Product Brief

Intel® Server System SR4850HW4

Intel® Server System SR6850HW4

Support for up to Four Multi-Core Intel® Xeon® Processors 7100 Series

Comprehensive Interconnect Technologies

Versatile Configuration Options, Form Factors and Expandability

Leading Performance for Enterprise Applications

Intel® Server Systems SR4850HW4 and SR6850HW4

Enterprise performance for scalable business solutions

To maintain a competitive advantage, businesses of all sizes need an ongoing commitment to boosting productivity, managing a rapidly growing volume of data and enhancing system flexibility. They require server systems that support expanded uptime, faster data access and more storage, as well as a system provider that offers a breadth of complementary products and support. Intel delivers this and more with its eighth-generation, multi-processor server systems to support the new Multi-Core Intel® Xeon® processor 7000 sequence. The Intel® Server Systems SR4850HW4 and SR6850HW4 make the ideal foundation for a reliable, high-performance enterprise system.

The Intel® Server Systems SR4850HW4 and SR6850HW4 are based on the Multi-Core Intel® Xeon® processor 7100 series for multi-processor servers. They support both 64-bit and 32-bit applications with Intel's groundbreaking Hyper-Threading Technology[1] (HT Technology) and Intel® Extended Memory 64 Technology (Intel® EM64T)[2], deliver outstanding performance, headroom and versatility for enterprise-level server solutions.

Intel® Server Systems SR4850HW4 and SR6850HW4

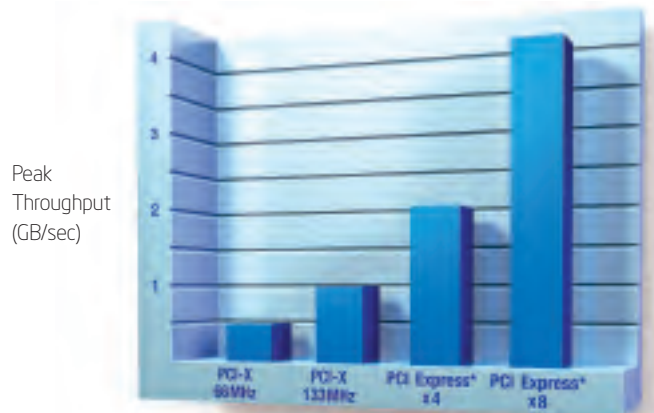## Quad Multi-Core Processing Performance

The Intel Server Systems SR4850HW4 and SR6850HW4 support up to four Multi-Core Intel Xeon processors in a rack mount or a pedestal chassis form factor. These systems use groundbreaking Hyper-Threading Technology to increase compute power and throughput. This technology, complemented with support of up to 64MB processor cache, provides a perfect performance fit for IT consolidation.

Streamlining Infrastructure While Improving Flexibility

By supporting up to four powerful Multi-Core Intel Xeon 7100 series processors, Intel Server Systems SR4850HW4 and SR6850HW4 deliver bottom-line enterprise performance benefits. A small number of 4-way servers can replace groups of 1-way and 2-way servers, helping businesses to reduce total infrastructure costs and boost return on investment.

Robust Data Protection, Easier Management

To maintain the integrity of essential data, Intel Server Systems SR4850HW4 and SR6850HW4 feature redundant hot-swap power supplies and fans, hot-swap small computer system interface (SCSI) drives, hot-plug peripheral component interconnect (PCI) slots and extensive memory reliability, availability and serviceability (RAS) capabilities.

Peak Throughput (GB/sec)

PCI Express* Offers Outstanding Data Throughput

In the Intel® Server Systems SR4850HW4 and SR6850HW4, the PCI Express* x8 slot provides up to eight times the throughput of PCI-X 66 MHz. Calculations are based on maximum theoretical throughput. Individual results may vary.

Onboard support for Intel Fibre Channel and redundant array of independent disk (RAID) modules enables expansion of enterprise input/output (I/O) capability while leaving PCI Express* and PCI-X slots available for other uses.

