



# **Intel<sup>®</sup> Server Board SE8501HW4**

## ***Tested Hardware and Operating System List***

Revision 1.21

Sep 2007

Enterprise Platforms and Services Division

## *Revision History*

<b>Date</b>	<b>Revision #</b>	<b>Modifications</b>
June 2006	1.0	Initial Release
August 2006	1.1	Added SAS & SATA adapters and devices, updated driver versions, and added installation guidelines
June 2007	1.2	Added SAS devices, NIC adapters and devices, updated OS version, driver versions
September 2007	1.21	Removed one SAS device

## ***Disclaimers***

Information in this document is provided in connection with Intel® products. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications.

Intel retains the right to make changes to its test specifications at any time, without notice.

The hardware vendor remains solely responsible for the design, sale and functionality of its product, including any liability arising from product infringement or product warranty.

Intel and Xeon are registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Copyright © Intel Corporation 2007. \*Other names and brands may be claimed as the property of others.

# Table of Contents

<b>1. Introduction .....</b>	<b>7</b>
1.1 Test Overview .....	7
1.1.1 Test Definitions .....	7
1.2 Component Test and Support Levels .....	8
1.2.1 Level 1 Testing and Support .....	8
1.2.2 Level 2 Testing and Support .....	9
<b>2. SE8501HW4 Base System Configurations .....</b>	<b>10</b>
<b>3. Supported Operating Systems .....</b>	<b>11</b>
3.1 Operating System Certifications .....	12
<b>4. Adapter compatibility .....</b>	<b>13</b>
4.1 PCI/PCI-X*/PCI Express* RAID .....	14
4.2 PCI/PCI-X SCSI .....	14
4.3 PCI-X SAS .....	14
4.4 PCI Express SAS RAID .....	15
4.5 PCI-X/PCI Express Fibre Channel .....	15
4.6 PCI/PCI-X/PCI Express Network Interface Card .....	15
<b>5. On-Board Components .....</b>	<b>16</b>
5.1 SCSI/SAS Controller .....	16
5.2 Gigabit Ethernet Controller .....	16
5.3 Video Controller .....	16
5.4 Optional Mass Storage Controllers .....	16
<b>6. Peripheral compatibility .....</b>	<b>18</b>
6.1 USB Keyboard & Mouse .....	18
6.2 Tape Drives .....	18
6.3 Slim Optical Drives .....	18
6.4 USB Floppy & Key Fob Memory Device .....	19
6.5 Keyboard/Video/Mouse (KVM) Switch .....	19
<b>7. Hard Disk Drives .....</b>	<b>20</b>
<b>8. Installation Guidelines .....</b>	<b>21</b>
8.1 Front panel video output does not function with shipped ATI* driver for Microsoft* Windows* 2003 Enterprise Edition versions .....	21
8.2 LSI Logic* MegaRAID2* driver does not load correctly with Red Hat* Enterprise Linux 3 Update 4 EM64T .....	21

8.3 System may hang when updating the LSI Logic LSI22320-R firmware..... 21

8.4 System may hang at startup when onboard SCSI option ROM is disabled and any LSI SCSI card has its option ROM enabled..... 21

8.5 Intel® PRO/1000 MT adapters not seen in slot 2 ..... 22

8.6 System will hang at startup or blue screen in Microsoft Windows when LSI Logic RAID adapters are used in conjunction with Intel RAID adapters ..... 22

8.7 Hitachi\* Ultrastar\* 10K300 and Maxtor\* Atlas\* 10K-V hard drive families may fail in slot 5 on Intel® Server System SR4850HW4 ..... 22

8.8 Red Hat Enterprise Linux 4 U1 and SuSE\* Linux Enterprise Server 9 SP2, IA32 versions, require an extra kernel parameter when using more than 2 Intel® Xeon® processor 7000 sequence ..... 23

8.9 Red Hat Enterprise Linux 3 U6, EM64T version, installation does not support using more than 2 Intel® Xeon® processor 7000 sequence..... 23

8.10 Red Hat Enterprise Linux 4 U1, EM64T version, fully supports only 2 Intel® Xeon® processor 7000 sequence ..... 23

8.11 Installation and reinstallation of Intel® Fibre Channel Module drivers on Microsoft Windows Server 2003 Enterprise Edition 32-bit fails..... 23

8.12 Microsoft Windows 2003 Enterprise Edition pre-SP1 may hang during installation with more than eight logical processors ..... 24

8.13 Linux OSes may not correctly report the total amount of available memory if the BIGSMP kernel is not used during installation..... 24

8.14 Linux OSes will kernel panic at startup when 64GB of main memory is used for the installation 24

8.15 Mouse is not usable in LSI Logic WebBIOS configuration utility ..... 25

8.16 Multiple Intel® PRO/1000 PT Dual Port adapters fail to initialize on Red Hat Enterprise Linux 4 U1 ..... 25

8.17 Message displayed when LSI Logic LSI22320-R is present in system when using the onboard SCSI boot device..... 25

8.18 System may hang during installation of Red Hat Enterprise Linux 4 U1 to Qlogic\* QLA2342 when Intel® Fibre Channel Module is present ..... 25

8.19 Adaptec\* ASC-39320 conflicts with Intel® Pro/1000 MT on any OS when used in slot 6 or 7 26

8.20 LSI Logic MegaRAID\* U320-xx & Intel® SRCU42E may go offline during heavy stress on any OS ..... 26

8.21 System will hang after installing Intel® RAID Linux web console on Red Hat Enterprise Linux 4 U3 ..... 26

8.22 Some PCIe\* adapters are not supported for any PCI Hot-Plug\* operations on Microsoft Windows Server 2003 ..... 26

8.23 Intel® Pro/1000 PT adapter operating system Wake on LAN (WOL) driver settings do not allow system power on ..... 27

8.24 Intel® RAID Controller SROMBSAS18E may cause boot failure when accessing configuration utility when Adaptec\* ASR-2230LP and QLogic\* Fibre Channel adapters are present 27

