



C440GX+ Server Board

Emergency Management Port

Configuration and Operating Summary



Revision 1.0
March 24, 1999

Revision History		
Date	Rev	Modifications
3/24/99	1.0	Initial Release

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Introduction

This document is intended to serve as a “quick start guide” to the configuration of the Emergency Management Port (EMP) on an Intel® C440GX+ based server system. The C440GX+ Product Guide and Technical Product Specification (TPS) provide additional detailed information on the Emergency Management Port. The Product Guide is available on the Resource CD-ROM that comes with the C440GX+ Server Board and the TPS can be found on the Intel Support Website at <http://support.intel.com/support/motherboards/server/c440gx>

EMP Overview

The Emergency Management Port provides a rudimentary degree of remote server management with virtually no additional cost. It operates on top of the Server Board’s BIOS, independent of the Operating System. The following capabilities are provided:

- Server power up/down
- System reset
- Text-console redirect (focused on remote BIOS set-up)
- Viewing access to critical event logs stored in Non-volatile memory (NVRAM)
- System Event Log (SEL) – log of all critical server events, used for server monitoring and management.
- Sensor Data Records (SDR) – listing of all sensor fields programmed in the firmware of the Baseboard Management Controller (BMC) used for server management monitoring.
- Field Replaceable Units (FRU) – listing of all replaceable components by serial number.

The EMP Console utility is a 32 bit graphical user interface software utility designed to be installed on a PC running Windows 95 * or greater. EMP Console installation diskettes can be created from the C440GX+ Server Board Resource CD-ROM that ships with the board. The EMP Console connects to the server’s COM2 port through either a serial-serial link or a modem.

Note:

The EMP has an 800mA +5V Standby power requirement. This means if the power supply used has the correct requirements for EMP the C440GX+ server board is powered whenever it is plugged in. To ensure the power supply selected fulfills this power requirement see the tested chassis and power supply summary at <http://support.intel.com/support/motherboards/server/C440GX>.

Assumptions

It is assumed that the integrator has a basic familiarity with BIOS (Basic Input/Output System) Set-up, serial port and modem configuration.

Minimum Requirements

The following minimum components are required to configure a functional C440GX+ server system:

- An Intel C440GX+ Server Board integrated in an approved chassis
- Power supply with minimum 5V standby current requirements
- A minimum of one Intel Pentium® III Xeon™ or Pentium II Xeon Processor
- A processor terminator card in the unused secondary SC330 connector (if uni-processor configuration)
- 32MB of (SDRAM DIMM) system memory
- A floppy drive, CD-ROM drive, and hard drive

For further details on minimum requirements, refer to the C440GX+ Product Guide, Technical Product Specification, tested chassis and power supply document, tested memory document, and the supported

Hardware and Operating System documents. These documents can be found at the Intel Support site <http://support.intel.com/support/motherboards/server/C440GX>.

Supplemental Hardware and Software

In order to employ the EMP remotely a Hayes* compatible external modem must be attached to the COM2 port of the C440GX+ based server system. Additionally, the EMP Console software utility must be installed on an Intel® Architecture PC with a modem running Microsoft* Windows 95* or greater. Among others, 3Com* US Robotics* Sportster*, and Courier* external modems have been demonstrated to effectively work with the EMP.

Server Set up

For this document we will configure EMP to use a modem for the remote connection. If you intend to use a direct connect configuration with a null modem cable, there are a few modifications of the below process. For Step 1, connect one end of the cable to the server's COM2 port and the other end to one of the COM ports on your workstation. Also when configuring the connection type in the BIOS (step 10) choose Direct Connect instead of Modem Connection. Otherwise the rest of the steps below apply.

1. Connect an external modem capable of 19.2 KBPS to the Server's COM2 port.
2. Power on the C440GX+ server system. Press <F2> prior to completion of POST (Power On Self-Test) to enter BIOS Set-up.
3. Use the left/right cursor arrow keys select the tab menu labeled "Server." See Figure 1.

