ETX 802
Computer on Module
QuickStart Guide

P/N 5001790A Revision A

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Notice Page

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REVISION HISTORY

Revision	Reason for Change	Date
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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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Contents

Chapter 1 Setting Up the ETX 802 1
Using this Guide 1
Preparations 1
What's in the Box 1
Setup Steps 2
Preparations 2
Setting Up the ETX 802 2
Connecting Cable Assemblies 3
Connecting Boot Devices 5
Connecting Peripherals 6
Connecting the Power Supply 6
Applying Power to ETX 802 Baseboard Assembly 7
Chapter 2 Installing ETX 802 Options 11
Memory Installation 11
Tools Required 11
Memory Installation Guidelines 11
Removing the SODIMM 11
Installing the SODIMM 14
Compact Flash Installation 16
Tools Required 16
Compact Flash Card Installation Guidelines 16
Installing the Compact Flash Card 17
Removing the Compact Flash Card 18
ETX 802 Disassembly/Assembly Instructions 20
Tools Required 20
Removing the ETX 802 20
Installing the ETX 802 21
Installing Software, Drivers, and Utilities 23
Appendix A Technical Support 25

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 1-3 and the ETX 802 Reference Manual for the most current board revision and the connector pin/signal tables for specific information.

List of Figures

Figure 1-1. ETX Baseboard Connector Locations 3
Figure 1-2. ETX Baseboard Connector and Pin Locations (Top view) 4
Figure 1-3. ETX 802 Component Locations (Top view) 5
Figure 1-4. ETX 802 Jumper and LED Locations (Top view) 10
Figure 2-1. ETX 802 on Baseboard 12
Figure 2-2. SODIMM Socket and Retaining Latches 13
Figure 2-3. Removing the SODIMM (at 45° Angle) 13

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Figure 2-4. Installing the SODIMM (at 45° Angle) 15
Figure 2-5. Engaging the SODIMM Latches 15
Figure 2-6. Installing the Compact Flash Card 18
Figure 2-7. Compact Flash Card Installed 18
Figure 2-8. Removing the Compact Flash Card 19
Figure 2-9. Removing the ETX 802 from Baseboard 21
Figure 2-10. ETX 802 & Baseboard Cross-Section (Side view) 22
Figure 2-11. Installing ETX 802 onto Baseboard 22

List of Tables

Table 1-1. ETX Baseboard Jumper Settings 4
Table 1-2. ETX 802 Jumper Settings 10
Table 2-1. ETX Baseboard Compact Flash Jumper Settings 16
Table A-1. Technical Support Contact Information 25

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Chapter 1 Setting Up the ETX 802

Using this Guide

This guide provides the most efficient way to set up your ETX 802 Computer on Module (COM) on the ETX baseboard provided by Ampro. The instructions provided in this guide include:

- Removing the ETX 802 assembly from the shipping container
- Inventorying the accessories
- Connecting the boot devices and peripherals
- Connecting the power supply to the ETX baseboard and powering up the system

Information not provided in this QuickStart Guide includes:

- ETX 802 Specifications
- Environmental requirements
- ETX 802 connector pin numbers and definitions
- Supplied software use and programming

Preparations

The following peripherals and devices are needed to make full use of the ETX 802 and the Ampro ETX baseboard.

- Peripherals (customer provided):
  - PS/2 keyboard
  - PS/2 mouse
  - CRT monitor
- Power supply (ATX may be customer provided):
  - ATX or AT power supply – Either power supply type is required to provide power to the ETX 802 module and the Ampro ETX baseboard including any connected peripherals. (Ampro may provide an ATX power supply in the QuickStart Kit.)
- Choice of Boot Device (customer provided):
  - Floppy disk drive
  - IDE hard disk drive (optional)
  - CD-ROM (optional)
- Optional Devices/Connections (customer provided):
  - LVDS flat panel
  - Ethernet (LAN Boot) connection (Requires PXE Server.)
  - USB devices
  - Audio playback device or microphone
  - Headphones or speakers

What's in the Box

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

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Setup Steps

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 ETX 802 module.

Preparations

1) Open shipping box.	• Locate the QuickStart Kit Contents Sheet. • Unpack the contents of the shipping box.
2) Verify contents.	• Verify the contents of the shipping box against the QuickStart Contents Sheet included with your ETX 802 shipping box. • If anything is missing or damaged, contact your sales representative.
3) Support documentation (ETX 802 Documentation and Support Software (Doc & SW) CD-ROM)	*ETX 802 QuickStart Guide* This document describes how to setup, install, and power up the ETX 802 assembly found in the QuickStart Kit and is located on the ETX 802 Documentation and Support Software (Doc & SW) CD-ROM as a PDF file.
	ETX 802 Reference Manual This document describes the ETX 802 and provides detailed reference information for your ETX 802 and is located on the ETX 802 Doc & SW (Documentation and Support Software) CD-ROM as a PDF file.
	Ampro ETX Baseboard Reference Manual This document describes the Ampro ETX baseboard with detailed reference information and is located on the ETX 802 Doc & SW CD-ROM as a PDF, along with other items including schematics and additional information.

Setting Up the ETX 802

CAUTION	To prevent damage to the ETX 802 board, do not handle the board until you have followed good Electrostatic Discharge precautions. Always touch a grounded, unpainted metal surface before touching the ETX 802 module or any of the components on the board. Always use an anti-static wrist strap connected to a grounding mat, which has static-dissipating characteristics and attached to earth ground.

4) Select workbench location.	• The workbench location should have a static-free mat (or the equivalent) to place the ETX 802 and ETX baseboard onto for setup and operation (including the connection of the power supply, peripherals, and support devices).
5) Connect an ESD strap to your body	• Connect an ESD strap between your body (wrist or ankle) and ground or the static-free mat. If you do not have your own ESD strap, an ESD kit is provided in the QuickStart Kit with an anti-static wrist strap.
6) Remove the ETX 802 assembly.	• Remove the ETX 802 assembly from its protective plastic case and place it on the static-free work surface. The ETX 802 module and ETX baseboard are connected together and shipped as an assembly in the protective container.

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Connecting Cable Assemblies

Connect the respective customer supplied cables indicated in the following procedures to the ETX 802-baseboard assembly. Skip any steps or cable(s) that do not apply to your situation.

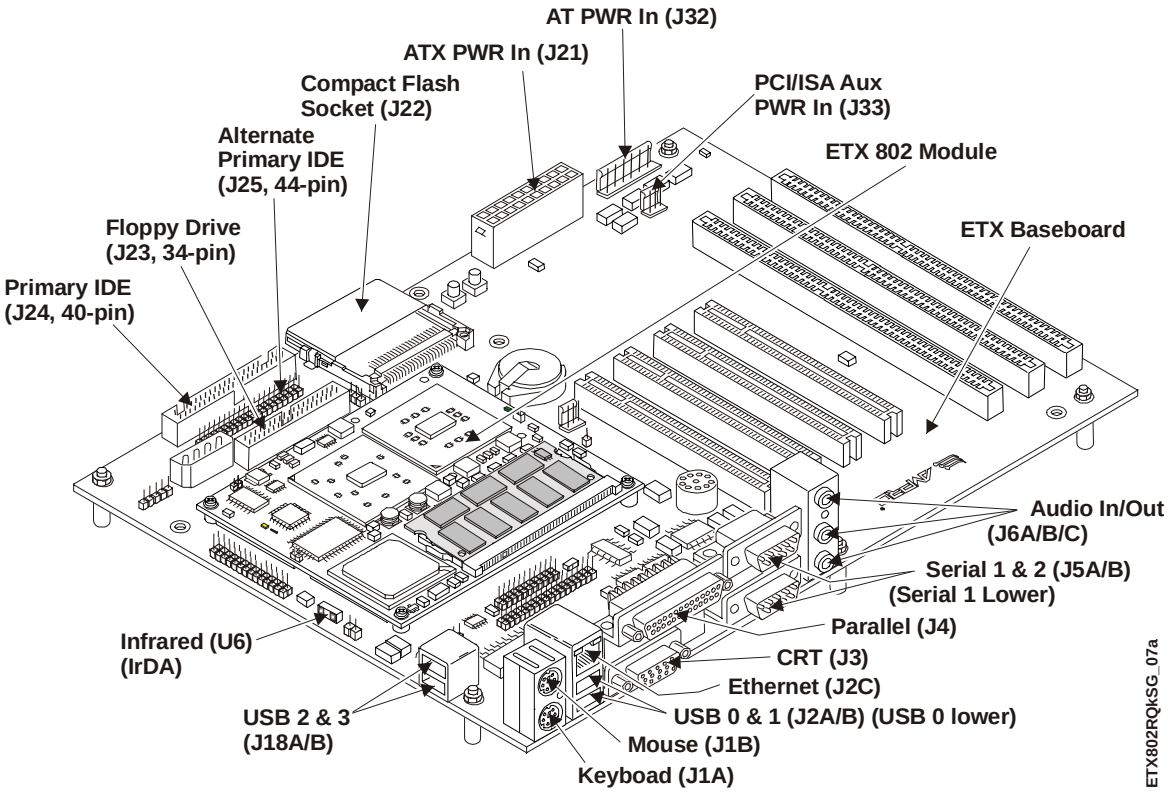
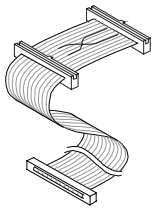
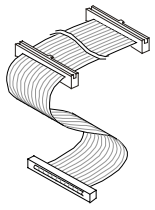


