Product Brief

Intel® Server Board SE7520BD2
• Support for Dual Intel® Xeon™ Processors
• Intel® E7520 Chipset
• PCI Express* I/O Interconnect Technology

intel®

Intel® Server Board SE7520BD2

Powerful processing, high bandwidth, and scalable management for general-purpose servers

The Intel® Xeon™ processor, with up to 2MB Advanced Transfer Cache, Hyper-Threading Technology, Intel® Extended Memory 64 Technology (Intel® EM64T)[1], and Enhanced Intel SpeedStep® technology[2], provides remarkable levels of performance and reliability.
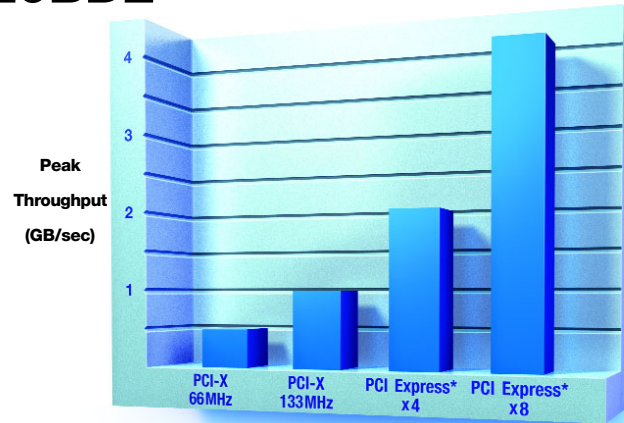
Intel® Server Board SE7520BD2

As the demands on general-purpose servers grow, so do the technologies designed to meet those demands. High-clock-speed CPUs, high-bandwidth I/O, fast-access memory, ample and redundant storage options, and comprehensive management tools—these are the capabilities that businesses and large workgroups depend on to run line-of-business applications, departmental databases, and file and messaging servers. In recognizing the importance of such capabilities for general-purpose servers, Intel offers the Intel® Server Board SE7520BD2.

The Intel Server Board SE7520BD2, based on the Intel® E7520 chipset, provides a powerful processing foundation in its support for dual Intel® Xeon™ processors with an 800MHz system bus. Performance is enhanced through six independent PCI buses supporting not only PCI and PCI-X but also next-generation PCI Express* I/O interconnect technology. The Server Board SE7520BD2 also provides outstanding memory performance, with support for dual-channel DDR 266/333 SDRAM and memory sparing and mirroring. In addition, the board has two integrated Gigabit Ethernet connections and provides options for single- or dual-channel Ultra320 SCSI, both of which include support for RAID 0 and 1.
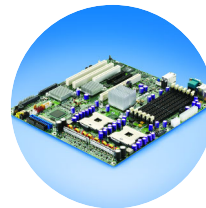
For server management, the Intel Server Board SE7520BD2 provides an impressive set of capabilities through support for the new Intel® Server Management 8 suite of software, hardware, and utilities. This technology, which includes Onboard Platform Instrumentation and optional Intel® Management Module upgrades, can help businesses and workgroups to maintain high availability while reducing support and service costs.



PCI Express* Offers Outstanding Data Throughput

In the Intel® Server Board SE7520BD2[3], the PCI Express* x8 slot provides up to eight times the throughput of PCI-X 66MHz. *Calculations are based on maximum theoretical throughput. Individual results may vary.*

For high-performance and reliable storage, the Intel® Server Board SE7520BD2 provides options for single- or dual-channel integrated Ultra320 SCSI with support for RAID 0 and 1 and for modular ROMB (RAID on motherboard) with support for RAID 0, 1, 5, 10, and 50.

