

**IDE2AMI4**

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# Chapter 1

## IDE2AMI4

### 1.1 IDE2AMI4.guide

-----  
How To Connect A 3.5" IDE Hard Disk To An Amiga A1200  
-----

This Is Version 4 Of IDE2AMI

Written by HYDRA of PERSPEX and LSD

About IDE2AMI

Distribution

Disclaimer

Changes/History

What you will need

Making the cables

Mounting the hard drive

How To Contact HYDRA

Preping and Formatting

Installing Workbench

Installing a 2nd Hard Drive!

Drives that are known to work

Drives that don't work

Where do I get them from

---

How Much

MaxTransfer Rate

Other Programs by HYDRA Productions/Perspex/LSD!

## 1.2 Installing a 2nd Hard Drive!

Installing a 2nd Hard Drive!

=====

If you've not read the rest of the document then do so first!

Okay, this is definately NOT for the faint hearted or those who are no good at diy.

First I'll explain the basics of daisy chaining 2 hard drives.

Okay, IDE can only have 2 devices at anyone time, the first device is called the MASTER and the second one is called the SLAVE.

when you get a new IDE device it's always configured to be the MASTER drive as most people only have one IDE device, so if you want to add another drive you need to do 2 things.

- 1) configure your 2nd device so that it is the SLAVE
- 2) configure your 1st device so it knows there is a SLAVE device.

(note: 2 is not always needed, but 9 of 10 times it is!)

IDE idiosyncrasys

=====

you now need to know that some IDE devices dont like being slaves to other devices and vice versa. Even IDE devices from the same company aren't compatiabile!

On a brighter note I can tell you that My western Digital 2250 and my conner 30254 work fine together! (and it's DARN GOOD having half a gigabyte of storage at your disposal!)

The reason for some IDE's being different to other IDE's is that PC's dont use the IDE standard to the full and only use bits of it, for instance, the PC's BIOS will not get all the info about the drive from the drive itself, you have to tell it what you've plugged in :- ) crap or what!. anyway, because of this hard disk manufacturers only implemented the bits of IDE that PC's use to cut costs. So, when your nice shiny new A1200 comes along with it's all singing all dancing FULL IDE you start to find that these so called 'standard' IDE drives dont work properly! Aaarrgghh!

See, PC's ARE to blame for all this, so take it out on your PC owning mate!

Dont you just HATE PC's ???? I know I do (I had one once, It pissed me off so much I ripped the hard disk out and connected it up to my Amiga instead! and have since sold the PC!!! hahahahaaaa :-)

So, the first thing to think about is wether your 2nd device will work with your first one, if it does then carry on reading otherwise you might as well stop now!

right then, still here ?

Where do i put the bugger  
=====

to fit 2 3.5" hard disks inside the case of an A1200 is almost impossible, it was bad enough with just one, let alone 2! So, unless you want to take out your floppy disk drive and put the hard disk there you'll have to mount it externally! What I've done is mount BOTH of my hard disks externally, it also makes it easier if you want to add an external PSU for the Hard Drives if you have it like this. This brings me nicely onto the next thing on the list :-

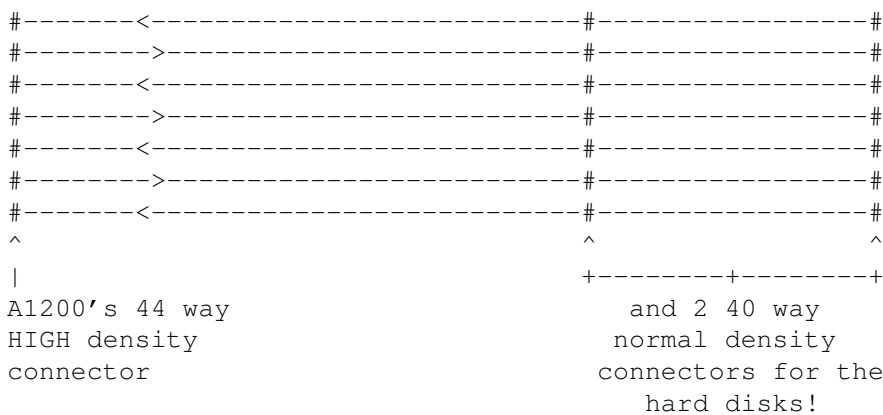
EEErrrrrk, where's all the power gone!  
=====

having one 3.5" HD is a bad enough strain on an A1200 PSU, but having 2 leaves the computer with NO power left at all! If you went out and bought an beefy PSU for your 1200 when you fitted the first hard disk then there should be enough current for both of them (check theratings on the Hard Drive(s) and on the PSU to make sure.)  
If you didnt then your gonna have to either a) get one or b) buy an external PSU for the hard drives, the PSU MUST supply +12 volts at around 1 amp minimum and +5 volts at around 1.2 amps. If you can find one with better ratings get that to be on the safe side, but I wouldnt recommend using less than the above ratings.

