Intel® Server Compute Blade SBXL52 / Intel® Server Chassis SBCE

Tested Hardware and Operating System List

Revision 1.6

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Enterprise Platforms and Services Division

Revision History

Date	Revision Number	Modifications
April 2003	0.9	Initial Release
Dec 2003	1.0	Updated SCSI HDD
Oct 2004	1.1	Updated Supported OS, FW Revisions, OS Certifications, HDD
Mar 2005	1.2	Updated Supported OS, FW Revisions, OS Certifications, FC switches
Jun 2005	1.3	Updated FW revisions and SCSI HDD
Sept 2005	1.4	Added CPM and OPM, updated BIOS, updated IDE HDD.
Nov 2005	1.5	Updated Supported OS, FW revisions and IDE HDD
July 2006	1.6	Add reference sell ecosystem products. Updated FW revisions.

Disclaimers

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1. Introduction

This document is intended to provide users of the Intel® Server Compute Blade SBXL52 and the Intel® Server Chassis SBCE server systems with a guide to the different operating systems, expansion cards, and peripherals tested on this platform.

This document will continue to be updated as new expansion cards, peripherals, and operating systems are tested or until the Intel SBXL52 and SBCE are 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 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 performed on the SBXL52 Blade Server and SBCE systems are classified under two separate categories: Compatibility Testing and Stress Testing.

1.1.1 Compatibility Testing

Basic compatibility testing is performed with each supported operating system. Basic compatibility testing validates the blade server can be used to install the operating system and that the base hardware feature set is functional. A small set of peripherals is used for installation purposes only. Testing may include network connectivity and running of proprietary and industry standard test suites.

Extended compatibility testing will occur on only the latest versions of a supported operating system. Extended compatibility testing will test for functionality of a variety of peripherals. Test applications used will consist of both proprietary as well as industry standard test suites.

The latest version of an operating system signifies the latest supported version at the time of the actual test run. Each new release of this document may have a newly supported release of a given operating system. Previous releases of a supported operating system may not be tested beyond the basic compatibility test process.

1.1.2 Stress Testing

Stress testing is performed only on the most current release of a supported operating system at the time of a given validation run. The stress test process consists of three areas: Base platform, expanded configuration, and Endurance.

Base Platform: Each base platform will successfully install a given operating system, successfully run a disk stress test, and successfully run a network stress test.

Expanded Configuration: This testing uses configurations and test suites to gain an accurate view of how the server performs under varying complex configurations while interacting with network clients. Each configuration is tested for at least 12 hours.

Endurance Test: This test sequence uses full configurations for a minimum72-hour test run without injecting errors. Two servers operating under Windows* 2003 Advanced Server and RedHat Linux 9.0 are tested in parallel. Each configuration passes an installation test, a Network/Disk Stress test, and tape backup test. Any fatal errors that occur will require a complete test restart.

1.2 Pass/Fail Test Criteria

For each operating system, adapter, and peripheral configuration, a test passes if specific criteria are met. Specific configurations may have had particular characteristics that were addressed on a case-by-case basis. In general, a configuration passes testing if the following conditions are met:

- The operating system installed without error.
  - Manufacturer's installation instructions or Intel's best-known methods were used for the operating system installation.
  - No extraordinary workarounds were required during the operating system installation.
  - The server system behaved as expected during and after the operating system installation.
  - Application software installed and executed normally.
- Hardware compatibility tests ran to completion without error.
- Test software suites executed successfully
  - Test and data files were created in the correct directories without error.
  - Files copied from client to server and back compare to the original with zero errors reported.
  - Clients remain connected to the server system.
  - Industry standard test suites run to completion with zero errors reported.

All Intel SBXL52 testing was performed using the Intel® Server Chassis SBCE.

2. Intel® SBXL52 Blade Server Base System Configurations

The following table lists the base configurations tested. Base configurations will change as new revisions of the Intel® Server Compute Blade SBXL52 are released and/or new system BIOS or firmware are cut 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 #	Board Type	Part Number	Management Processor Revision	BIOS Revision	CMM Firmware Revision	Diag Firmware Revision	Notes
1	SBXL52	C32669-001	BR8T17a	BSJN05d	BREO53b	BSYT08AUS	
2	SBXL52	C32669-001	BR8T20A	BSJN14A	BREO57K	BSYA12A	
3	SBXL52	C32669-001	BR8T30A	BSJN17A	BREO58A	BSYA13A	V6.0 FW Stack
4	SBXL52	C32669-001	BR8T30A	BSJN17A	BREO58A	BSYA13A	V6.1 FW Stack
5	SBXL52	C32669-001	BR8T30A	BSJN17A	BREO59F	BSYA13A	V6.2 FW Stack
6	SBXL52	C32669-001	BR8T33A	BSJN20A	BREO73F	BSYA16A	V7.0 FW Stack
7	SBXL52	C32669-001	BR8T35A	BSJN22A	BREO73I	BSYA16A	V7.1 FW Stack
8	SBXL52	C32669-001	BR8T35A	BSJN23A	BREO73I	BSYA16A	V8.0 FW Stack
9	SBXL52	C32669-001	BR8T36A	BSJN25A	BREO85F	BSYA16A	V9.0 FW Stack

