L440GX+ Server Board

Quick Start Guide

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您可在下列网址上查阅到本指南的译文:

http://support.intel.com/support/motherboards/server/l440gx/manual.htm

Before You Begin

FCC/ Emissions Disclaimer

This equipment has been tested and verified to comply with Class B limits when configured into a compatible host computer, pursuant to Part 15 of the FCC Rules, CISPR 22, and EN55022. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

To ensure EMC compliance with your local regional rules and regulations, the final configuration of your end system product may require additional EMC compliance testing. For more information please contact your local Intel Representative.

Cautions and Warnings

⚠ **WARNINGS**

Pressing the power button does not turn off power to this board. Disconnect the server board from its power source and from any telecommunications links, networks, or modems before doing any of the procedures described in this guide. Failure to do this can result in personal injury or equipment damage. Some circuitry on the server board may continue to operate even though front panel power button is off.

This guide is for qualified technical personnel with experience installing and configuring server boards.

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

⚠ **CAUTION**

Electrostatic discharge (ESD) can damage server board components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing

an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Items Provided on the Bootable CD-ROM

L440GX+ Server Board Product Guide
Software drivers and utilities
Adaptec† SCSI Guide
Intel Server Control 1.8 and user's guide
Intel® Columbus III Server Chassis Subassembly Product Guide
Intel® Astor II Server Chassis Subassembly Product Guide
To view the product guides, either boot to Windows† 95/Windows NT† and use
Adobe† Acrobat†, or boot the CD-ROM and use the DOS reader provided.

Safety and Regulatory Requirements

See the *L440GX+ Server Board Product Guide* for all applicable safety
standards, electromagnetic compatibility (EMC) regulations, and product
certification markings.

Intended uses: This product was evaluated for use in computers that will be
installed in offices, computer rooms, and similar locations. Other uses require
further evaluation.

EMC testing: Before computer integration, make sure that the chassis, power
supply, and other modules have passed EMC testing using a server board with a
microprocessor from the same family (or higher) and operating at the same (or
higher) speed as the microprocessor on this system board.

Battery warning sticker provided: Place the sticker inside the chassis in an
easy-to-see location near the battery but not on the server board itself.

Server board diagram sticker provided: Place the sticker inside the chassis in
an easy-to-see location, preferably oriented similarly to the server board.

I/O panel sticker provided: Place the sticker on the back of the chassis near the
I/O shield, preferably oriented similarly to the I/O shield.

Minimum Hardware Requirements

To avoid integration difficulties and possible board damage, your system must
contain the following minimum requirements. For a list of qualified memory
and chassis components see
http://support.intel.com/support/motherboards/server/l440gx/compat.htm

Processor

Minimum of one 350 MHz or faster Pentium® II processor and a processor
termination card.

Memory

Minimum of 32 MB of 100 MHz, 3.3 V, PC/100 compliant SDRAM on 168 pin
gold DIMMs. Either 72 bit (ECC) or 64 bit (non-ECC).

Power Supply

Minimum of 300 W with 0.8 A +5 V standby current (in order to support
Wake On LAN† (WOL)). If you choose not to use WOL, make sure the WOL
Enable jumper (J5A2) is in the Disable position (pins 1-2).

Installation Notes

I/O Shield

⟹ **NOTE**

An ATX 2.01-compliant I/O shield is provided with the server board. The shield is required by Electromagnetic Interference (EMI) regulations. It minimizes EMI and ensures proper cooling of the server. If the shield does not fit the chassis, obtain a properly sized shield from the chassis supplier.

The shield fits the rectangular opening near the power supply in the back of the chassis. The shield has cutouts that match the external I/O connectors (e.g., keyboard and mouse).

1 Install the shield from inside the chassis. Orient the shield so that the cutouts align with the corresponding I/O connectors on the server board.

2 Position one edge so that the dotted groove (A) is outside the chassis wall, and the lip of the shield rests on the inner chassis wall.