Figure 1-1. ETX Baseboard Connector Locations

7) Connect Floppy Cable 	• Connect a standard 34-pin floppy drive cable to J23 near the edge of the ETX baseboard as shown in Figures 1-1 and 1-2. **NOTE** The standard 34-pin floppy cable has three connectors and one is for the baseboard connection. Typically, the 1st free floppy connector on the cable is for Floppy A (twist in cable wiring between Floppy A and B connectors). The 2nd connector (middle connector) is for Floppy B. Due to the ETX 802's configuration, Floppy A on the standard floppy cable is not accessible.
8) Connect the Primary IDE cable 	• Connect a standard 40-pin, IDE cable to the Primary IDE baseboard connector (J24) shown in Figures 1-1 and 1-2. This cable provides two IDE connectors for IDE devices, such as an IDE hard disk drive (HDD) and an IDE CD-ROM, etc. • A second IDE (44-pin, 2 mm) connector (J25) is also available, but both connectors can not be used at the same time. Ampro only provides the 40-pin connector in the QuickStart Kit. See Figures 1-1 and 1-2. **NOTE** The J24 IDE connector is for standard 40-pin, 0.1", 3 ½" IDE devices. The 2 mm connector (J25) is typically used for 2 ½" IDE devices. The 40-pin IDE device requires external power, but the 44-pin connector provides +5V to the IDE device.

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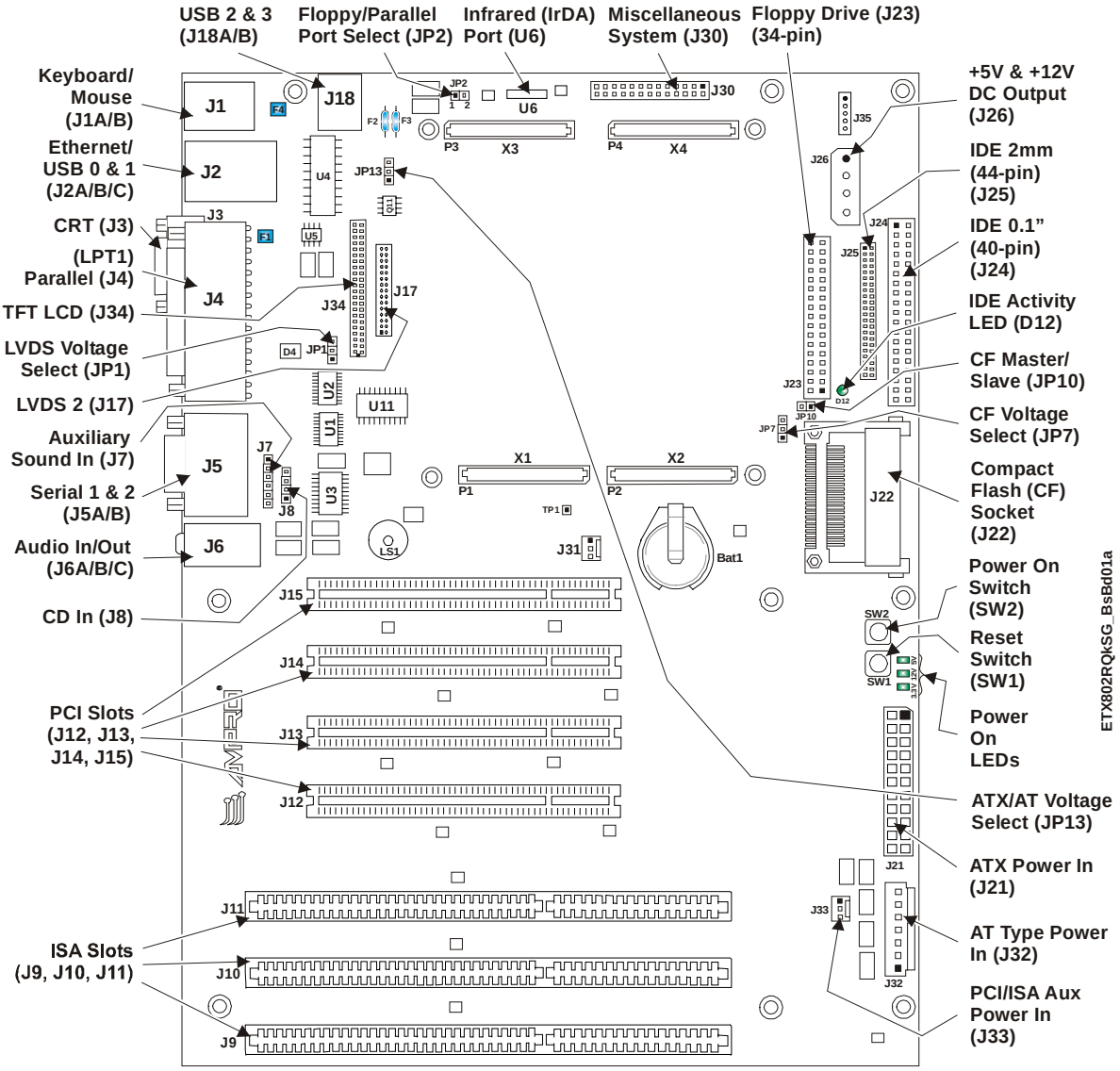


Figure 1-2. ETX Baseboard Connector and Pin Locations (Top view)

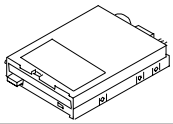
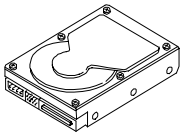
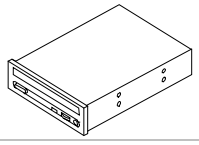
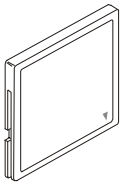
Table 1-1. ETX Baseboard Jumper Settings

Jumper	Installed	Removed/Installed
JP1* – LVDS Voltage Select	Enable +3.3V (pins 1-2) **Default**	Enable +5V (pins 2-3)
JP2** – Floppy/Parallel Select	Enable Floppy (pins 1-2)	Enable Parallel (removed) **Default**
JP7 – CF Voltage Select	Enable +3.3V (pins 1-2) **Default**	Enable +5V (pins 2-3)
JP10 – CF Master/Slave Select	Enable Master (pins 1-2) **Default**	Enable Slave (removed)
JP13 – ATX/AT Select	ATX Enabled (pins 1-2) **Default**	AT Enabled (pins 2-3)

Notes: When a jumper is removed, it may be placed on one of the jumper pins for safe keeping. The jumpers use 2 mm pin spacing. *The LCD Voltage Select jumper (JP1) only controls the voltage to the LCD panel, not the LCD signal level voltages on the panel, which remain at +3.3V CMOS logic levels regardless of the position of the LCD voltage select jumper. Ensure you use +3.3V logic compatible LCD panels. **The JP2 jumper is used when the BIOS/software does not select the Floppy or Parallel connector.

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Connecting Boot Devices

9) Connect the OS boot device(s) 	• Use one of the seven options listed here when connecting an (OS) boot device(s) to the ETX 802 baseboard: a. Connect a floppy disk drive to the floppy B drive cable connected to J23 near the edge of the ETX baseboard. **Or** Connect a USB floppy drive to one of the USB ports, **Or**
	b. Connect an IDE hard disk drive to a free connector on the primary IDE cable (J24) on the edge of the ETX baseboard. • Ampro recommends not using a preinstalled OS on a hard disk drive to boot and load the operating system. See Note with Step 15. **Or** Connect a USB hard drive to one of the USB ports, **Or**
	c. Connect a CD-ROM drive to the available connector on the primary IDE cable (J24) on the edge of the ETX baseboard. **Or** Connect a USB CD-ROM to one of the USB ports, **Or**
 **Compact Flash Card**	d. Install a compact flash card with a bootable OS into the compact flash socket (J22) located on the baseboard. See Figures 1-1 and 1-2. **Or** Instructions and limitations for installing the compact flash card into the socket (J22) on the baseboard are provided later in this manual in Chapter 2, *Installing ETX 802 Options*. • Ampro recommends not using a preinstalled OS on a compact flash card to boot and load the operating system. See Note with Step 15.
 **Ethernet Connection**	e. Connect an Ethernet cable to Ethernet 1 (J2A) for the PXE server, if you are using the LAN Boot feature. Refer to Steps 16, 17d, e, & f, 18, and the LAN Boot Note at the end of this chapter.

