

# **Hardware Projects Galore!**

Craig Daines

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COLLABORATORS

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## Chapter 1

# Hardware Projects Galore!

### 1.1 Hardware Projects Galore V1.0

Hardware Projects Galore - Exclusively written for...

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MPPPPM#####
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###          !#      #      dl      7#      #r      0###@      7#  ←
          ###
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          ###
##f          F      J#      #      dL      #Q                      0L  ←
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      #_J_####
```

© 1998 By Craig Daines

```
.------.
|         Hardware Projects Galore (version 1.0)         |
|                                                         |
|         - Giftware evaluation copy -                   |
|                                                         |
|         (C) Craig Daines 1998 - All rights reserved.   |
|-----|
```

```
.------.
|         What is this ?!                                |
|         Giftware                                         |
|         How to contact the author                       |
|         Soldering Tips                                   |
|         Opening Up Your A500/A500+                     |
|         List Available Projects..                        |
|         Disclaimer & Liscence                           |
|-----|
```

## 1.2 Opening Up Your Amiga 500/500+

### OPENING UP YOUR AMIGA 500/500+

-----

Some projects contained on this disk will require you to strip your Amiga down to the motherboard. If you have an Amiga 1500, 2000 or 3000 this is a very simple matter and consists of removing four or five screws and opening the case. On the A500 and A500+ much more fun is to be had:

1. Disconnect everything, and I mean everything. Ensure the disk drive is empty.
2. Place the Amiga face down on a towel, on a large well-lit table.
3. Notice the position of the fixing screws around the perimeter of the plastic casing. There is another screw under the silver warranty sticker at the front.
4. If your A500/A500+ is still under warranty, say a fond farewell, as it's about to go.
5. Depending on the type of fixing screw used, you will either need a screwdriver or a small Allen key. A pair of long-nosed pliers will usually do instead of the Allen key.
6. When all screws have been removed, carefully turn the Amiga over and lift the casing. With the keyboard closest to you, lift from the left-hand side first.
7. Look inside at lots of tin sheeting acting as radio shielding.
8. Lift the keyboard free by disconnecting the keyboard cable. Also, don't forget to make a note of the cable's orientation.
9. Unfold the little flaps holding the shielding down, and lift the sheet off. Watch out for any sharp edges.
10. That's all their is to it!

Back To Main Menu

Back To Projects Menu

## 1.3 help

You've just activated help. If you do not no how to navigate through Hardware Projects Galore, I shall give you a brief explanation:

Above you will see five boxes. These are as follows:

```
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+
|Contents| | Index | | Help | | Retrace | | Browse «| | Browse » |
+-----+ +-----+ +-----+ +-----+ +-----+ +-----+
```



Explanation of above boxes:

Clicking Contents will return you to the main contents page.

Clicking Index will return you to the main index page.

Clicking Help will bring up this help page.

Clicking Retrace will take you back one page. Keep clicking Retrace to get to a page

Clicking Browse < will take you through the database backwards one page at a time. This is handy to browse through the database at your own lesure.

Clicking Browse > will take you through the database forward one page at a time. Again, this is useful to browse through the database at your own lesure.

Note: I have provided links in the texts so you can more easily view the circuit schematics for the various projects, so for instance, whilst you are reading the assembly instructions for a particular project, you will also see a button which you can click on which will bring up the circuit schematic for that particular project.

## 1.4 Available Projects...

How to build an...

4 Player Adapter etc.	..... For use with games such as Dynablasters, ←
A4000!	..... Well, sort of.
Add Extra Hardisk to 4000/030	..... Self explanatory.
Ami-Card Hardware Copying Dongle	..... As it says!
Amiga Accelerator for A500	..... Accelerate your ancient A500!
Amiga Scart Lead cable.	..... Connect up your Amiga to a TV via a scart ←
Amstrad Monitor To Amiga Lead Amiga.	..... Connect your old Amstrad Monitor to your ←
Audio Amplifier amplifier.	..... Amplify your Amiga audio via this audio ←
Audio Sampler	..... A DIY soundsampler for budding musicans!
C64 Emulator Lead for A64 with A64 Emulator.	..... Connect up your C64 diskdrive for use ←
CDDA Mixer For Your CD-ROM Drive	..... Mixes and boosts Amiga and CDDA audio.
Connect an IDE CD ROM A600/A1200.	..... Details how to connect a CD-ROM drive to ←
Light Sensor Amiga!	..... Make a light activated switch for your ←
Midi Interface interface.	..... Connect up that synthesizer via this midi ←
MTX Transmitter in the UK).	..... Build a bugging device (not liscenceble ←
Null Modem Cable .	..... Link two Amiga to play head-to-head games ←
Overclocking Accelerators speed.	..... Overclock your accelerator for extra ←

Pause Switch For A500/500+	..... Footswitch which 'pauses' your Amiga 500!
PC Joystick To Amiga Interface !	..... Got a PC Joystick? Then build this widget ←
Rapid Fire (autofire for joy) switch?	..... Your joystick don't have an autofire ←
Reset Switch for A1200 Tower switch on tower.	..... Enables you reset your Amiga by reset ←
Rom Switcher For Your A500/A2000 choice of O.S.	..... Switch between Kickstart Roms for a ←
Sega Joypad Conversion included!	..... Use Sega Joypad with Amiga. Source code ←
Sticky Box (Auto switcher) more unplugging).	..... Switches between joystick and mouse (no ←
Superbase Hardware Dongle	..... For use with Superbase software.
Track Display (for ext. drive) tracks.	..... Plugs into ext. disk drive and displays ←
Updating your A500	..... Updating your prehistoric Amiga 500.
VGA Multisync Adapter VGA monitor.	..... Allows you to display all screenmodes on ←
Video Digitizer Camcorder.	..... Allows you to grab pictures from TV/VCR/ ←
Virus Detector	..... Virus beeper for bootblock viruses.
Voltage Controller	..... Control various hardware from your Amiga!

Number of current projects in database: 28

## 1.5 What is this?

Welcome to Hardware Projects Galore! This is my latest Public Domain contribution which details how you can build your own Hardware for your Amiga. I have not seen any similar Amigaguide type programs such as this in the public domain, so I decided to write my own and share it with the Amiga community.

These projects vary in complexity. Some even a novice could build, others are more complex. It will help if you have some prior knowledge in electronics.

I wish to add further hardware projects! If you've designed and built something exciting for your Amiga, please feel free to drop me a line, since I wish to add further hardware projects to this program. I shall be sending future revisions for inclusion on Amiga Format's cover CD-ROM's.

## 1.6 giftware

I have released this program under the Public Domain Giftware concept. This means:

If you like my program you must either send me a postcard or some more hardware projects that I can add to my program.

In doing this, you are supporting my program, thus, making future

versions possible. It is not much to ask is it?

Do you realize that most programmers writing software for the Amiga under the Shareware/Giftware scheme have abdonded releasing future versions of their programs? Why? - Because most people cannot even be bothered to send them a postcard, let alone a Shareware fee which is immoral.

SO REMEBER, BY SUPPORTING PROGRAMMERS YOU ARE SUPPORTING THE AMIGA!

## 1.7 author

If you have suggestions, comments, new Amiga-related hardware projects, please feel free to drop me a line:

Craig Daines  
21 Canal Road  
Yapton  
Near Arundel  
West Sussex  
BN18 OHD  
ENGLAND

## 1.8 Soldering Tips

### Tips On Soldering

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Soldering isn't difficult - soldering neatly and quickly just takes a little practice. The trick is to ensure that the parts you are soldering are well connected before you start. For a switch, wrap the wire around the contact. For a component on veroboard, bend the wire after it has come through the hole.

- \* When soldering be as quick as you can. Heat can damage components, so apply the iron for as short a time as possible.
  - \* Use as little solder as possible. The more solder you use, the more chance of it spreading all over your veroboard and short-circuiting. Tip: Use extra-fine solder.
  - \* Use IC sockets for your chips. They costs pennies and can save an absolute fortune in the long-run.
  - \* Use a heatsink when soldering critical components (transistors, diodes, etc). Use long-nosed pliers to grip the wire being soldered to absorb excess heat from the iron.