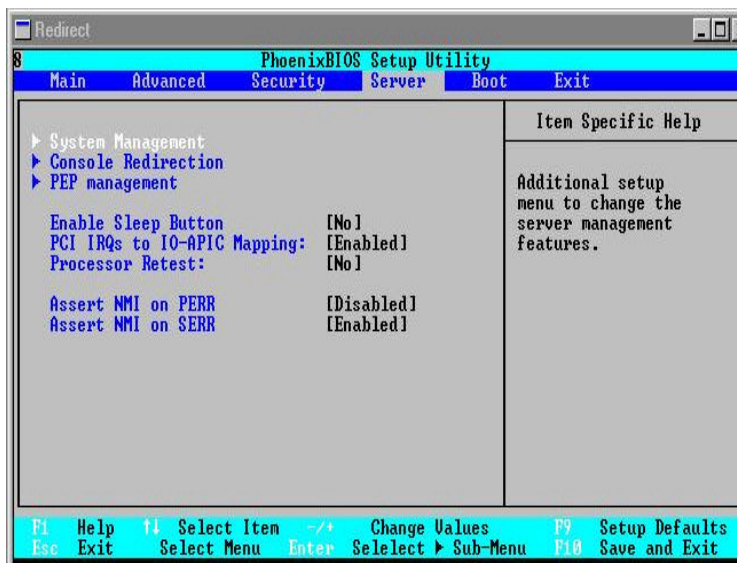


Figure 1: Server Menu in BIOS Setup

4. Use the down cursor arrow key to select "System Management" and press <Enter>. See Figure 2.

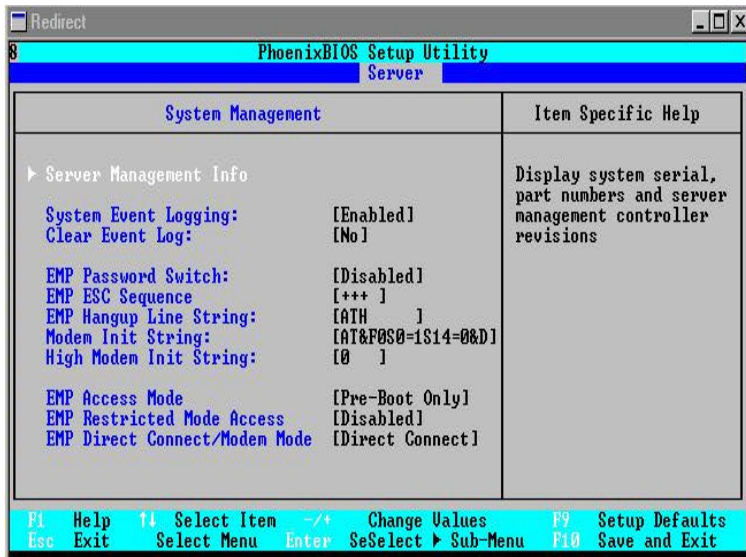


Figure 2: System Management Window

5. Select “**EMP Password Switch**” and change to **[Enabled]**.
6. Once the **EMP Password Switch** option is set to **Enabled**, a new line for **EMP Password** appears. Select “**EMP Password**” and enter the password to be used for that particular server from the EMP Console utility.
7. Leave the following selectable fields as default:
 - “**EMP ESC Sequence**”
 - “**EMP Hangup Line String**”
 - “**Modem Init String**”
 - “**High Modem Init String**”
8. Change “**EMP Access Mode**” to **[Always Active]**. Available modes include:
 - Always active - the COM2 Port is dedicated to the EMP and invisible to the Operating System (recommended for full functionality).
 - Pre-Boot - EMP only has control of the COM2 port when the server is powered down or prior to the completion of POST.
 - Disabled – EMP is unavailable.
9. Change “**EMP Restricted Access**” to **[Disabled]** (recommended for full functionality). Available options include:
 - Enabled - prevents power down and reset control via the EMP.
 - Disabled – all EMP capabilities are available.
10. Select “**EMP Direct Connect/Modem Mode**” and change to **[Modem]**. Available options include:
 - Modem – external modem connected to COM2 port.
 - Direct Connect – serial-serial connection between server’s COM2 port and PC running EMP Console utility.
11. Select <ESC> to back up to the “**Server**” menu
12. Select “**Console Redirection**”. See Figure 3.