8.25 Seagate\* Barracuda\* 3.0GB SATA hard disk drives may report critical Microsoft\* Windows\* event log errors under stress..... 27

8.26 PCI-X\* adapters are not supported for any PCI Hot-Plug\* operations on SuSE\* Linux Enterprise Server 9 SP3 in slot 2..... 27

# 1. Introduction

---

This document is intended to provide users of the Intel® Server Board SE8501HW4 with a guide to the different operating systems (OSes), adapter cards, and peripherals tested by Intel on this platform.

This document will continue to be updated as new add-in cards, peripherals, and operating systems are tested or until the SE8501HW4 is no longer in production. Each new release of the document will present updated information as well as continue to provide the information from previous releases.

Intel will only provide support to those add-in cards and peripherals under the specified system configuration (system BIOS and firmware) and operating systems and versions to which they were tested.

## 1.1 Test Overview

Testing and support of hardware and software is at two levels, Level 1 and Level 2 as defined in **section 3** of this document. Each OS, adapter and peripheral scheduled to be tested is assigned a level. The table below is a summary of the testing that is performed for OSes, adapters and peripherals based on the level assigned. Details of the levels, testing and support follow later in the document.

	System Stress	Compatibility Validation			Certification Testing
		Functional Validation	OS Install & Boot	PCI Hot Plug	
Level 1 OS	T	T	T	T	T
Level 2 OS			T		
Level 1 Adapter	T	T	T	T	
Level 2 Adapter		T			
Peripherals		T			

T = Tested

### 1.1.1 Test Definitions

#### 1.1.1.1 System Stress

System stress is a set of test cases used to verify the ability of the platform to function with the level 1 components (OSes, adapters and peripherals) under a significant workload for a defined time. Every level 1 OS is installed in pre-defined system configurations and demonstrated to run, without failure, for a minimum of 48 hours. During this test, special test software is used to maximize the stress of the CPU, memory, and IO buses of the platform. For example, a system may be fully loaded with storage and network adapters that are individually operating under high IO stress.

#### 1.1.1.2 Compatibility Validation

Compatibility validation is a set of tests focused on installation, configuration and simple use of a single component. The three test areas within compatibility validation are verification of basic functionality, OS installation and boot, and PCI Hot Plug\*.

### **1.1.1.2.1 Functional Validation**

The intent of functional validation testing is to validate that the component does not have any immediately apparent flaws or defects, as opposed to being a test of robustness. This testing includes basic data send/receive functionality, as well as some extended capabilities (depending on the device type and level).

### **1.1.1.2.2 OS Install and Boot**

This testing validates that the specified OS successfully installs and boots to the product. Depending on the support level of the OS, this may include installation from optical or network media, and installation to drives connected to onboard or add-in devices.

### **1.1.1.2.3 PCI Hot Plug**

This testing validates that OSES, drivers, and adapters properly support the three primary Hot Plug activities: Hot Add, Hot Remove, and Hot Replace.

### **1.1.1.3 Certification Testing**

Certification testing is the set of tests that a third party Operating System Vendor (OSV) provides as part of a certification process (e.g., the WHQL HCTs for Microsoft Windows). All level 1 OSES will be certified to run on the product when it is launched.

## **1.2 Component Test and Support Levels**

### **1.2.1 Level 1 Testing and Support**

Intel® will validate the compatibility of the platform with level 1 OSES and adapters and will validate that the platform is reliable under extended stress load conditions.

#### **1.2.1.1 Level 1 OS Testing**

Each level 1 OS will be validated in the following test areas:

- OS installation and boot
- PCI Hot Plug\* adapter compatibility
- Functional validation
- System stress
- Certification testing

#### **1.2.1.2 Level 1 Adapter Testing**

Each level 1 (all on board, and a selection of add-in) adapter will be validated in one or more pre-defined configurations. Additionally, all level 1 adapters will have each level 1 OS installed to it (storage) or through it (network). PCI Hot Plug\* functionality will be validated, if hot plug is supported. In summary, each adapter listed as level 1 will be subjected to the following validation test areas:

- OS installation and boot
- PCI Hot Plug\* adapter compatibility
- Functional validation
- System stress

#### **1.2.1.3 Level 1 OS Customer Support**

Intel® will provide support for customer issues encountered while running level 1 OSES and adapters on the platform. Support is defined as assistance in root causing issues, and



determining a customer acceptable resolution to the issue associated with the OS. The resolution may include, but is not limited to, on-board controller driver changes, engaging the OSV/ISV/IHV for resolution, BIOS changes, firmware changes, or documented process changes. Intel will achieve certification on every level 1 OS. Individual customers must verify with the OSV whether pass through certification is available for their product.

#### **1.2.1.4 Level 1 Adapter Customer Support**

Intel will provide support for customer issues encountered while using level 1 adapters on level 1 OSes and the platform.

### **1.2.2 Level 2 Testing and Support**

Intel® will validate the compatibility of the platform with level 2 OSes and adapters, as well as peripherals.

#### **1.2.2.1 Level 2 OS Testing**

Each level 2 OS will be validated in the following test areas:

- OS installation and boot
- Functional validation

#### **1.2.2.2 Level 2 Adapter Testing**

Each level 2 adapter will be stressed as a data device for at least 30 minutes with each level 1 OS. This is accomplished in the following test area:

- Functional validation

#### **1.2.2.3 Level 2 Peripheral Testing**

All peripherals will be tested for basic functionality during test runs.