Features	Benefits
Support for up to four Multi-Core Intel® Xeon® processors 7100 series with up to 4 MB L2 Cache and Hyper-Threading Technology	Provides performance and scalability for the most demanding server applications
Sixteen DIMM sockets compatible with ECC DDR2 400 SDRAM	Offers memory capacity and flexibility to support a wide range of server solutions
Advanced data protection with RAID and memory sparing and mirroring	Increases server uptime
Seven PCI slots: • Four PCI Express* (hot-plug) • One PCI-X 133 MHz (hot-plug) • Two PCI-X 100 MHz	Minimizes data bottlenecks and provides high bandwidth and excellent scalability
Support for hot-plug PCI and memory	Reduces server downtime required for adding or removing many components
Two independent Ultra320* SCSI channels	Delivers high-volume data throughput and configuration flexibility
Intel® Server Management	Provides comprehensive system management

Intel® Server System SR4850HW4: 4-Way Multi-Core Power in a 4U Form Factor

The Intel Server System SR4850HW4 is a space-efficient rack-mount server that packs enormous processing power in a 4U form factor. As a result, the Intel Server System SR4850HW4 is ideal for consolidating servers and applications into a cost-effective, easily managed, density-friendly environment.

Features	Benefits
4U rack-optimized form factor	Provides high-density format for maximum power in minimum space
Up to five one-inch hot-swap Ultra320* SCSI hard drives with support for 15K RPM technology	Delivers high-performing and reliable storage for demanding data needs
Redundant hot-swap 1470W 1+1 power supplies	Offers high availability with no downtime required for replacement

Intel® Server System SR6850HW4: Performance, Reliability, Expandability

The Intel Server System SR6850HW4 provides the same remarkable performance and reliability as the Intel Server System SR4850HW4 in a 6U rack or pedestal configuration with support for up to 10 hard disk drives for greater storage expandability. This makes the Intel Server System SR6850HW4 an excellent solution for growing business as well as any business using applications that demand a high volume of local data storage.

Features	Benefits
6U rack-optimized form factor or optional pedestal conversion kit	Provides configuration flexibility and an easily converted pedestal orientation
Up to 10 one-inch hot-swap Ultra320* SCSI or SAS hard drives with support for 15K RPM technology	Delivers high-performing, reliable and highly expandable storage for demanding data needs
Redundant hot-swap 1570W 1+1 power supplies	Offers high availability with no downtime required for replacement

Intel® Server System SR4850HW4

1. Up to four Multi-Core Intel® Xeon® processors 7100 series

2. Support for up to 16 DIMMs of Registered ECC DDR2 400 SDRAM[3]

   ▪ Support for hot-plug memory, memory RAID, and memory sparing and mirroring

3. Seven PCI slots: one PCI Express* x8 (hot-plug), three PCI Express x4 (hot-plug), one PCI-X 133 MHz (hot-plug) and two PCI-X 100 MHz (non-hot-plug)

4. DVD-ROM/CD-ROM

5. Two hot-swap variable-speed electronic fan modules with 2+2 redundant fans

6. Five hot-swap hard-drive bays that support up to five one-inch Ultra320* hard drives

7. Video connector

8. Three Universal Serial Bus (USB) connectors

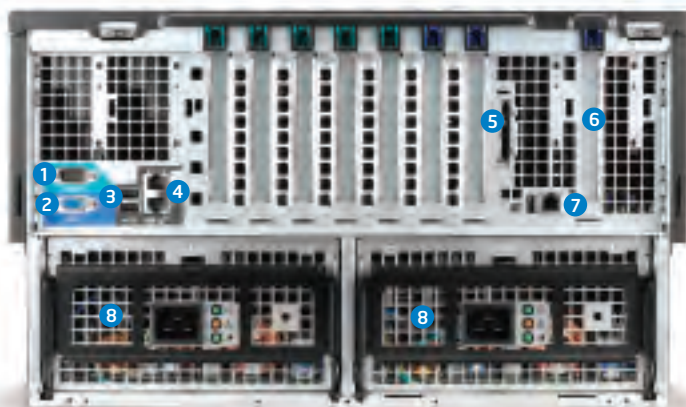9. Support for two control-panel options: Intel® Local Control Panel (shown) and button control panel