Intel® Server Board SE7520BD2 Features and Benefits

Features	Benefits
Support for one or two Intel® Xeon™ processors with an 800MHz system bus	Processing power and scalability to meet the dynamic demands of general-purpose servers
Support for Hyper-Threading Technology, Intel® Extended Memory 64 Technology (Intel® EM64T)[1], and Enhanced Intel SpeedStep® technology[2]	Compatibility with 64-bit-capable operating systems and applications; reduced power consumption for lower-cost operation
Intel® E7520 chipset	Enterprise performance and reliability in a purpose-built server chipset
Dual memory-channel architecture, six DIMM sockets (three DIMMs per channel) supporting Registered 72-bit data ECC DIMMs for DDR 266/333[4], memory sparing and mirroring[5]	High-performance memory subsystem with capacity and configurability to support diverse server tasks
High-performance I/O with support for PCI Express*, PCI-X, and PCI and six independent PCI buses	Reduction of data bottlenecks to provide the bandwidth necessary for intensive I/O; flexibility and scalability
Optional integrated Ultra320 SCSI[6] controller with support for RAID 0 and 1; optional modular ROMB[7] (RAID on motherboard) with support for RAID 0, 1, 5, 10, and 50	High-performance data transfer with embedded RAID functionality for outstanding data protection
Dual integrated Gigabit Ethernet connections	High bandwidth with teaming and failover capability for demanding server environments
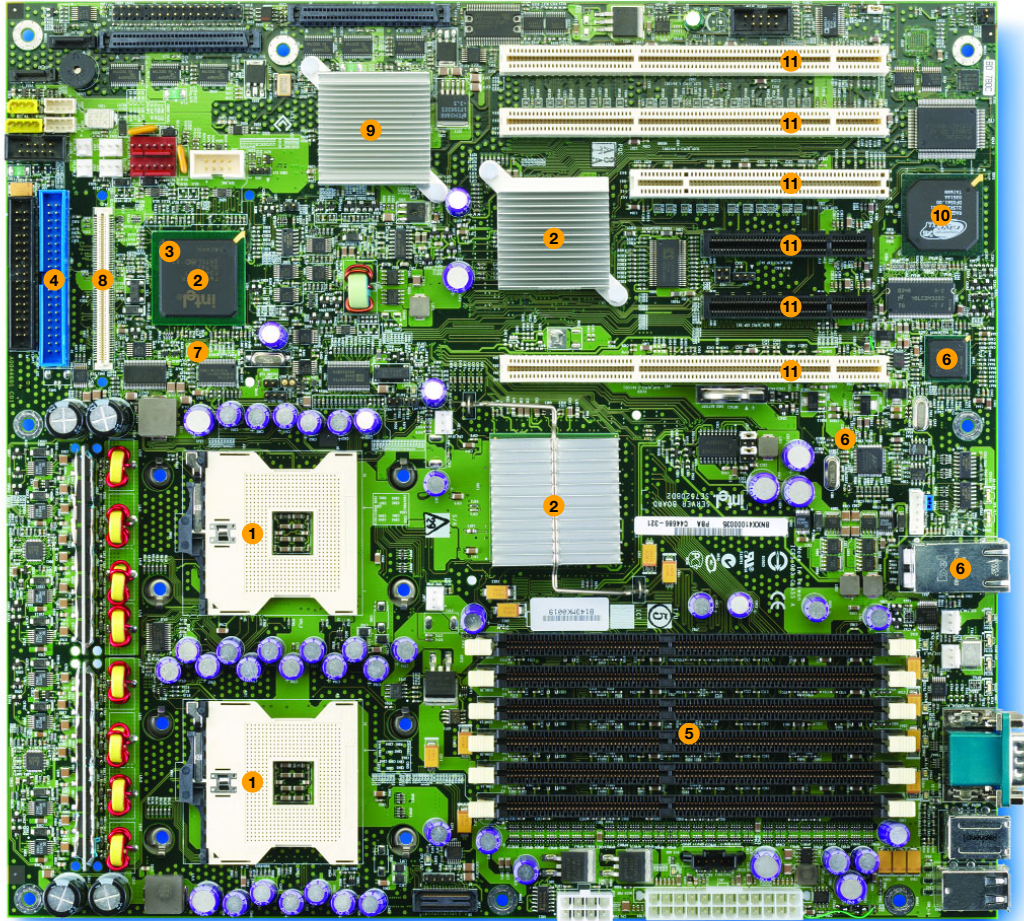
Server board shown is model (product code) SE7520BD2SCSI

Intel® Server Board SE7520BD2

1. Support for two Intel® Xeon™ processors with an 800MHz system bus

2. Intel® E7520 chipset

3. Dual-channel Serial ATA with support for RAID 0 and 1

4. One IDE connector supporting two ATA 100 IDE channels

5. Support for up to 12 GB of Registered ECC DDR 266/333[8] SDRAM
- Dual memory channels for up to 4.26 GB/sec (DDR 266) or up to 6.4 GB/sec (DDR 333) combined bandwidth