CAUTION	To prevent damage to the CPU, do not power up the ETX 802 module without a heatsink attached to the CPU. *The heatsinks are not shown for clarity*.

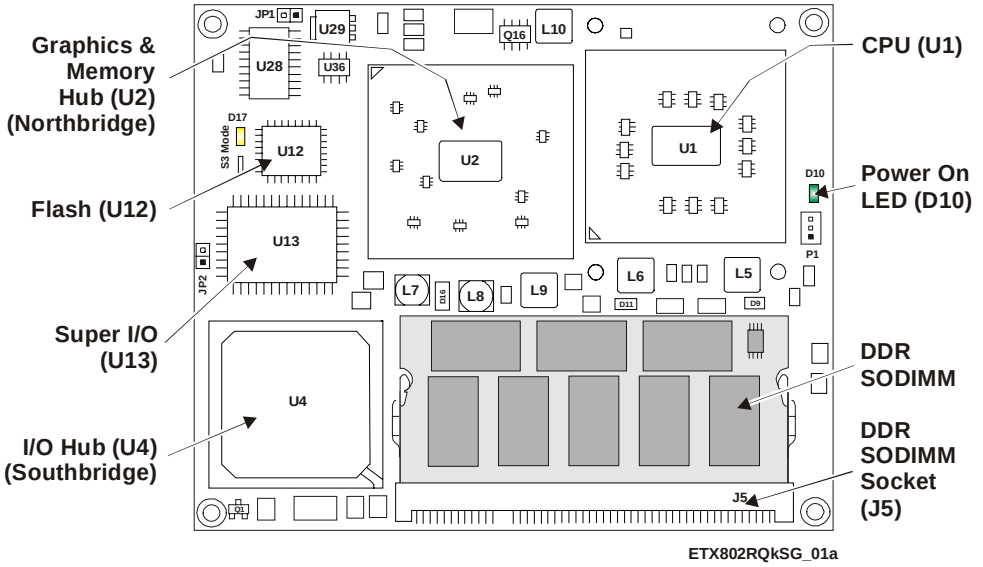
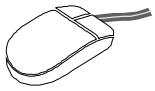
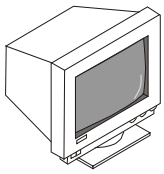


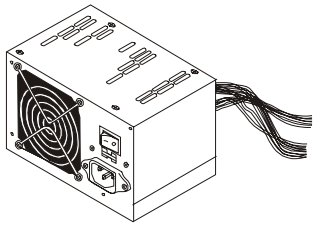
Figure 1-3. ETX 802 Component Locations (Top view)

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Connecting Peripherals

10) Connect the peripherals to the ETX baseboard. 	This includes the keyboard, mouse, and CRT, starting with the keyboard and mouse. See Figures 1-1 and 1-2. • Connect the keyboard's cable to keyboard connector (J1A, lower) on the baseboard edge connector. • If you are using a USB keyboard, connect it to USB 0 baseboard connector (J2A). USB 0 is the lower USB connector.
	• Connect the mouse cable to baseboard edge connector (J1B, upper) shown in Figures 1-1 and 1-2. • If you are using a USB mouse, connect it to USB 1 baseboard connector (J2B). USB 1 is the upper USB connector.
	• Connect the CRT monitor to the baseboard edge connector (J3) shown in Figures 1-1 and 1-2. **NOTE** The ETX 802 and baseboard assembly is shipped from the factory configured for CRT support only.

Connecting the Power Supply

11) Connect the Power Supply 	• Connect the ATX power supply to the baseboard connector (J21), but do not connect the AC power cord to the AC power source. • Check/Set the AT/ATX jumper (JP1) on the ETX 802 as shown in Figures 1-1, 1-2, and 1-4. • Check/Set the ATX/AT jumper (JP13) on the ETX Baseboard before continuing.
12) Connect all support devices to the power supply.	• Ensure the support device(s) connected to the baseboard have good power connections at the ATX power supply.

CAUTION To prevent damage to the ETX 802 and ETX baseboard, you must set the AT/ATX jumpers (JP1) on the ETX 802 and the ATX/AT Jumper (JP13) on the baseboard for non-ATX operation, if you are not using an ATX power supply. See Figures 1-2, 1-4, and Tables 1-1 and 1-2.

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Applying Power to ETX 802 Baseboard Assembly

13) Check/Set the Power Supply Input Voltage	• If the power supply uses auto-ranging operation at 50/60Hz, skip this step. • Check the input voltage switch on the ATX power supply located on the rear of the supply near the power connector. The input voltage switch typically has two positions: 115 or 230 volts – 115 volts is the default position.
14) Power up the ETX 802	• 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. • If necessary, turn the ATX power supply's power switch to On before continuing.
 **SW2**	• If necessary, press the Power On switch (SW2) on the ETX baseboard to apply power to the ETX 802. See Figures 1-1 and 1-2. The Power On switch is a momentary push button switch on the ETX baseboard.
15) Verify the ETX 802 powers-up satisfactorily.	• Verify the ETX 802 module passes POST successfully. • If a bootable device, the LAN Boot image, 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 *Reboot and Select proper Boot device, or Insert Boot Media in selected Boot device and press a key* near the end of the boot process. The boot process stops until you intervene, by selecting from: ♦ Reboot the system, or ♦ Turn off the power switch on the power supply. ♦ Connect a bootable device to the ETX baseboard, reapply power to the system, which reboots the system, and then skip to Step 18. **NOTE** Ampro does not recommend using a hard disk drive (or compact flash (CF) card) with a preinstalled OS from another model computer to boot the ETX 802. 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 attached to the ETX 802. See Step 18.

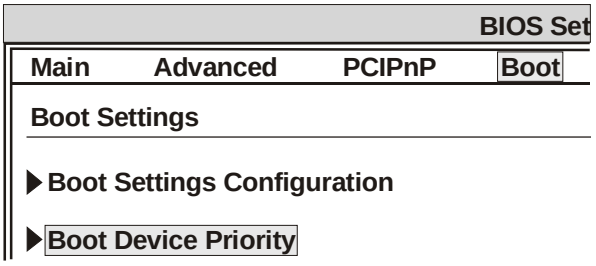
NOTE For the most current Hardware and BIOS Information or last minute Software information, refer to the Hardware Release Notes provided as hard copy in the shipping container.

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16) Enter BIOS Setup.	• Press the <Del> key early in the boot process 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 Network: (LAN Boot), etc.) **NOTE** Refer to the ETX 802 Reference Manual for all of the BIOS Setup options, including the LAN Boot option. • Refer to the next step to alter the boot sequence, while in Setup.
17) Alter Boot Order, only if needed.	• If you need to alter the boot sequence to select a bootable device, perform the items listed in this step (including LAN Boot).

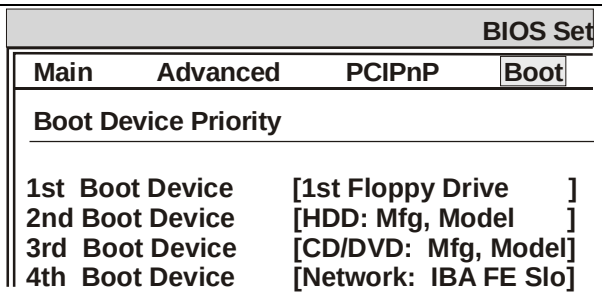
The sub-steps listed here describe how to change the Boot Sequence while in the BIOS Setup Utility.

a) Select the **Boot** menu and scroll down to *Boot Device Priority* as shown in the figure to the right.

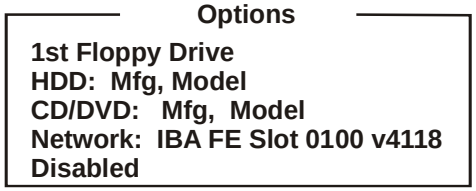


b) Press <Enter> on *Boot Device Priority* and a menu similar to the one shown to the right appears.