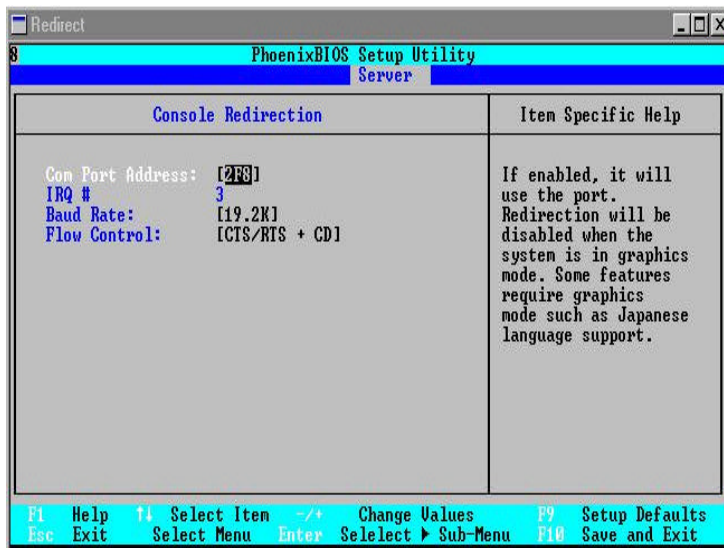


Figure 3: Console Redirection Screen

13. Select “**Com Port Address**” and change to [2F8], the hex address for COM2. EMP requires use of COM2 to function.
14. Change “**Baud Rate**” to [19.2K], this is required for proper communication between the Baseboard Management Controller (BMC) and the modem.
15. Ensure “**Flow Control**” is set to [CTS/RTS + CD], Hardware + Carrier Detect for modem use.

Note: if using a serial cable, this must be set to just [CTS/RTS].

16. Press <F10> to save and exit. The server will save the BIOS changes to NVRAM and reset.

EMP Console Setup

In this section, it is assumed that a modem is going to be the communication medium between the workstation and the server. If a null modem cable is used, skip Steps 1 and 2 and choose “Direct Connect (Serial Line)” at Step 7.

The EMP console needs to be installed on a workstation running Microsoft* Windows* 95, 98 or Windows NT* 4.0 with Service Pack 3 or greater.

1. Install the modem on the workstation according to the instructions provided by the modem manufacturer and boot your workstation.
2. Open the **Start Menu** choose **Settings** and then **Control Panel**. Open the **Modem Control Panel**, highlight your modem and click on the “**Properties**” button.
3. Configure the modem speed for 19.2Kbps to match the required communications rate at the server.
4. Install the EMP Console utility on your workstation from the C440GX+ Server Board Resource CD-ROM. To run the installer, execute the **setup.exe** file located in the EMP folder on the CD. If during the install process you get a version conflict and are asked if you want to install a file which is older than one you already have on your system, select <No>.

Note: If using Microsoft Windows NT* 4.0 with Service Pack 3 you must reinstall Service Pack 3 after EMP Console installation is complete.

5. When Installation is complete launch the EMP Console from the Start menu by selecting **Start | Programs | EMP Console | EMP Console**. See figure 4.