6. Two Gigabit Ethernet connections
- One Intel® 82541PI Gigabit Ethernet controller
- One Marvell* Yukon*-EC 88E8050 PCI Express* Gigabit Ethernet Controller

7. Intel® Server Management 8
- Onboard Platform Instrumentation

8. Intel® Management Module upgrade connector
- Support for Intel® Management Module Professional Edition and Intel® Management Module Advanced Edition (optional upgrades)

9. Optional integrated single- or dual-channel Ultra320 SCSI with support for RAID 0 and 1

10. Integrated graphics
- ATI* RAGE* XL SVGA PCI video controller with 8 MB of video memory

11. Six independent PCI buses and up to six[9] adapter slots:
- One PCI Express x8[10]
- One PCI Express x4[11]
- One PCI-X 133MHz
- Two PCI-X 100MHz
- One PCI 32-bit/33MHz 5V

Intel® Server Board SE7520BD2 – I/O Panel Features

1. Keyboard/mouse connector

2. Ethernet connectors

3. USB connectors

4. Video connector

5. Serial connector

The Intel® Server Board SE7520BD2 Supports Technologies That Define Innovation[12]

A number of sophisticated server technologies from Intel work together in the Intel Server Board SE7520BD2 to meet the needs of organizations requiring exceptional processing power, bandwidth, and management capabilities for general-purpose servers. The high-performance processing available through the board's support of dual Intel® Xeon™ processors with an 800MHz system bus is protected by **Intel® Active Airflow Control,** which monitors temperatures and adjusts fans accordingly to keep servers cool and quiet. Complementing this technology is **Intel® Power and Thermal Headroom,** which provides ample power and thermal capacity to maximize performance and minimize validation and support costs.

For manageability, the Server Board SE7520BD2 includes the optional **Intel® Local Control Panel[13],** which enables easy monitoring and control of the server from the front panel, and **Intel® Cable Reduction Technology,** which provides powerful server-management capabilities and reduces cabling costs and complexity. **Intel® Rapid Recovery Toolkit** enables remote management and diagnosis of server failures for quick recovery. And the **Intel® Validation Stress Test Suite** provides rigorous and extensive testing of Intel® Server Boards for fast time-to-market, high data integrity, and low support costs.

Intel server technologies provide powerful capabilities designed to make server systems more reliable, more available, and easier to service. Seamlessly integrated into the latest generation of Intel® Server Products, these technologies work in concert to complement the capabilities of the most current Intel processor and chipset technologies.

Intel® Active
Airflow Control

Intel® Power and
Thermal Headroom

Intel® Local
Control Panel

Intel® Cable Reduction
Technology

Intel® Rapid Recovery
Toolkit

Intel® Validation Stress
Test Suite

For more information on these technologies, please visit:
http://developer.intel.com/design/servers/technologies/

Intel® Server Board SE7520BD2 Boxed Contents

The Intel Server Board SE7520BD2 comes with the following components to help build a powerful, high-bandwidth, and manageable general-purpose server.

1. One Intel Server Board SE7520BD2
2. Quick Start User Guide
3. Intel® Server Management 8 CD Pack containing:
   - Intel® Server Deployment Toolkit with Intel® Express Installer, Intel® Server Maintenance and Reference Training (SMaRT) Tool Software, server product information, technical documentation, customer support information, drivers and utilities, and Web links
   - CD-ROM with Intel® Server Manager 8 family of software
4. Cable kit
5. I/O shield
6. Board-configuration label

The Intel® Server Board SE7520BD2 is available in three configurations to meet diverse needs in I/O, storage, and USB.

