A1230 Turbo+
Performance
Series II

Contents

FCC Radio Frequency Emissions Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

CAUTION: Only equipment with shield-grounded cables (computer input-output devices, terminals, printers,etc.), certified to comply with Class B limits, can be attached to this device. Operations with non-certified equipment may result in communications interference.

Your house AC wall receptacle must be a three-pronged type (AC ground). If not, contact an electrician to install the proper receptacle. If a multi-connector box is used to connect the computer and peripherals to AC, the ground must be common to all units.

If necessary, contact your dealer or an experienced radio-TV technician for additional suggestions. You may find the following FCC booklet helpful: *"How to Identify and Resolve Radio-TV Interference Problems."* The booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, stock no. 004-000-00345-4.

1. Getting Started

Overview

Thank you for purchasing GVP's **A1230 Turbo+ Performance Series II** accelerator. The A1230 Turbo+ adds even more power to your Amiga A1200 computer with:

- A 68EC030 microprocessor with 40MHz clock speed

  - or -

  68030 microprocessor with 50MHz clock speed for fastest performance available anywhere.

- Up to 32 megabytes of 32 bit wide, 60 nanosecond memory.

- A socket for an optional 68882 Floating Point Unit *(FPU)* math coprocessor.

- Battery-backed Real Time Clock.

- GVP's exclusive Kickstart remapping technology, allowing the ROM code to be moved to the on-board memory of the A1230 Turbo+ for even faster performance.

- Custom designed circuitry for quality and low component count, and surface mount technology for reliability.

- Expansion connector for future option products to further enhance performance and functionality.

Installing Hardware

This section describes how to install the Performance Series II A1230 Turbo+ in your A1200 computer. If you purchased and wish to install the optional FPU *(math coprocessor)* or additional memory, please refer to *Chapter 3 – Expansion Options*, before installing the A1230 Turbo+.

Before attempting this procedure, read the following directions completely. If you feel unsure about performing any of them, have a dealer perform the installation for you.

IMPORTANT

During the installation of the A1230 Turbo+ and its optional accessories be sure to observe electrostatic safety procedures.

Electrostatic shock can damage delicate electronic components, such as those found on the A1230 Turbo+. To protect against this, periodically drain electrostatic potential from your fingers by touching a grounded metal surface.

Before beginning, remove all peripheral cables and the power cord from your A1200.

1. Turn the A1200 over. To protect the keyboard and finish of your computer, lay it on a towel or other soft surface.

2. Remove the trap-door cover by inserting a coin in the slot at one end, prying the cover up and swinging it away *(see Figure 1.1)*.
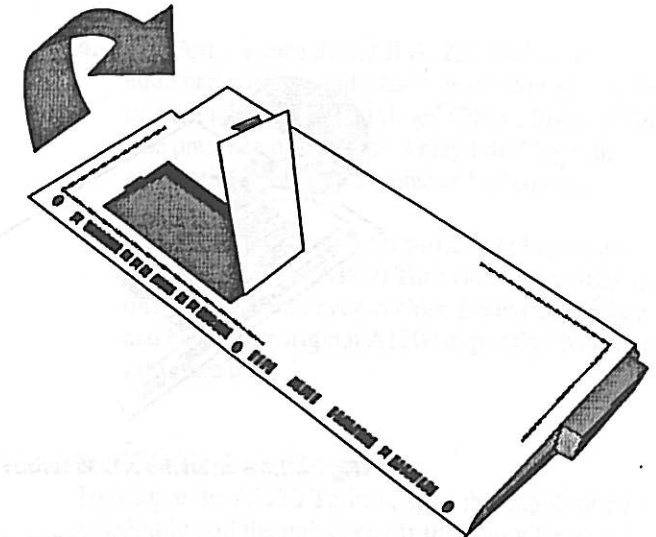
Figure 1.1 – Removing the expansion bay cover.