3 Hold the shield in place, and push it into the opening until it is seated (B). Pressure holds the shield in place.
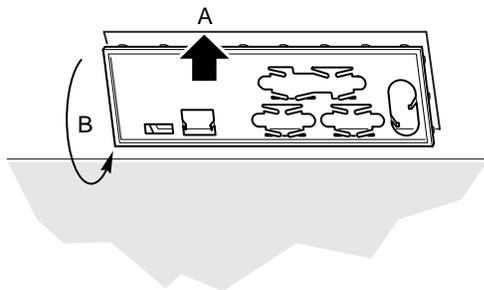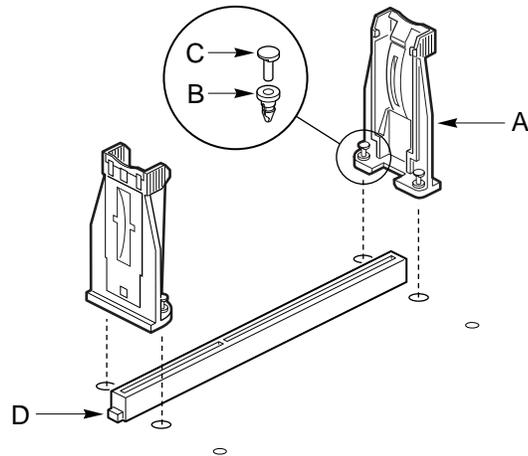

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Microprocessor

The L440GX+ server board supports up to two Pentium II processors (with 100 MHz system bus). If you are installing two processors, make sure they are the same speed, voltage, and stepping.

The processor cartridges are mounted with a retention mechanism, which is provided with the L440GX+ server board.

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1   Place the board on a soft, nonconductive surface. If you place the board on a hard surface, the grommets and pins will not go through the board far enough to seat properly.

2   Orient the retention mechanism (A) so the grommets (B) line up with the holes in the server board.

3   Press the pins (C) so they are flush with the grommets.

4   Repeat for both sides of both processor slots.
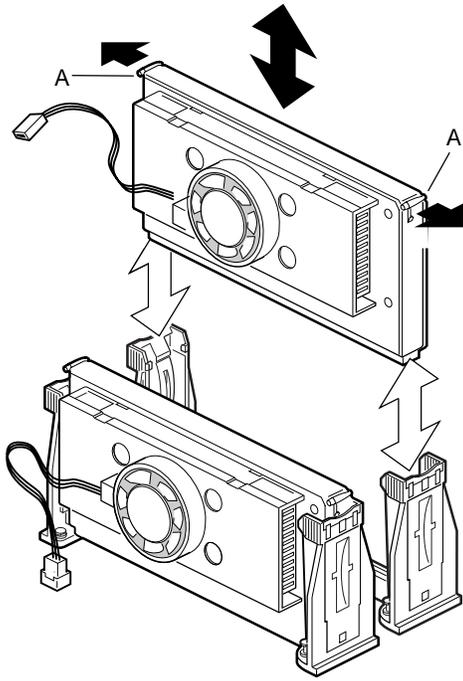
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5 Press the processors into their slots. Make sure that the tabs (A) snap into place in the retention mechanism.

6 Connect the processor fan power cable(s) to both the processor(s) and the connector(s) on the server board. See the server board layout diagram for fan connector locations.

⚠️ **CAUTION, Single-Processor Configurations**

If you install only one processor in a system, it must go in the primary connector (closest to the DIMM sockets). With a single-processor configuration, you must install a termination board and termination latch assembly in the empty secondary connector to ensure proper operation of your system. A termination board is provided with the L440GX+ server board.
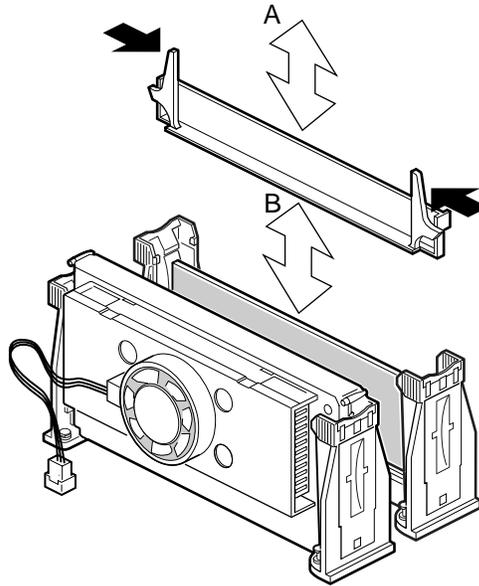

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Memory

Only 100MHz PC/100-compliant SDRAM is supported by the server board.