Oh no, i dont need to make another lead do I ?  
=====

you most certainly do my dear reader!

what you now need is a lead that goes like this



The little squigly arrows in the middle of the cable mean "there can be any amount of cable here"

you now have a choice to make, you can either make a whole new cable and use the old one, if you use the old one you can make it so that you can unplug the hard disks from the computer.

Use the old cable

=====

ok then mr cheapskate! you'll need the following EXTRA bits

1 x length of 40 way IDC ribbon cable  
 (make it as long as you want but not too much longer than a meter)  
 2 x 40 way IDC FEMALE connectors to crimp onto the above cable.  
 1 x 40 way IDC MALE cable fitting connector.  
 (basically it fits onto the cable the same as the other connectors did but this has pins instead of holes so you can plug your old cable into it.)  
 these connectors are about 4 quid or more!! compared to the female ones that cost about 90p tops!

to make the cable do the following.

Crimp the 2 female connectors to one end of the 40 way IDC cable (use a crimp tool or a vice) make sure you've got enough space between the connectors to allow you to plug them into the hard disks easily enough, about 4 inches should be plenty.

Next, crimp the 40 way MALE connector to the other end of the cable making VERY sure that pin 1 on that connector matches pin 1 on the other ones or you'll be scraping bits of IDE hard disk off your wall!

and thats it, simple huh ?

Make A New Cable

=====

ok, this is a bit more difficult than the other one so be prepared for some real tedious soldering.

you'll need these parts to make this cable

1 x length of 40 way IDC ribbon cable  
 (make it as long as you want but not too much longer than a meter)  
 2 x 40 way IDC FEMALE connectors to crimp onto the above cable.  
 1 x 44 way HIGH DENSITY female IDC connector (to plug into the A1200)  
 1 x length of 44 way HIGH DENSITY IDC ribbon cable  
 1 x length of heat shrink tubing, about 1.5 MM unshrunk should do the trick.  
 1 x soldering iron  
 1 x length of solder (for soldering wires!)

ok, now do this.

crimp 44 way cable into 44 way connector.  
 then crimp the 2 40 way connectors onto the 40 way cable about 4 inches

apart.

now comes the tricky bit. what you have to do is join the two cables together!! Erk!

so, solder pin 1 on the 44way to pin 1 on the 40 way cable all the way down to pin 40, dont forget to put the heatshrink round the cable so that the solder joints dont touch each other.

and thats that.

what about power ?

=====

oh yeah, nearly forgot!

if you've got a decent PSU for your A1200 then you can make a cable up as per cable3.iff (which is the same as cable 2 only it has a 4th connector on it.

OR

if you bought a seperate PSU then you'll need to wire it up to the connectors as per the pinouts in cable2.iff

how do it configure the drives ?

=====

now there's a good question if ever I heard one!

well, as I've already said each IDE seems to be different so here's a quick guide line.

get hold of your existing (1st) hard drive, now somewhere on it there should be a load of jumpers that we need to change. if you remeber I said there were 2 steps, 1 of which was to tell the master that there is a slave drive present, so we now have to find the jumper that tells the hard drive that there is one, on western digital drives it's marked as SP meaning "Slave Present" this jumper needs to be set

next get your other (2nd) hard drive, we've now got to tell it that it's the slave drive, so find the jumper that tells it this.

you might also have to tell this drive (the 2nd drive) that there is a slave present (itself, that is) if it didnt work.

heres a list of what some jumper labels might mean

C/D = pc's use letters instead of device names (cos PC's are SHIT) so on a PC the first drive would be C: the next would be D: and so on, so this jumper means select first/second drive or master/slave or C/D, get it ?

only problem is we dont know if it means jumper set means C: or jumper set means D: ? oh well...

SP = Slave Present, set this on the master drive and you might need to set it on the slave drive too



SL = Slave Drive  
 MA = Master Drive

I've come across these on western digitals and conners, but havent really looked at other makes too much.

if you need a hand give me a ring and i might be able to help you, you never know.

you can also get drive/jumper setting info from various distributor BBS's around the UK or you could try ringing the people you got the drive from. most hard drives DONT come with any info on them what so ever, which is REALLY helpful!

connecting them up.  
 =====

connect the drives to the 2 40 way female connectors on your lead, it doesnt matter which way round they go (thats what the jumpers are for :-)  
 then dpenting on the cable you ad up connect it to a) your other cable or  
 b) your a1200.

now all we need is some power

so, connect your PSU or your power cable to the hard drives and thats about it now.

lastly..  
 =====

when you partition the drives make sure that the device names dont conflict (ie, dont have two DH0:'s!)

