# Intel® Server Board S5500WB

A rack-optimized server board, purpose-built for high energy efficiency and lowest total cost of ownership in dense computing applications.

Key Features

- Supports up to two Intel® Xeon® Processor 5600 series on Intel® Microarchitecture, codenamed Nehalem
- Highly scalable DDR3 memory (8 DIMMs)
- Expandable PCIe 2.0 I/O (up to 2 slots)
- Flexible storage controller options
- Designed with state-of-the-art power and cooling optimizations enabling it to meet demanding data-center performance requirements while dramatically reducing energy consumption.
- Optimized for low TCO in a large data center environment with policy-based power management through Intel® Intelligent Power Node Manager and integrated DCMI / IPMI 2.0 manageability
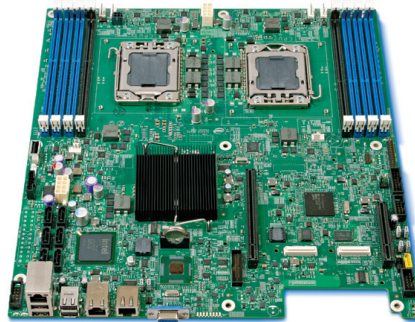
Target Applications: *High-density computing environments where energy costs and total cost of ownership are paramount such as internet portal data centers, cloud computing and High Performance Computing (HPC).*

Features and Benefits

- **Support for one or two Intel® Xeon® Processor 5500 or 5600 series on Intel® Microarchitecture** Increase server performance with no increase in power consumption

- **Fast, scalable and energy-efficient DDR3 memory** Eight, registered or unbuffered DIMMs at up to 1333 MHz, and 6 memory channels ensure energy-efficient performance for any application

- **Expandable I/O architecture** Up to two PCIe 2.0 slots plus an optional Intel® I/O Expansion Module provide maximum flexibility in 1U/2U rack mount applications

- **Flexible storage controller options** Six integrated SATA ports or SAS via optional internal four-port modules with either SAS and SAS RAID support maximize storage flexibility without consuming a PCI slot

- **Power efficient board architecture with optimized voltage regulator designs and a layout that is designed for efficient cooling** Voltage-regulator optimization reduces the excess heat produced by inefficient and wasteful power conversion. A spread-core lay-out allows lower fan speeds, reducing the power used to move air across the board. Together these optimizations reduce power consumption and lower operating costs of the server.

- **Intel® Intelligent Power Node Manager** Enables policy-based power capping capabilities to enable increased rack densities and improved data center utilization

- **Integrated manageability with optional Intel® Remote Management Module 3 (RMM3)** An integrated baseboard management controller with onboard Data Center Manageability Interface (DCMI) and IPMI 2.0 support helps lower IT operating costs while increasing system uptime; optional KVM support and dedicated NIC provide a complete remote management upgrade path

- **Intel® Enabled Server Acceleration Alliance (Intel® ESAA) Certified** Pre-tested and certified configuration guides ("recipes") over a range of applications

UP TO 30% WALL POWER SAVINGS[1]
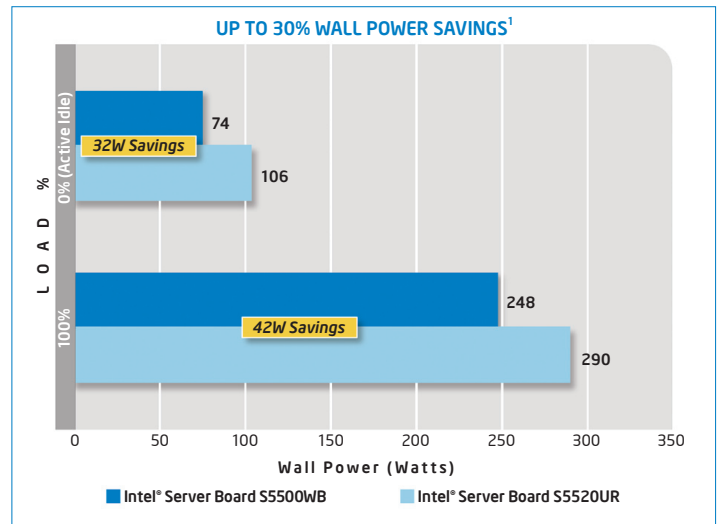
An optimized system built around the Intel® Server Board S5500WB saves 32W at the wall over a typical 1U server such as the Intel® Server System SR1600UR. This equates to total data center power savings of 64W (in a typical data center with PUE of 2.0)[2] Over a four year life, with electricity cost of $0.10 per KWh, that would amount to over $224 in power costs saving for each server deployed.[3]

According to the Climate Savers Computing Initiative, the typical server wastes 30-40% of its input power. This wasted power is given off as heat in the data center which adds significantly to the air conditioning load of the data center and makes the true cost of ownership of inefficient servers much higher than just the power it consumes. In a traditional data center, each Watt of power dissipated requires an additional Watt of electricity in air handling and chilling, so the impact can be doubled.