This example assumes 1st Boot Device is a floppy drive, 2nd Boot Device is a 3 ½" IDE HDD, 3rd Boot Device is an IDE CD-ROM, and the 4th Boot Device is Network (Ethernet - LAN Boot).



c) Scroll to 1st Boot Device and press the <Enter> key. The Options list appears with all of the connected devices listed in the menu similar to the one shown to the right.



d) Move CD-ROM up in boot order.

NOTE You can also use the F11 key early in the Boot process to access the BBS (BIOS Boot Specification) popup menu to change the boot order. Follow the instructions on screen.

- Scroll down to *CD/DVD: Mfg, Model* and press the <**Enter**> key.

  The CD-ROM swaps place with the 1st Floppy Drive, putting the CD-ROM, or any device you select, including Network, in the 1st Boot Device position, while putting the 1st Floppy Drive in the 3rd Boot Device position.
- If you select *Disabled*, the 1st Floppy Drive moves to the 4th position (last), labeled *Disabled*, while all other devices move up in the Boot order.

e) Check settings, Save Changes and Exit (This step reboots the system).

- Check the other settings in the BIOS before exiting BIOS Setup to save changes.
- If you are using the LAN Boot feature, refer to step f.

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f) For LAN Boot, go to PXE Boot Agent BIOS Setup after rebooting.	• Enter PXE BIOS by pressing **Ctrl + S**, when you see the following prompt appear on screen: *Initializing Intel (R) Boot Agent FE v4.x.xx* *PXE v2.0 Build 084 (WfM 2.0), RPL v2.78* ***Press Ctrl + S to enter the setup Menu…*** • Make the necessary changes in the PXE BIOS Setup before saving changes. Refer to Appendix B of the ETX 802 Reference Manual for more information.
18) Install the desired Operating System (OS).	• Use the LAN Boot feature to load the boot (OS) image onto the hard disk drive, or other media. (See Note below.) **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. For Windows Operating Systems, most of the necessary drivers are found on the Windows installation CD-ROM. For non-Windows 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 ETX 802 software subdirectory on the ETX 802 Doc & SW CD-ROM for instructions.

NOTE	The ETX 802 assembly ships from the factory configured for CRT (VGA) support only. Ampro provides LVDS support for flat panels with specific resolutions. Refer to the ETX 802 Reference Manual, the Release Notes, and Virtual Technician on the Ampro web site for instructions and additional information when customizing the BIOS to a particular flat panel.

NOTE	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 the PXE BIOS settings and more information refer to Appendix B of the ETX 802 Reference Manual.

CAUTION	To prevent damage to ETX 802 and ETX baseboard, you must set the AT/ATX Jumper (JP1) on the ETX 802 and the ATX/AT Jumper (JP13) on the baseboard for non-ATX operation, if you are not using an ATX power supply. See Figures 1-3, 1-4 and Tables 1-1 and 1-2.

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Table 1-2. ETX 802 Jumper Settings

Jumper #	Installed	Removed/Enabled
JP1 – AT/ATX Power Supply Select	AT (or +5 Volt only) Power Supply (pins 1-2) This includes a +5 VDC power supply	ATX Operation (Removed) **(Default)**
JP2 – CMOS Normal/Clear	Clear (pins 1-2)	Normal (Removed) **Default**

NOTE The CMOS Normal/Clear jumper (JP2) resets the CMOS and the Time and Date of the BIOS. If you need to reset the BIOS to the defaults because you can't boot the system, use the Oops! Jumper referenced in the ETX 802 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 ETX 802 Reference Manual provides a more detailed discussion of how to create and use the Oops! Jumper.

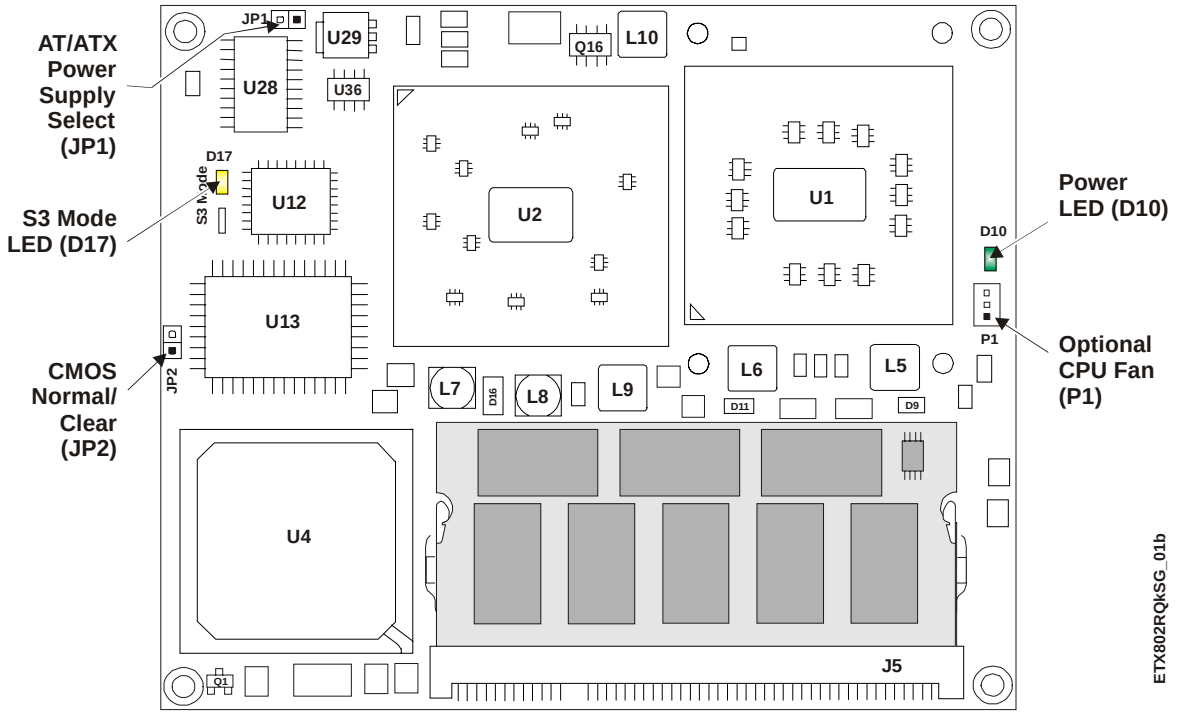


Figure 1-4. ETX 802 Jumper and LED Locations (Top view)

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Chapter 2 Installing ETX 802 Options

The procedures in this chapter describe how to install or remove ETX 802 module options, including the SODIMM. There are also instructions for installing or removing the compact flash card onto or from the ETX baseboard, instructions for accessing and using the ETX 802 Doc & SW (Documentation and Software) CD-ROM, and brief instructions for loading the supported Operating Systems at the end of this chapter.

NOTE	None of the ETX 802 options require removal of the ETX 802 module from the ETX baseboard. However, instructions are provided in case you choose to remove the ETX 802 module from the ETX baseboard.

Memory Installation

The system memory for the ETX 802 is provided by a single DDR SODIMM on the top of the ETX 802 module. The ETX 802 module will support up to 1 GB of DDR SODIMM memory.

NOTE	Ampro recommends using PC2700 DDR 333 (333 Mbps, 166 MHz, 6 ns), +2.5V, 200-pin, SODIMM RAM for maximum performance. A PC2100 DDR 266 (266 Mbps, 133 MHz, 7.5 ns) SODIMM will operate acceptably with the ETX 802.

Tools Required

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

Memory Installation Guidelines

- When handling a SODIMM, observe anti-static discharge precautions to avoid damage.
- The ETX 802 uses PC 2700 DDR 333 (333 Mbps, 166 MHz) or PC 2100 DDR 266 (266 Mbps, 133 MHz), RAM SODIMMs, which are electrically different from single stroke SODIMMs.
- The following DDR SODIMMs sizes are available from Ampro: 128 MB, 256 MB, 512 MB, or 1 GB.
- The ETX 802 supports up to 1 GB of DDR RAM memory in the SODIMM socket.

Removing the SODIMM

1. Prepare the ETX 802 and baseboard for SODIMM removal:
   - If the ETX 802 module is already prepared for SODIMM removal, with the power supply turned off and the AC power cord disconnected from AC power, skip to Step 4.
   - If the ETX 802 assembly has power applied and is operating, power down the system, and continue with next step.

CAUTION	To prevent damage to the ETX 802 and the SODIMM, ensure the power switch on the power supply is turned off and the AC 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 cord from the AC power source.

CAUTION	To prevent damage to the SODIMM, do not touch the SODIMM until you have discharged yourself and followed good Electrostatic Discharge principals. The SODIMMs are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the SODIMM: Always use an anti-static wrist/ankle strap and a grounding mat. Before you remove a SODIMM from the anti-static bag, touch a grounded, unpainted metal surface to discharge any static electricity.