### 1.3 About IDE2AMI

Ide2Ami is a collection of files that'll help you to understand ↔  
 how to  
 install a 3.5" hard drive into an A1200. This is NOT a definative guide  
 or a set of rules on what to do/what not to do but it should make things  
 a bit clearer to you all. (See  
 Disclaimer  
 )

### 1.4 Distribution

Distribution  
 =====

This document and it's related IFF Pictures can be distributed anywhere so long as nobody makes any profit out of it. PD Companies can distribute this archive if they wish but no more than 1.50 UKP may be charged for it.

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Synops of bulletin boards may make this file downloadable to anyone they wish to

All files in this archive should be left intact with this message included.

## 1.5 Disclaimer

Disclaimer

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The author would like to make it clear that he accepts NO responsibility whatsoever for ANY use of this document or the information contained within. (but I'll try my best to help if you're stuck!)

## 1.6 Changes

Changes Made Since Version

1.0

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CABLE2.LBM had a slight error in it. The actual wires on the cables did not correspond to the pins correctly. This has now been rectified.

The drawings have now been converted as I have been told that the original drawings were somewhat corrupted. The reason for this is that they were drawn on DPAINT on the PC (hopeless computers!!) and the file format was incorrect. They have now been converted to load into DPAINT and other IFF viewers.

2.0

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Spelling mistakes corrected, fitting instructions and other helpful hints from people that have responded to this file (and believe me, there were quite a few (perhaps I should have made it shareware :-)) )  
I've also now included 3 digitised pictures of the inside of my machine to help you along.

3.0

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added text on running 2 hard drives  
added info on drives that work.  
converted to amigaguide and most parts have been re-written!

## 1.7 What You Need

What You Need

=====

1 x A1200 Amiga Computer (no shit!)

---

1 x 44 Way HIGH DENSITY Female Connector

(note, these connectors and the cable are VERY hard to get hold of. i had to resort to buying a cable with the connectors already on it, I bought the cable from POWER COMPUTING for 10 Quid including 2 connectors. Trilogic also do one)

Also make sure it is a HIGH DENSITY connector, a normal 40way IDC connector WONT FIT, like wise, the standard density ribbon cable also doesnt fit.

1 x length of 40 way HIGHDENSITY Ribbon cable to connect to the 44Way Connector (the length depends on wether you want to mount the drive externally, I.E. Short for intenally (10 inches or so) or long for externally (1 Metre or so)

I wouldnt recommend using overlong cables as i dont know what the hell would happen to the integrity of you data as it wizzes past you 5000000000 other power cables behind the back of your desk!

(note, you only need 40 way ribbon cable as the 4 power pins of the 44way connector arent used)

1 x 40 Way IDC Standard Density Female Connector

1 x 4 way Power Connector (the type of this depends upon the type used on your hard disk as some hard disks have the same kind of connector that is used on the floppy drive others have the older (more standard on hard disks) type of connector, and others have BOTH!

1 x 3.5 inch hard drive, make sure that the current (AMP) ratings do not exceed that of your power supply or it'll blow something up.... :-( I.E.

On the back of the hard disk it might say something like

```
=====
Current consumption
=====
+12V 0.4 A
+5V 0.2 A
=====
```

this would mean your PSU needs to provide this amount of power or more. (preferably more, cos your computer eats some power and so does all your floppy disk drives/genlocks/digitizers/sound samplers/etc..)

the output of the Amiga's power supply is shown on the underneath of the PSU, there are various different amiga power supplies, all of which ARE interchangeable and ALL have different ratings. I've seen 2 different A500 PSU's and 2 defferent A1200 PSU's!! the best PSU so far is the lightweight A500 brick PSU as these tend to be a bit more reliable than the older A500 ones and can output more current than the A1200 ones, so if you've upgraded from an A500 and still have it lying around, swap it's PSU for the A1200's one!