3. Flip the A1230 Turbo+ over so the component side of the board is facing down *(Figure 1.2)*, and insert it into the expansion bay as shown in *Figure 1.3*.
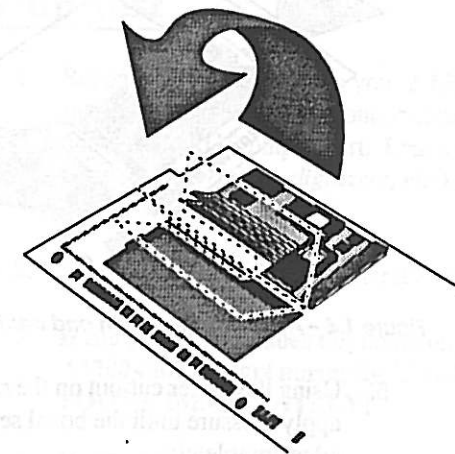

Figure 1.2 – Position and flip the A1230 Turbo+.
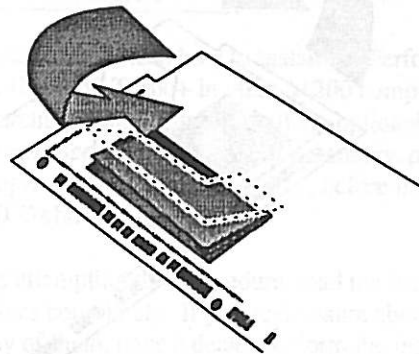
Figure 1.3 – Insert the A1230 Turbo+ board.

4. Align the connector of the A1230 Turbo+ with the corresponding card-edge expansion bus inside the A1200 *(Figure 1.4)*.

CAUTION: Avoid undue stress on the Option Connector.
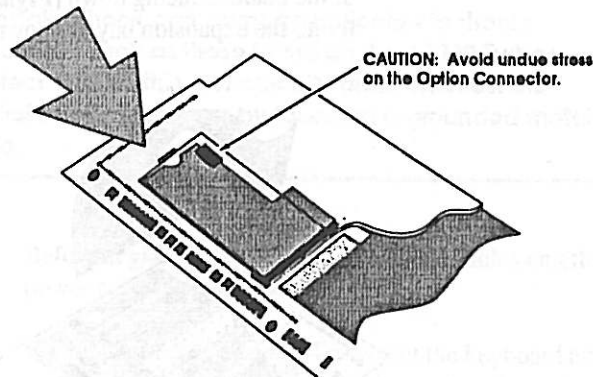
Figure 1.4 – Align the expansion and card-edge connectors.

5. Using the finger cut-out on the end of the board, apply pressure until the board seats on the card-edge completely.

6. The Performance Series II A1230 Turbo+ is equipped with a small plastic expansion port socket on the underside of its Printed Circuit Board *(PCB)*. The presence of this socket may interfere with some original A1200 expansion bay covers.

A replacement cover with sufficient clearance is provided with the A1230 Turbo+. If necessary, use this replacement cover to close the expansion bay and keep your original A1200 expansion bay cover for future use.

A1230 Turbo+ Removal

To remove the A1230 Turbo+, open the trap-door cover and simply pull the unit back off the computer's card-edge. If you have installed one of the available expansion options into the A1230 Turbo+ expansion port socket, this must be removed, first.

Power-Up Test

1. Reconnect power cables to your A1200 and monitor. Reconnect the monitor cable to your computer's RGB output port. Leave all other peripherals *(printers, digitizers, etc.)* disconnected for now.

2. Turn on power to the computer and monitor.

3. If the power light does not come on, or the A1200 fails to start normally, TURN OFF THE POWER IMMEDIATELY!

4. Verify that the A1230 Turbo+ board is correctly seated and that no other connections were shorted or disturbed during the installation process.

5. If your computer still will not start normally, remove the A1230 Turbo+ and check that all jumpers and expansion options are correctly set.

    (See the discussion in Chapter 3 – Expansion Options and Appendix A – Jumper Settings).

    Check to see that your A1200 starts normally with the A1230 Turbo+ removed.