http://www.climatesaverscomputing.org/about/faq/

Intel® Server Board S5500WB Technical Specifications

Form Factor	SSI EEB (12" x 13")	**Integrated LAN**	Embedded Intel® Dual Gigabit Controller 82576EB with support for Intel Virtualization Technology for Connectivity (VT-c)[6]
Processor	Supports one or two Intel® Xeon® Processor 5500 or 5600 series[4]	**Integrated Graphics**	Server Engine* LLC Pilot II* Controller with 64 MB DDR2 memory, 8MB allocated to graphics
Chipset	Intel® 5500 chipset with Intel® ICH10R	**Management Hardware**	Integrated IPMI 2.0 Baseboard Management Controller • Fan speed control • Diagnostic LEDs • Temperature monitoring and recovery • SMASH CLP (command line interface) • Email alerting • Power management with Intel® Intelligent Power Node Manager • Support for the Data Center Manageability Interface (DCMI 1.0) Optional Intel® Remote Management Module (RMM3) • KVM & Virtual Media redirection • Dedicated 3rd NIC • Remote Power on/off • Embedded Web UI • Event log and configuration
Intel® Quick Path Technology	4.8GT/s, 5.86GT/s and 6.4GT/s		
Memory Capacity	Eight DDR3 DIMM sockets (Registered or Unbuffered) • Six channel native (800/1066/1333MHz)		
Storage	• Six SATA ports (3 Gbps) via ICH10R with Intel® Embedded Server RAID Technology • Modular four-port SAS and SAS RAID options via Intel® I/O Expansion Module		
Intel® RAID Support	Integrated SATA • Intel® Embedded Server RAID Technology with host-based SW RAID levels 0/1/10 Optional SW RAID 5 with activation key Optional internal SAS modules do not consume a valuable PCI slot like a traditional add-in card: • Intel® SAS Module AXX4SASMOD with RAID 0, 1, 1E, 10, and optional host-based SW RAID 5 • Intel® RAID Controller SROMBSASMR with RAID 0, 1, 5, 6, 10, 50 and 60 and optional Intel® RAID Smart Battery Validated with Intel® RAID Controllers[5]		
Expansion Slots	Up to two expansion slots in a 2U chassis: • 1 PCI Express* 2.0 x8 slot (x16 mechanical) • 1 PCI Express 2.0 x4 slot (x8 mechanical) One expansion slot in a 1U chassis: • 1 PCI Express 2.0 x8 slot (x16 mechanical) Either 1U or 2U chassis can also accommodate one Intel I/O Expansion Module (PCI Express 2.0 x8) Optional Intel® I/O Expansion Modules include: • 4 port external or internal SAS (based on LSI* 1064e) • 4 port internal SAS RAID (see Intel® RAID Support above) • Dual-port 10 Gigabit Ethernet • Dual and Quad-port Gigabit Ethernet • InfiniBand* (Mellanox*)	**Management Software**	Intel® Deployment Assistant 3.X • Wizard based UI to deploy, configure and update server • BIOS, BMC and RAID array configuration • Unattended OS install • Online patch updates Intel® Server Management Software 3.X • View critical or warning events • Power on/off/reset • View sensor (fan speeds, temperature, power) • Full IPMI 2.0 interface • Chassis Intrusion detection • Serial Over LAN (Text Console Redirection)
		Chassis	Intel® Server System SR1690WB See support.intel.com for 3rd party chassis option

Regulatory Compliance

This server board has been tested and/or certified for the following regulatory compliance to enable final system integration compliance.

Use of this Intel Server Board requires the final integrated system being evaluated for system level compliance. System level compliance may include Safety, EMC, Product Ecology and any other legal ordinances required for product being sold into any particular region.

Region (Compliance Obtained)	Board Markings
Australia (ACA) / New Zealand (MED)	C N232
Canada (NRTL / Industry Canada) & USA (NRTL / FCC Verification Only)	c **UL** us
	ICES-003
China (CNCA / MII RoHS)	(20)
Europe (EU Directives) - LVD & EMC require CE mark; No mark required for RoHS	CE
International Compliance (CB Report & CISPR Emission & Immunity)	Marking Not Required
Japan - Verified in Chassis to illustrate compliance to VCCI requirements	Marking Not Required
Taiwan (BSMI)	D33025
	警告使用者： 這是甲類的資訊產品，在居住的環境中使用時 ，可能會造成射頻干擾，在這種情況下，使用 者會被要求採取某些適當的對策。

To build your system and get more details on server configurations from Intel visit:
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[1] Power benchmark data from SPECpower_ssj2008. http://www.spec.org/specpower/ Measurements were taken on pre-production systems (January 2009) that were configured with identical memory, processors and hard disk drive, operating system and JVM. Variables were fan configuration, cooling duct design, fan speed control and power supply wattage and efficiency rating.

[2] PUE = Power Usage Effectiveness. A PUE of 2.0 means that for every 2 watts in at the utility meter, only one watt is delivered out to the IT load (the server in this case). PUE ratio of 2.0 is the average value across all U.S. data centers.
Source: http://www.energystar.gov/ia/partners/prod_development/downloads/EPA_Datacenter_Report_Congress_Final1.pdf

[3] Calculation backup: 32W x 4 years x 365 days x 24 hours/1000 = 1,121 Kilo Watt Hours (KWh). At a PUE of 2.0, that becomes 2,241 KWh x $0.10/ KWh = $224.

[4] When installing two processors, both processors must be from the same processor series; either two Intel® Xeon® processor 5500 series or two Intel® Xeon® processor 5600 series. Out of the box support for the Intel Xeon 5600 series processors will be indicated by the addition of the letter "R" at the end of the Product Order Code. For boards and systems currently supporting the Intel Xeon 5500 series, a BIOS update is required before installing the 5600 series processor(s). Refer to http://support.intel.com for more information.

[5] For tested Intel® RAID Controller options go to http://support.intel.com/support/motherboards/server/compat_matrix.htm

[6] Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain computer system software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

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