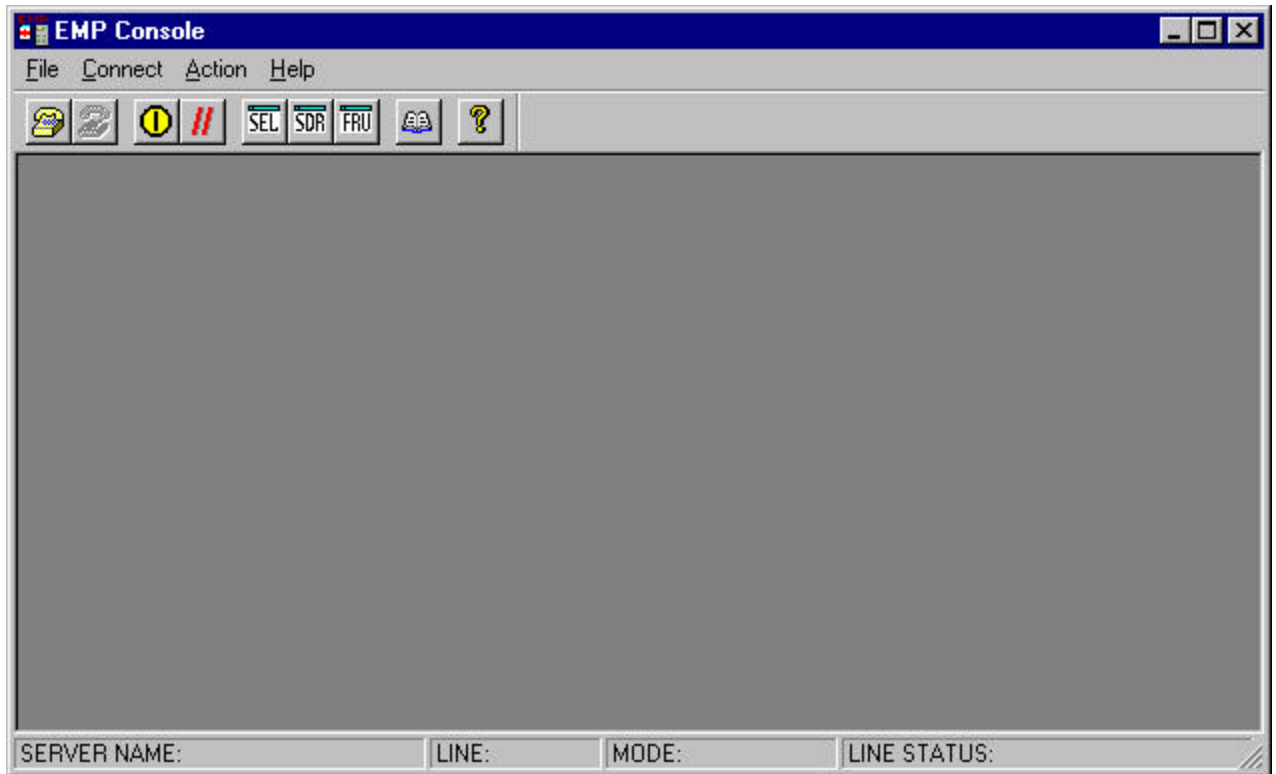


Figure 4: EMP Console Main Screen

6. In the upper left of the screen is an icon which looks like a telephone. Click on this icon to begin the connection process.
7. When the Connect dialog box appears, select your connection type:
 - Direct - serial to serial connection to COM2 Port of the server
 - Dial up (used in this example) – modem connection. First a server name and phone number must be established in the EMP Console phone book. The server name in the EMP Console phone book does not need to correspond with the actual server name.