#### **1.2.2.4 Level 2 Support**

Intel® commits to provide the following level of customer support for operating systems, adapters and peripherals that are level 2:

- Intel will attempt to work with the vendor to resolve any compatibility issues between the platform and the OS, adapter and/or peripheral. However, the vendor may not commit to resolve the issue.

## 2. SE8501HW4 Base System Configurations

The following table lists the base configurations tested. Base configurations will change as new revisions of the Intel® Server Board Set SE8501HW4 are released and/or new system BIOS, BMC firmware are flashed onto the board in the factory. Each base configuration is assigned an identifier number that is referenced in the tables throughout this document. New base configurations are added with each new release of this document.

Base System Identifier Number	Board Type	Board Number (PBA)	Processors	Notes
1	Front Panel I/O Board	C65075-350	64-bit Intel® Xeon® Processor MP with 8MB L3 cache at 3.33GHz 64-bit Intel® Xeon® Processor MP with 8MB L3 cache at 3GHz 64-bit Intel® Xeon® Processor MP with 4MB L3 cache at 2.83GHz	4U Chassis (D35288-004)
	Memory Board	D21460-251		
	SCSI Backplane Board	C91778-150		
	Power Distribution Board	C90042-351		
	Main Board	D22177-600		
2	Front Panel I/O Board	C61338-250	64-bit Intel® Xeon® Processor MP with 1MB L2 cache at 3.66GHz 64-bit Intel® Xeon® Processor MP with 1MB L2 cache at 3.16GHz Dual-core Intel® Xeon® processor 7040M & N	6U Chassis (D35289-002)
	Memory Board	D21460-252		
	SCSI Backplane Board	D23278-250		
	Power Distribution Board	C55207-351		
	Main Board	D22177-553		
3	Front Panel I/O Board	C65075-350	Dual-core Intel® Xeon® processor 7030M & N Dual-core Intel® Xeon® processor 7020M & N Dual-core Intel® Xeon® processor 7010M & N Dual-core Intel® Xeon® processor 7140M*	4U Chassis (D46299-001)
	Memory Board	D21460-252		
	SAS Backplane Board	D23460-302		
	Power Distribution Board	C90042-351		
	Main Board	D22177-553		
4	Front Panel I/O Board	C61338-250	Dual-core Intel® Xeon® processor 7130M* Dual-core Intel® Xeon® processor 7120M* Dual-core Intel® Xeon® processor 7110M*	6U Chassis (D46296-001)
	Memory Board	D21460-252		
	SAS Backplane Board	D23278-401		
	Power Distribution Board	C55207-351		
	Main Board	D22177-553		

The most current software stack (BIOS/BMC/FRUSDR) is available at <http://support.intel.com/>.

### 3. Supported Operating Systems

---

The following table provides a list of supported operating systems for the Intel® Server Board Set SE8501HW4. Each of the listed operating systems was tested for compatibility with a base system configuration. Operating system compatibility testing verifies that the operating system will install and function with all on-board devices listed below. All priority one operating systems, those receiving both compatibility and stress, were tested under fully loaded configurations (adapters and hard drives populating all slots) with significant stress.

Any variations to the standard operating system installation process are documented in the installation guidelines section of this document. If there is not an installation guideline noted in the following table, then the operating system installed as expected using the manufacturer's installation instructions or Intel's best-known methods.

Operating System	Type of Testing	Update Level	Notes
Microsoft* Windows* Server 2003 Enterprise x64 Edition	Compatibility & Stress	Service Pack 1	Refer to IG 8.12
Microsoft Windows Server 2003 Enterprise Edition 32-bit	Compatibility & Stress	Service Pack 1	Refer to IG 8.12
Microsoft Windows 2000 Advanced Server	Compatibility only	Service Pack 4	
Red Hat* Enterprise Linux 4 for Intel EM64T	Compatibility & Stress	Update 3	Refer to IG 8.8, 8.10, 8.13, 8.14, 8.16, 8.18 & 8.21
Red Hat* Enterprise Linux 4 32-bit	Compatibility only	Update 3	Refer to IG 8.8, 8.10, 8.13, 8.14, 8.16, 8.19 & 8.21
Red Hat* Enterprise Linux 5 for Intel EM64T	Compatibility & Stress		
Red Hat* Enterprise Linux 5 32-bit	Compatibility only		
Red Hat Enterprise Linux 3 for Intel EM64T	Compatibility only	Update 7	Refer to IG 8.9, 8.13 & 8.14
Red Hat Enterprise Linux 3 32-bit	Compatibility only	Update 7	Refer to IG 8.9, 8.13 & 8.14
SuSE* Linux Enterprise Server 9 for Intel EM64T	Compatibility & Stress	Service Pack 3	Refer to IG 8.8, 8.13, 8.14 & 8.26
SuSE* Linux Enterprise Server 9 32-bit	Compatibility only	Service Pack 3	Refer to IG 8.8, 8.13, 8.14 & 8.26
SuSE* Linux Enterprise Server 10 for Intel EM64T	Compatibility & Stress		
SuSE* Linux Enterprise Server 10 32-bit	Compatibility only		

### 3.1 Operating System Certifications

Listed below are the operating systems that Intel will certify with the Intel® Board Set SE8501HW4. However, the customer is responsible for their own certification from the individual operating system vendors. In many cases, the customer may leverage their operating system certifications from the testing tables below. See the comments column next to each operating system in the table below for additional information. Intel's certifications, pre-certification, and operating system testing may help reduce some of the risk in achieving customer certifications with the operating system vendors.