If your PSU doesnt supply enough power you will need to A) get one that does, B) Get a hard disk that doesnt eat much power or C) get a REGULATED +5 V and +12V Supply and connect it to the power pins of the hard drive. (pinouts of power pins are in file CABLE2.LBM)  
 (note, any PSU out of a PC will do, so if you've got a PC, rip it apart and nick the PSU from it (belive me, it's the only thing that PC's are useful for :-))

Also it might be an idea to get 2 of the power connectors that are used on the floppy drive so that you dont need to cut the wires and solder extra wires onto the existing ones, but these are not nessasary, they just make it neater

Note:

Female Connectors are the ones with the HOLES and male ones are the ones with the PINS. (quite easy to remember really :-))

## 1.8 Making The Cables

Making the cables  
 =====

First, get the 44way connector and crimp in the cable as pictured in CABLE.LBM then get the other end of the cable and connect each wire from the cable to each pin on the 40 way connector (also as pictured in CABLE1.LBM)  
 Start from pin 1 on the 44 way and go upto pin 40, pins 41-44 are not used by the 3.5inch hard drive as the pins are +5V and ground. but no +12V

Thats the fiddly bit done!!.

Note: I have been told by some people that it's possible to heat the HD cable and stretch it to fit over the larger connector but I've not tried it..

Now we need to supply the Hard Disk with some power, so, get the power connector and then take the lead that connects the Floppy Disk drive to the mother board. Then solder the wires from your connector to the wires on the lead making sure that you connect them correctly (as pictured in CABLE2.LBM) this is very important as these wires connect +12V and +5 volts to the drive. getting these the wrong way round will blow the hard drive! and possibly the computer. Shorting them out is also NOT recommended :-)

If you are using an external PSU for the Hard Disk then connect +12V, +5V and ground to the pins on the Hard Disk Power Connector. (pins in CABLE2.LBM)

And dont forget to turn on the hard drive BEFORE you turn on the computer. (but if you were clever you would take the +5v or +12v from the A1200 and ↔ connect it to a relay so that when you turn on your computer it would turn on the PSU to the drive...)

## 1.9 Mounting The Hard Drive

Mounting The Hard Drive  
=====

there are several places to mount the hard drive, one of which is externally in a ↵  
box (you can get a simple project box from maplin that does the job nicely) or  
there are two places inside the 1200 that just about do the trick.

One of them is at the far left hand side (viewed from the front), but you'll ↵  
have to  
remove a peice of the metal shielding. The second is just underneath the ↵  
keyboard  
connector (you'll have to remove the small metal cover here to make it fit..  
and remove a bit of the shielding. If you look at INSIDE2.IFF you'll  
see where i've cut the shielding.

## 1.10 Preping and Formatting

Preping and Formating  
=====

You now need to get some HD Prep software, this is available from COMODORE  
and various other companies. Most of the people who sell hard drives as kits  
will be able to sell the prep program to you.

Microbotics have now realeased their HD prep software into the public domain and  
is known as RDPREP, available from any decent BBS or PD library.

Basically a prep program just reads the info about the drive from the drive and  
lets you partition it.

Note: each partition will eat up a certain amount of memory, so if you've only  
got 2 meg in your a1200 I wouldnt recoment more than 2 partitions.

when you've preped and formatted your hard disk you should do a quick test to  
make sure every thing works, first switch off your a1200 and the hard drive(s)  
if you have an external PSU, then wait about a minute (it is IMPORTANT that you  
wait this long) Then turn your computer back on and check that the partitions  
are still there via the boot up menu (hold down both mouse buttons on startup)

if they are not there then your hard drive isnt compatiable with the A1200,  
quite a few drives seem to work fine until you switch your computer off and on  
again, the western digital 40 and 340MB and the Maxtor 250MB ones do this along  
with a few others too

## 1.11 Installing Workbench

Installing Workbench  
=====

Installing workbench 3.0 is DEAD EASY!

make sure you've got at bootable formatted partition on your hard drive and then do the following.

1) boot for your original Workbench 3.0 system disk.

2) open a shell window

3) enter these commands to make some programs resident

```
resident C:COPY
resident C:MAKEDIR
```

4) then repeat this step for all your workbench 3.0 disks (system, locale and extras) except the FONTS DISK and the STORAGE DISK

```
COPY DF0:#? DH0: ALL
```

5) insert the workbench 3.0 FONTS disk into df0:

6) then do these commands

```
MAKEDIR DH0:FONTS

COPY DF0:#? DH0:FONTS ALL
```

7) then go to the workbench screen, double click your hard disk icon so that it shows the root directory of your hard disk then make a directory called "Storage" (don't enter the quotes!)