3. Locate the SODIMM socket on the ETX 802 module and the SODIMM retaining latches. See Figures 2-1 and 2-2.

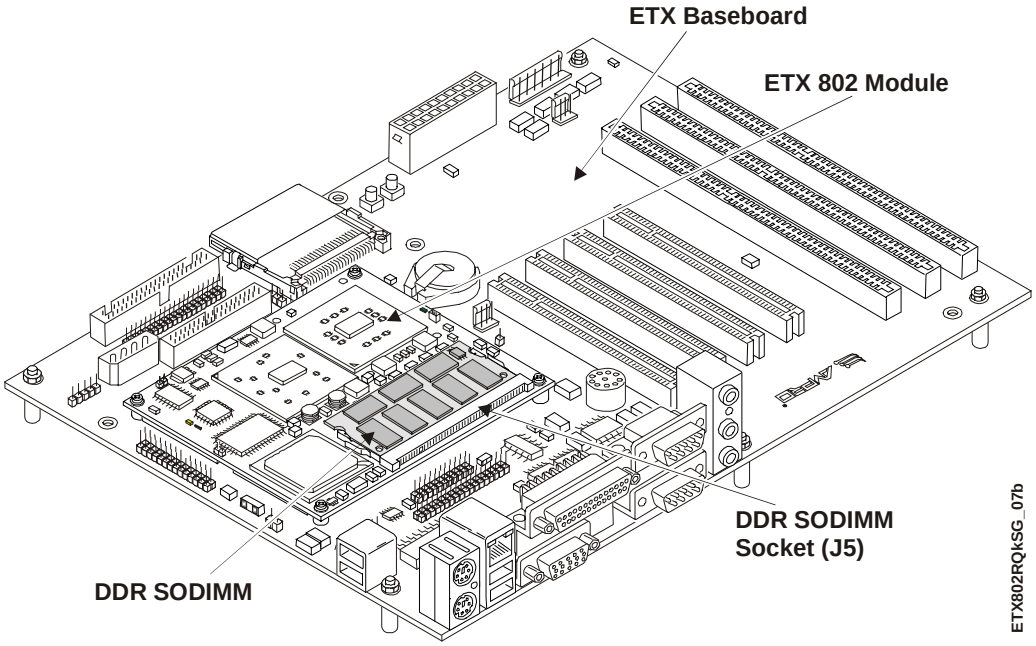


Figure 2-1. ETX 802 on Baseboard

4. Open both retaining latches to release the SODIMM in the socket. See Figures 2-1 and 2-2.

   The SODIMM will spring up to a 45° angle once you open both retaining latches. See Figure 2-3.

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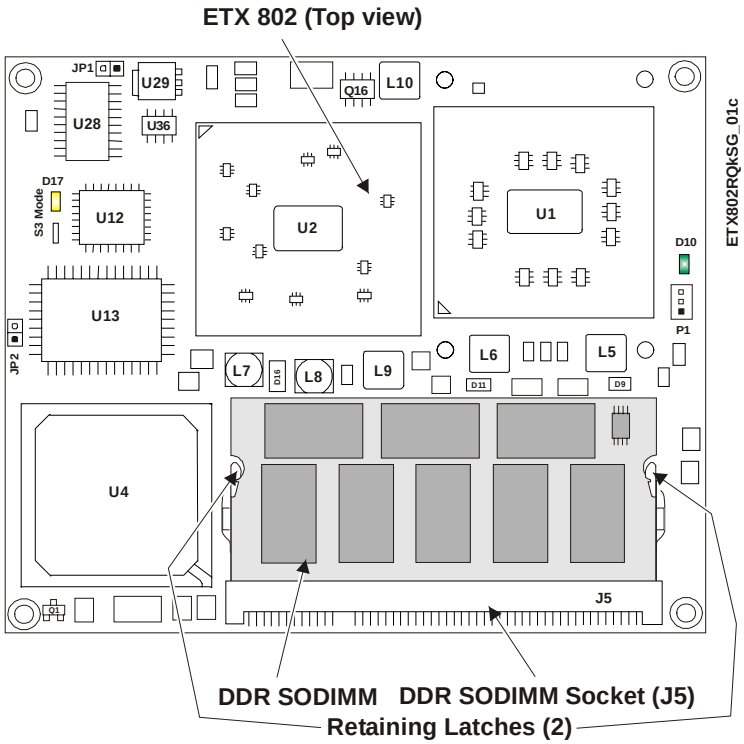


Figure 2-2. SODIMM Socket and Retaining Latches

5. Lift the SODIMM completely away from the socket. See Figure 2-3.

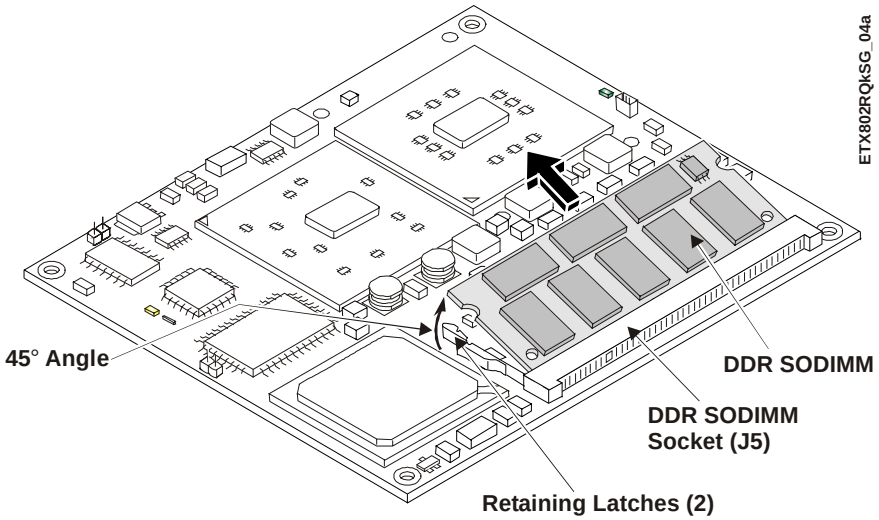


Figure 2-3. Removing the SODIMM (at 45° Angle)

6. Place the SODIMM on an anti-static surface or in an anti-static bag.
7. When you are ready to re-install a SODIMM, go to *Installing the SODIMM*, in the following procedure.

NOTE	If you have removed the SODIMM and restore power without a SODIMM installed, your system will not work properly and you will not see a display.

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Installing the SODIMM

If you want to install a SODIMM or replace an existing SODIMM, refer to the following procedure.

1. Prepare the ETX 802 module for SODIMM installation:
   - If the ETX 802 module is already prepared for SODIMM installation, with the existing SODIMM removed and AC power turned off and disconnected, skip to Step 4.
   - If the ETX 802 assembly has power applied and is operating, power down the system and continue with next step.

CAUTION	To prevent damage to the ETX 802 and the SODIMM, ensure the power switch on the 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.

2. Disconnect the ATX power cord from the AC power source.

CAUTION	To prevent damage to the SODIMM, do not touch the SODIMM until you have discharged yourself and followed good Electrostatic Discharge principals. The SODIMMs are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the SODIMM: Always use an anti-static wrist/ankle strap and a grounding mat. Leave the SODIMM in the anti-static bag until you are ready to install it. Before you touch the SODIMM, touch a grounded, unpainted metal surface to discharge any static electricity.

3. If there is an existing SODIMM in the socket, remove the existing SODIMM before continuing.

   Refer to Step 4 in the proceeding procedure, ***Removing the SODIMM***, and follow the remaining steps in that procedure until the existing SODIMM has been removed from the socket.

4. If necessary, remove the SODIMM from its protective bag, handling the SODIMM by its edges.

NOTE	Ampro recommends only using PC 2700 DDR 333 (166 MHz) +2.5V, 200-pin, SODIMM RAM, but PC 2100 DDR 266 (133 MHz) will function. The PC 2700 DDR 333 provides the best performance for the Intel processors.

5. Insert the SODIMM into the socket at a 45° angle to the surface of the ETX 802 module with the components facing up. See Figure 2-4.

   The SODIMM card edge is keyed to install into the socket in only one orientation.