Operating System	Certification Listing	Notes
Microsoft* Windows* Server 2003 Enterprise 32-bit Edition	1129806, 1123603, 1124618	
Microsoft* Windows* Server 2003 Enterprise x64 Edition	1129806, 1123603, 1124618	
Red Hat* Enterprise Linux 4	193791, 193792	
Red Hat* Enterprise Linux 5	239386, 237939	
SuSE* Linux Enterprise Server 9	84271, 84272, 84275, 84276, 84277, 84278, 84389, 84390, 84391, 84392, 84393, 84394, , 84395, 84396, 84402, 84403, 84404, 84405	
SuSE* Linux Enterprise Server 10	512077 512078 512122 512123	

## 4. Adapter compatibility

---

Add-in adapter card compatibility and stress testing was performed with the latest available version of an operating system and card software (driver, BIOS, firmware, etc.) at the time the validation testing occurred. Please contact the card vendor for current available software. Note that not all adapter cards may have been tested under all operating systems.

Any variations to the standard adapter installation process or to expected adapter functionality are documented in the Installation Guidelines section of this document. If there are installation guidelines affecting a particular adapter and operating system combination, these are referenced in the following table. If there is not an installation guideline noted in the following table, then the adapter installed and functioned as expected using manufacturer's installation instructions or Intel's best-known methods.

/ Testing of adapters cards normally is performed with unused add-in adapters and onboard controller expansion ROMs disabled in BIOS Setup. Intel recommends that customers disable the option ROM for add-in controllers and/or the on-board controllers when not booting from the controller or needing to use its built in utilities.

A superscript designation has been added to each adapter (sections 4 & 5) to help illustrate what level of testing it received and whether or not the driver is available in the base OS. The designations are as follows:

L1	The adapter received full stress testing in a fully loaded configuration
L2	The adapter received compatibility testing ensuring it worked with other adapters in a fully loaded configuration but received no stress testing
NAT	The driver for this adapter is available natively in the base OS

The adapters are divided into categories below based on their functionality.

Manufacturer	Model	Interface	Firmware BIOS, Setup Utility	Microsoft® Windows® Server 2003 Enterprise x64 Edition	Microsoft® Windows® Server 2003 Enterprise Edition 32-bit	Red Hat® Enterprise Linux 5 for Intel EM64T	SuSE® Linux Enterprise Server 10 for Intel EM64T	Installation Guidelines
<b>4.1 PCI/PCI-X*/PCI Express* RAID</b>								
Adaptec*	ASR-2130/2230SLP <sup>L1</sup>	PCI-X* 133MHz	FW-8832	5.2.0.11518		1.1-5(2409) <sup>NAT</sup>	v1.1-4	
Intel®	SRCU42X <sup>L1</sup>		FW-414C	6.45.3.64 (Intel brand)	6.45.2.32 (Intel brand)	2.20.5.1 <sup>NAT</sup>	2.20.4.7 <sup>NAT</sup>	Refer to IG 8.2, 8.6, 8.15 & 8.20
	SRCU42E <sup>L1</sup>	PCI Express*	FW-514P					
LSI Logic*	MegaRAID* U320-2 <sup>L2</sup>	PCI 66MHz	FW-1L33	6.45.3.64 (LSI brand)	6.45.2.32 (LSI brand)			
	MegaRAID U320-2e <sup>L1</sup>	PCI Express	FW-514L			Refer to IG 8.2, 8.6, 8.15 & 8.20		
	MegaRAID U320-2x/4x <sup>L1</sup>	PCI-X 133MHz	FW-414C			Refer to IG 8.2, 8.6, 8.15 & 8.20		
<b>4.2 PCI/PCI-X SCSI</b>								
Adaptec	ASC-29160/39160 <sup>L2</sup>	PCI 66MHz	B-3.10	5.2.3790.1830 <sup>NAT</sup>	6.4.630.100	v7.0 <sup>NAT</sup>		
	ASC-29320A-R/39320A-R <sup>L1</sup>	PCI-X 133MHz	B-4.30	5.2.3790.1830 <sup>NAT</sup>	3.0.0	v3.0 <sup>NAT</sup>		Refer to IG 8.19
LSI Logic	LSI20320/20320-R <sup>L2</sup>		FW-1.03.27	1.21.23	3.04.02 <sup>NAT</sup>	3.03.10 <sup>NAT</sup>	Refer to IG 8.4	
	LSI22320-R <sup>L1</sup>	Refer to IG 8.3, 8.4 & 8.17						
<b>4.3 PCI-X SAS</b>								
LSI Logic	LSI3442X <sup>L1</sup>	PCI-X 133MHz	FW-1.11.01	1.24.03	3.04.02 <sup>NAT</sup>	3.03.10 <sup>NAT</sup>		