6. If you installed RAM or other options, recheck your work and make sure that each item is correctly installed with no shorts or incomplete connections.

    Pay particular attention to the seating of RAM SIMMs. Make sure that they are correctly and fully inserted *(see Chapter 3 – Expansion Options)*.

7. Replace the A1230 Turbo+ board, reconnect your computer's monitor and power cables and perform the test again.

8. If the system still does not work, contact your dealer or GVP's Technical Support Hotline *(see Appendix B – Service & Support)*.

NOTE: Following the A1230 Turbo+ Software Reference in Chapter 2, is a brief Troubleshooting discussion. Read Chapter 2 in its entirety before proceeding, then refer to the Troubleshooting section. If the product still does not perform correctly, then contact GVP Technical Support as suggested in Appendix B.

2. Software Reference

Installation

The A1230 Turbo+ comes with the following utility programs:

- **GVPCpuCtrl** – allows you to control all performance aspects of the A1230 Turbo+.

- **MemTest** – tests the memory on the A1230 Turbo+.

- **GVPInfo** – reports information on many different aspects of your computer, including the A1230 Turbo+.

To install this software on your computer, start your computer normally and insert the GVP.Install disk in the A1200's floppy drive. Double-click on the disk icon that appears on the WorkBench. Then, double-click on the `Install-A1230_Turbo+` icon.

The installer program will copy the appropriate files to their proper locations, and configure the software for your system. Refer to the following discussions for further information on the use of these programs.

GVPCpuCtrl

GVPCpuCtrl is a CLI or Workbench program; its command format is

```
GVPCpuCtrl FASTROM=[ON | OFF] [QUIET]
```

When the argument FASTROM=ON is used, the A1200's ROM code will be copied into 32-bit memory. The A1230 Tubro+'s memory can be accessed much faster than the ROM chips in the A1200, so your computer will run faster. Note that the FASTROM option uses 512k (*half a megabyte*) of memory, which won't be available for other progtams to use.

NOTE >>> **The Installer program may have already set up the fastrom option so it runs every time you start your computer (if you approved this setup during installation). This feature can be disabled by typing**

```
GVPCpuCtrl FASTROM=OFF <Return>
```

When you issue the command with no arguments, GVPCpuctrl reports whether the FASTROM feature is currently enabled.

When you use the Quiet option, GVPCpuctrl will operate without sending any messages to the calling CLI. This is useful when executing GVPCpuctrl from a startup-sequence or ARexx script file.

The GVPCpuctrl program icon has two Tooltypes that allow you to use the program from the Workbench. The Tooltypes are FASTROM=[ON | OFF] and Quiet. Their functions are identical to the CLI operations. Refer to your Amiga's User's Manual for more information on configuring Icon Tooltypes.

MemTest

MemTest is a Workbench program; double-click on its icon to test all the memory in your A1200. A status window will list each segment of memory as it's being tested.

GVPInfo

GVPInfo is a WorkBench program that allows you to examine characteristics of your system. In the main window, you'll see listed Boards, Chips, Drives and Memory (*see Figure 2.1*).

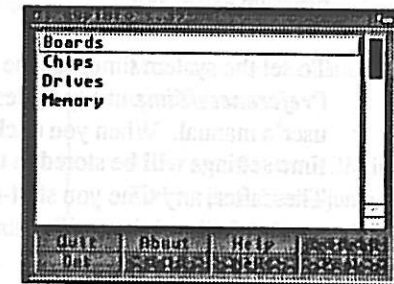*Figure 2.1 – The GVPInfo main window.*

Clicking twice on any of these items (*or clicking on* Get) will produce a new window displaying relevant information about the item selected. Each item in the new list can, in turn, be double-clicked to produce still more information about the selected items.

GVPInfo has a special option for CLI use. When launched from Shell or CLI by typing

GVPInfo SPEED <Return>

the SPEED option will run a performance test on your main processor chips and display the results.

