



MightyBoard™ 800

Single Board Computer

QuickStart Guide

P/N 5001775A Revision A

Notice Page

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REVISION HISTORY

Revision	Reason for Change	Date
A, A	Initial Release	Apr/05

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Audience Assumptions

This guide is for the person who designs computer related equipment, including but not limited to hardware and software design and implementation of the same. Ampro Computers, Inc. assumes you are qualified in designing and implementing your hardware designs and its related software into your prototype computer equipment.

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NOTE

The graphic illustrations found in this manual are intended as aids in identifying the connector locations and components on the board. You may find slight variations between your board and the boards shown in this manual to due board revisions. Refer to Figure 1-4 and the MightyBoard 800 Reference Manual for the most current board revision and the connector pin/signal tables for specific information.

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Chapter 1 Setting Up the MightyBoard 800

Using this Guide

This guide provides the most efficient way to set up your MightyBoard™ 800 single board computer (SBC). The instructions provided in this guide include:

- Removing the MightyBoard 800 from the shipping container and inventorying the accessories
- Connecting cables to the MightyBoard 800
- Connecting the peripherals, boot devices, and power supply to the MightyBoard 800
- Powering up the MightyBoard 800

Information not provided in this QuickStart Guide includes:

- MightyBoard 800 Specifications (Refer to MightyBoard 800 Reference Manual)
- Environmental requirements (Refer to MightyBoard 800 Reference Manual)
- MightyBoard 800 connector pin-outs (Refer to MightyBoard 800 Reference Manual)
- Supplied software use and programming (Refer to MightyBoard 800 Reference Manual)

Requirements

The following peripherals and devices are needed to make full use of the MightyBoard 800.

- Peripherals: (Customer Provided)
 - ◆ PS/2 or USB Keyboard
 - ◆ PS/2 or USB Mouse
 - ◆ CRT Monitor
- Power Supply: (Customer Provided)
 - ◆ ATX power supply – This type of power supply is required to provide power to the MightyBoard 800 and its peripherals.
- Choice of Boot Device: (Customer Provided)
 - ◆ Floppy Disk drive
 - ◆ USB or LAN Boot (Refer to MightyBoard 800 Reference Manual)
 - ◆ IDE hard disk drive (See preinstalled OS Note in text)
 - ◆ CD-ROM
- Optional Devices/Connections: (Customer Provided)
 - ◆ LVDS Flat Panel
 - ◆ Ethernet (LAN Boot) connection (Requires PXE server)
 - ◆ USB devices
 - ◆ Audio playback devices, CD Players, headphones, and a microphone

What's in the Box

Refer to the QuickStart Kit Contents Sheet for a list of the items in the shipping container.

Setup Steps

It is important to follow the setup steps in this section in the exact order listed here, but skip any steps that do not apply to your situation. References are provided to chapters within this guide or other Ampro guides, for more information about installation and use of this MightyBoard 800.

Preparations

1) Open shipping box	<ul style="list-style-type: none"> • Locate the QuickStart Kit Contents Sheet • Unpack the contents of the shipping box
2) Verify Contents	<ul style="list-style-type: none"> • Verify the contents of the shipping box against the QuickStart Contents Sheet included with your MightyBoard 800 shipping box. • If anything is missing or damaged, call your sales representative or Ampro Technical Support.
3) Support Documentation (MightyBoard 800 Documentation & Support Software CD-ROM)	<p><i>MightyBoard 800 QuickStart Guide</i></p> <p>This document, provided as a hardcopy, describes how to setup, install, and power up the MightyBoard 800 found in the QuickStart Kit and is also on the MightyBoard 800 Documentation & Software (Doc & SW) CD-ROM as a PDF file.</p>
	<p><i>MightyBoard 800 Reference Manual</i></p> <p>This document describes the MightyBoard 800 and provides detailed reference information for your MightyBoard 800 and is located on the MightyBoard 800 Documentation & Software (Doc & SW) CD-ROM as a PDF file.</p>

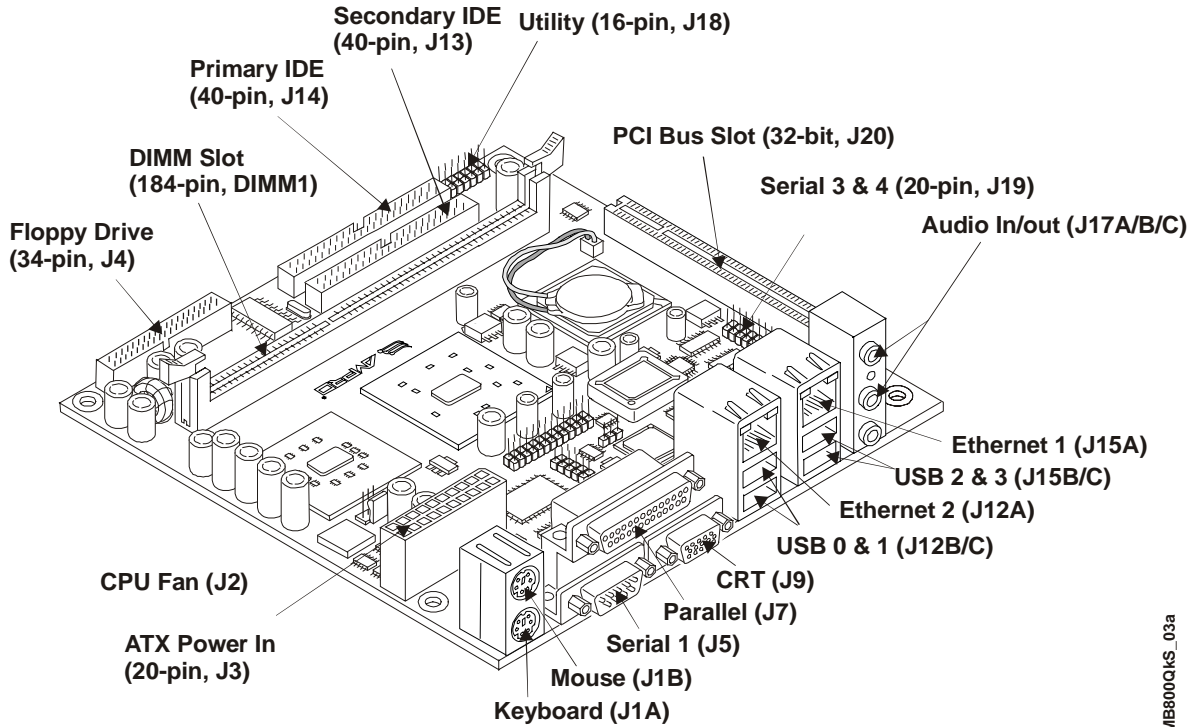
Setting Up the Workspace

CAUTION	<p>To prevent damage to the electronic components on the MightyBoard 800, do not handle the board until you have used Electrostatic Discharge precautions.</p> <p>Always touch a grounded, unpainted metal surface before touching the MightyBoard 800 or any of the components on the board.</p> <p>Always use an anti-static wrist strap connected to a grounding mat having static-dissipating characteristics and is attached to earth ground.</p>
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4) Select workbench location	<ul style="list-style-type: none"> • The workbench location should be flat, clear of debris, and have a static-free mat (or the equivalent) to place the MightyBoard 800 assembly onto for setup and operation (including the power supply and any peripherals).
5) Connect an ESD strap to your body	<ul style="list-style-type: none"> • Connect an ESD strap between your body (wrist or ankle) and ground or the static-free mat. <p>If you do not have your own ESD strap, an ESD kit is provided in the QuickStart Kit with an anti-static wrist strap.</p>
6) Unpack the MightyBoard 800 and its accessories.	<ul style="list-style-type: none"> • Remove the MightyBoard 800 from its protective plastic case and place it on static-free work surface, typically on four standoffs. <p>The cables provided are used to make external connections to the MightyBoard 800 such as floppy drive, IDE drives, and power, etc.</p>