Manufacturer	Model	Interface	Firmware BIOS, Setup Utility	Microsoft* Windows* Server 2003 Enterprise x64 Edition	Microsoft* Windows* Server 2003 Enterprise Edition 32-bit	Red Hat* Enterprise Linux 5 for Intel EM64T	SuSE* Linux Enterprise Server 10 for Intel EM64T	Installation Guidelines
<b>4.4 PCI Express SAS RAID</b>								
LSI Logic	8308ELP <sup>L2</sup>	PCI Express	1.02.01-0158	1.21.0.64	1.21.0.32	00.00.03.05 <sup>NAT</sup>	00.00.03.03	
<b>4.5 PCI-X/PCI Express Fibre Channel</b>								
Emulex*	LP1050EX <sup>L2</sup>	PCI Express	1.91a5	1.20a6	8.0.16.18 <sup>NAT</sup>	8.1.6 <sup>NAT</sup>	Refer to IG 8.22	
	LP10000EXDC <sup>L1</sup>							
	LPE11002 <sup>L2</sup>							
QLogic*	QLE2360/2362 <sup>L2</sup>	PCI Express	B-1.05	9.1.2.16	8.01.07-K1 <sup>AT</sup>	8.01.04-k <sup>NAT</sup>	Refer to IG 8.18	
	QLE2460/2462 <sup>L2</sup>		B-1.04					
	QLA2340/2342 <sup>L1</sup>	PCI-X 133MHz	B-1.43					
	QLA2460/2462 <sup>L2</sup>		B-1.04					
Emulex	LP11002 <sup>L2</sup>	PCI-X 133MHz	2.10a7	1.20a6	8.1.10.3 <sup>NAT</sup>	8.1.6 <sup>NAT</sup>		
	LP10000/LP10000DC <sup>L1</sup>		1.91a5					
<b>4.6 PCI/PCI-X/PCI Express Network Interface Card</b>								
Intel	PRO/100+ S Dual Port – PILA8472D3G1P <sup>L2</sup>	PCI 33MHz	NA	10.3	3.5.10-K2 <sup>NAT</sup>	3.5.10		
	Pro 10GbE SR PXL84591SR			2.1.18.0	1.0.109-k2 <sup>NAT</sup>	1.0.117		
	PRO/1000 MT Dual Port – PWLA8492MT <sup>L1</sup>	PCI-X 133MHz	4.1.16	8.7.9.0	7.2.7-k2 <sup>NAT</sup>	7.3.15	Refer to IG 8.5 & 8.19	
	PRO/1000 GT Quad Port – PWLA8494GT <sup>L2</sup>							
	PRO/1000 MF Dual Port – PWLA8492MF <sup>L1</sup>							
	PRO/1000 MT – PWLA8490MT <sup>L2</sup>							
	PRO/1000 MF – PWLA8490MF <sup>L2</sup>							
						Refer to IG 8.5 & 8.19		

Manufacturer	Model	Interface	Firmware BIOS, Setup Utility	Microsoft* Windows* Server 2003 Enterprise x64 Edition	Microsoft* Windows* Server 2003 Enterprise Edition 32-bit	Red Hat* Enterprise Linux 5 for Intel EM64T	SuSE* Linux Enterprise Server 10 for Intel EM64T	Installation Guidelines
	PRO/1000 PT Dual Port – EXPI9402PT <sup>L1</sup>	PCI Express						Refer to IG 8.16 & 8.23
SysKonnect*	SK-9S22 <sup>L2</sup>	PCI-X 133MHz	NA	8.56.7.3		v1.5 <sup>NAT</sup>	8.41.2.3	
	SK-9E22 <sup>L2</sup>	PCI Express						

## 5. On-Board Components

Manufacturer	Model	Firmware BIOS, Setup Utility	Microsoft* Windows* Server 2003 Enterprise x64 Edition	Microsoft Windows Server 2003 Enterprise Edition 32-bit	Red Hat Enterprise Linux 5 (32-bit & Intel EM64T versions)	SuSE* Linux Enterprise Server 10 (32-bit and Intel EM64T versions)	Installation Guidelines
<b>5.1 SCSI/SAS Controller</b>							
LSI Logic*	53C1030 Ultra320*	FW-NVJB1	1.21.23 <sup>NAT</sup>	1.21.23 <sup>NAT</sup>	3.04.02 <sup>NAT</sup>	3.03.10 <sup>NAT</sup>	Refer to IG 8.17
Intel®	SROMBSAS18E	FW-1.20.00.00-IT,	1.24.03		00.00.03.05 <sup>NAT</sup>	00.00.03.01 <sup>NAT</sup>	Refer to IG 8.24
<b>5.2 Gigabit Ethernet Controller</b>							
Broadcom*	NetXtreme* BCM5704	FW-6.0	7.98.0.0		v3.65-rh <sup>NAT</sup>	3.49 (tg3)	
<b>5.3 Video Controller</b>							
ATI*	Radeon* 7000	yi010866.002	8.24.3		N/A	N/A	Refer to IG 8.1
<b>5.4 Optional Mass Storage Controllers</b>							
Intel®	RAID Controller SROMBU42E (RAID On Main Board (ROMB))	FW-514P	6.45.3.64	6.45.2.32	2.20.5.1 <sup>NAT</sup>	2.20.4.7 <sup>NAT</sup>	Refer to IG 8.2, 8.6, 8.15 & 8.20



Manufacturer	Model	Firmware BIOS, Setup Utility	Microsoft* Windows* Server 2003 Enterprise x64 Edition	Microsoft Windows Server 2003 Enterprise Edition 32-bit	Red Hat Enterprise Linux 5 (32-bit & Intel EM64T versions)	SuSE* Linux Enterprise Server 10 (32-bit and Intel EM64T versions)	Installation Guidelines
	RAID Controller SROMBSAS18E (PCIe*)	FW-1.03.00- 0211	1.24.03	1.24.03	3.04.02 <sup>NAT</sup>	3.03.10 <sup>NAT</sup>	Refer to IG 8.24
	Fibre Channel Module – AHWFCMOD	B-1.06	9.1.2.16		8.01.07-K1 <sup>NAT</sup>	8.01.04-k <sup>NAT</sup>	Refer to IG 8.11 & 8.18

## 6. Peripheral compatibility

Peripheral compatibility testing was performed with the latest available version of an operating system and any necessary software (driver, BIOS, firmware, etc.) at the time the validation testing occurred. Testing consisted of normal use of the devices (except for tape drives which receive specific backup and recovery testing) throughout the system validation process.