Intel® Server System SR4850HW4 – Rear View

1. DB9 serial port connector

2. Video connector

3. Two USB connectors

4. Two Ethernet* connectors

5. External SCSI connector

6. Optional Intel® Fibre Channel Module (shown)

7. Intel® Server Management Module Ethernet connector

8. Redundant hot-swap 1470W 1+1 power supplies[4]

Intel® Server System SR6850HW4

1. Up to four Multi-Core Intel® Xeon® processors 7100 series

2. Support for up to 16 DIMMs of registered ECC DDR2 400 SDRAM[3]
   - Support for hot-plug memory, memory RAID, and memory sparing and mirroring

3. Seven PCI slots: one PCI Express* x8 (hot-plug), three PCI Express x4 (hot-plug), one PCI-X 133 MHz (hot-plug), and two PCI-X 100 MHz (non-hot-plug)

4. DVD-ROM/CD-ROM

5. Six hot-swap variable-speed electronic fans with 5+1 redundant fans

6. Ten hot-swap hard-drive bays that support up to 10 one-inch Ultra320* or SAS hard drives

7. Video connector

8. Three USB connectors

9. Support for two control-panel options: button control panel (shown) and Intel® Local Control Panel

Intel® Server System SR6850HW4 – Rear View

1. DB9 serial port connector

2. Video connector

3. Two USB connectors

4. Two Ethernet* connectors

5. External SCSI connector

6. Optional Intel® Fibre Channel Module

7. Intel® Server Management Module Ethernet connector

8. Redundant hot-swap 1570W 1+1 power supplies[4]

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Compatible Products for Comprehensive Solutions

The following table provides a list of key compatible products for the Intel Server Systems SR4850HW4 and SR6850HW4.
Please see www.intel.com/go/serverproducts for the most recent and comprehensive product compatibility list.

Intel Building Block	Product Name(s)	Product Order Code(s)
Intel® Server System	Intel® Server System SR4850HW4/S (4U SAS) Intel® Server System SR4850HW4/M (4U SCSI) Intel® Server System SR6850HW4/S (6U SAS) Intel® Server System SR6850HW4/M (6U SCSI)	SHW4URM3SA SHW4URM SHW6URM3SA SHW6URM

Intel Server Accessories (required)	Intel® Management Modules (choose one)
	    Intel Management Module Professional Edition
	    Intel Management Module Advanced Edition
		
		AHWIMMPRO2
		AHWIMMADV2

	Front Control Panel (choose one)
	    Button Control Panel
	    Intel Local Control Panel
		
		AXXBCPMOD2
		AXXLCPMOD2

	Power Supply Bay (SR6850HW4 only, choose one)
	    1570W Power Supply Module
	      (required for full power redundancy)
	    Active Power Fan Unit
		
		AHW6UPWR
		
		AHW6UPWRFAN

	Processor Support
	    Processor Core VRM 10.2
	      (one required when populating three processors, two required
	      when populating four processors)
	    Processor Cache VRM 9D0
	      (required when populating three or four processors)
	    Processor Thermal Blank
	      (for unpopulated processor sockets)
		
		AHWVRMPM
		
		AHWVRMCM
		
		AHWPROCBLANK

Intel Server Accessories (optional)	Memory Board (system ships with one and supports the installation of three additional boards)	BHW4DIMMM
	Intel® RAID Activation Key	AXXRAKU42E (SCSI) AXXRAK18E (SAS)
	Intel® RAID Smart Battery	AXXRSBBU3
	Intel® Fibre Channel Module (using onboard connector without consuming PCI slot)	AHWFCMOD

	Rack-Mounting Accessories
	    Tool-less Rail Kit
	    Cable-Management Arm
		
		AXXRAIL3U7U
		AXXCMA3U7U

	Front Bezel
	    SR4850HW4 (4U)
	    SR6850HW4 (6U Rack)
	    SR6850HW4 (6U Pedestal)
		
		AHW4URBEZEL
		AHW6URBEZEL
		AHW6UPBEZEL

	Pedestal Conversion Kit	AHW6UPEDKIT

The Intel® Server Systems SR4850HW4 and SR6850HW4 Support Technologies that Define Innovation

A number of sophisticated Intel® server technologies work together in Intel Server Systems SR4850HW4 and SR6850HW4 to maximize performance and uptime and simplify management.

- **Intel® Power and Thermal Headroom** provides sufficient power supply and thermal protection to maintain performance levels in current and next-generation servers.

- **Intel® Active Airflow Control** works in concert with Intel Power and Thermal Headroom to monitor temperatures and adjust fans accordingly.