Product Code	PCI Configuration	Integrated Storage ATA/SATA	Integrated Storage SCSI	Integrated Networking	Intel® Light-Guided Diagnostics	USB Connection
SE7520BD2	Six independent PCI buses and six total slots: 1 PCI Express* x8 1 PCI Express x4 1 PCI-X 133MHz 2 PCI-X 100MHz 1 PCI 32-bit/33MHz 5V	One IDE connector supporting two ATA 100 IDE channels Dual-channel SATA supporting RAID 0 and 1	Not available	Dual Gigabit Ethernet connections	Yes	Three connectors at rear of board, two headers at front
SE7520BD2V	Six independent PCI buses and five total slots: 1 PCI Express x4 1 PCI-X 133MHz 2 PCI-X 100MHz 1 PCI 32-bit/33MHz 5V	One IDE connector supporting two ATA 100 IDE channels Dual-channel SATA supporting RAID 0 and 1	Single-channel Ultra320/LVD SCSI via either an LSI Logic* 53C1020 or LSI Logic 53C1020A controller	Dual Gigabit Ethernet connections	No	Two connectors at rear of board, two headers at front
SE7520BD2SCSI	Six independent PCI buses and six total slots: 1 PCI Express x8 1 PCI Express x4 1 PCI-X 133MHz 2 PCI-X 100MHz 1 PCI 32-bit/33MHz 5V	One IDE connector supporting two ATA 100 IDE channels Dual-channel SATA supporting RAID 0 and 1	Dual-channel Ultra320/LVD SCSI via an LSI Logic 53C1030 controller	Dual Gigabit Ethernet connections	Yes	Three connectors at rear of board, two headers at front

The Intel® Server Board SE7520BD2 is Part of a Family of Server Boards[14] for Pedestal Solutions and Supporting the Intel® Xeon™ Processor with an 800MHz System Bus.

Product	Market	Positioning	PCI Configuration	Integrated Storage	Integrated Networking	Memory Support	Management Solution
SE7520AF2	Business-critical database and departmental applications	Outstanding performance, excellent data protection, and advanced management for departmental servers	Seven independent PCI buses and five total slots: 1 PCI Express* x8 1 PCI Express x4 2 PCI-X 133MHz 1 PCI-X 100MHz	Dual-channel Ultra320 SCSI with optional integrated Intel® RAID supporting RAID 0, 1, 5, 10, and 50 and support for the Intel® Portable Cache Module; also includes dual-channel SATA with support for RAID 0 and 1, single-channel IDE	Dual Intel® PRO/1000 Server Network Connections	Eight DIMMs, up to 16 GB of ECC DDR2 400	Intel® Server Management 8: Support for Intel® Management Module upgrade (Professional and Advanced Editions)
SE7520BD2	Workgroup application, file, and messaging servers	Powerful processing, high bandwidth, and scalable management for general-purpose servers	Six independent PCI buses and up to six total slots: 1 PCI Express x8 1 PCI Express x4 1 PCI-X 133MHz 2 PCI-X 100MHz 1 PCI 32-bit/33MHz (x8 not included on SE7520BD2V)	Dual-channel Ultra320 SCSI (SE7520BD2SCSI), also available with single-channel Ultra320 SCSI (SE7520BD2V) and without SCSI (SE7520BD2); all board models include dual-channel SATA with support for RAID 0 and 1 and dual-channel IDE	Dual Gigabit Ethernet connections	Six DIMMs, up to 12 GB of ECC DDR 266/333	Intel Server Management 8: Support for Intel Management Module upgrade (Professional and Advanced Editions)
SE7525GP2	Workstations	Extreme I/O and graphics bandwidth support with flexibility for servers and workstations	Four independent PCI buses and six total slots: 1 PCI Express x16 1 PCI Express x4 2 PCI-X 66MHz 2 PCI 32-bit/33MHz	Dual-channel SATA with support for RAID 0 and 1, dual-channel IDE	Single Intel PRO/1000 Network Connection	Four DIMMs, up to 8 GB of ECC DDR 266/333	Intel Server Management 8
SE7320SP2	Entry-level general-purpose, file/print, and Web servers	Real server features that provide room-to-grow for small business server solutions	Four independent PCI buses and five total slots: 1 PCI Express x4 2 PCI-X 66MHz 2 PCI 32-bit/33MHz	Dual-channel SATA with support for RAID 0 and 1, dual-channel IDE	Single Gigabit Ethernet connection	Four DIMMs, up to 8 GB of ECC DDR 266/333	Intel Server Management 8

See http://www.intel.com/go/serverbuilder for details on specific Intel® Server Board configurations.

Compatible Products for Comprehensive Solutions

The following table provides a list of key compatible products for the Intel, Server Board SE7520BD2. Please see
http://support.intel.com/support/motherboards/server/se7520bd2 for the most recent and comprehensive product
compatibility list.