Manufacturer	Model	Interface	Notes
<b>6.1 USB Keyboard &amp; Mouse</b>			
Belkin*	ErgoBoard* Pro Keyboard (F8E887-BLK)	USB	
	USB – ClassicKeyboard (F8E206-USB)		
Logitech*	Internet Navigator* Keyboard (Y-BF37)		
	Media Keyboard Elite (967559-0403)		
Microsoft*	Natural* Elite Keyboard (A11-00337)		
Belkin	Optical Mouse (F8E814-OPT & F8E850-OPT)		
Logitech	MX* 310 Optical Mouse (930928-0403)		
	Optical Mouse (931144-0403)		
Microsoft	Wheel Mouse Optical (D66-0029)		
	IntelliMouse* Explorer 4.0 (B75-00092)		
<b>6.2 Tape Drives</b>			
Quantum*	DLTVS160 (Half height)	U160 SCSI	Microsoft* Windows* driver version – 3.6.0
	SDLT600 (Full height)		
	LTO-3		
Sony*	SDX-550V AIT-2 Turbo		
HP*	LTO-2 Ultrium 448		FW – S22X
Panasonic*	DAT72 LKM-DE4H		
<b>6.3 Slim Optical Drives</b>			
QSI*/Philips*	SDR-089SE (Default device)	ATA33	FW – TQ02-C RoHS compliant
	SCB5265		
	SDVD8821		
Sony*	DDU810A		
Teac*	DW-224E-AA83		
	DW-224E-R76		
	DVW-28E-A583		
Lite-on*	SSW-8015S		

Manufacturer	Model	Interface	Notes
Toshiba*	TS-L632		
<b>6.4 USB Floppy &amp; Key Fob Memory Device</b>			
Teac*	FD05PUB Floppy drive	USB	
Iomega*	Mini USB 2.0 Drive (512 MB & 1GB)		
Lexar*	Jump Drive* Pro 80X USB 2.0 (512MB & 1GB)		
SanDisk*	Cruzer* Mini USB 2.0 (512MB & 1GB)		
FSC*	Memory Bird* USB 2.0 (512MB & 1GB)		
<b>6.5 Keyboard/Video/Mouse (KVM) Switch</b>			
Agilent*	RMC 3.0 – N2523A	PCI-X 100MHz	FW – A.06.04.60
Avocent*	Auto View* 2000	USB	
	Auto View 1000R		
NTI*	UNIMUX-USBV-xU		

## 7. Hard Disk Drives

The hard drives listed in the following table have been tested on the Intel® Server Board Set SE8501HW4, in on-site validation labs, and/or by individual drive vendors. The drives were tested under each level 1 OS.

Manufacturer	Product Family	Model Number	RPM	Drive size <sup>[1]</sup>	Installation Guidelines
Fujitsu*	MAT – SCSI	MAT3300NC	10K	300GB	
	MAU – SCSI	MAU3147NC	15K	147GB	
	MAX – SAS	MAX3147RC	15K	147GB	
	MAY – SAS	MAY2073RC	10K	73GB	
Hitachi*	Ultrastar* – SCSI	HUS103030FL3800	10K	300GB	Refer to IG 8.7
	Ultrastar – SAS	HUS151414VLS300	15K	147GB	
Maxtor*	Atlas* 10K-IV – SCSI	8B073J0	10K	73GB	
	Atlas 10K-V – SCSI	8D300J0	10K	300GB	Refer to IG 8.7
	Atlas 15K-II – SCSI	8E147J0	15K	147GB	
	Atlas Genesis* – SAS	8J300S0	10K	300GB	
	Atlas Blackbird* – SAS	8K147S0	15K	147GB	
Seagate*	Cheetah* 10K-7 – SCSI	ST3300007LC	10K	300GB	
	Cheetah 15K-3 – SCSI	ST318453LC	15K	18GB	
	Cheetah 15K-4 – SCSI	ST3146854LC	15K	146GB	
	Cheetah 15K-4 – SAS	ST3146854SS	15K	146GB	
	Cheetah 15k-5-SAS	ST3300655SS	15K	300GB	
	Barracuda* 7200.9 – SATA	ST380810AS	7.2K	80GB	Refer to IG 8.25

<sup>[1]</sup>Note: All hard drives within the product families listed above are supported regardless of size unless otherwise noted.

## 8. Installation Guidelines

---

### 8.1 Front panel video output does not function with shipped ATI\* driver for Microsoft\* Windows\* 2003 Enterprise Edition versions

Issue: The front panel video output does not function properly.

Guideline: The user needs to boot the system using the rear video output and then follow these steps:

1. Obtain newest ATI driver from Intel or ATI
2. Go to Control Panel → Display → Settings Tab → Advanced
3. Uninstall current ATI driver
4. Install new driver currently 8.24.3

Status: Microsoft may incorporate this new driver in a future service pack.

### 8.2 LSI Logic\* MegaRAID2\* driver does not load correctly with Red Hat\* Enterprise Linux 3 Update 4 EM64T

Issue: During install, the system loads the MegaRAID driver and then attempts to load the MegaRAID2 driver. However, it does not load successfully so the RAIDs attached to the ROMB are not seen.

Guideline: Perform a “noprobe” install and load only the MegaRAID2 driver. After that, all RAIDs should be visible to the OS.

Status: No additional fixes are expected. Continue to use the workaround.

### 8.3 System may hang when updating the LSI Logic LSI22320-R firmware

Issue: LSI firmware driver can cause the system to hang when updating the firmware.