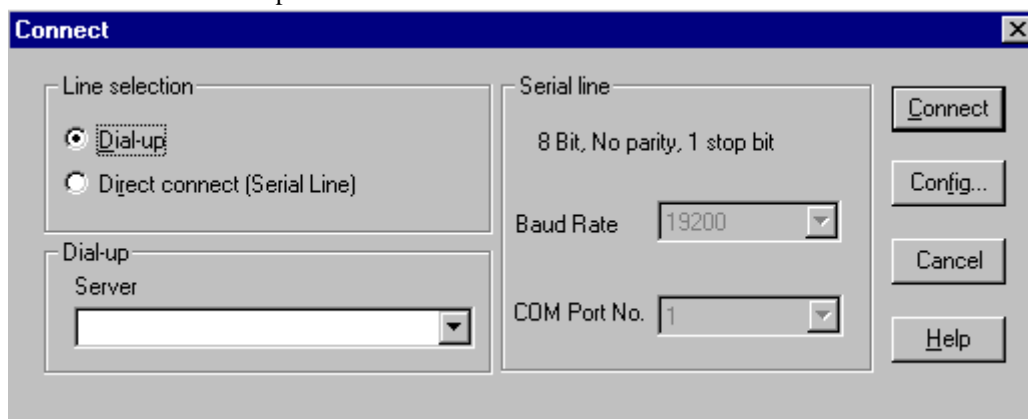


Figure 5: Connection Box

8. In the Server drop down menu, you can select the various servers which have been entered into your EMP phone book. To enter a server into your EMP phone book, click the **Config...** button. This will display a screen where you can enter the name of the system you wish to connect to (the name you enter does not need to correspond to the actual server name) and the phone number for the modem attached to the server.

9. Once you have entered in the information for connecting to the server, click on the **Connect** button on the Phone Book screen. This will return you to the Connect dialog box (Figure 5). Click on the **Connect** button on this screen to begin the connection process.
10. You next see a prompt for the password to connect to the server. See figure 6.

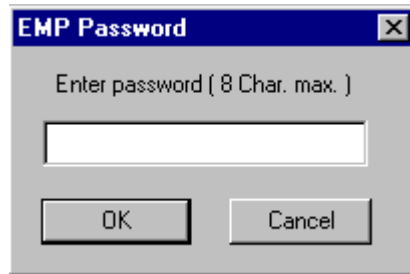


Figure 6: EMP Password Prompt

11. Enter the password and click the **OK** button.
12. You will hear the modem dial and in the lower right corner of the EMP console you will see the various steps of connection:



Dialing



Dial Success



Retrieving Config Data



Connected

13. Once the EMP console has successfully established a connection with the remote server, you can explore the System Event Log (SEL), Sensor Data Records (SDR), and Field Replaceable Unit (FRU) information or you can power the system on, power it off or reboot the system from the EMP console.

Troubleshooting

This section is not intended to be a tutorial on repair and system troubleshooting. It is intended to provide hints for the technician. If the system has just been assembled, a first step should be to check the system against the assembly procedures in the printed C440GX+ Server Board “Quick Start Guide,” and the electronic C440GX+ Server Board Product Guide. Both guides are provided on the C440GX+ Resource CD in the Server Board kit, and on the Intel Corporation support website:

<http://support.intel.com/support/motherboards/server/c440gx>

Trouble Shooting Information	
Problem	Possible Solution
System fails to boot	<p>General: Check power. Be sure cabling, connectors and socketed components are properly seated. Remove all components except for minimum configuration requirements listed above. If possible, test individual components (especially processors and memory) in a known good system.</p> <ol style="list-style-type: none"> 1. Check for processor termination card in empty SC330 connector. 2. Check for approved memory DIMM modules. 3. Be sure that the power supply connector is correctly attached to the C440GX+ 24 pin (ATX 20pin +4) power connector. The Intel Cabrillo-C Server Chassis uses a 24 pin “Modified ATX” power connector. However, most third party chassis use 20 pin ATX power connectors. In the case of an ATX 20 pin power connector, it plugs into the first 20 pins of the C440GX+ 24 pin power connector. 4. Ensure the Power Supply is providing at least 800mA of +5V standby current to support Wake On LAN* (WOL), if not, disable WOL via jumper.
System will not boot from the C440GX+ Server Board Resource CDROM	Incorrect BIOS Boot priority order. Press <F2> during the server’s POST and configure in BIOS set-up under the Boot menu.
EMP Console unable to connect with the C440GX+ based server system	<p>If using Windows NT 4.0, be sure Service Pack 3 was re-installed after installation of EMP Console utility.</p> <p>Double check all BIOS settings to make sure they match the settings detailed in the section of this document titled Server Setup.</p>