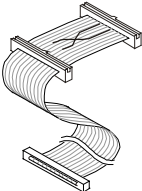
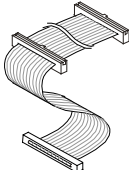
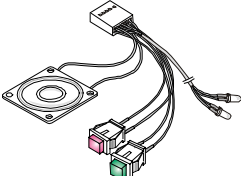
Connecting Cable Assemblies

Connect the cable assemblies provided with the MightyBoard 800 QuickStart Kit to the listed connectors on the MightyBoard 800. Skip any steps or cable(s) that do not apply to your situation.



MB800QKS_03a

Figure 1-1. MightyBoard 800 Connector Locations

<p>1) Connect Floppy Cable</p> 	<ul style="list-style-type: none"> • Connect the Floppy cable to J4 on the edge of the MightyBoard 800 as shown in Figure 1-2. Refer also to Figures 1-1 and 1-4. <p>The Floppy interface uses the standard 34-pin floppy drive connector.</p>
<p>2) Connect Primary IDE cable</p> 	<ul style="list-style-type: none"> • Connect the Primary IDE cable to J14 on the edge of the MightyBoard 800 as shown in Figure 1-2. Refer also to Figures 1-1 and 1-4. <p>This cable provides two IDE connectors (40-pin) for an IDE device, such as an IDE hard disk drive (HDD) or IDE CD-ROM, etc.</p> <ul style="list-style-type: none"> • If you want more than two IDE devices, connect the Secondary IDE cable to J13.
<p>3) Connect the Utility Cable assembly</p> 	<ul style="list-style-type: none"> • Connect the Utility cable to J18 on the edge of the MightyBoard 800 as shown in Figure 1-3. Refer also to Figures 1-1 and 1-4. <p>The Utility cable, or its equivalent, is required for Power-Up and Reset of the MightyBoard 800.</p> <ul style="list-style-type: none"> ♦ Green Power-On switch uses Pins-6 & -8 of the Utility Connector (J18). ♦ Red Reset switch uses Pins-10 & -12 of the Utility Connector (J18).

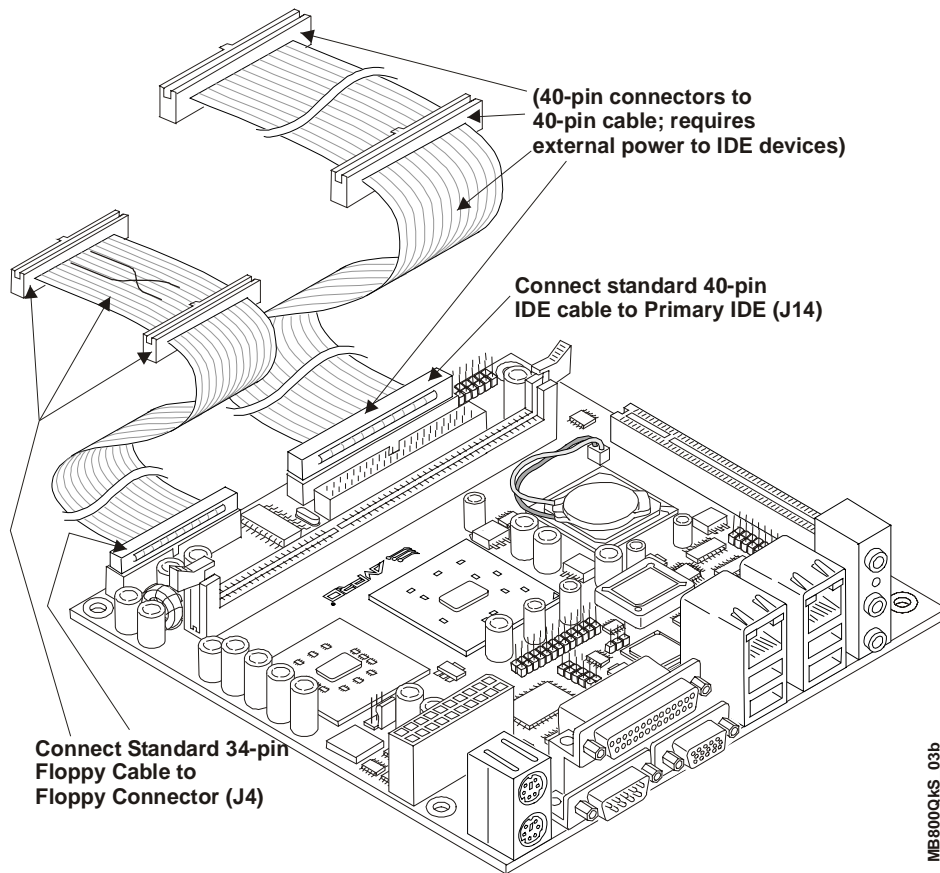


Figure 1-2. Connecting the Floppy and IDE Cables

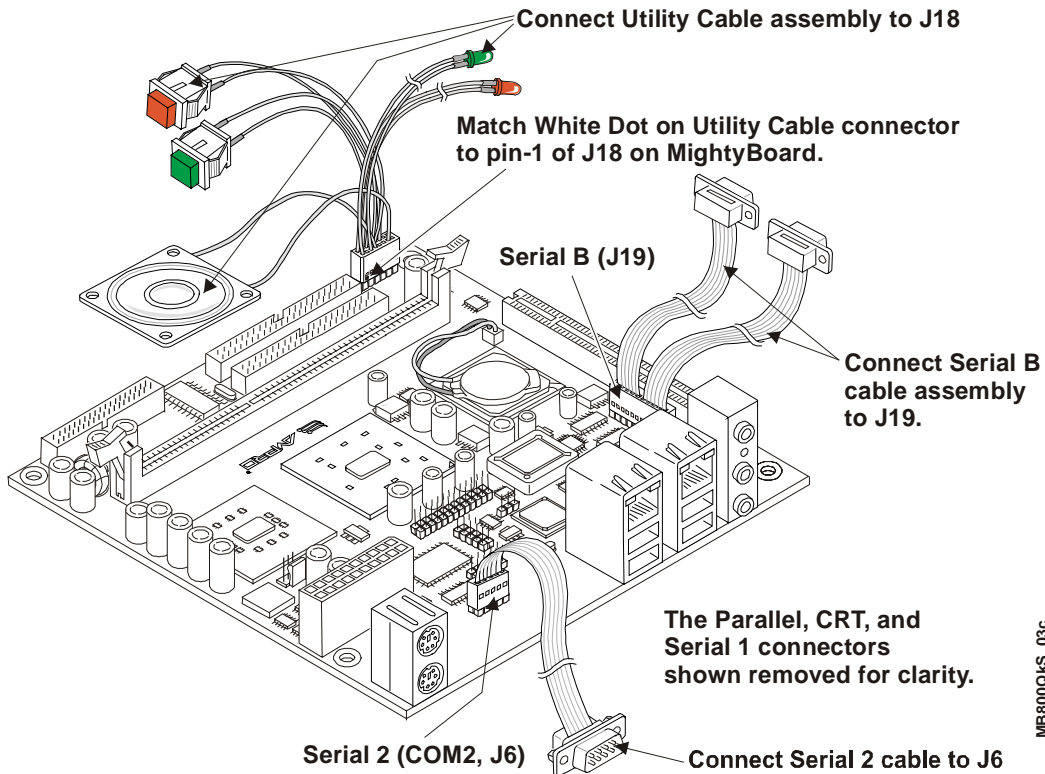
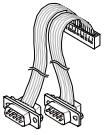
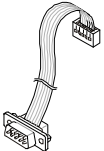