- Install from 32 MB to 2 GB of unbuffered memory, using up to four single- or double-banked DIMMs, or

- Install from 32 MB to 2 GB of registered memory, using up to four single- or double-banked DIMMs

Installed DIMMs must be the same speed and either all registered or all unbuffered. For a list of supported memory, call your service representative or visit the Intel Support website:

http://support.intel.com/support/motherboards/server/l440gx/compat.htm

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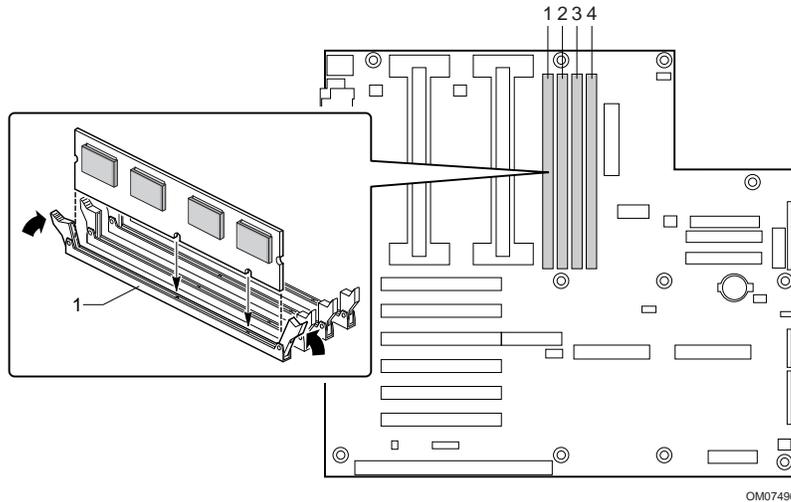
Power Connectors

There are two power connectors on the L440GX+ server board. The main power connector is a 24 pin modified ATX connector (F in the board component diagram). The Intel Astor II chassis uses all 24 pins. Any other chassis with an ATX power supply uses the bottom (closest to the center of the board) 20 pins. The Aux power connector (G in the board component diagram) is provided so standard ATX power supplies can support a fully loaded server board.

⚠ **CAUTION, Correctly Connect Power**

Failure to correctly connect the power supply connector during system integration may result in damage to the server board.

In order to use the Wake On LAN[†] (WOL) capabilities of the L440GX+, your power supply must provide 0.8 A of +5 V Standby current. This powers the Baseboard Management Controller (BMC). If your power supply does not provide this current, you should disable Wake On LAN with the WOL jumper.

ATX (Front Panel) Controls and Indicators

The L440GX+ server board has connectors that meet the standard AT interface for LED indicators and other functions. The connector block is at J6J1.
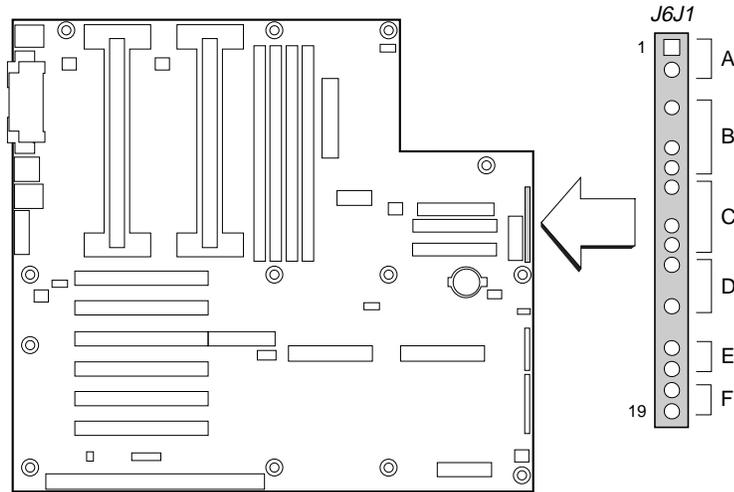
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Connector	Pin	Signal
A. Power switch	1	Power switch
	2	GND
	3	N/C
B. Hard drive activity LED	4	Current limited +5V
	5	Key
	6	HD activity LED
	7	Current limited +5V
C. Speaker	8	GND
	9	N/C
	10	PIEZO_IN
	11	SPKR_HDR
D. Power LED	12	Current limited +5V
	13	N/C
	14	GND
	15	N/C
E. Reset switch	16	GND
	17	Reset switch
F. Sleep switch	18	GND
	19	Sleep switch

Fan Connectors

The server board has five 3-pin keyed fan connectors. Two are located next to the processor slots (one for each processor) for a tachometer or digital fan heat sink. The remaining three fan connectors attach to system fans equipped with sensors that indicate whether the fan is operating. The sensor pins for these fans are routed to the Baseboard Management Controller (BMC).