Setting System Time

The A1230 Turbo+ is equipped with a battery-backed clock circuit that maintains correct system time, even when the computer is powered off. This clock works invisibly and requires no special software or user intervention. The AmigaDOS Setclock Reset instruction must be sent before the clock is used for the very first time; it turns ON the clock circuit. This is normally done automatically by the Installation program.

To set the system time, use the standard Workbench *Preferences/Time* utility as described in your A1200 user's manual. When you click [Save], the date and time settings will be stored in the A1230 Turbo+'s clock. Thereafter, any time you start-up your computer, the correct date and time will automatically be restored.

Troubleshooting

NOTE: The following information is provided to assist you in determining the source of easily corrected problems. Be sure to read all of the Software Reference and to consult this Troubleshooting section before contacting GVP Technical Support.

Be sure you have performed the Power-Up test as described at the end of Chapter 1.

QUESTION/PROBLEM:	SOLUTION:
• The Time and Date are wrong when I start up my Amiga.	• Make sure that the battery-clock is installed correctly *(see chapter 3 – Expansion Options)*.
	• Make sure that the battery-clock is not upside down.
	• Make sure that the ROM in the A1230 Turbo+ is enabled—jumper J5 is ON *(see Appendix A – Jumper Settings)*.
	• Make sure that the AmigaDOS Setclock Reset instruction was issued at least once, to turn ON the clock circuit.
	• Use the Workbench Preferences *Time* program to reset the Date and Time. Be sure to select [Save] to record your settings.

QUESTION/PROBLEM:	SOLUTION:
• **My Amiga does not report the correct amount of memory.**	• Make sure that memory SIMMs are correctly installed into the sockets on the A1230 Turbo+. Some intermittent contacts will pass the Power-Up Test, but may drop out later. Refer to *Chapter 3 – Expansion Options* for more information on memory expansion.
• **My Amiga seems to be slower when moving windows on the Workbench.**	• Make sure that *GVPCpuCtrl* is being correctly used, in order to remap Kickstart into the FAST RAM on the A1230 Turbo+ board.
	If you used the supplied Installation program, the following line should have been automatically added to the file *"User-startup"* in your system *s:* directory:
	`GVPCpuCtrl FASTROM=ON`
	If you did not use the automatic installation program, you should add this line using a text editor.
	• Be sure that you are not using more than 8 colors for Workbench. While Workbench supports up to 256 colors, the Amiga's custom graphics chips are not able to manage that much data very quickly.
	No amount of processor speed will improve the performance of the custom chips, since they reside on the slower Amiga motherboard and function independently of the A1230 Turbo+.

QUESTION/PROBLEM:	SOLUTION:
• **My Amiga will not boot, or it crashes immediately whenever I try to turn it on.**	• Make sure that any A1230 Turbo+ options are correctly installed as described in *Chapter 3 – Expansion Options.*
	• Make sure that the A1230 Turbo+ is installed completely and correctly.
	When inserting the A1230 Turbo+ into the Amiga, make sure that ALL of the "fingers" on the A1200 expansion bus slide into the A1230 Turbo+ connector and that it is not angled or crooked.

Startup-sequence

3. Expansion Options

A number of expansion options are available for the Performance Series II A1230 Turbo+. Depending on the configuration of the unit you purchase, these options may already be present. Or, they can be easily added at any time. Available options are:

- **Up to 32 Megabytes of FAST RAM.**
- **Floating Point Unit math coprocessor**
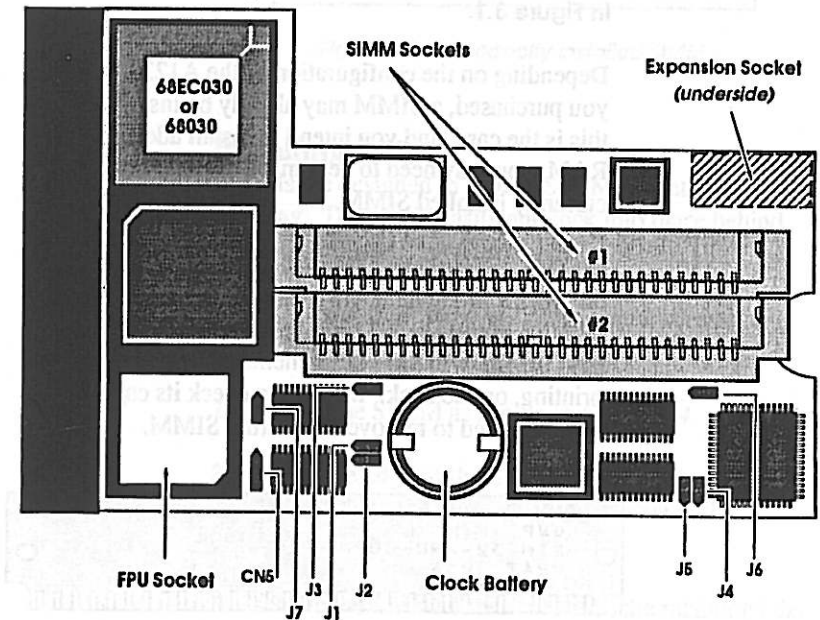- **Real-Time clock battery** (replacement)

Figure 3.1 – Layout of The A1230 Turbo+ board.

Adding Memory

The Performance Series II A1230 Turbo+ can support up to 32 Megabytes *(MB)* of memory in the form of **Single Inline Memory Modules** *(SIMMs)*. A GVP SIMM32 consists of individual memory chips mounted on a small circuit board. All of the connection points for the memory chips are arranged along one edge of the SIMM board and mate with the contacts of the SIMM socket on the A1230 Turbo+ circuit board.

> **NOTE** >>> **The A1230 Turbo+ can use GVP's 1MB, 4MB or 16MB SIMM32 modules in any combination. When combining SIMMs of different capacities, however, the SIMM with the highest memory capacity MUST always be installed in SIMM Socket #1 as identified in Figure 3.1.**

Depending on the configuration of the A1230 Turbo+ you purchased, a SIMM may already be installed. If this is the case, and you intend to install additional RAM, you may need to determine the capacity of the currently installed SIMM.

SIMMs are labeled on their back surface. The back of the SIMM in Figure 3.2 is printed to indicate that it is a 32 bit, 4 megabyte, 60 nanosecond unit. A 16 Megabyte SIMM, will have more memory chips, instead of printing, on the back. In order to check its capacity, you will need to remove an existing SIMM.
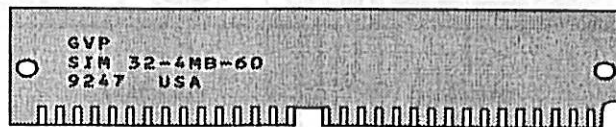
Figure 3.2 – The back of a GVP SIMM32 module.

Removing a SIMM

1. Place the A1230 Turbo+ on a static-free surface, such as the bag in which it was shipped.

2. Push the retaining tabs aside with your thumbs *(as shown in Figure 3.3)*, and the SIMM should pop forward. It can then be lifted out.
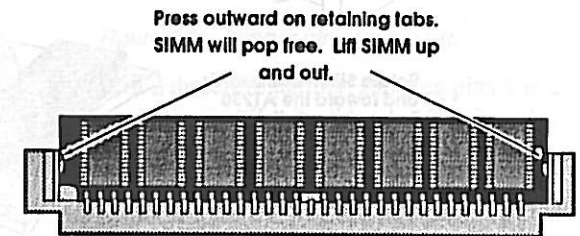
Press outward on retaining tabs. SIMM will pop free. Lift SIMM up and out.

Figure 3.3 – A correctly installed SIMM.

Installing SIMMs

SIMMs are designed to fit into SIMM sockets in only one way. They fit in easily and lock into place behind the retaining tabs.

If mixing SIMMs of different capacities, be sure to install the larger capacity SIMM in socket #1.