Figure 1-3. Connecting the Utility and Serial Cable Assemblies

<p>4) Connect the Serial 3 & 4 Cable assembly</p> 	<ul style="list-style-type: none"> • Connect the Serial 3 & 4 (COM3 & COM4) cable assembly to J19 on the edge of the MightyBoard 800 as shown in Figure 1-3. Refer to Figures 1-1 and 1-4.
<p>5) Connect the Serial 2 Cable</p> 	<ul style="list-style-type: none"> • Connect the Serial 2 cable assembly to J6 located just inside of the Parallel port connector J7 of the MightyBoard 800 as shown in Figure 1-3. Refer also to Figures 1-1, 1-4.

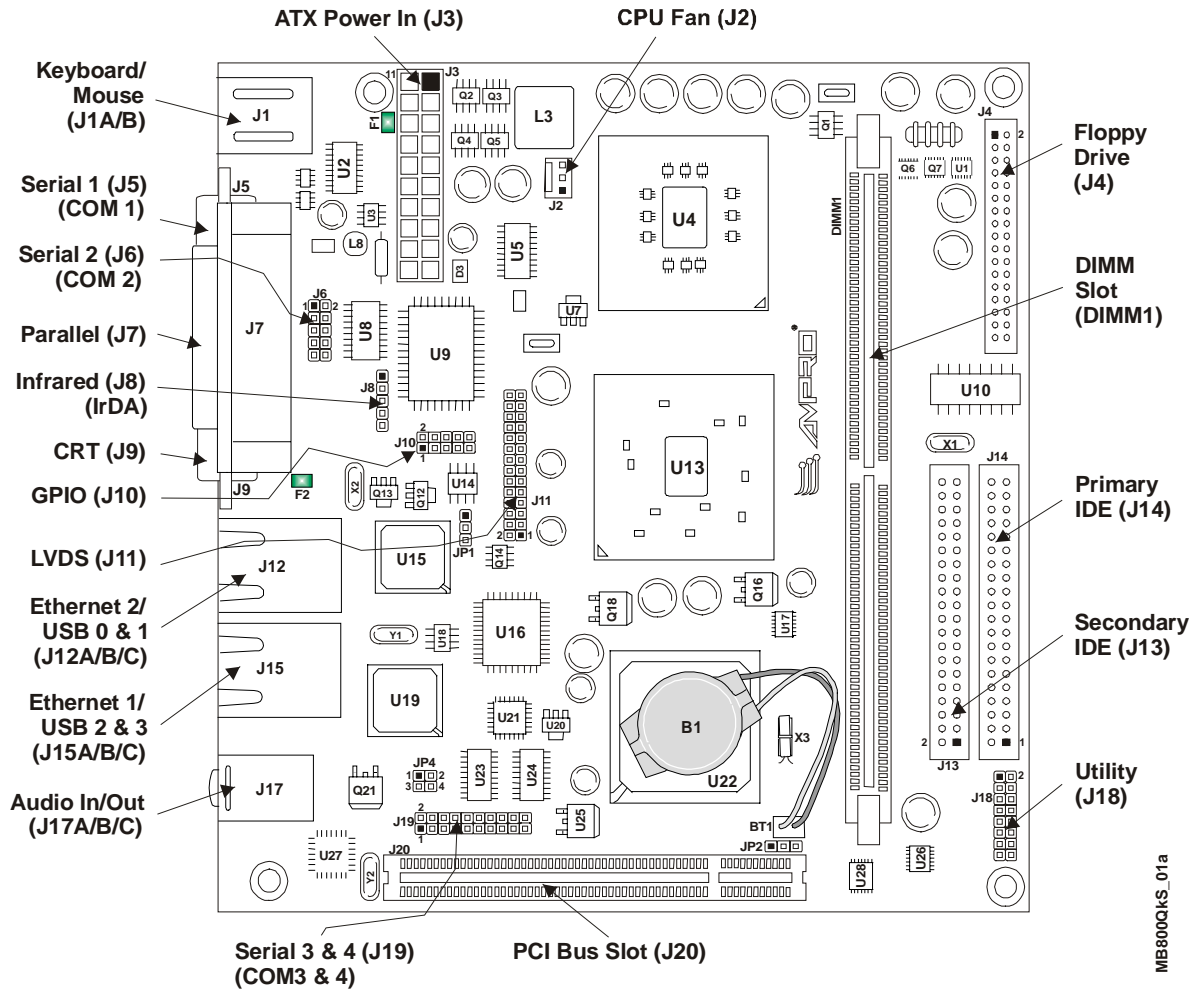
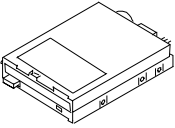
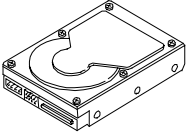
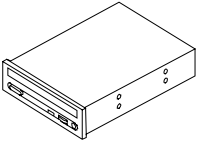





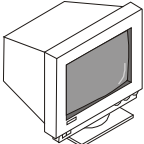
Figure 1-4. Connector and Pin-Locations (Top view)

NOTE Ensure you match the white dot on the connector, or the red strip on the ribbon cables (pin-1) to the pin-1's on the connectors as shown in Figure 1-4.

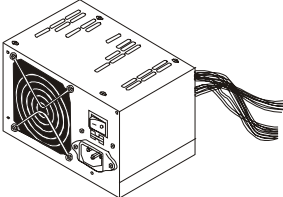
Connecting Boot Devices

<p>7) Connect the OS boot device(s)</p> 	<ul style="list-style-type: none"> Use one or all of the seven options listed here that apply when connecting an (OS) boot device(s) to the MightyBoard 800: <ol style="list-style-type: none"> Connect a floppy disk drive to the floppy drive cable connected to J4 on the edge of the MightyBoard 800. See Figures 1-1, 1-2, or 1-4. <p>Or Connect a USB floppy drive to one of the USB ports, Or (See USB Boot Support Note at the end of this chapter.)</p>
	<ol style="list-style-type: none"> Connect an IDE hard disk drive to a free connector on the primary IDE cable (J14) on the edge of the MightyBoard 800. See Figures 1-1, 1-2, or 1-4. <ul style="list-style-type: none"> Ampro recommends not using a preinstalled OS on a hard disk drive to boot and load the operating system. See Note with Step 16. <p>Or Connect a USB hard drive to one of the USB ports, Or (See USB Boot Support Note at the end of this chapter.)</p>
	<ol style="list-style-type: none"> Connect a CD-ROM drive to an available connector on the primary IDE cable (J14) on the edge of the MightyBoard 800. See Figures 1-1, 1-2, or 1-4. <p>Or Connect a USB CD-ROM to one of the USB ports, Or (See USB Boot Support Note at the end of this chapter.)</p>
 <p>Ethernet Connection</p>	<ol style="list-style-type: none"> Connect an Ethernet cable to LAN 1 (J15A) for the PXE server, if you are using the LAN Boot feature. Refer to Steps 13, 14 d & e, 15, and the LAN Boot Note at the end of this chapter.