➡ **NOTE**

> *Fan connectors FAN2A (H in the board component diagram) and FAN2B (CC in the board component diagram) should not be used at the same time. The fans will not operate correctly.*

Fan Connectors

Pin	Signal Name
1	Ground
2	+12 V
3	Fan Sensor

Chassis Intrusion Connector

The server board supports chassis intrusion monitoring. The server board recognizes an open switch as a chassis open condition. If the Chassis intrusion detection jumper is disabled, the switch is bypassed, and the BMC does not monitor if the chassis has been opened.

SCSI Support

The server board has two SCSI connectors. The left one (closest to the PCI slots) supports Ultra2/LVD SCSI. The right one supports UltraWide SCSI.

Common Problems

**The system does not boot or show video at power on?**

- If configuring with only one processor verify that the processor is in the Primary CPU slot and the termination card is in the Secondary CPU slot. (See the Server Board Components drawing).

- Beep code 1-3-3-1 means you have unrecognized or bad memory. Remove DIMMs one at a time to isolate which one is causing problems.

- Your power supply must provide 0.8 A of +5 V Standby current to support WOL. If it does not provide this current, move the WOL Enable jumper (J5A2) to the disable position (pins 1-2).

The system sometimes works, but is exhibiting erratic behavior.

- This is typically the result of using a under-powered power supply. Make sure it's at least a 300 W power supply.

Jumpers

Nine 3-pin jumper blocks that control various configuration options, as shown in the figure below. Refer to the *L440GX+ Product Guide* for more information.

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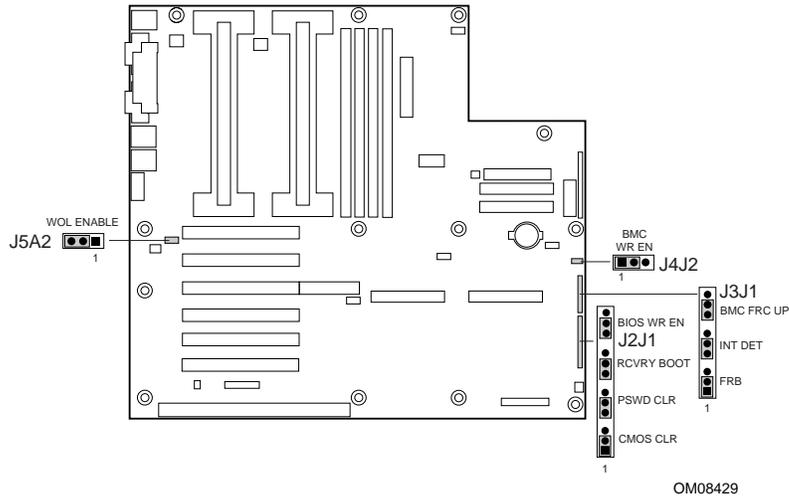
Jumper Block	Jumper Name	Pins (default in bold)	What it does at system reset
J5A2	WOL ENABLE	1-2, Disabled	Disables Wake On LAN. If your power supply does not provide 0.8 A of +5 V Standby current, you must move the WOL Enable jumper to this position.
		2-3, Enabled	Enables Wake On LAN.
J4J2	BMC WR EN	**1-2, Protect**	BMC boot block is write protected.
		2-3, Erase/Program	BMC boot block is erasable and programmable.
J3J1	FRB	**1-2, Enable**	FRB operation is enabled (system boots from processor 1 if processor 0 does not respond).
		2-3, Disable	FRB is disabled.
J3J1	INT DET	**5-6, Enable**	Switch installed on chassis indicates when cover has been removed.
		6-7, Disable	Chassis intrusion switch is bypassed.
J3J1	BMC FRC UP	**9-10, Normal**	System boots normally.
		10-11, Program	System attempts to update BMC firmware.

