb 060
model.

 Finally, there now exist pre-built Tower A1200's, from MicroniK, named the
A1300, the A1400 and the A1500. These have varying specs, mostly relating to the
supplied Zorro spec and full details are available in the
                    Tower/PreBuilt
                    section.

1.116   The Keyboard Matrix

The Keyboard Matrix

This applies to the GB keyboard, but on each row the keys are listed

left-to-right, so you know which key replaces it on other keyboards – for example
the blank keys on GB.

One notable change from earlier keyboards, which does not lie in the matrix as
such, is the lack of multiple-key rollover. This annoys most users – speed
typists have to keep their speed down, and most annoyingly games have to have
silly keys to avoid the fact that two keys on the same row cannot be pressed
together.

Layout:

```
  Row    Key      Connects Pins  | Row    Key      Connects Pins
                   |
  Top   Esc        7 to 15       | 2nd   <Shift>     12 to 30
    F1           7 to 17    |        <Blank Key> 3 to 15
    F2           7 to 18    |        Z          3 to 16
    F3           7 to 19    |        X          3 to 17
    F4           7 to 20    |        C          3 to 18
    F5           7 to 21    |        V          3 to 19
    F6           7 to 23    |        B          3 to 20
    F7           7 to 25    |        N          3 to 21
    F8           7 to 26    |        M          3 to 22
    F9           7 to 27    |        ,          3 to 23
    F10          7 to 28    |        .          3 to 24
  5th   '          5 to 15    |        /          3 to 25
    1            5 to 16    |        <Shift>    6 to 30
    2            5 to 17    | Btm   <L Alt>    13 to 30
    3            5 to 18    |        <L Amiga>  14 to 30
    4            5 to 19    |        <Space>    3 to 27
    5            5 to 20    |        <R Amiga>  10 to 30
    6            5 to 21    |        <R Alt>    8 to 30
    7            5 to 22    |
    8            5 to 23    |             Numberpad
    9            5 to 24    |
    0            5 to 25    | Top   <Del>      2 to 28
    –            5 to 26    |        <Help>     7 to 29
    =            5 to 27    |        (          7 to 16
    \            5 to 28    |        )          7 to 22
    <BS>         3 to 28    |        /          7 to 24
  4th   <Tab>       1 to 15    |        *          4 to 15
    Q            1 to 16    | 4th   7          4 to 25
    W            1 to 17    |        8          4 to 21
    E            1 to 18    |        9          4 to 17
    R            1 to 19    |        –          4 to 29
    T            1 to 20    | 3rd   <U Csr>    5 to 29
    Y            1 to 21    |        4          4 to 26
    U            1 to 22    |        5          4 to 22
    I            1 to 23    |        6          4 to 18
    O            1 to 24    |        +          4 to 16
    P            1 to 25    | 2nd   <L Csr>    1 to 29
    [            1 to 26    |        <D Csr>    3 to 29
    ]            1 to 27    |        <R Csr>    2 to 29
    <Return>     1 to 28    |        1          4 to 27
  3rd   <Ctrl>      11 to 30   |        2          4 to 23
    <Caps Lock> 2 to 15     |        3          4 to 19
    A            2 to 16    |        <Enter>    4 to 24
    S            2 to 17    | Btm   0          4 to 28
```

```
D           2 to 18     |        .              4 to 20
F           2 to 19     |
G           2 to 20     |
H           2 to 21     |
J           2 to 22     |
K           2 to 23     |
L           2 to 24     |
;           2 to 25     |
#           2 to 26     |
<Blank Key> 2 to 27     |
```

1.117 Miscallaneous Index

```
                    _____
         |                           |
         |      Miscallaneous Index  |
         |_____|
```

```
       What is the Clock Header?

      ~The~Keyboard~Matrix~Pinouts~~~~~~~~~~~~~~~

       PPC Cards (probably out of date now!)

       New A1200 Availability

       Upgrading to Kickstart 3.1
```

1.118 Hello!

```
            Oh, well done, you found my hidden node. So what did you do, load  ←
              it up into
Heddley or something?

Not much point to all this you know.

You might as well
            bugger off now
             .
```

1.119 That Mystery Clock Header

```
            That Shortened "Clock" Header

P9A and P9B
```

Just below the Chip RAM you'll see a little header. It's only use is to connect
an aftermarket Real Time Clock unit. So why are there another 18 unused solder
holes next to it, and why does the header start at pin 19?

```
        ::::::::::::::::::::::
        P9A
          ,----------, U16
          |          |                    :: Empty Solder-holes
    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
          |          | U19               :: Header
          '----------'

        ::::::::::::::::::::::
        P9B
```

The reason is that Commodore were a little unsure of what to equip the A1200
with memory-wise. It could take 2Mb Chip RAM, but should they stick it all in at
once? One solution was to put 1Mb on the motherboard, and then produce a
piggy-back board with another 1Mb on it - slot it over the existing memory on
the two headers and you have a 2Mb machine. But in the end they decided not to,
and eventually they whittled the headers down to the last 22 pins of P9B.