3. Supported Operating Systems

The following table provides a list of supported operating systems for the Intel® Server Compute Blade SBXL52 and Intel® Server Chassis SBCE. Each of the listed operating systems was tested for compatibility with a base Intel® Server Compute Blade SBXL52 and Intel® Server Chassis SBCE configuration. Operating system compatibility testing verifies that the operating system will install and function with all on-board devices.

Any variations to the standard operating system installation process are documented in the Installation Guidelines section of this document. If there are no installation guidelines noted in the following table, then the operating system installed as expected using manufacturer's installation instructions or Intel's best-known methods.

Operating System	Base Configuration Tested
Microsoft Windows* 2003 Enterprise Edition *(Priority 1 OS)* Testing done with the latest released Service Pack	Version 3790, no service packs
Red Hat Linux RHEL4, U1 (Priority 1 OS)*	Kernel 2.6.9-11.EL
Microsoft Windows 2000 Advanced Server (Priority 2 OS)* *Testing done with the latest released Service Pack*	Version 2195 with Service Pack 4
SUSE Linux Enterprise Server 9 Service Pack 2 (Priority 2 OS)*	Kernel 2.6.5-7.191
Red Hat Linux RHEL3, U5 (Priority 2 OS)*	Kernel 2.4.21-32.EL

3.1 Server Management Software Support

The following table provides information on the type and version of server management software which has been tested and is supported with each operating system on the Intel® SBXL52.

Operating System	Server Management Software Package and version
Microsoft Windows* 2003 Enterprise Edition *(Priority 1 OS)*	IDM V3.3, ISM V5.6
Red Hat Linux RHEL3 (Priority 2 OS)*	IDM V3.3, ISM V5.6
Red Hat Linux Advanced Server 2.1 (Priority 2 OS)*	IDM V3.3, ISM V5.6
Microsoft Windows 2000 Advanced Server (Priority 2 OS)*	IDM V3.3, ISM V5.6

3.2 Operating System Certifications

Listed below are the operating systems that Intel will certify SBXL52 blade server. 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 Intel's testing. See the "Comments" section 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	Comments
Microsoft Windows* 2003 Enterprise Edition	Intel® Server Compute Blade SBXL52 SID# 861881	OEM must request certification by Microsoft for their specific product. http://www.microsoft.com/hwdq/hcl/search.asp (Search on SBXL52) http://developer.intel.com/design/servers/whql.htm
SuSE* Linux Enterprise Server 9	SBXL52 Compute Blade	Reference: http://developer.novell.com/yes/79494.htm
Microsoft Windows* 2000 Advanced Server	Intel® Server Compute Blade SBXL52 SID# 861881	OEM must request certification by Microsoft for their specific product. http://www.microsoft.com/hwdq/hcl/search.asp (Search on SBXL52) http://developer.intel.com/design/servers/whql.htm

4. On-Board Components and Expansion Boards

The following is a list of the on-board components included on the Intel® Server Compute Blade SBXL52 as well as the expansion boards that Intel supports in the Intel® Server Compute Blade SBXL52/ Intel® Server Chassis SBCE server system.

On-board components on the blade server and expansion boards compatibility and stress testing will only be performed with the latest version of an operating system at the time the validation testing occurred. The following table shows the operating system and base configurations used to validate each device

Note that testing of the components is very complex, as the blade servers that contain these components must be tested in different blade slots within the SBCE blade server chassis, using different operating systems, using various expansion boards in combination with different blade server types, etc.

The following notation is used in the tested on-board components and expansion boards table below to indicate the support level that Intel provides for a particular component under a particular operating system:

Number (i.e. 1)	This on-board component or expansion board has been tested and is supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
Number in brackets (i.e. [1])	This on-board component or expansion board has been tested, but is NOT supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
NT	This on-board component or expansion board has not been tested under this operating system and is not supported under this operating system.
ND	This on-board component or expansion board has not been tested under this operating system due to limitations in IHV driver availability, and is not suported under this operating system.