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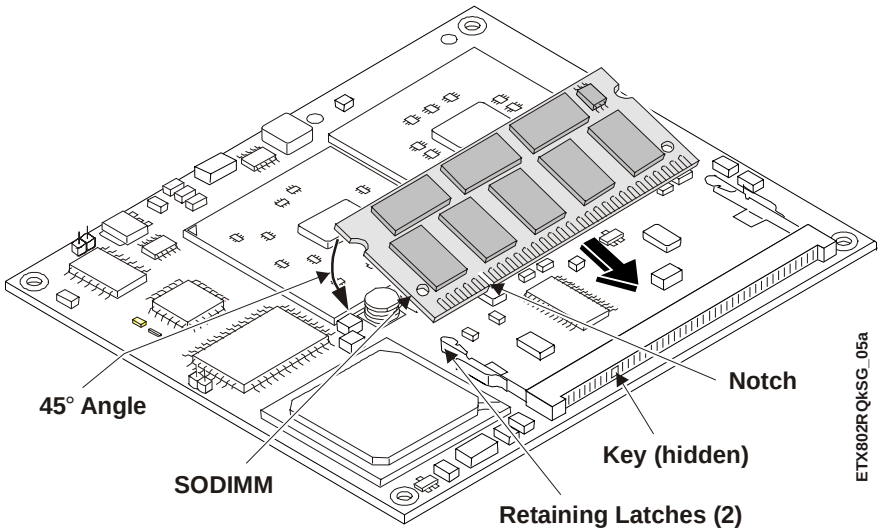


Figure 2-4. Installing the SODIMM (at 45° Angle)

6. Press the edges of the SODIMM down between the latches, until the latches snap into place. See Figure 2-5.

   The latches should open to accept the SODIMM without any resistance. If you encounter any resistance, you may not have inserted the SODIMM far enough into the socket.

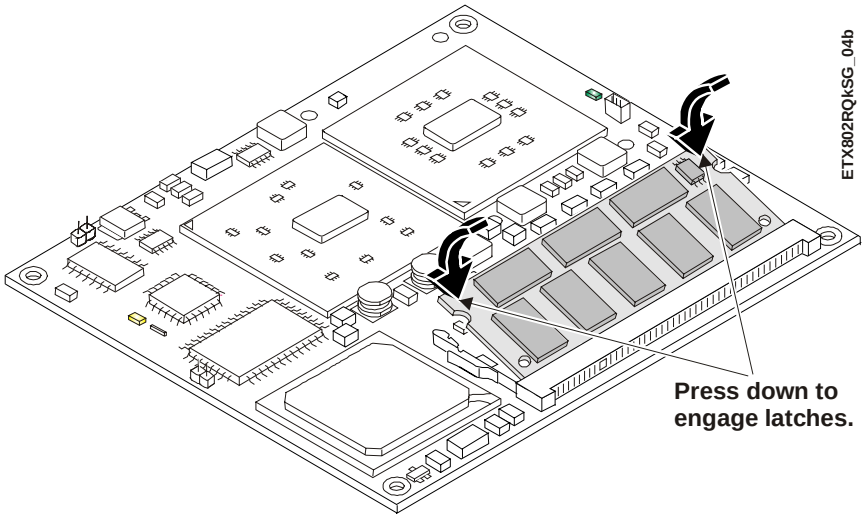


Figure 2-5. Engaging the SODIMM Latches

7. Ensure all connections to the ETX baseboard are still connected.
8. Plug the ATX power supply's power cord into the AC power source and restore power.
9. Observe the POST process to verify the memory you just installed has been recognized.

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Compact Flash Installation

The compact flash (CF) interface allows you to substitute solid-state memory cards for a conventional hard disk drive on the baseboard. Any of the supported operating systems, utilities, drivers, and application programs can be easily run from the compact flash card without modification.

NOTE	You may use Type I or Type II compact flash cards from commercially available suppliers. Ensure you verify the firmware bit status, DMA, or UDMA compatibility of the compact flash card before purchasing. Not all CF card vendors define or support these parameters. Consult the ETX 802 Hardware Release Notes and your compact flash card vendor for these parameter compatibilities.

Tools Required

The following tools are needed to remove and install the compact flash card onto or off of the ETX 802.

- Small to medium flat blade screwdriver
- Anti-static service kit – Use a complete anti-static service kit (or the equivalent) to remove or install the compact flash card. A complete anti-static service kit should include a static-dissipating work surface, a chassis clip lead, and a wrist or ankle strap.

Compact Flash Card Installation Guidelines

The compact flash card, when installed, is used like one of the IDE drives supported by the EIDE disk controller on the ETX 802 module.

- Configure the compact flash card as a hard disk drive in the BIOS Setup.

NOTE	The ETX baseboard provided in the QuickStart Kit only provides Master/Slave on the Secondary Channel. The compact flash card is the only device allowed/supported on the Secondary Channel.

- Ampro ETX Baseboard supports +5V or +3.3V compact flash cards.

  Newer compact flash cards will typically work with either 5V or +3.3V systems. These newer compact flash cards sense the input voltage and adjust accordingly.

NOTE	Ampro does not recommend using a compact flash card with a preinstalled OS from another model computer to boot the ETX 802. 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 compact flash card and then the drivers, while attached to the ETX 802. Then the compact flash card can be used to boot the ETX 802 without difficulty.

Table 2-1. ETX Baseboard Compact Flash Jumper Settings

Jumper	Installed	Removed/Installed
JP7 – Compact flash Voltage Select	Enable +3.3V (pins 1-2) **Default**	Enable +5V (pins 2-3)
JP10 – Compact flash Master/Slave	Master (pins 1-2)	Slave (Removed) **Default**

Notes: When a jumper is removed, it may be placed on one of the jumper pins for safe keeping. The jumpers use 2 mm pin spacing.

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Installing the Compact Flash Card

1. Prepare the ETX 802 assembly for compact flash (CF) card installation:
   - If the ETX 802 assembly has already been prepared for compact flash installation, with power turned off and disconnected, skip to Step 3.
   - If the ETX 802 assembly has power connected and is operating, power down the system and continue with next step.

CAUTION	To prevent damage to the ETX 802, ensure the 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 baseboard until the power cord is disconnected.

2. Disconnect the ATX power cord from the AC power source.

CAUTION	To prevent damage to the ETX 802 or the compact flash card, do not touch either one until you have discharged yourself and have followed good Electrostatic Discharge principals. The ETX 802 and the compact flash card are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling either one: Always use an anti-static wrist/ankle strap connected to ground. Leave the compact flash in the anti-static bag until you are ready to install it. Before you remove a compact flash from the anti-static bag, touch a grounded, unpainted metal surface to discharge any static electricity.

3. Check for bent pins or debris on the pins of the compact flash socket (J22).
4. Remove the compact flash card from its protective bag, while handling the compact flash card by its edges.
5. Set the compact flash voltage selection jumper (JP7) to the correct voltage, after determining the type of compact flash card you intend to install (+5V/+3.3V). See Table 2-1 and Figure 1-2.

   The Ampro ETX baseboard supports the CF card as Master/Slave on the Secondary IDE channel.

CAUTION	To prevent damage to your compact flash card, do not insert a +3.3V only or +5V only compact flash card until you have set the compact flash voltage selection jumper (JP7). The ETX baseboard supports +3.3V, +5V, and Universal (+5V tolerant) compact flash cards, but you must set the jumper to the correct voltage. If you are using a newer compact flash card, it will typically work with either 5V or +3.3V. The newer compact flash cards sense the input voltage and adjust accordingly.

6. Insert the compact flash card into the slot provided by the tabs on the protective cover, using the keys for the correct orientation. See Figure 2-6.

   The compact flash card edge and socket are keyed to install in only one orientation.
7. Push the compact flash card into the socket until it firmly seats into the socket and mates with the pins. See Figures 2-6 and 2-7.

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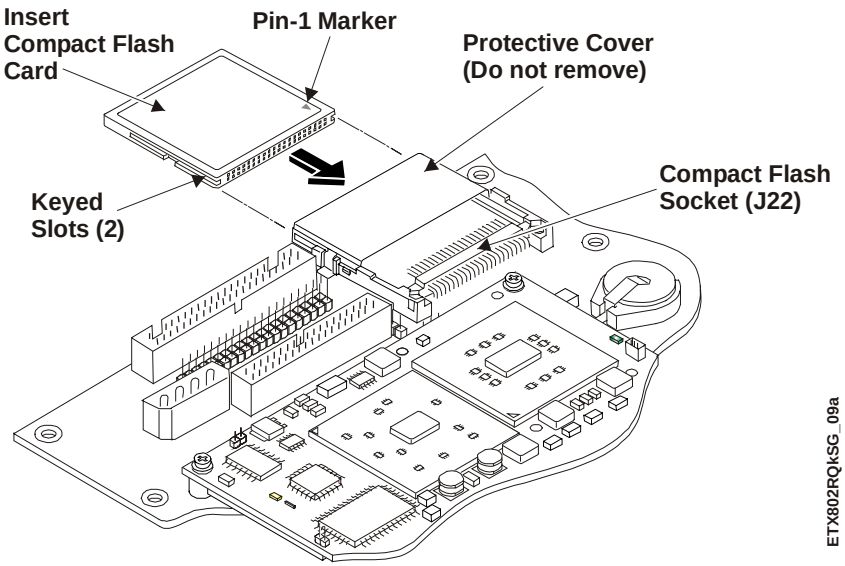


Figure 2-6. Installing the Compact Flash Card

8. Ensure all the connections to the ETX 802 assembly are still connected.
9. Plug the ATX power cord into the AC power source and restore power.