Connecting Peripherals

<p>6) Connecting the peripherals</p> 	<ul style="list-style-type: none"> Connect the Keyboard to the lower PS/2 connector at J1A. See Figure 1-1. If you are using a USB keyboard, connect it to the USB 0 connector (lower USB on J12B) on the edge of the MightyBoard 800.
	<ul style="list-style-type: none"> Connect mouse cable to the upper PS/2 connector at J1B. See Figure 1-1. If you are using a USB mouse, connect it to the USB 1 connector (upper USB on J12B) on the edge of the MightyBoard 800.
	<ul style="list-style-type: none"> Connect the CRT monitor to the video connector at J9 on the edge of the MightyBoard 800. See Figure 1-1.

Connecting the Power Supply and Applying Power

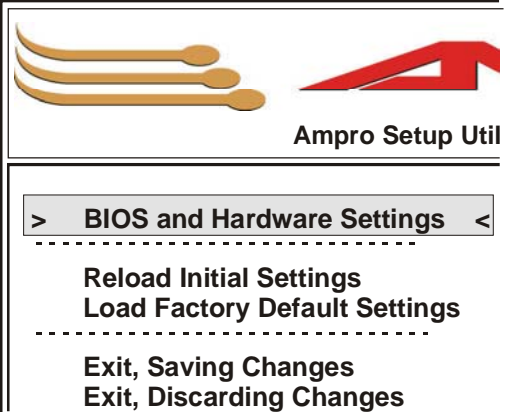
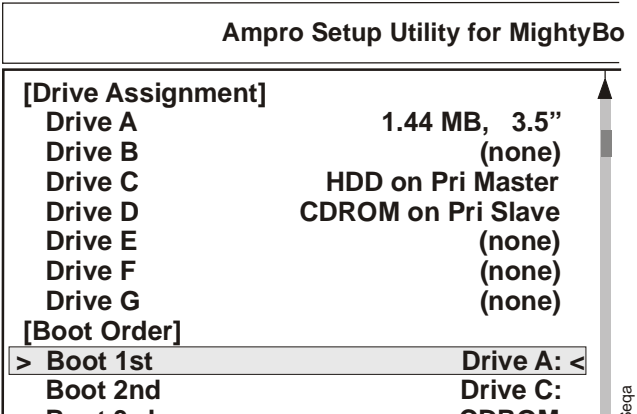
<p>8) Connect power supply</p> 	<ul style="list-style-type: none"> Connect the ATX power supply to the ATX Power-In connector (J3) on the edge of the MightyBoard 800. See Figures 1-1 and 1-4. Connect all support devices to the ATX power supply. <p>Ensure all of the support devices you have connected to the MightyBoard 800 (except CRT) have good power connections to the ATX power supply.</p>
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9) Check/Set the Power Supply Input Voltage	<ul style="list-style-type: none"> • If the ATX power supply uses auto-ranging operation at 50/60Hz, skip this step. • Check the input voltage switch on the power supply located on the rear of the ATX power supply just below the power connector. The input voltage switch typically has two positions: 115 or 230 volts – 115 volts is default position.
10) Verify the Jumper Settings	<ul style="list-style-type: none"> • Check the jumper settings just in case a jumper has shifted during shipping. • Refer to Figures 1-4 and 1-5 for the jumper locations and the Table 1-1, located at the end of this chapter for the default jumper settings.
11) Power up the MightyBoard 800	<ul style="list-style-type: none"> • Plug the CRT monitor's power cord into an AC outlet and turn on the monitor. • Plug the ATX power supply's power cord into the AC outlet. • Turn the ATX power supply's power switch to On before continuing. • Press the Green push-button switch on the Utility cable to power up the MightyBoard 800.
12) Verify the MightyBoard 800 powers-up satisfactorily	<ul style="list-style-type: none"> • Verify the MightyBoard 800 passes POST successfully. • If a bootable device, or the desired operating system is not loaded on one of the boot devices (floppy drive or CD-ROM) prior to power up, you will see an error message "Disk boot failure, insert system disk and press enter" near the end of the boot process. The boot process stops until you intervene, by selecting from: <ul style="list-style-type: none"> ◆ Enter BIOS Setup using S for <u>S</u>etup or skip to Step 13. ◆ Press R to <u>R</u>eboot the system ◆ Turn off the power switch on the ATX power supply. ◆ Connect a bootable device to the MightyBoard 800, reapply power to the system, and then skip to Step 13. <div data-bbox="597 1209 1409 1430" style="border: 1px solid black; padding: 5px;"> <p>NOTE Ampro does not recommend using a hard disk drive or CF card with a preinstalled OS from another model computer to boot the MightyBoard 800. This has proven to cause problems or provide unreliable operation. Use a bootable device (floppy or CD-ROM) to load the desired OS onto the hard drive (or CF) and then the drivers, while still attached to the MightyBoard 800. Refer to Step 15.</p> </div>

NOTE

For the most current BIOS Information, refer to the Hardware Release Notes provided as hard copy in the shipping container.