If there are installation guidelines affecting a particular on-board component and operating system combination, these are referenced in the following table.

Manufacturer	Model Name	Model Number	Interface	Comments	Microsoft Windows* 2003 Enterprise Edition	Red Hat Linux* AS2.1	Microsoft *Windows* 2000 Advanced Server*, SP4	*Red Hat Linux* RHEL3*	*SUSE* Linux Enterprise Server 9*
Onboard Components									
ServerWorks integrated NIC			1GbE		5	5	5	5	5
ATI	Rage XL				5	5	5	5	5
SBSCSI (BSE) Onboard Components									
LSI Logic	53C1020		U320	Included in BSE on ServerWorks bus	5	5		5	5
Expansion Board Onboard Components									
QLogic	SBFCM	ISP2312	2Gb FC	FC Mezzanine	1		1		
Intel	Intel® Blade Server Ethernet Expansion Card PLMC	PLMC8492MSG1	SERDES	GB Mezzainie	5	5	5	5	5

5. Peripherals

Peripheral compatibility and stress testing will only be performed with the latest version of an operating system at the time the validation testing occurred. The following table shows the operating system and base configurations used to validate each device.

Note that none of these items will be fully qualified. As such, Intel cannot guarantee their functionality.

The following notation is used in the peripherals table below to indicate the support level that Intel provides for a particular peripheral under a particular operating system:

Number (i.e. 1)	This peripheral has been tested and is supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
Number in brackets (i.e. [1])	This peripheral has been tested, but is NOT supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
NT	This peripheral has not been tested under this operating system and is not supported under this operating system.
ND	This peripheral has not been tested under this operating system due to limitations in IHV driver availability, and is not supported under this operating system.

If there are installation guidelines affecting a particular peripheral and operating system combination, these are referenced in the following table.

Manufacturer	Model Name	Model Number	Interface	Comments	Microsoft Windows* 2003 Enterprise Edition	Red Hat Linux* AS2.1	Microsoft *Windows* 2000 Advanced Server*, SP4	*Red Hat Linux* RHEL3*	*SUSE* Linux Enterprise Server 9*
Storage FC Enclosures									
Eurologic		FC-2502	2Gb FC	RAID Enclosure (Compatibility Testing only)	1	1	1		
Xyratex		RS-1600-FC	2Gb FC	RAID Enclosure (Compatibility Testing only)	5	5	5	5	5

Manufacturer	Model Name	Model Number	Interface	Comments	Microsoft Windows* 2003 Enterprise Edition	Red Hat Linux* AS2.1	Microsoft *Windows* 2000 Advanced Server*, SP4	*Red Hat Linux* RHEL3*	*SUSE* Linux Enterprise Server 9*
Storage NAS Enclosures									
Network Appliance		FAS960	GbE	Raid Enclosure (Compatibility Testing only)	1	1	1		
Chassis Passthru Module									
Intel	Intel® Blade Server Optical Passthru Module	SBCEOPM		Cable accessory SBCEOPMSC\ SBCEOPMLC					
IBM	IBM eServer BladeCenter™ Copper Passthru Module	73P6100		Cable accessory 73P6101					
Chassis Switches – Gigabit Ethernet									
IBM	SBCEGBESW	Intel® Blade Server Ethernet Switch Module	GbE	SBCE Gigabit Switch Module	1	1	1	1	1
Intel	IXM5414E	Intel® Blade Server Ethernet Switch Module	GbE	SBCE Gigabit Switch Module	1	1	1	1	1
IBM	Nortel Networks* Layer 2/3 Copper Gigabit Ethernet Switch Module for IBM* BladeCenter	32R1860	GbE	Layer 2/3 Ethernet Switch					
IBM	Server Connectivity Module for IBM* BladeCenter	39Y9324	GbE	Layer 2 Ethernet Switch, require SBCECMM2 advanced management module in chassis					
Chassis Switches – Fibre Channel									