Continued

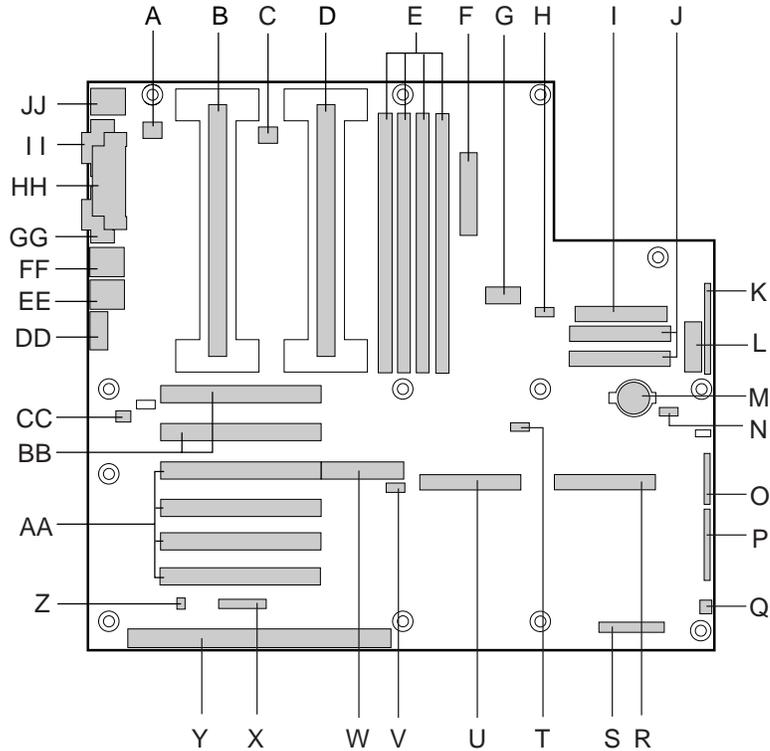| Jumper Block	Jumper Name	Pins (default in bold)	What it does at system reset
J2J1	CMOS CLR	**1-2, Protect**	Preserves the contents of NVRAM.
		2-3, Erase	Replaces the contents of NVRAM with the manufacturing default settings.
J2J1	PSWD CLR	**5-6, Protect**	Maintains the current system password.
		6-7, Erase	Clears the password.
J2J1	RCVRY BOOT	**9-10, Normal**	System attempts to boot using the BIOS stored in flash memory.
		10-11, Recovery	BIOS attempts a recovery boot, loading BIOS code from a floppy diskette into the flash device. This is typically used when the BIOS code has been corrupted.
J2J1	BIOS WR EN	**13-14, Protect**	BIOS boot block is write-protected.
		14-15, Erase/Program	BIOS boot block is erasable and programmable.

⚠ **CAUTION**

Moving either of the boot block write protect jumpers (J4J2-BMC WR EN or J2J1- BIOS WR EN) may cause irrevocable damage to the server board. Only move these jumpers when directed to by your customer service representative.

⟹ **NOTE**

If you wish to use the WOL feature, your power supply must provide 0.8 A of +5 V Standby current. If it does not, your server board may not boot. Move the WOL Enable jumper to the Disabled position if your power supply does not provide the required current.
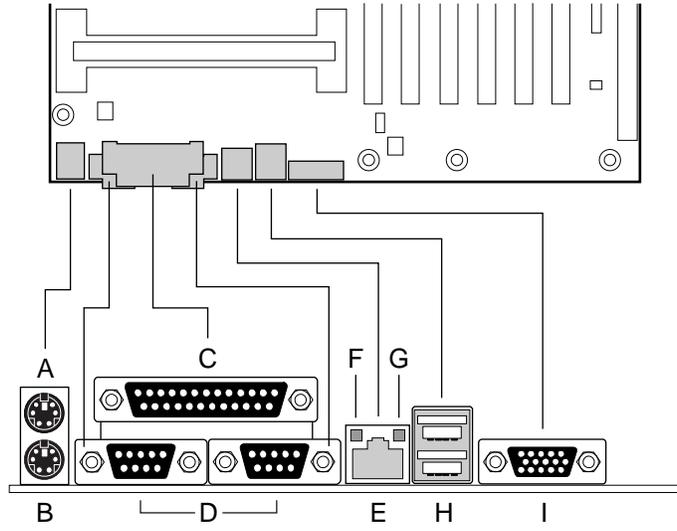
Server Board Components