1. Orient the SIMM as shown in *Figure 3.4*.

2. Insert the edge of the SIMM with the silver contacts into the corresponding groove in the SIMM socket.

3. Rotate the SIMM backwards until the retaining tabs at each end of the socket snap into place.
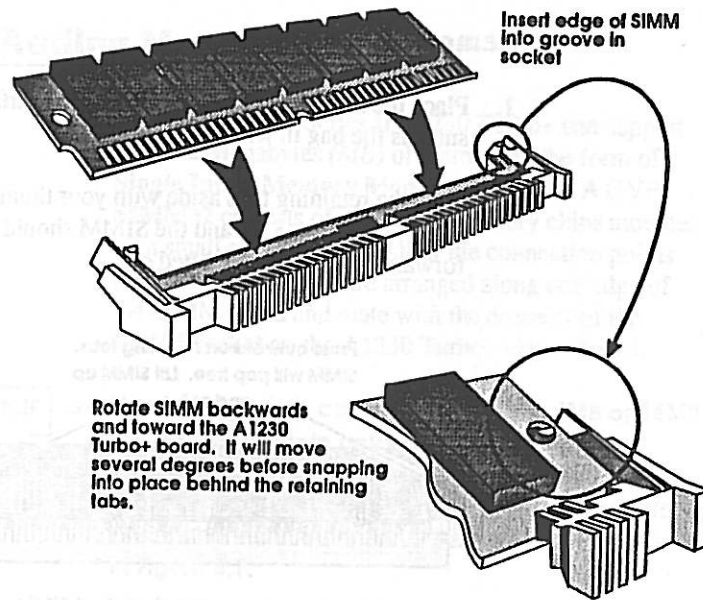
Insert edge of SIMM
into groove in
socket

Rotate SIMM backwards
and toward the A1230
Turbo+ board. It will move
several degrees before snapping
into place behind the retaining
tabs.

Figure 3.4 – Installing a SIMM.

Making Memory Work

You may have to reconfigure the A1230 Turbo+ board
to recognize newly installed memory. This is done by
changing jumper settings. At various locations on the
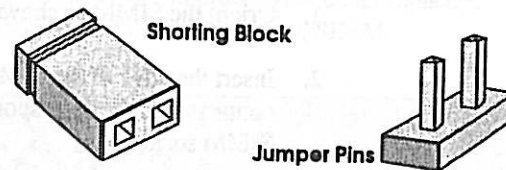A1230 Turbo+ board are sets of upright metal pins,
called *jumpers*.

Shorting Block

Jumper Pins

Figure 3.5 – Jumper block and pins.

When a shorting block is applied to a pair of jumper
pins, a configuration setting is switched ON or *enabled*.
When a shorting block is removed, the setting is OFF
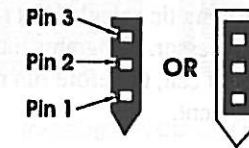or *disabled*.

Pin 3
Pin 2   OR
Pin 1

Figure 3.6 – Jumper pin numbering.

In the case of a three-pin jumper, shorting pins 1 & 2
enables one setting, while shorting pins 2 & 3 enables a
different setting.

Refer to *Figure 3.1* for the location of Jumper J3. In
virtually all cases, the factory installed condition of this
jumper should be ON (*i.e.: a shorting block is present*).
If you are installing 1 or 4 Megabyte SIMMs only, there
is no need to change this jumper setting.

Remove the shorting block from J3 if you are installing
any combination involving a 16 MB SIMM:

- **16 MB SIMM in socket #1 = 16 MB total.**

- **16 MB SIMM in socket #1,**
  1 MB SIMM in socket #2 = 17 MB total.

- **16 MB SIMM in socket #1,**
  4 MB SIMM in socket #2 = 20 MB total.