Manufacturer	Model Name	Model Number	Interface	Comments	Microsoft Windows* 2003 Enterprise Edition	Red Hat Linux* AS2.1	Microsoft *Windows* 2000 Advanced Server*, SP4	*Red Hat Linux* RHEL3*	*SUSE* Linux Enterprise Server 9*
Q-Logic	SBCEFCSW	Intel® Blade Server Fibre Channel Switch Module	2Gb FC	SBCE FC Switch Module	1	1	1	1	1
Brocade	SBCEBFCSW and SBCEBFCESW	Brocade* Enterprise and Entry Fibre Channel Switch Module	2Gb FC	SBCE FC Switch Module	[1]	[1]	[1]	[1]	[1]
External Switches – Gigabit Ethernet									
Extreme Network	BlackDiamond	6808	1GbE	(Compatibility Testing only)					
Extreme Network	Summit	5i	1GbE	(Compatibility Testing only)					
Extreme Network	Summit	48si	1GbE	(Compatibility Testing only)					
D-Link	DGS Gigabit Over Copper Switch	DGS-1008T	Gigabit Cu	(Compatibility Testing only)	5	5		5	5
D-Link	DGS Gigabit Over Copper Switch	DGS-1008TL	Gigabit Cu	(Compatibility Testing only)	5	5	5	5	5
D-Link	DGS Gigabit Over Copper Switch	DGS-1016T	Gigabit Cu	(Compatibility Testing only)	5			5	
D-Link	DGS Gigabit Over Copper Switch	DGS-1024T	Gigabit Cu	(Compatibility Testing only)	5	5	5	5	5
HP	Procurve	J4898A-6001	Gigabit Cu	(Compatibility Testing only)	5	5	5	5	5`
Asante	Gigabit Over Copper Switch	GX5-800	Gigabit Cu	(Compatibility Testing only)	5			5	
External Switches - FibreChannel									
Brocade	Silkworm	3200		Interoperable with the Intel ® Fibre Channel Switch SBCEFCSW. Tested by					
Brocade	Silkworm	3800							
Inrange		FC9000-64							
Inrange		FC9000-128							

Manufacturer	Model Name	Model Number	Interface	Comments	Microsoft Windows* 2003 Enterprise Edition	Red Hat Linux* AS2.1	Microsoft *Windows* 2000 Advanced Server*, SP4	*Red Hat Linux* RHEL3*	*SUSE* Linux Enterprise Server 9*
McData	Sphereon	4500		Qlogic.					
QLogic		SANbox2-8							
QLogic		SANbox2-16							
QLogic		SANbox2-64							
IDE HDD – 2.5”									
Hitachi		HTS 72606	ATA100	7200 RPM, 60GB					
Fujitsu		MHT2060AS	ATA100	5400 RPM, 60GB	5	5	5	5	5
Seagate	Momentus	ST94813AB	ATA100	5400 RPM, 40GB,					
Seagate	Momentus	ST9100824AB	ATA100	5400 RPM, 100GB					
* The Seagate “AB” drives are not listed on Seagate websites, it can only be ordered by directly contacting Seagate or thru a Seagate distributor.									
FDD									
TEAC	FD-05UB	USB, SL, 1.44MB	Floppy						
CDROM									
TEAC	CD-224E	IDE, slimline, 24X							
LG	CRN-8245B	IDE, slimline, 24X							

6. Hard Disk Drives

The hard drives listed in the following table have been tested with the Intel® SBXL52/SBCE blade server system by Intel in its validation labs and/or by individual drive vendors. The following operating system identifiers are used in the table to specify which OS each drive was tested under.

Identifier number	Operating System
1	Microsoft Windows* 2003 Advanced Server
2	Red Hat RHEL3*
3	Microsoft Windows* 2000 Advanced Server
4	Red Hat Linux* AS2.1
5	SUSE* Linux Enterprise Server 9

Note that not all hard drives were tested under all operating systems. The following notation is used in the tested hard drives table below to indicate the support level that Intel provides for a particular hard drive with a particular operating system:

Number (i.e. 1)	This hard drive has been tested and is supported under the operating system identified by the operating system identification number.
Number in brackets (i.e. [1])	This hard drive has been tested, but is NOT supported under the operating system identified by the operating system identification number.

Manufacturer	Product Family	Model Number	Interface	RPM	Drive size (GB)	Tested Operating Systems
Maxtor	Atlas	8B036J002	U320	10K	36GB	1
Maxtor	Atlas	8B036J008015G	U320	10K	36GB	1
Maxtor	Atlas	8C073J0080111	U320	15K	73GB	1
Seagate	Cheetah	ST3146807LC	U320	10K	146GB	1
Seagate	Cheetah	ST373453LC	U320	15K	73GB	1
Seagate	Cheetah	ST336607LC	U320	FOR	37GB	1,2,4,5
Seagate	Cheetah	ST318452FC	2Gb FC	15K	18.4GB	1,2,3,4,5
Seagate	Cheetah	ST3300007LC	U320	10K	300GB	1,2