13) Enter BIOS Setup	<ul style="list-style-type: none"> • Press the key during POST, or S to enter BIOS Setup. • Use BIOS Setup during the initial boot to set the desired options (time and date, alter the boot order of the floppy drive, CD-ROM, hard disk drive, or select USB boot, LAN Boot, etc.). • Refer to the MightyBoard 800 Reference Manual for all of the BIOS Setup options, including USB/LAN Boot options. • Refer to the next step to alter the boot sequence, while in Setup.
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<p>14) Alter Boot Order, only if needed</p>	<ul style="list-style-type: none"> If you need to alter the boot sequence to select a bootable device, perform the items listed in this step. 																												
<p>The sub-steps listed here show you how to change the Boot Sequence while in the BIOS Setup Utility.</p> <p>a) Select the <i>BIOS and Hardware Settings</i> menu as shown in the figure to the right and press Enter.</p>	 <p>The screenshot shows the 'Ampro Setup Util' interface. At the top, there are three yellow horizontal lines and a red arrow pointing right. Below this is a menu bar with '> BIOS and Hardware Settings <'. Underneath, there are four options: 'Reload Initial Settings', 'Load Factory Default Settings', 'Exit, Saving Changes', and 'Exit, Discarding Changes'. A vertical label 'enterBIOSb' is on the right side of the menu.</p>																												
<p>b) Select the first drive in the Boot Order as highlighted to the right.</p> <p>This example assumes Drive A is a 3 1/2" floppy drive, Drive C is an IDE HDD, and Drive D is an IDE CD-ROM.</p> <div data-bbox="211 892 609 1071" style="border: 1px solid black; padding: 5px;"> <p>NOTE The CD-ROM must be listed in Drive Assignment and the Boot Order to be recognized by the BIOS.</p> </div>	 <p>The screenshot shows 'Ampro Setup Utility for MightyBo'. It has two sections: '[Drive Assignment]' and '[Boot Order]'. In the Drive Assignment section, Drive A is highlighted with a grey bar. The Boot Order section also has 'Drive A' highlighted. A vertical label 'MB800BtSeqa' is on the right side.</p> <table border="1" data-bbox="706 735 1274 976"> <thead> <tr> <th colspan="2">[Drive Assignment]</th> </tr> </thead> <tbody> <tr> <td>Drive A</td> <td>1.44 MB, 3.5"</td> </tr> <tr> <td>Drive B</td> <td>(none)</td> </tr> <tr> <td>Drive C</td> <td>HDD on Pri Master</td> </tr> <tr> <td>Drive D</td> <td>CDROM on Pri Slave</td> </tr> <tr> <td>Drive E</td> <td>(none)</td> </tr> <tr> <td>Drive F</td> <td>(none)</td> </tr> <tr> <td>Drive G</td> <td>(none)</td> </tr> </tbody> </table> <table border="1" data-bbox="706 976 1274 1144"> <thead> <tr> <th colspan="2">[Boot Order]</th> </tr> </thead> <tbody> <tr> <td>> Boot 1st</td> <td>Drive A: <</td> </tr> <tr> <td>Boot 2nd</td> <td>Drive C:</td> </tr> <tr> <td>Boot 3rd</td> <td>CDROM</td> </tr> <tr> <td>Boot 4th</td> <td>(none)</td> </tr> <tr> <td>Boot 5th</td> <td>(none)</td> </tr> </tbody> </table>	[Drive Assignment]		Drive A	1.44 MB, 3.5"	Drive B	(none)	Drive C	HDD on Pri Master	Drive D	CDROM on Pri Slave	Drive E	(none)	Drive F	(none)	Drive G	(none)	[Boot Order]		> Boot 1st	Drive A: <	Boot 2nd	Drive C:	Boot 3rd	CDROM	Boot 4th	(none)	Boot 5th	(none)
[Drive Assignment]																													
Drive A	1.44 MB, 3.5"																												
Drive B	(none)																												
Drive C	HDD on Pri Master																												
Drive D	CDROM on Pri Slave																												
Drive E	(none)																												
Drive F	(none)																												
Drive G	(none)																												
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> Boot 1st	Drive A: <																												
Boot 2nd	Drive C:																												
Boot 3rd	CDROM																												
Boot 4th	(none)																												
Boot 5th	(none)																												
<p>c) Use the Arrow keys and PU/PD keys to change the CD-ROM into the First Boot Device in the boot order.</p>	<ul style="list-style-type: none"> Use the PU/PD keys to change from Drive A: (Floppy) to [CDROM] in the boot order. You will need to change Drive A:(Floppy) to the Third Boot Device or another boot device, to keep it in the boot sequence without a break in the boot device order. 																												
<p>d) Check settings, and Exit Saving Changes (This step reboots the system)</p>	<ul style="list-style-type: none"> Check the other BIOS settings related to the floppy drive before exiting BIOS setup. (See USB and LAN Boot Note next page) <p>The other settings in BIOS Setup that also affect the floppy drive during the boot sequence or normal operation are: <i>Floppy Seek</i>, <i>Floppy Swap</i>, and <i>Floppy (On Board Controllers)</i>. These fields may need to be checked or changed too!</p>																												
<p>e) For LAN Boot, go to PXE BIOS Setup after rebooting</p>	<ul style="list-style-type: none"> Enter PXE BIOS when you see the following prompt on screen: <i>Initializing MBA. Press Ctrl + Alt + B to configure ..</i> Make the necessary changes in the PXE BIOS Setup before continuing. Refer to Appendix B of the MightyBoard 800 Reference Manual and the LAN Boot subdirectory under Software on the MightyBoard 800 Doc & SW CD-ROM for more information. 																												

15) Install the desired Operating System (OS)	<ul style="list-style-type: none"> • Use the LAN Boot feature to load the boot (OS) image onto the hard disk drive. Or • Locate the desired Operating System (OS) diskette(s) or CD-ROM and follow the manufacturer's instructions for installing the OS and the necessary drivers. <ul style="list-style-type: none"> ◆ For Windows Operating Systems, some of the necessary drivers may be found on the manufacturer's installation CD-ROM. ◆ For other Operating Systems, some or all of the necessary drivers may be found on the manufacturer's diskette(s) or CD-ROM. • If you require drivers that are not available on the OS manufacturer's diskette(s) or CD-ROM, refer to Installing Software, Drivers, and Utilities in Chapter 2 and the MightyBoard 800 software directory on the MightyBoard 800 Doc & SW CD-ROM for instructions.
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NOTE

The MightyBoard 800 ships from the factory configured for CRT support only. Ampro provides an LVDS flat panel cable in the QuickStart Kit and support for flat panels with specific resolutions.

If you have questions about flat panels, contact Technical Support through Virtual Technician on the Ampro web site for help in setting up the flat panel configurations. Refer also to the MightyBoard 800 Reference Manual and the Release Notes for additional instructions and information when customizing the BIOS to a particular flat panel.

NOTE

USB Boot Support – If you wish to boot from a USB device, you must select the device in the BIOS Setup Utility under Drive Assignments (USB floppy, USB HDD, or USB CD-ROM) and then select USB Boot Support under Advanced features.

LAN Boot Feature – The LAN Boot feature puts the Ethernet connection at the top of the boot order, but it requires more than just selecting the correct BIOS Setup options. You will also need a PXE server with its tools and utilities, which Ampro does not provide. For more information, including the PXE BIOS settings, refer to Appendix B of the MightyBoard 800 Reference Manual. There is also information in LAN Boot subdirectory under the Software menu on the MightyBoard 800 Doc & SW CD-ROM.

NOTE

The CMOS Normal/Clear jumper (JP2) resets the CMOS and the Time and Date of the BIOS to Jan 1, 1980; 00:00. See Jumper settings in Table 1-1 and Figure 1-5.

If you need to reset the BIOS to the defaults because you can't boot the system, use the Oops! Jumper referenced in the MightyBoard 800 Reference Manual. The Oops! Jumper prevents the current BIOS settings in Flash memory from being loaded, forcing the BIOS to use the default settings, but does not change the Time & Date in the BIOS. The MightyBoard 800 Reference Manual provides a more detailed discussion of how to create and use the Oops! Jumper.

Table 1-1. MightyBoard 800 Jumper Settings

Jumper #	Installed	Removed/Installed
JP1 – LVDS Voltage Select	Enable +3.3 V (pins 1-2)	Enable +5V (2-3)
JP2 – CMOS Normal/Clear	Normal (pins 1-2) Default	Clear (2-3)
JP4 – Serial 3 (COM3) RS485 Termination	Termination (pins 1-2)	No Termination (removed) Default
JP4 – Serial 4 (COM4) RS485 Termination	Termination (pins 3-4)	No Termination (removed) Default