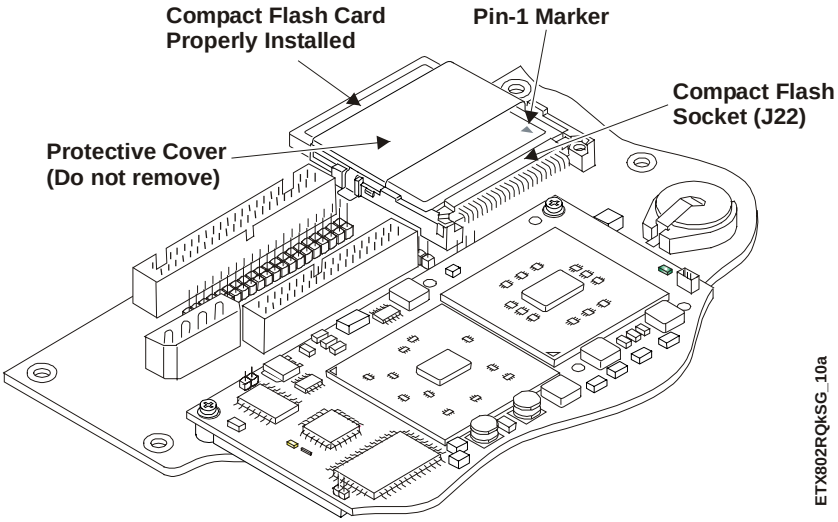


Figure 2-7. Compact Flash Card Installed

Removing the Compact Flash Card

1. Prepare the ETX 802 assembly for compact flash (CF) card for removal:
   - If the ETX 802 assembly has already been prepared for compact flash removal, with AC power turned off and disconnected, skip to Step 3.
   - If the ETX 802 assembly has power connected and is operating, power down the system and continue with next step.

CAUTION	To prevent damage to the ETX 802 or the compact flash, ensure the 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 baseboard until the power cord is disconnected.

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2. Disconnect the ATX power cord from the AC power source.

CAUTION	To prevent damage to the ETX 802 or the compact flash card, do not touch either one until you have discharged yourself and have followed good Electrostatic Discharge principals. The ETX 802 and compact flash cards are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the compact flash cards: Always use an anti-static wrist/ankle strap connected to ground. Before you touch the compact flash card, touch a grounded, unpainted metal surface to discharge any static electricity.

3. Insert a small flat blade screwdriver into the slot as shown in Figure 2-8.

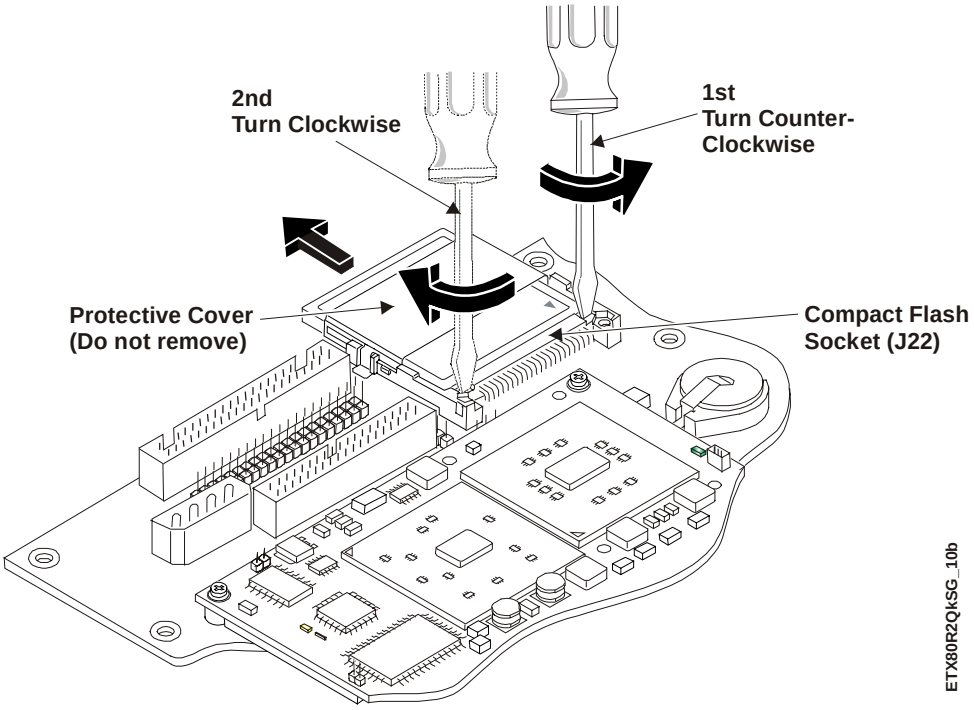


Figure 2-8. Removing the Compact Flash Card

4. Turn the screwdriver counter-clockwise to loosen the compact flash card as shown in Figure 2-8.
5. Move the screwdriver to the other slot and turn the screwdriver clockwise to completely disengage the compact flash card from the socket. See Figure 2-8.
6. Grasp the two sides of the compact flash card and gently pull it from the compact flash socket/protective cover.
7. Place the CF card on an anti-static surface or in anti-static bag.
8. If you are replacing the compact flash card with another compact flash, go to *Installing the Compact Flash Card* to continue the process. See Figure 2-6.
9. If you are not re-installing another compact flash card, ensure all the connections to the ETX baseboard are still connected and restore power to the system.

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ETX 802 Disassembly/Assembly Instructions

The ETX 802 options described in this chapter do not require the removal of the ETX 802 module from the baseboard, but removal and re-installation of the ETX 802 module onto the baseboard are provided in the following topics.

Tools Required

The following tools are needed to remove and install the compact flash card onto or off of the ETX 802.

- Small to medium Phillips screwdriver
- Anti-static service kit – Use a complete anti-static service kit (or the equivalent) to remove or install the compact flash card. A complete anti-static service kit should include a static-dissipating work surface, a chassis clip lead, and a wrist or ankle strap.

Removing the ETX 802

This procedure describes how to remove the ETX 802 module from the ETX baseboard.

1. If the ETX 802 assembly has power applied and is operating, power down the system.

CAUTION	To prevent damage to the ETX 802, ensure the 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 baseboard until the power cord is disconnected.

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

CAUTION	To prevent damage to the ETX 802, ensure you follow good Electrostatic Discharge principles. Components on the ETX 802 are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the ETX 802 and its related baseboard: Always use an anti-static wrist/ankle strap and a grounding mat. Before you handle the ETX 802 or remove it from the anti-static container, touch a grounded, unpainted metal surface to discharge any static electricity.

3. Remove the four screws and related hardware that hold the ETX 802 to the ETX baseboard. See Figures 2-9 and 2-10.

NOTE	The ETX 802 rests on its four (4) spacers when it is completely seated on the baseboard. *The heatsinks are not shown for clarity*.

4. Lift the ETX 802 by one edge and then the other to remove it from the ETX baseboard.
5. Remove the ETX 802 module by its edges and place it on an anti-static mat or in a protective container, until your are ready to re-install it again.