- **Intel® Drive Stabilization Technology** reduces hard drive vibration, which improves drive reliability, longevity and performance.

- The optional **Intel® Local Control Panel** enables easy monitoring and control of the server through an innovative optional control panel located in the front panel.

- **Intel® Light-Guided Diagnostics** simplifies troubleshooting to enable easier servicing and faster recovery.

For more information on these technologies, visit:
www.intel.com/go/servertechnologies

Rack slide rails and a cable-management arm are among many Intel® Server System SR4850HW4 and SR6850HW4 components that can be assembled and installed without the need for tools. The cable-management arm extends and retracts to organize the server cables.

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[1] Hyper-Threading Technology requires a computer system with an Intel® Pentium® 4 processor supporting Hyper-Threading Technology and an HT Technology enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See www.intel.com/products/ht/hyperthreading_more.htm for more information including details on which processors support HT Technology.

[2] Intel® Extended Memory 64 Technology (Intel® EM64T) requires a computer system with a processor, chipset, operating system, BIOS, 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 operating system, BIOS, device drivers and applications may not be available.** Check with your vendor for more information.

[3] Shown here with three optional memory boards. The system ships with one board and supports the installation of three additional boards (order code BHW4DIMM, each board).

[4] Shown here with optional second power supply (order code AHW6UPWR) required for full redundancy.

Intel® Server Systems SR4850HW4 and SR6850HW4 Specifications

Processor Supported

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

Up to four Dual-Core Intel® Xeon® processor 7100 series with up to 16MB L3 Cache, a 800 MHz system front side bus, Hyper-Threading Technology and Intel® Extended Memory 64 Technology (Intel® EM64T)[2]

System Memory

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

Capacity	Support for up to 64 GB in up to 16 DIMM sockets
Type	Registered ECC DDR2 400 SDRAM 72-bit, 240-pin gold-plated DIMMs
DIMM Sizes	256 MB, 512 MB, 1 GB, 2 GB, 4 GB
Memory Voltage	1.8V only
Reliability Features	ECC memory support to correct single-bit errors and detect multiple-bit errors; supports memory RAID, hot-plug memory, memory sparing and mirroring

Integrated Onboard

Chipset	Intel® E8501 Chipset
Intel® Server Network	Dual Gigabit Ethernet* connections, one Intel® Server Management Ethernet port
Super I/O Controller Connections	National Semiconductor* Super I/O PC87364 controller chip providing all PC-compatible I/O
Ultra320* SCSI Controller	LSI Logic* LSI53C1030 Dual-Channel Ultra320 SCSI Controller
Graphics	ATI* RADEON* 7000 VGA PCI graphics controller with 1600x1200 maximum resolution, 16 MB of video memory (SDRAM)

Input/Output

PCI	Seven total PCI expansion slots: • one PCI Express* x8 (hot-plug) • three PCI Express x4 (hot-plug) • one PCI-X 133 MHz (hot-plug) • two PCI-X 100 MHz (non-hot plug)
USB	Five USB 2.0-compatible connectors (two rear, three front access)
Serial Ports	One rear DB9 9-pin connector
Video Port	One rear and one front standard VGA-compatible 15-pin connector
LAN Port	Two 10/100/1000Mb RJ-45
Other	One 10/100Mb RJ-45 server management port, external SCSI connector (optional)

Dimensions

	SR4850HW4	SR6850HW4
Form Factor	Rack	Rack or pedestal (using an optional configuration kit) 6U, 10.3" (262 mm)
Height	4U, 6.8" (173 mm)	17.6" (447 mm)
Width	17.6" (447 mm)	27.8" (706 mm)
Depth	27.8" (706 mm)	130 lbs. (59 kg.)
Weight (maximum configuration)	90 lbs. (41 kg.)	