Guideline: Use only the IME version of the firmware, not the IT or IS versions.

Status: This issue is resolved by using the IME firmware.

### 8.4 System may hang at startup when onboard SCSI option ROM is disabled and any LSI SCSI card has its option ROM enabled

Issue: The SE8501HW4 implementation of the LSI Logic 53C1030 onboard SCSI/RAID controller works in conjunction with system BIOS to initialize the device. LSI Logic SCSI cards are not able to initialize the onboard device, either the onboard option ROM or SCSI card option ROM must be disabled to boot.

Guideline: Two options are available before adding a LSI Logic SCSI card to the system:

- To use both the onboard and the LSI SCSI card: in BIOS Setup disable the option ROM for the slot where the LSI Logic SCSI card will be installed. After installing the SCSI card, the onboard option ROM will execute and will control the added card. Both the added and the onboard SCSI will be functional.
- To use just the LSI SCSI card: in BIOS Setup disable the onboard SCSI controller. This will allow the added card to run but the onboard SCSI will not be functional.

Status: This is working as designed, there is no fix planned for this issue.

## 8.5 Intel® PRO/1000 MT adapters not seen in slot 2

Issue: During resets and power state transitions the NIC may briefly draw more than 375 mA of current. For safety, the SE8501HW4 slot 2 hot plug controller will disable the slot when such an over current condition is present. During POST, this card will not be seen by the BIOS.

Guideline: Use this NIC only in slots 6 or 7 (non hot-plug slots).

Status: There is no fix planned for this issue.

## 8.6 System will hang at startup or blue screen in Microsoft Windows when LSI Logic RAID adapters are used in conjunction with Intel RAID adapters

Issue: LSI Logic RAID adapters and Intel RAID adapters (including ROMB) share a common implementation. At POST this can cause software conflicts between the adapters, and at OS runtime this can cause incompatible driver versions to be loaded and applied to the wrong adapter.

Guideline: LSI Logic RAID adapters cannot be used in the same system with Intel RAID adapters or when ROMB is enabled.

Status: There is no fix planned for this issue.

## 8.7 Hitachi\* Ultrastar\* 10K300 and Maxtor\* Atlas\* 10K-V hard drive families may fail in slot 5 on Intel® Server System SR4850HW4/M

Issue: The inrush current of these hard drives in slot 5 on the Intel® Server System SR4850HW4/M causes the circuit protection of the SCSI backplane to activate and disable the drive.

Guideline: Please refer to TA-0805-2 for further information.

Status: This issue is under investigation.

### **8.8 Red Hat Enterprise Linux 4 U1 and SuSE\* Linux Enterprise Server 9 SP2, IA32 versions, require an extra kernel parameter when using more than 2 Intel® Xeon® processor 7000 sequence**

Issue: The default kernels included in these releases do not support more than eight logical processors by default.

Guideline: Adding `acpi=bigsm` to the kernel command line during boot this will allow the installation to continue and support up to 16 logical processors.

Status: A fix from the vendor will be available in the future.

### **8.9 Red Hat Enterprise Linux 3 U6, EM64T version, installation does not support using more than 2 Intel® Xeon® processor 7000 sequence**

Issue: The kernel included with this release does not support more than eight logical processors. If more than eight logical processors are installed in the system, the installation kernel will not boot.

Guideline: Either use the 32-bit version of the operating system or disable Hyper Threading in BIOS Setup.

Status: A fix from the vendor will be available in the future.

### **8.10 Red Hat Enterprise Linux 4 U1, EM64T version, fully supports only 2 Intel® Xeon® processor 7000 sequence**

Issue: The kernel included with this release cannot use more than eight logical processors. The installation process will complete but the operating system will only be able to utilize eight processors.

Guideline: Either use the 32-bit version of the operating system, or disable Hyper Threading in BIOS Setup.

Status: A fix from the vendor will be available in the future.

### **8.11 Installation and reinstallation of Intel® Fibre Channel Module drivers on Microsoft Windows Server 2003 Enterprise Edition 32-bit fails**

Issue: The installation and reinstallation of the Intel Fibre Channel Module fails because the drivers do not have a valid security catalog file and the .inf file does not correctly identify the installed card when running the hardware wizard.

Guideline: Use the newly released driver; 9.1.0.11.

Status: This is resolved with the new driver.

### **8.12 Microsoft Windows 2003 Enterprise Edition pre-SP1 may hang during installation with more than eight logical processors**

Issue: During pre-SP1 OS installation, with four Dual-Core Intel® Xeon® processors 7000 sequence, chipset interrupts may go un-serviced due to the OS and hardware not being in sync.

Guideline: Ensure Microsoft Windows 2003 Enterprise Edition with SP1 is used for the installation. Alternatively Hyper Threading may be disabled in BIOS during the OS install and re-enabled once completed.

Status: There is no fix is planned for this issue.

### **8.13 Linux OSes may not correctly report the total amount of available memory if the BIGSMP kernel is not used during installation**

Issue: If any Linux OS is installed using <4GB of main memory and later upgraded to >4GB it will not correctly show the amount of memory available.

Guideline: To avoid this issue use the kernel parameter `acpi=BIGSMP` during installation regardless of the amount of memory currently installed.

Status: There is no fix planned for this issue.

### **8.14 Linux OSes will kernel panic at startup when 64GB of main memory is used for the installation**

Issue: Any Linux OS will kernel panic at startup if 64GB of main memory is used because there is not enough PCI address space available to initialize the OS.

Guideline: Add the kernel parameter `"swiotlb=8192"` or install with less memory.