- **16 MB SIMM in socket #1,**
  16 MB SIMM in socket #2 = 32 MB total

Adding An FPU

A **Floating Point Unit** *(FPU)* or math coprocessor chip is a specially designed circuit that can perform decimal arithmetic calculations many times faster than the main processor. Programs that are written to make use of a FPU can, therefore run much faster when such a chip is present.

The A1230 Turbo+ uses Motorola's 68882 Floating Point Unit. A socket is provided on the A1230 Turbo+ to receive this chip. Depending of the configuration of your particular board, this may be a **Plastic Leaded Chip Carrier** *(PLCC)* or a **Pin Grid Array** *(PGA)* socket. A PLCC chip is a flat, square slab with many shiny metal leads folded around its edges. It fits into a socket shaped like an open box.

A PGA chip is a flat, square slab with many stiff wires, or pins, that protrude downward. It fits into a socket with many rows and columns of holes. Both types of chip and socket are "keyed" so as to permit insertion of the chip in only one way.

GVP offers Upgrade Kits with both types of FPU— please contact your dealer or GVP Customer Service for more information.

To install the FPU:

1. Place the A1230 Turbo+ on a static-free surface, such as the bag that it was shipped in.

3. Orient the FPU so that the writing on the chip faces upwards and the notch or marker in the corner of the chip matches the notch in the corner of the socket *(see Figure 3.7)*.
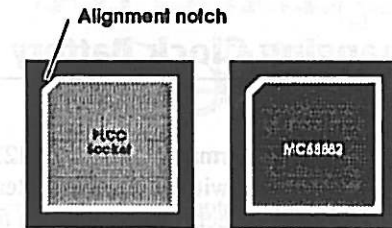
Inserting a PLCC 68882 FPU.
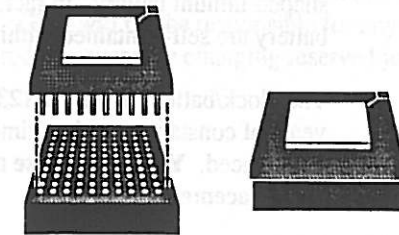
Inserting a PGA 68882 FPU.

Figure 3.7 – Installing 68882 FPUs.

4. Make sure the chip is evenly aligned on all four sides. If the chip is a PGA-type, be sure that all the pins are straight and aligned with their corresponding holes in the socket.

5. Apply downward pressure to the entire surface area of the chip, until it seats firmly in place.

Changing Clock Battery

The Performance Series II A1230 Turbo+ accelerator is
equipped with an automatic Real-Time clock that, once
set, will keep accurate system time even when the
computer is switched off. This is possible because the
clock has its own power supply in the form of a flat, disk-
shaped lithium battery. In fact, the clock circuit and
battery are self-contained within the battery casing!

The clock/battery in your A1230 Turbo+ is rated for ten
years of constant use. Any time after that, it may need to
be replaced. You MUST use a #DS1994 clock/battery
as replacement.

Battery Replacement

1. The battery is held in place by flat spring-steel bands.
    If you pry carefully under the battery, these bands
    will flex enough for you to slide the battery out and
    away.

    **Note the proper orientation of the battery in its
    holder.**

2. Orient the replacement battery in the same manner as
    the one you just removed.

3. Slide the replacement battery underneath the metal
    bands until it pops down into the battery holder. The
    metal bands will ensure that proper electrical contact
    is made.

4. Replace the A1230 Turbo+ in your Amiga. To start
    the new clock, issue the AmigaDOS Setclock
    Reset command and use the Preferences *Time* utility
    to reset the correct date and time for your system.