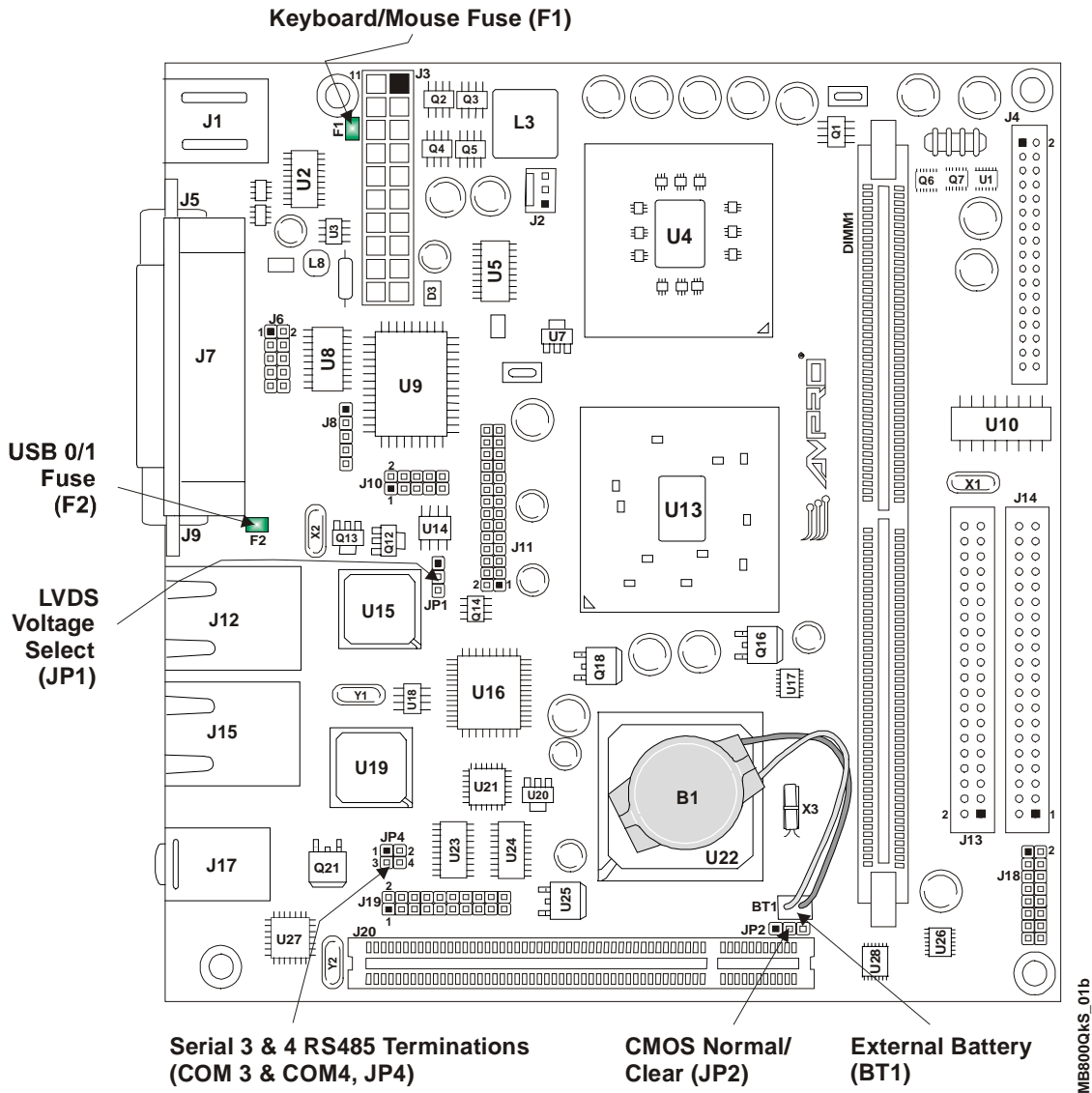


Figure 1-5. Jumper and Fuse Locations (Top view)

Chapter 2 Installing MightyBoard 800 Options

The procedures in the first part of this chapter describe how to install or remove the MightyBoard 800 SBC (Single Board Computer) options onto or from the board, including the DDR DIMM and the CompactFlash card. Brief instructions for accessing and using the MightyBoard 800 Doc & SW (Documentation and Software) CD-ROM and a brief description for loading supported Operating Systems is also provided at the end of this chapter.

Memory Installation

The MightyBoard 800 uses a single DDR DIMM slot available on the underside of the board. The MightyBoard 800 supports up to PC2700 DDR 333 (166MHz), 184-pin, +2.5V, unregistered/unbuffered non-ECC DDR RAM DIMM.

NOTE	Ampro recommends using PC2700 DDR 333 (166MHz, 6ns), +2.5V, 184-pin, DDR RAM DIMM for maximum performance. The MightyBoard will operate acceptably with a PC2100 DDR 266 (133MHz, 7.5ns) DIMM.
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Tools Required

Use an anti-static service kit (or the equivalent) to remove or install the DDR DIMM. An anti-static service kit should include a static-dissipating work surface, a chassis clip lead, and a wrist or ankle strap.

Installation Guidelines

- When handling a DDR DIMM, observe anti-static discharge precautions to avoid damage.
- The MightyBoard 800 uses up to PC2700 DDR 333 (166MHz) DDR RAM DIMM, which is electrically different from single stroke SDR DIMMs.
- The following DDR DIMMs sizes are available from Ampro: 128MB, 256MB, 512MB, or 1GB.
- The MightyBoard 800 supports up to 1GB of memory in the DDR DIMM slot.

Removing the DDR DIMM

Use this procedure to remove the DDR DIMM from the DDR DIMM slot on the MightyBoard 800.

1. Prepare the MightyBoard 800 for DDR DIMM removal:
 - ◆ If the MightyBoard 800 is already prepared for DDR DIMM removal, with the power turned off, and the power cord disconnected, skip to Step 4.
 - ◆ If the MightyBoard 800 is operating, power down the system and continue with next step.

CAUTION	To prevent damage to the MightyBoard 800 and the DDR DIMM, ensure the power switch on the ATX power supply is turned off and the power cord has been removed from the power source. The typical ATX power supply will continue to provide standby current to the board until the power cord is disconnected.
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2. Disconnect the ATX power supply's power cord from the power source.
3. Disconnect any cables that would prevent you from accessing the DDR DIMM slot on the MightyBoard 800.

CAUTION To prevent damage to the DDR DIMM, do not touch the DIMM until you have discharged yourself and followed good Electrostatic Discharge principals. The DDR DIMMs are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling a DDR DIMM:

Leave the DDR DIMM in the anti-static bag until you are ready to install it.

Always use an anti-static wrist/ankle strap and a grounding mat connected to ground.

Before you remove a DDR DIMM from the anti-static bag, touch a grounded, unpainted metal surface to discharge any static electricity.