Status: BIOS P07 has a BIOS setup option to increase the size of the PCI address space. The default for this option is 2GB which resolves the issue. Red Hat and SuSE will release a fix in a future release.



### 8.15 Mouse is not usable in LSI Logic WebBIOS configuration utility

**Issue:** Mouse is not usable in the LSI Logic WebBIOS configuration utility <CTRL H> because it is not supported by the system BIOS.

**Guideline:** Continue to use the keyboard in WebBIOS or use <CTRL M> to enter legacy BIOS setup.

**Status:** A fix from the vendor may be available in the future.

### 8.16 Multiple Intel® PRO/1000 PT Dual Port adapters fail to initialize on Red Hat Enterprise Linux 4 U1

**Issue:** The kernel is unable to distribute interrupts properly.

**Guideline:** To workaround the issue, disable IRQbalance or disable MSI in the e1000 driver setup or upgrade to kernel version 2.6.15.4.

**Status:** A fix from the vendor will be available in the future.

### 8.17 Message displayed when LSI Logic LSI22320-R is present in system when using the onboard SCSI boot device

**Issue:** When including an LSI Logic LSI22320-R adapter in the system while in SCSI mode, users will note a "reconfiguration suggested" message during the LSI MPTBIOS option ROM execution.

**Guideline:** To clear this message, users need to enter the option ROM utility (Ctrl-C), press F2, and add the 22320-R HBA to the Boot Adapter list.

**Status:** There is no fix planned for this issue.

### 8.18 System may hang during installation of Red Hat Enterprise Linux 4 U1 to Qlogic\* QLA2342 when Intel® Fibre Channel Module is present

**Issue:** The installation process shows that the QLA2342 is detected and the driver is loaded for it to do the installation. However, after the installation, the kernel doesn't boot up. Investigation shows that the lib directory didn't have the qla2300 modules and init file didn't have an entry to load qla2300 for the QLA2342, even though the installed tree has the module in /lib/modules/ directory and modules.conf has an entry for it.

**Guideline:** Remove the Intel Fibre Channel Module during installation.

**Status:** A fix from the vendor will be available in the future.

### 8.19 Adaptec\* ASC-39320 conflicts with Intel® Pro/1000 MT on any OS when used in slot 6 or 7

Issue: The Windows drivers of these two cards fail to acquire the necessary IRQ resources.

Guideline: Ensure that the ASC-39320 is in slot 2 and the Pro/1000 MT is in slot 6 or 7.

Status: This issue is under investigation.

### 8.20 LSI Logic MegaRAID\* U320-xx & Intel® SRCU42E may go offline during heavy stress on any OS

Issue: This issue was seen intermittently during Platform Validation Lab testing under certain configurations.

Guideline: There have been no customer reported incidents of this issue and it is believed to be a compatibility issue in the lab.

Status: This issue is under investigation.

### 8.21 System will hang after installing Intel® RAID Linux web console on Red Hat Enterprise Linux 4 U3

Issue: The booting of RHEL4 U3 with the Intel RAID Web Console installed will appear to hang at "Starting RSLinux" when SELinux is enabled. This is due to SELinux trapping the "su -c" as a security context change and is prompting user for acceptance. RHEL4 U3 has SELinux enabled by default and boots in a mode that does not expose the SELinux user prompt.

Guideline:

1. Disable SELinux using the kernel command line option "selinux=0". This change can be made permanent by adding the option to /boot/grub/menu.lst.
2. When the boot reaches "Starting RSLinux" type <n><Enter> twice to respond to the prompts.

Status: This is working as designed.

### 8.22 Some PCIe\* adapters are not supported for any PCI Hot-Plug\* operations on Microsoft Windows Server 2003

Issue: Windows will blue screen when doing PCI Hot-Plug operations using the following adapters: LSI Logic LP10000ExDC & LPe11002 and QLogic QLE2362 & QLE2462.

Guideline: Only add or replace these adapters offline.

Status: This issue will be resolved in a future BIOS release.

### **8.23 Intel® Pro/1000 PT adapter operating system Wake on LAN (WOL) driver settings do not allow system power on**

Issue: Enabling WOL in the OS driver does not allow the system to be powered on when a WOL signal is sent to the adapter.

Guideline: Use the IBAutil command line utility (available on <http://support.intel.com>) to enable WOL via the hardware. Use the following commands from DOS:

```
ibautil -ALL -WOLE -FE
```

Status: This issue will be resolved in a future BIOS release.

### **8.24 Intel® RAID Controller SROMBSAS18E may cause boot failure when accessing configuration utility when Adaptec\* ASR-2230LP and QLogic\* Fibre Channel adapters are present**

Issue: The system hang because the EBDA pointer is overwritten because the OPROM's of the other adapters post before the SROMBSAS18E.

Guideline: Disable the OPROM's of the other adapters if they are not being used or remove the adapters when accessing the SROMBSAS18E's configuration utility.

Status: A fix will be available in the future.

### **8.25 Seagate\* Barracuda\* 3.0GB SATA hard disk drives may report critical Microsoft\* Windows\* event log errors under stress.**

Issue: In a non-RAID configuration, when used internally or externally via a JBOD, these HDDs may cause critical Windows event log errors under heavy stress.

Guideline: These errors should be ignored as they are corrected and there is no data loss.

Status: A fix will be available in the future.

### **8.26 PCI-X\* adapters are not supported for any PCI Hot-Plug\* operations on SuSE\* Linux Enterprise Server 9 SP3 in slot 2**

Issue: The system may hang when performing PHP operations due to shared interrupts not being enabled following the PHP event.

Guideline: Only add or replace PCI-X adapters offline.

Status: A fix from the vendor will be available in the future.