  - \* Don't settle for a joint that isn't bright and shiny. It could be a 'dry joint' which will not conduct electricity very well and could cause all sorts of problems.
  - \* Clean the bit after every joint, applying a little solder (wetting the
-

bit) just before the next.

- \* Tin any wires before soldering them by allowing a small amount of solder to flow over the twisted wires.

#### What You Will Need To Build The Projects Featured On This Disk

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- \* A mains operated 15w soldering iron with a fine bit (these cost between £15 and £20 quid).
- \* Some solder
- \* Wire cutters
- \* Pliers
- \* Helping Hands (these aren't essential but can help) These are a weighted collection of crocodile clips and a magnifying glass to hold your components while your soldering.
- \* Multi-meter - These are essential for fault finding and you can buy a cheap one for about 15 quid.
- \* Set of screwdrivers - A bit obvious really. Jewellers's screwdrivers are excellent for these projects as even the smallest sizes have tough precision heads.
- \* Craft knife - Can be dangerous, so take care, but is also very useful for cutting veroboard or cutting tracks.

## 1.9 Disclaimer & Liscence Agreement

The program is provided "as is" and without warranty. This program was written over a three month period, and has been tested and is completely bug-free. However, the author is not responsible for damages to either hardware or software as a result in building these projects for your computer. Any projects I have "borrowed" remains unchanged, leaving the original authors credited for their work.

This program remains the work of the author (Craig Daines). It is freely distributable via the Giftware scheme - read 'Giftware' on title page on how you can help the author to release future versions. However, it is forbidden to:

- 1) Edit/Change/Erase part(s) of the program.
- 2) Public Domain Libraries may not charge more than £1 for this program.

I refuse to enter into communications regarding how to build these various hardware devices. Read the instructions provided with each of the projects carefully!

## 1.10 Build a 4 Player Adapter

4 Player Adapter (Instructions)  
4 Player Adapter (Circuit Diagram)

## 1.11 How To Build an A4000!

How to Build an A4000!

## 1.12 Add an Extra Hard disk to your A4000/030!

How To Add Extra Hard Drive

## 1.13 Build an Ami-Card Hardware Copying Dongle

Ami-Card Hardware Copying Dongle  
Load Ami-Card Software

Important!

Click on 'Load Ami-Card Software' ONLY if you are not running your screenmode in a VGA mode such as Multiscan Productivity, otherwise you will get a corrupt screen!

Ami-Card Software has been included:

The software is Public Domain and freely distributable. It's called Ami-Card.exe and can be found in the Hardware Projects directory (the same directory as this Amigaguide) should you wish to copy it to your hard disk, or onto a self booting disk.

## 1.14 Amiga Accelerator for A500

Amiga Accelerator for A500 (Instructions)  
Amiga Accelerator for A500 (Circuit Diagram)

## 1.15 Build your own Amiga Scart Lead

Amiga Scart Lead

## 1.16 Build an Amstrad Monitor to Amiga Cable

Amstrad Monitor To Amiga Lead

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## 1.17 Build a VGA Multisync Adapter

VGA Multisync Adapter

VGA Mutisync Adapter (Circuit Diagram)

## 1.18 Audio Amplifier For Your Amiga

Audio Amplfier

Audio Amplifier (Circuit Diagram)

## 1.19 Sound Sampler For Any Amiga

Audio Sampler

Audio Sampler (Circuit Diagram)

## 1.20 A64 Emulator Lead For Use With A64

A64 Emulator Lead

A64 Emulator Lead (Circuit Diagram)

## 1.21 Build Your Own CDDA Mixer

CDDA Mixer

CDDA Mixer Circuit Diagram (Figure 1)

CDDA Mixer Circuit Diagram (Figure 2)

CDDA Mixer Circuit Diagram (Figure 3)

CDDA Mixer Circuit Diagram (Figure 4)

## 1.22 Connecting an IDE CD-ROM to Amiga 600/A1200

Connecting an IDE CDRom Drive to Your A600/A1200

## 1.23 Light Sensor

Light Sensor

Light Sensor (Circuit Diagram)

## 1.24 Midi Interface

Midi Interface

Midi Interface (Circuit Diagram)

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## 1.25 MTX Transmitter

MTX Transmitter

MTX Transmitter (Circuit Diagram)

## 1.26 Null Modem Cable

Null Modem Cable

## 1.27 Overclocking Accelerators

Overclocking Accelerators

## 1.28 Pause Switch for Amiga 500

Pause Switch

Pause Switch (Diagram)

## 1.29 Use PC Joysticks With Amiga!

PC Joystick To Amiga Interface

## 1.30 Rapid Autofire For Joysticks That Don't Have an Autofire!

Rapid Fire Joystick Interface

Rapid Fire Joystick Interface (Circuit Diagram)

## 1.31 Connecting up the Reset Switch for your A1200T

Reset Switch For A1200 Installed In a Tower Case

Reset Switch For A1200 Installed In a Tower Case (Circuit Diagram)

## 1.32 Rom Switcher For Your A500/A2000

Rom Switcher

Rom Switcher (Diagram 1)

Rom Switcher (Diagram 2)

Rom Switcher (Diagram 3)

Rom Switcher (Diagram 4)

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### 1.33 Sega Joypad Conversion

Sega Joypad Conversion

Sega Joypad Conversion (Circuit Diagram)

I've provided the source code for this project. You can find it in the `HardwareProjects/Source_Code/` drawer.

### 1.34 Sticky Box Mouse/Joystick Switcher

Sticky Box

Stick Box (Circuit Diagram)

### 1.35 Superbase Hardware Dongle (For Use With Superbase Software)

Superbase Hardware Dongle

### 1.36 Track Display (For Your Diskdrive)

Track Display

Track Display (Circuit Diagram)

### 1.37 Updating Your Amiga 500

Updating Your Amiga 500

### 1.38 Video Digitizer For Any Amiga

Video Digitizer

Video Digitizer (Circuit Diagram)

### 1.39 Bootblock Virus Detector For Your Amiga

Virus Detector

Virus Detector (Circuit Diagram)

---



## 1.40 Voltage Controller

Voltage Controller

Voltage Controller (Circuit Diagram 1)

Voltage Controller (Circuit Diagram 2)

This project allows you to control external devices such as Lights, Solderoids, etc. from your Amiga.

I've also provided the Amos source code for this project - you can find it in the HardwareProjects/Source\_Code/ drawer. It's called Controller.Amos

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