8) then do these commands after inserting your Storage Disk in DF0:

```
COPY DF0:#? DH0:Storage ALL
```

9) all you need to do now is drag the correct keymap and printer drivers from the subdirectory in dh0:storage into the same subdirectory in dh0:devs. (E.G. Dh0:storage/keymaps/gp dh0:devs/keymaps/gb)

10) now reboot and go WOW!

simple huh, although if you were watching the output from the copy command when you were copying the Locale Disk you would have noticed that we copied loads of catalogs and info for all sorts of different countries. well, we only need the english ones so you can infact delete all the ones that you dont want. I recommend the use of a File Manager program (such as my >>> EXCELLENT <<< AFCopy V3.4xx! (Plug Plug!)) to do this as it's a bit fiddly!

## 1.12 Drives That Work

Drives That Work  
=====

The following makes of hard drive have been known to work with the 1200 (note ←  
that  
some dont, so if you try before you buy then do so.)

Western Digital Caviar 2250  
Segate (not tried these myself but beleive they are OK)  
Connor (all the ones where the model number starts 30xxx (Mines a 30245))

if you can find a Western Digital drive that works, like the 250MB one, then  
go for that as these are by far the fastest drives and have low power  
consumption (which is good if you want to mount 2 hard drives! :-)

## 1.13 Drives That Don't Work

Drives That Don't Work

=====

Western Digital caviar 40MB/340MB drives  
Maxtor 250MB  
Fijitsu 100MB (mind you, it was 5 years old!)  
Some IBM drives  
Some JVC Drives

(also see

Preping and formatting  
)

## 1.14 Where to get drives from

Where to get drives from

=====

The best place to pick up a cheap hard drive is from an add in micro mart,  
Star Computers, Delta Technology and Jupiter Computers.

the best people to deal with are STAR, jupiter and delta are both VERY cheap  
but the service isnt so good.

PLEASE when you ring these companies make sure that you dfd specify the  
EXACT MAKE AND SIZE OF THE DRIVE YOU WANT AND MAKE SURE THEY HAVE IT IN  
STOCK BEFORE PARTING WITH ANY MONEY or they might send you a maxtor when  
you ask for a western digital like jupiter computers did to me!

## 1.15 Current Prices

Current Prices As Of 10/12/93

=====

A Conner 250MB drive can be had from around 130-140 quid

A western digital of the same size is generally 20-30 quid more

(note: prices quotes are Ex-VAT and P&P)

## 1.16 Max Transfer settings

Max Transfer settings  
=====

normally you wont have to change this unless you get file corruption when you save large files to your hard disk.

to check this, copy a large .lha file to ram: (about 600K should be enough) then copy this back to your hard disk and check the .lha file, if you get CRC errors or any other errors then it looks like you'll need to change it.

So, to change this, go into HD toolbox and select "Partition Drive", then click on "Advanced options" then a button called "Change" will appear, click it, now you get another screen full of buttons one of them will be a string gadget for the maxtransfer setting, set this to about 128KB in HEX (0x1ffff) then save your changes, reboot and try the .lha test again, if works ok (it should do at this setting!) then keep doubling the maxtransfer rate until it fails, then go a bit lower until it works. It's all a matter of trial and error really!

## 1.17 How To Contact Me

How To Contact Me (HYDRA)  
=====

If you have any queries, comments or suggestions then please write to me at the following address.

Dominic  
9 Shires Copse  
Southbourne  
Bournemouth  
Dorset  
BH6 4AU

OR phone me on +44 (0)202 434858 (after 6PM UK Time, ask for Dominic)

If you want to ring me up for advice, more info, swapping or for anything else then feel free!

## 1.18 Other Programs by HYDRA Productions/Perspex/LSD

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Watch out for other forthcoming programs by HYDRA Productions/Perspex/LSD including :

- AFCOPY - V3.475 An absolutely COOOOL file manager program with loads of options and configurable gadgets with a cool OS2.04 look, added features under 3.0 and it's BLOODY quick!  
Take a look, you'll be surprised!  
>>> nothing disabled either!
- IDE2AMI4 - How to connect 3.5" IDE Hard Disks to Amiga 1200's has digitised pictures and cable diagrams along with good instructions.  
>>>> also tells you how to fit 2 IDE drives!!!!
- VERMAN - Revision Bumper for C Programmers
- ExApp1.2 - Multi App like program (only this one is good!) it's an appicon that sits on your WB and runs different program depending on the file type dropped onto it. Custom and user defineable file type matching via pattern matching and file content!
- UFF - Unused File Finder for /X 3.X finds files that are on your HD but not in conference lists so that you can delete them to free up hard disk space (thanks to Cruise/Sysop Fantazia) for the idea for that one!)
-