Intel Building Block	Product Name(s)	Product Order Code(s)
Intel® Server Board	Intel® Server Board SE7520BD2	SE7520BD2 SE7520BD2V SE7520BD2SCSI
Intel® Server Chassis	Intel® Entry Server Chassis SC5275-E Intel® Server Chassis SC5300	SC5275E SC5275ENA SC5300BASE SC5300BASENA SC5300BRP SC5300BRPNA SC5300LX SC5300LXNA
Intel® RAID Controllers	Intel® RAID Controller SRCU42E Intel® RAID Controller SRCU42X Intel® RAID Controller SRCZCRX Intel® RAID Controller SRCS16	SRCU42E SRCU42X SRCZCRX SRCS16
Intel® Management Modules	Intel® Management Module Professional Edition Intel® Management Module Advanced Edition	AXXIMMPRO AXXIMMADV
Intel® Server Accessories	Intel® Local Control Panel[13]	AXXLCPPED

For a complete list of spares and accessories,
see the Intel® Server Board SE7520BD2 Configuration Guide at
http://support.intel.com/support/motherboards/server/se7520bd2

To meet a range of computing needs, the Intel® Server Board SE7520BD2
can be integrated with either the Intel® Entry Server Chassis SC5275-E
or the Intel® Server Chassis SC5300.

Intel® Server Board SE7520BD2 Specifications

Processor

One or two Intel® Xeon™ processors with an 800MHz system bus; for the latest processor support information, visit http://support.intel.com/support/motherboards/server/se7520bd2

System Memory

For the latest information on memory support, visit
http://support.intel.com/support/motherboards/server/se7520bd2

Capacity	Six DIMM sockets for up to 12 GB of Registered ECC DDR 266/333 memory (two memory channels with three DIMMs per channel); support for single-channel DIMM operation; minimum of 128MB memory
Type	Registered DDR 266 and DDR 333 SDRAM 72-bit, 184-pin gold-plated DIMMs (DDR 333 should be in BGA package; this is important for signal timing and margin)
Reliability Features	ECC memory support to correct single-bit errors and detect double-bit errors; supports Intel® Single Device Data Correction (SDDC), scrubbing, retry on uncorrectable errors, memory sparing, memory mirroring⁵

Integrated Onboard

Chipset	Intel® E7520 chipset
Server Network Connections	One Intel® 82541PI Gigabit Ethernet controller and One Marvell* Yukon*–EC 88E8050 PCI Express* Gigabit Ethernet Controller, supporting teaming and failover, 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 output
Integrated Management Controller	National Semiconductor* PC87431M Platform Instrumentation ASIC
Graphics	ATI* RAGE* XL SVGA PCI video controller with 8 MB of video memory

Integrated Storage Support

Parallel ATA	Single-channel ATA 100 (integrated single connector) supporting two IDE devices
Serial ATA	Dual-channel SATA 100 (two connectors) supporting integrated RAID 0 and 1
Ultra320 SCSI	SE7520BD2V: One Ultra320/LVD channel via either the LSI Logic* 53C1020 or LSI Logic 53C1020A SCSI controller, supporting RAID 0 and 1, and support for modular ROMB (Intel® RAID Controller SRCZCRX)

SE7520BD2SCSI: Two Ultra320/LVD channels via the LSI Logic 53C1030 SCSI controller and connected via two internal 68-pin-wide connectors; maximum data transfer 320 MB/sec on each Ultra320/LVD channel, supporting RAID 0 and 1, and support for modular ROMB (Intel RAID Controller SRCZCRX) |

Input/Output

PCI	Six total slots⁹: one PCI Express x8, one PCI Express x4 (physical connector is a x8 slot), one PCI-X 133MHz, two PCI-X 100MHz, one PCI 32-bit/33MHz 5V
IDE	One legacy IDE connector for support of up to two IDE devices
USB	Three USB 2.0 connectors¹⁵ at the rear of the board, two USB headers at the front of the board
Serial Ports	One external DB9 serial port; one internal serial port (which can become Emergency Management Port if system-management card supports EMP)
Floppy Controller	1.44 MB and 2.88 MB, 3-mode support
Keyboard/Mouse	Two PS/2 ports, 8240A-compatible

Intel® Server Management

Integrated Management Type	Onboard Platform Instrumentation
Software Support	Intel® Server Manager 8 family of software; upgradable via custom add-in card to support Intel® Management Module
Intel® Management Module Support	Professional Edition, Advanced Edition
Supported Standards	IPMI, DMI, CIM, SNMP, ICMB