4. Locate the DDR DIMM slot (DIMM1) on the MightyBoard 800. See Figure 2-1.

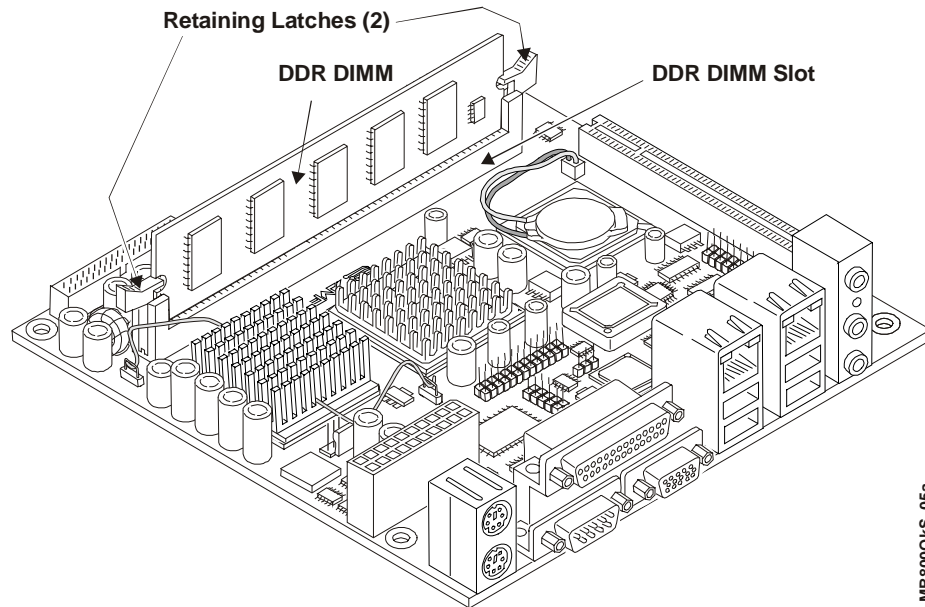


Figure 2-1. DDR DIMM Location

5. Open both retaining latches to release the DDR DIMM from the slot. See Figure 2-2.

The DDR DIMM will spring up from the slot once you open both retaining latches. Opening the DIMM retaining latches releases the DDR DIMM, lifting its bottom edge away from the slot.

6. Using the card edges, lift the DDR DIMM completely away from the slot. See Figure 2-2.
7. Place the DDR DIMM on an anti-static surface or in an anti-static bag.

NOTE If you remove the DIMM and restore power without a DDR DIMM installed, you will not see a display and your system will not work properly.

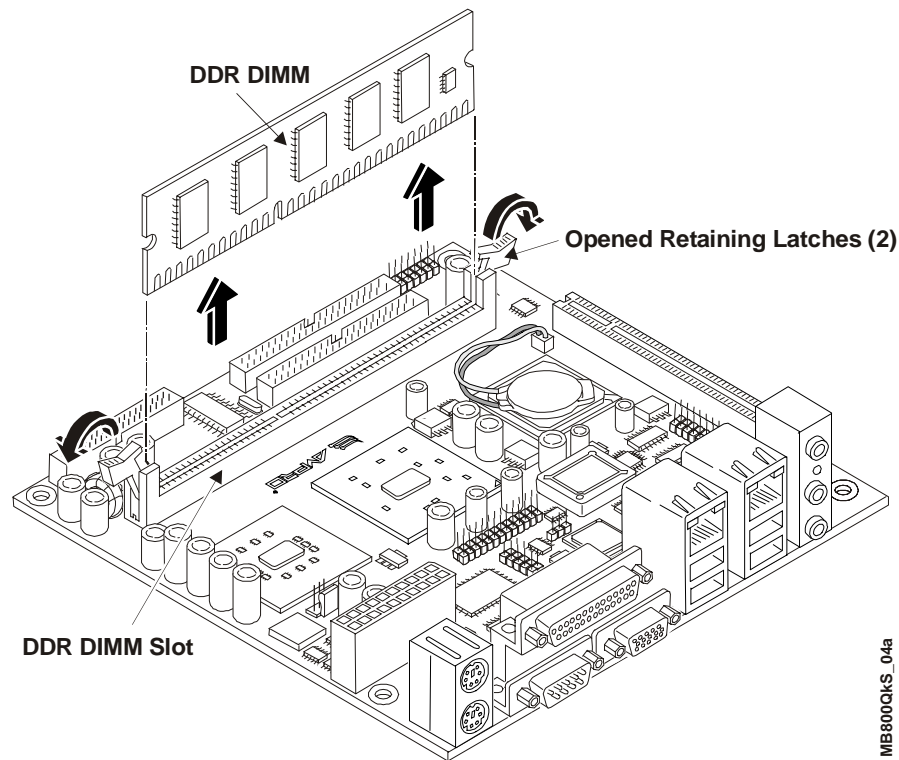


Figure 2-2. Removing DDR DIMM from Slot

Installing the DDR DIMM

If you want to install a larger size DDR DIMM or replace the existing DIMM, refer to the following procedure.

1. Prepare the MightyBoard 800 for DDR DIMM installation:
 - ◆ If the MightyBoard 800 is already prepared for DDR DIMM installation, with the power turned off, the power cord disconnected, and an empty DIMM slot, skip to Step 4.
 - ◆ If the MightyBoard 800 is operating, power down the system and continue with next step.

CAUTION To prevent damage to the MightyBoard 800 and the DDR DIMM, ensure the power switch on the power supply is turned off and the power cord has been removed from the power source. The typical AT power supply will continue to provide standby current to the board until the power cord is disconnected.

2. Disconnect the ATX power supply's power cord from the power source.

CAUTION To prevent damage to the DDR DIMM, do not touch the DIMM until you have discharged yourself and followed good Electrostatic Discharge principals. The DDR DIMMs are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling a DDR DIMM:

Leave the DDR DIMM in the anti-static bag until you are ready to install it.

Use an anti-static wrist/ankle strap and a grounding mat connected to ground.

Before you remove a DDR DIMM from the anti-static bag, touch a grounded, unpainted metal surface to discharge any static electricity.

3. Disconnect any cables that would prevent you from accessing the DDR DIMM slot on the MightyBoard 800.
4. If you need to remove the existing DDR DIMM from the DIMM slot before continuing, refer to the previous procedure beginning with Step 5.

Refer to the Step 5 in the preceding procedure, *Removing the DDR DIMM*, and follow the remaining steps in that procedure before continuing with the next step in this procedure.

5. Remove the DDR DIMM from its protective bag, handling the DIMM by its edges.

NOTE

Ampro recommends using PC2700 DDR 333 (166MHz, 6ns), +2.5V, 184-pin, DDR RAM DIMM for maximum performance. The MightyBoard will operate acceptably with a PC2100 DDR 266 (133MHz) DDR DIMM.

6. Ensure there is nothing in the DDR DIMM slot that would prevent its installation.
7. Ensure the two retaining latches are spread outward to accept the new DDR DIMM.
8. Align the notches on the DDR DIMM with the key on the DIMM slot, holding the DIMM at a 90° angle to the board. See Figure 2-3.

The DDR DIMM card edge and slot are keyed to install the DIMM into the slot in only one direction.