A. Jumper Settings

The information in this chapter catalogs all the jumper
settings on the A1230 Turbo+. Many of these are
reserved by GVP for future enhancements of this
product, and should *not* be changed from the factory
defaults. GVP will not be responsible for any damage
to this product caused by changing reserved jumper set-
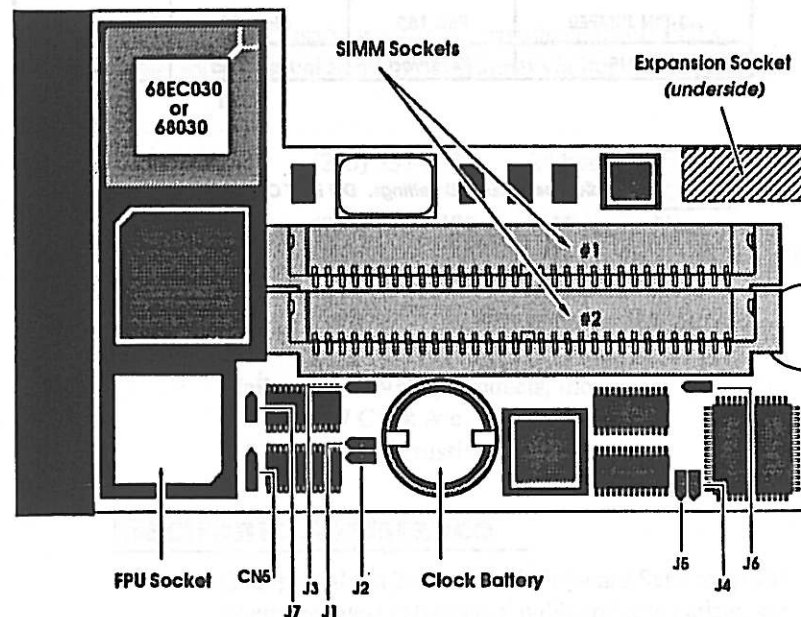tings.

Figure A.1 – Layout of the A1230 Turbo+ board.

Jumper Reference

JUMPER	ON Position	OFF Position	Factory Default
J1	Reserved	Reserved	OFF
J2	Reserved	Reserved	OFF
J3 - 16 MB SIMMs	No 16 MB SIMMs	16 MB SIMM in use	ON
J4	Reserved	Reserved	OFF
J5 - ROM Enable	Enabled	Disabled	ON
J6	Reserved	Reserved	OFF
J7	Reserved	Reserved	OFF
3-PIN JUMPER	Pins 1&2	Pins 2&3	Factory Default
CN5	Reserved	Reserved	Pins 1&2

☐ – Indicates RESERVED settings. DO NOT CHANGE!

B. Service & Support

General Information

GVP supports hardware and software products through our network of Authorized Dealers. We strongly recommend you work with your supplying dealer first to resolve problems you may encounter. GVP Authorized Dealers have access to significant technical information and support from GVP and in most cases will offer the fastest solution.

If necessary, you can get assistance from GVP's Technical Support department via fax, telephone or mail:

Fax	(215) 337-9922	24 hours
Phone	(215) 354-9495	9:15 a.m. – Noon
		(Phones closed Noon to 1:45)
		1:45 p.m. – 6:00 p.m.
		(all times U.S. Eastern)

Mail   Great Valley Products, Inc.
657 Clark Ave.
King of Prussia, PA 19406

Electronic Assistance

GVP provides a 24 hour Bulletin board Service (BBS) where the latest patches and public release updates are maintained. Access is immediate for first-time users. Call (215) 337-5815 (8,N,1).

CompuServe Information Service

Technical Assistance, as well as product information, is available on CompuServe (CIS). Go GVP at any prompt or send direct EMail to GVP Tech at 72662,51.

Reporting Problems

If possible, try to determine if the problem is repeatable *(i.e., it occurs under predictable conditions)*, and be prepared to describe in detail the particular symptoms and the system configuration in use when it happens.

Whether you're faxing or writing about your problem, please take the time to complete and submit a copy of this form to GVP; complete the form before calling, as well, so you have all the pertinent information at hand. The more detailed information you can provide, the better our support personnel will be able to assist you.

Your Configuration

Your GVP Customer Number _____

Name _____ Date _____

Address _____

City _____ State _____

Country _____ Postal Code _____

Telephone Number (____) _____

GVP Product _____

Serial Number _____ Revision (version) # _____

Describe the symptoms, and the conditions under which they occur:

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