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A. Fansink connector 2
B. Secondary processor
C. Fansink connector 1
D. Primary processor
E. DIMM slots
F. Main power connector
G. ATX aux power connector
H. Fan connector FAN2A
I. Floppy connector
J. IDE connectors
K. ATX front panel connector
L. Front panel connector, 16 pin
M. Battery
N. Isolated Server Management (ISOL) IMB connector
O. Jumper block
P. Jumper block
Q. Fan connector 1
R. Ultra wide SCSI connector
S. Server Monitor Module (SMM) connector

T. External Wake on LAN connector
U. Ultra2/LVD SCSI connector
V. Hard drive LED connector
W. Adaptec ARO-1130 connector/PCI slot 4
X. Intelligent Chassis Management Bus (ICMB) header
Y. ISA connector
Z. Chassis intrusion connector
AA. PCI connectors
BB. PCI-66 connectors
CC. Fan connector FAN2B
DD. Video connector
EE. USB connectors
FF. NIC connector
GG. Serial port connector
HH. Parallel port connector
II. Serial port connector
JJ. Mouse/keyboard connectors

Back Panel Connectors

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A. Mouse connector
B. Keyboard connector
C. Parallel port connector
D. Serial port connectors
E. Network connector
F. Green NIC LED
G. Orange NIC LED
H. USB connectors
I. Video connector

NIC

LED Color	If it's on	If it's blinking	If it's off
Orange	100 Mbps network connection.	NA	10 Mbps network connection.
Green	Linked to network, no network traffic.	Linked to network, sending or receiving data.	Not linked to network.

Getting Help

World Wide Web

http://support.intel.com/support/motherboards/server/l440gx

Telephone

Talk to a Customer Support Technician* (Intel reserves the right to change pricing for telephone support at any time without notice).

In U.S.: **1-900-555-5800** (M–F, 7:00 *am*–5:00 *pm*, Th 7:00 *am*–3:00 *pm*, PST). Calls billed at U.S. $2.50 per minute.

In U.S. and Canada: **1-800-404-2284** (M–F, 7:00 *am*–5:00 *pm*, Th 7:00 *am*–3:00 *pm*, PST). Credit card calls billed at U.S. $25 per incident.

In Europe:

English language: +44-131-458-6847
French language: +44-131-458-6848
German language: +44-131-458-6954
Italian language: +44-131-458-6951

(M, Th, F, 8:00 *am*–5:00 *pm,* T–W, 8:00 *am*–4:00 *pm*, UK time)
Credit card calls billed at U.S. $25 per incident (levied in local currency at the applicable credit card exchange rate plus applicable VAT).

In Asia-Pacific region (Singapore local time, Oct–April: M–F, 6:00 *am*–4:00 *pm*; April–Oct: M–F, 5:00 *am*–4:00 *pm*).
Credit card calls billed at U.S. $25 per incident.

Australia (Sydney): +1-800-649-931
Hong Kong: +852-2-844-4456
Korea: +822-767-2595
PRC: +852-2-844-4456
Singapore: +65-831-1311
Taiwan: +886-2-718-9915

Rest of the world: Call the North American Service Center at **+1-916-377-7000** (M–F, 7:00 *am*–5:00 *pm*, U.S. pacific standard time).
Credit card calls billed at U.S. $25 per incident.

* Or contact your local dealer or distributor.

Technical Training & Support

If you are registered in the Intel Processor Dealer Program (North America), the Genuine Intel Dealer Program (Asia-Pacific Region), or the Intel Processor Integrator Program (Europe/Latin America), you are eligible for technical training and support.

In U.S. and Canada: **1-800-538-3373**, ext. 442 (M–F, 5:00 *am*–5:00 *pm*, PST)

In Europe: contact your distributor or fax your details to European Literature on **+44 (0) 1793 513142**.

In Asia: **+65-831-1379** (M–F, 8:30 a*m*–5:30 *pm*, Singapore local time) or via e-mail: **APAC_gid@ccm.isin.intel.com**