Storage and Cooling

	SR4850HW4	SR6850HW4
Supported Hard Drives	Five hot-swap drives up to 15K RPM, Ultra320 SCSI SCA-type hard disk drives (SR6850HW4/M) Five hot-swap drives up to 15K RPM, SAS hard disk drive (SR6850HW4/S)	Ten hot-swap drives up to 15K RPM, Ultra320 SCSI SCA-type hard disk drives (SR6850HW4/M) Ten hot-swap drives up to 15K RPM, SAS hard disk drive (SR6850HW4/S)
Additional Drive Bays	Two total (one half-height 5.25" empty, one DVD-ROM/CD-ROM filled)	Two total (one full- or half-height 5.25" empty, one DVD-ROM/CD-ROM filled)
System Cooling	Four fans using a 2+2 redundant configuration for cooling all system components	Six fans using a 5+1 redundant configuration for cooling all system components

Front-Panel Buttons

Reset	Resets system
NMI	Initiates a non-maskable interrupt
Power	Toggles system power
Chassis ID	Activates the blue chassis ID LED on both the front control panel and on the base-board at the rear panel of the chassis

LEDs

Chassis (blue)	Can be turned on using the front control panel or Intel® Server Management; chassis ID LED is visible from the front and rear of the chassis to ease identification when servicing the system in a rack
Power (green)	When lit continuously, indicates the presence of power in the server. The LED goes out when power is turned off or the power source is disrupted; a flashing power LED indicates the system is in advanced configuration and power interface (ACPI) sleep mode
HDD (green)	Indicates system hard-drive activity
LAN 1 (green)	Indicates 10/100/1000MB Ethernet port activity
LAN 2 (green)	Indicates 10/100/1000MB Ethernet port activity
System Fault (yellow)	Indicates a system-fault condition

Intel® Server Management

Integrated Management Type	Onboard system instrumentation
Software Support	Intel Server Manager 8 family of software; upgradable to support HP Unicenter*, Tivoli*, and LANDesk* Management Suite 8
Intel® Management Module Support	Professional Edition, Advanced Edition
Remote Management	Remote access both in-band and out-of-band to system status, logs, configuration data and utilities without the need for a remote-management card; event filtering and proactive alerting through LAN and mobile devices
System Monitoring and Autorecovery	System health indicators and corrective actions including automated power cycling, operating system watchdog timer and fault-resilient booting
Server Troubleshooting	Continuous health monitoring, text console redirection and error logs
Server Maintenance	Integrated with Intel® SMaRT Tool Module for Server Platforms SR4850HW4 and SR6850HW4
Intelligent System Management Support	Intelligent System Management Interface (IPMI) 2.0

Fully Validated Operating Systems

Microsoft Windows* Server 2003 Enterprise Edition for 64-bit Extended Systems
Microsoft Windows Server 2003 Enterprise Edition
Microsoft Windows 2000
Red Hat* Enterprise Linux* 3.0 (32-bit and EM64T[2])
and SuSE Linux Enterprise Server 9 (32-bit and EM64T)

System BIOS

Type	2 MB Flash EEPROM with AMI* core, supports EFI Framework
Special Features	Plug and Play, ECC/parity support
Configuration Utilities	System Configuration Wizard for system setup of BIOS and server management; Save and Restore System Configuration Utility and initial Intel Server Management 8 configuration

Environmental

Ambient Temperature	Operating (system): 10°C to 35°C; non-operating/storage (system): –40°C to +70°C
Relative Humidity	Non-operating: 95%, non-condensing at 25°C to 30°C
Acoustics	Sound pressure: < 55dBA at ambient temperatures < 23°C measured at bystander positions in operating mode; sound power: < 7.0dBA at ambient temperatures < 23°C measured using Dome Method in operating mode
Electrostatic Discharge	Tested to levels up to 15kV air discharge and up to 8kV contact discharge without physical damage per Intel test specification

Safety & EMC Regulatory Compliance (Class A)

EMC regulatory compliance is based on configuration as outlined in the Intel Server System SR4850HW4 and Intel Server System SR6850HW4 subassembly guides.

Country	Certification Safety or EMC	Regulatory Mark Safety or EMC
Argentina	IRAM	IRAM
Australia/New Zealand	ACA, MED	C-Tick
Belarus	Bellis	Not applicable
Canada	UL / Industry Canada	cULus / ICES
China	CNCA	CCC
Europe	European Directives	CE
Germany	GS	GS
International	CB Report / CISPR	Not applicable
Japan	VCCI	VCCI
Korea	RRL	MIC
Russia	GOST	GOST
Taiwan	BSMI RPC	BSMI
United States	UL / FCC	cULus / FCC

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