Fully Validated Operating Systems

Microsoft* Windows* Server 2003 Enterprise Edition, Microsoft Windows 2000 Advanced Server, Red Hat* Linux* Enterprise 3.0, SUSE* LINUX* 9.1 Professional, SUSE LINUX Enterprise Server 9, and Novell* NetWare* 6.5

System BIOS

Type	4MB Flash ROM with AMI* BIOS, Multiboot BBS (BIOS Boot Specification)
Special Features	Plug and Play, IDE drive autoconfigure, SMBIOS 2.3, ECC/Parity support, multilingual support, enabled for rolling/online BIOS updates, flashable, integrated BIOS setup utility
Configuration Utilities	Server Configuration Wizard for system setup of BIOS utilities; Save and Restore System Configuration Utility and initial Intel Server Management 8 configuration

Jumpers

CMOS clear, password clear, BIOS recovery

Front-Panel Support

Power button, reset button, diagnostic interrupt (front-panel NMI) button, system identify button, system ID LED, status/fault LED, chassis-intrusion switch and front-panel lockout; connection for optional Intel® Local Control Panel¹³ for monitoring and control of the server from the front panel

Mechanical

Board Style	SSI Entry E-Bay v3.0 and v3.5
Board Size	12" x 13" (305 mm x 269 mm)

Power Requirements

+5V	3.6A maximum continuous current
+5V Standby	0.5A minimum continuous current
+12V	0.7A maximum continuous current
+3.3V	3.2A maximum continuous current
–5V	0A maximum continuous current
–12V	0A maximum continuous current

Environment

Ambient Temperature	Operating (system): 5°C to 50°C; non-operating/storage (system): –40°C to +70°C ambient
Relative Humidity	Non-operating: 90%, non-condensing at 35°C

Safety and EMC Regulatory Compliance (Class A)

(EMC Regulatory Compliance is based on a board configured in an Intel host system in which Intel tested the board and found it compliant.)

Country	Certification Safety and/or EMC	Regulatory Mark Safety and/or EMC
Australia/New Zealand	ACA, MED	C-Tick
Canada	UL / Industry Canada	cURus / ICES
Europe	European Directives	CE
International	CB Report / CISPR	Not applicable
Japan	VCCI (Verification only)	Not applicable
Korea	RRL	MIC
Russia	GOST	GOST
Taiwan	BSMI DOC	BSMI
United States	UL / FCC (Verification only)	cURus

N232   ℅UL us E139761   CANADA ICES-003 CLASS A   CE   ME06   D33025   MIC

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1 Intel® Extended Memory 64 Technology (Intel® EM64T) requires a computer system with a processor, chipset, BIOS, OS, device drivers and applications enabled for Intel EM64T. **Processor will not operate (including 32-bit operation) without an Intel EM64T-enabled BIOS.** Performance will vary depending on your hardware and software configurations. **Intel EM64T-enabled OS, BIOS, device drivers and applications may not be available.** Check with your vendor for more information.
2 Enhanced Intel SpeedStep® technology is available on Intel® Xeon™ processors with an 800MHz system bus at operating frequencies of 3.40 GHz and above.
3 Two models of the Intel® Server Board SE7520BD2 support both PCI Express* x4 and PCI Express x8; a third model supports only PCI Express x4.
4 DDR 333 should be in a BGA package; this is important for signal timing and margin.
5 Memory sparing and memory mirroring support may require a BIOS update.
6 Single- or dual-channel SCSI options are available depending on board model.
7 Board requires single- or dual-channel SCSI controller (Intel® RAID Controller SRCZCRX) to support modular ROMB.
8 Based on 4GB DIMM availability and validation; DDR 266 will support up to 24 GB and DDR 333 will support up to 16 GB.
9 Slot support varies depending on board model.
10 Board model SE7520BD2V does not include a PCI Express x8 slot.
11 The PCI Express x4 slot is a PCI Express x8 connector running at x4 speed.
12 Features may vary depending on system configuration and may require the purchase and installation of an optional Intel® Management Module upgrade.
13 The Intel® Local Control Panel requires the purchase and installation of an optional Intel Management Module upgrade.
14 Feature sets vary depending on board model. See http://www.intel.com/go/serverbuilder for more detail.
15 The number of connectors varies depending on board model.

For more information on how to make the Intel® Server Board SE7520BD2 part of your server environment, please contact an Intel® Channel Membership Programs participant