 BUT! Don't go trying to connect anything to it, will you? Unless you like your
1200 as part of a fry-up..... Those who went for 8mb Chip RAM on their 4000's
regretted it, you will to.

So what can connect to it? A few fast serial and/or parallel ports at the
minute. See the
                Interfaces
                 section for more clues. Oh, and of course a few Clock
boards were released for it, hence it being referred to as the "clock header".
There is also a possibility of a company releasing an Ethernet adaptor card for
it. No details at time of writing.

Also, see the
                Complete Pinouts
                 for this header.

1.120   Upgrading to Kickstart 3.1

Upgrading to Kickstart 3.1

Operating System upgrades are available for the A1200. These come as two ROMs to
go on the motherboard, the system disks (Workbench 3.1) and the manuals.

It is possible, however, to run Workbench 3.1 on a Kickstart 3.0 machine. This
apparently "works", although it crashes sometimes. Not really worth it, since
the actual kickstart chips have just had a price cut.

The upgrade is advised if you are serious about using Zorro cards with your

Amiga, since some of the newer GFX and controller cards like to have the
bugfixes available in 3.1. It also makes datatypes slightly better. Contact your
retailer to see if they can supply it – not all will be able to. Note that
owners of Amiga Technologies, Amiga International and MicroniK A1200's have no
need to upgrade as those machines feature OS3.1 already.

One last thing... at the time of writing, it had just been revealed that work
was underway on OS3.5. This will apparently need OS3.1 Kickstart Chips
installed.

1.121   PPC Information

PPC Accelerator Information

Before I start, this information is liable to be quite out of date, with the
speed the computer news business works. But it may be of interest.

Phase 5, creators of the Blizzard range of A1200 Accelerators, are (as I speak)
preparing to ship PPC accelerators for the A1200. These will be called the
BlizzardPPC or Blizzard603e cards, and will feature:

```
Blizzard 603e:   Motorola PPC 603e CPU @ 150MHz, 175MHz or 200MHz
        Socket for compulsary 68030 companion CPU
        2 SIMM sockets
        BVision GFX Card Socket
        SCSI-II Interface

Blizzard 603e+:  Motorola PPC 603e+ CPU @ 175MHz, 200MHz or 250MHz.
        Socket for compulsary 68040 or 68060 companion CPU.
        2 SIMM sockets
        BVision GFX Card Socket
        SCSI-II Interface
```

The BVision (or BlizzardVivion) card is kinda special – it's a tweaked version
of the CyberVisionPPC card, which fits onto the CyberStorm A4000 boards. It's a
very fast, very cool and very nice graphics card, and it uses the same Permedia
chipset as the CyberVision. Who needs Zorro for GFX cards? Wheyhey!

1.122   Retailer Listing

Eyetech Group

Eyetech Group have a wide range of drives and interfaces, and seem to know what
they are talking about! Their prices are a little high, but they offer good
telephone support (from personal experience).

```
        Eyetech Group           Telephone 01642 713185
        The Old Bank                      07000 4 AMIGA
        12 West Green
```

```
       Stokesley                 email      eyetech@cix.co.uk
       North Yorkshire           url        www.eyetech.co.uk/~eyetech
       TS9 5BB
       UK
```

1.123   Retailer Listing

```
Blittersoft
```

Blittersoft are perhaps the biggest retailer of tower equipment – from the MicroniK Infinitiv systems and pre-built towers to the various components for DIY towers. They also sell the complete range of Phase5 accelerators.

```
       Blittersoft           Telephone 01908 261466  (sales)
       6 Drakes Mews                   01908 261477  (tech)
       Crownhill Industry
       Milton Keynes         email      sales@blittersoft.com
       MK8 0ER               url        www.blittersoft.com
       UK
```

1.124   Retailer Listing

```
HiSoft Systems
```

Hisoft are a major retailer of items such as the Surf Squirrel, Squirrel and a multitude of drives.

```
   Hisoft Systems           Telephone 01525 718181
   The Old School                 Fax 01525 713716
   Greenfield
   Bedfordshire                 email sales@hisoft.co.uk
   MK45 5DE                       url www.hisoft.co.uk
```

1.125   Index

```
           68EC020 Pinout

           Adding Your Expansion Reference

           Alice Pinout
```

Zorro Index

Zorro Options