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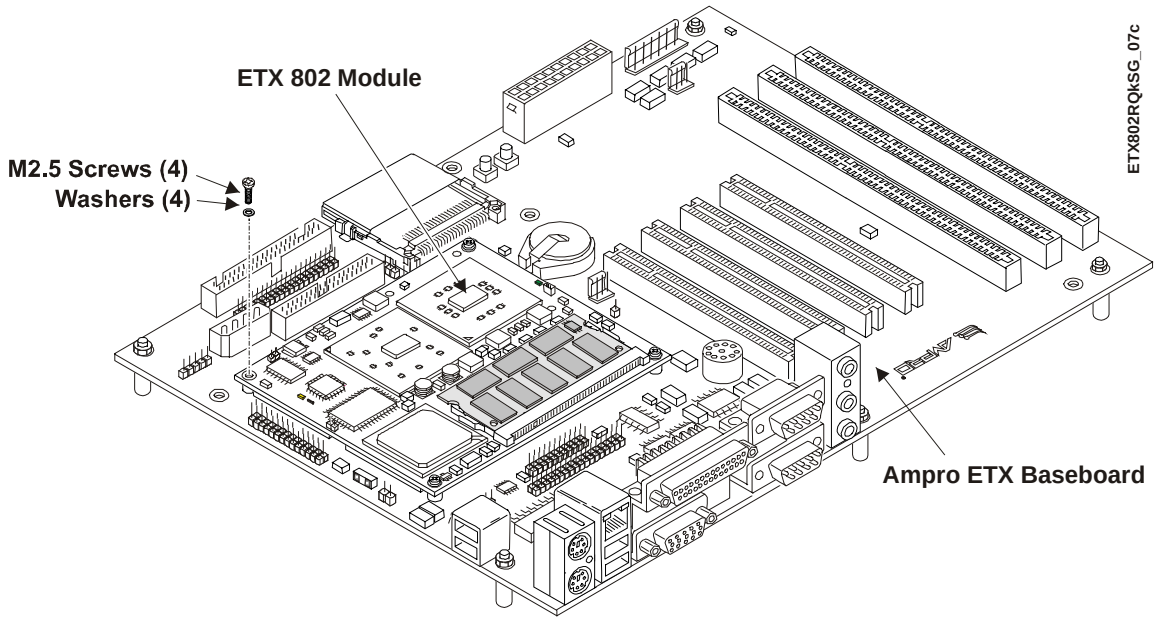


Figure 2-9. Removing the ETX 802 from Baseboard

Installing the ETX 802

1. Ensure the ETX baseboard's power supply is turned off and the ATX power cord is removed from the AC power source.

CAUTION	To prevent damage to the ETX 802, ensure you follow good Electrostatic Discharge principles. Components on the ETX 802 are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the ETX 802 and its related baseboard: Always use an anti-static wrist/ankle strap and a grounding mat. Before you touch the ETX 802, touch a grounded, unpainted metal surface to discharge any static electricity.

2. Grasp the ETX 802 module by its edges and check the connectors on the bottom of the board for debris or anything else that would prevent it from mating with the connectors on the baseboard.
3. Position the ETX 802 over the connectors on the baseboard and match the connectors on the bottom of the ETX 802 to the connectors on the baseboard, as shown in Figure 2-10.

NOTE	The Hirose connector arrangement is keyed to install in only one orientation. One pair of Hirose connectors has a large separation between the connectors, while the other pair of the Hirose connectors has a small separation between the connectors.

4. Lower the ETX 802 onto the baseboard connectors while matching connectors.
5. Slowly work the connectors together on one edge by pressing down on top of the module while pressing up on the bottom of the baseboard at the same time, to prevent flexing the baseboard.

   You should hear a snap or pop when the two Hirose connectors on the ETX 802 completely engage with the two Hirose connectors on the baseboard.

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6. Assemble a screw and washer and then insert the screw and washer from the top of the ETX 802 into the PEM nut on the baseboard. See Figures 2-10 and 2-11.
7. Insert the remaining screws/washers (3) from the top of the ETX 802 into the baseboard at the mounting holes. See Figures 2-10 and 2-11.
8. Check all the cables and ensure all the connections to the ETX baseboard are still properly connected and then restore power to the system.
9. Verify the ETX 802 assembly passes POST, boots the OS, and enough ETX 802 functions are checked to ensure it is operating properly.

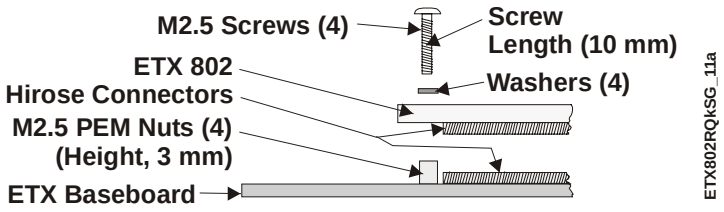


Figure 2-10. ETX 802 & Baseboard Cross-Section (Side view)

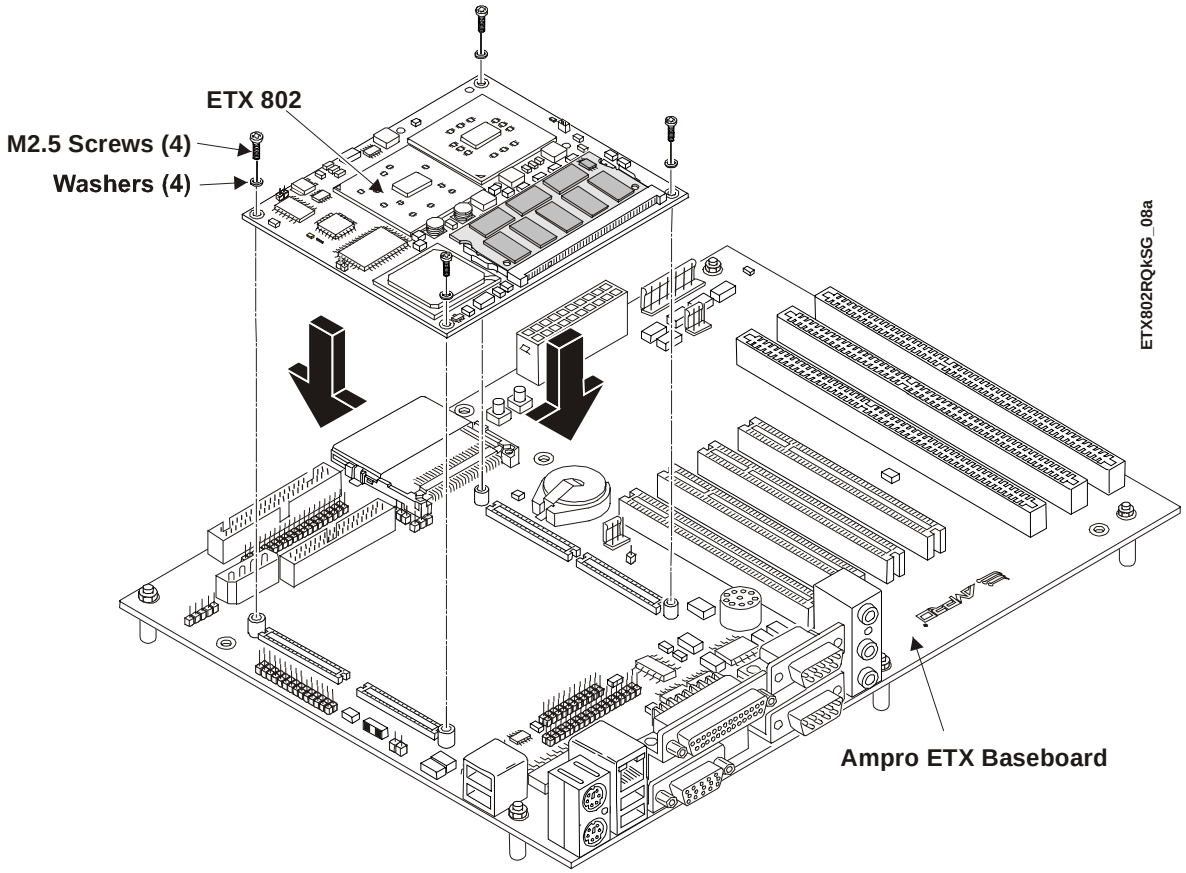


Figure 2-11. Installing ETX 802 onto Baseboard

CAUTION	Some of the ETX 802 features may not work properly if you do not secure the ETX 802 to the baseboard with screws. Just pressing the ETX 802 into the baseboard connectors is not enough, although most functions will work properly. The ETX 802 must be completely connected to the baseboard connectors and secured with screws at all four corners of the module for error free operation.

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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 source files (LAN Boot) or 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 ETX 802 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 ETX 802 Doc & SW CD-ROM.

2. Run the ETX 802 Doc & SW CD-ROM to access the ETX 802 documentation, various utilities, and OS drivers not on the manufacturer's diskette(s) or CD-ROM.

   The ETX 802 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 *ETX 802 QuickStart Guide, ETX 802 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 ETX 802 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:

   - ETX 802 Documentation (SW Release Notes, ETX 802 Reference Manual and QuickStart Guide)
   - ETX 802 Software (Supported operating system Board Support Packages (BSPs), drivers, and code examples, etc.)
   - ETX Baseboard Design Library (Reference Manual, schematic, BOM, and AVL)

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

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

   Refer to the directories on the ETX 802 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 ETX 802 Doc & SW CD-ROM.

   Refer to the directories on the ETX 802 Doc & SW CD-ROM for instructions on installing and using the utilities or development tools for the desired OS.

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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 must log in to go to the "My Stuff" area, where you can 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 logging in 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

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