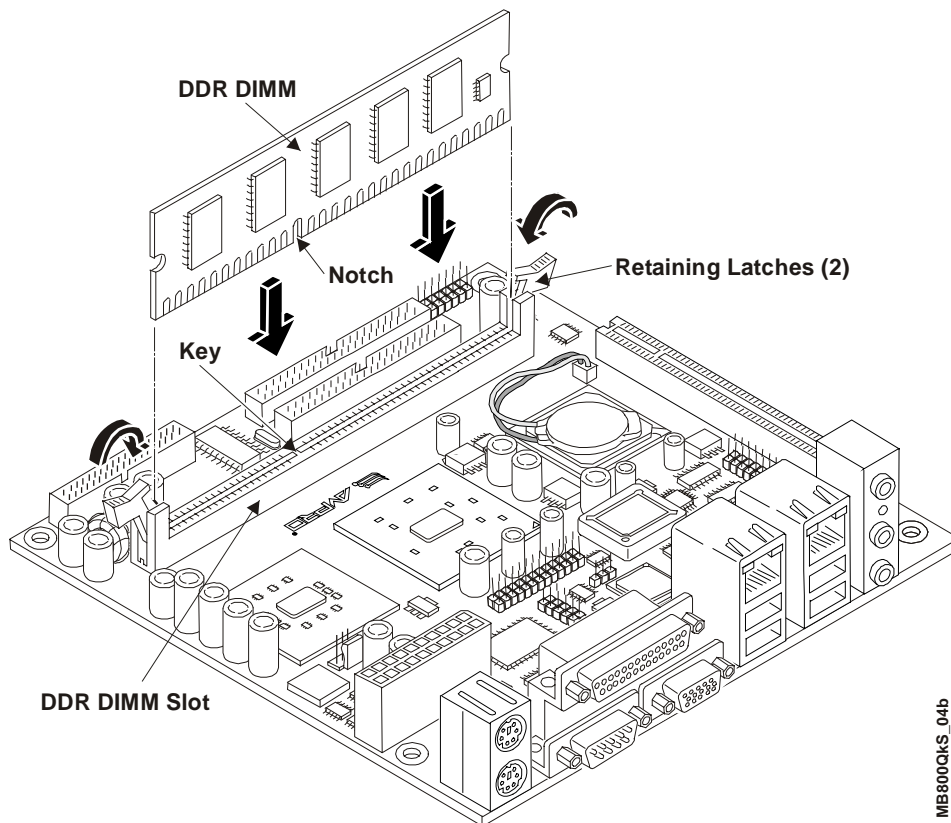


Figure 2-3. Installing DDR DIMM into Slot

9. Insert the DIMM fully into the slot, handling the DIMM by its edges. See Figure 2-3.

The retaining latches should grasp the DIMM automatically if it is inserted properly. If the latches do not fully close after you have installed the DIMM, the DIMM is not inserted correctly.

10. Apply firm and even pressure as you push down on the DIMM, fully inserting it into the slot.

CAUTION	To prevent damage to the DIMM or the slot, do not rock the DIMM into place, but apply firm and even pressure downward.
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11. If the retaining latches do not close completely on the DIMM, remove it and repeat Steps 7 to 10.
12. Reconnect any cables you disconnected earlier and verify all other connections to the MightyBoard 800 are still connected.
13. Reconnect the ATX power supply's power cord to the power source.
14. Restore power to the MightyBoard 800 and observe the boot screen for new memory recognition.
If the system does not boot or there is a problem recognizing the new memory, the new DDR DIMM could be defective or the DDR DIMM was not properly installed to be recognized.

Installing Software, Drivers, and Utilities

To install the operating system and respective software drivers, refer to the following procedure.

1. Install the desired Operating System (OS) and related drivers from the manufacturer's diskette(s) or CD-ROM.
 - ◆ If you are using the LAN Boot feature to load the boot (OS) image, skip this and any other Steps that do not apply.

Follow the manufacturer's instructions to install the desired OS and respective drivers.

- ◆ For Windows Operating Systems, some of the necessary drivers may be found on the manufacturer's installation diskette or CD-ROM. If more software drivers are needed, refer to the MightyBoard 800 Doc & SW CD-ROM.
 - ◆ For other Operating Systems, some or all of the necessary drivers may be found on the manufacturer's installation diskette(s) or CD-ROM. If not, refer to the MightyBoard 800 Doc & SW CD-ROM.
2. Run the MightyBoard 800 Doc & SW CD-ROM to access the MightyBoard documentation, various utilities, and OS drivers not on the manufacturer's diskette(s) or CD-ROM.

The MightyBoard 800 Doc & SW CD-ROM will operate on any Windows PC, allowing you to view, download, or print the contents of the CD-ROM. This includes the *MightyBoard 800 QuickStart Guide*, *MightyBoard 800 Reference Manual*, Release Notes, software drivers and various utilities.

NOTE

You must have an Internet browser to view the main menu and make selections (examples: Microsoft Internet Explorer 4.x, or greater, Netscape Navigator version 4.x, or greater, or the equivalent on a PC). Software download links are provided for Adobe Acrobat Reader version 4.x or greater to view the manuals and documents.

An Internet connection is required for the Adobe Acrobat link or access to the Ampro web site.

The MightyBoard 800 Doc & SW CD-ROM should auto-start, but if it does not, go to the root level of the CD-ROM and locate the index.htm by:

- a. Selecting Run from the Start menu in any Windows PC.
- b. Browsing the contents of the CD-ROM until you find the index.htm at the root level.
- c. Select this file and press OK to start the CD-ROM.

The CD-ROM starts and opens the main menu of the CD-ROM.

3. Select from the directories as shown below:
 - ◆ MightyBoard 800 Documentation (Release Notes, MightyBoard 800 Reference Manual and QuickStart Guide)
 - ◆ MightyBoard 800 Software (Supported operating systems, drivers, and Board Support Packages)
 - ◆ MightyBoard Design Library (I/O panel dimensions file, MightyBoard dimensions file)
 - ◆ Need Adobe Acrobat? (Link to Adobe Acrobat Reader; requires Internet connection)

There are directories and subdirectories under these topics that should provide you with the needed manuals, utilities, and tools not explained earlier.

4. Install any special OS drivers not found on the manufacturer's diskette(s) or CD-ROM.

Refer to the directories on the MightyBoard 800 Doc & SW CD-ROM for instructions on installing the special drivers for the desired OS.

If the desired drivers can not be found, contact Ampro through the Virtual Technician on the web site with a request for the driver(s). Refer also to the Appendix A, Technical Support for more information.

5. Install any utilities or other development tools you may need from the MightyBoard 800 Doc & SW CD-ROM.

Refer to the directories on the MightyBoard 800 Doc & SW CD-ROM for instructions on installing and using the utilities or development tools for the desired OS.

NOTE

Ensure you install all of the necessary OS drivers, including chipset, video, Ethernet, audio, etc. If you discover some function on the MightyBoard 800 is not working properly, you may not have installed the OS driver, or the correct OS driver.

Appendix A Technical Support

Ampro Computers, Inc. provides a number of methods for contacting Technical Support listed below in Table A-1. Requests for support through the Virtual Technician are given the highest priority, and usually will be addressed within one working day.

- Ampro Virtual Technician – This is a comprehensive support center designed to meet all your technical needs. This service is free and available 24 hours a day through the Ampro web site at <http://ampro.custhelp.com>. This includes a searchable database of Frequently Asked Questions, which will help you with the common information requested by most customers. This is a good source of information to look at first for your technical solutions. However, you must register online before you can log in to access this service.
- Personal Assistance – You may also request personal assistance by going to the "Ask a Question" area in the Virtual Technician. Requests can be submitted 24 hours a day, 7 days a week. You will receive immediate confirmation that your request has been entered. Once you have submitted your request you can go to the "My Stuff" area and log in to check status, update your request, and access other features.
- Embedded Design Resource Center – This service is also free and available 24 hours a day at the Ampro web site at <http://www.ampro.com>. However, you must be registered online before you can login to access this service.

The Embedded Design Resource Center was created as a resource for embedded system developers to share Ampro's knowledge, insight, and expertise gained from years of experience. This page contains links to White Papers, Specifications, and additional technical information.

Table A-1. Technical Support Contact Information

Method	Contact Information
Virtual Technician	http://ampro.custhelp.com
Web Site	http://www.ampro.com
Standard Mail	Ampro Computers, Incorporated 5215 Hellyer Avenue San Jose, CA 95138-1007, USA

