



Intel[®] Server Board X38ML

Tested Hardware and Operating System List

Revision 1.6

January, 2009

Enterprise Platforms and Services Marketing

Revision History

Date	Revision Number	Modifications
Oct. 2007	1.0	Initial Release
Dec. 2007	1.1	Removed Basic Installation OSes from Adapters and Peripherals list
Jan. 2008	1.2	Added AMCC/3Ware PCI RAID to Adapters and Peripherals list.
May. 2008	1.3	Added Microsoft Windows* XP Professional IA32 support to OS list.
Jun. 2008	1.4	Added Adaptec RAID 2405.
Nov.2008	1.5	Add SAS card PCI-E card.
Jan. 2008	1.6	Add some RAID 2405 similar adapters.

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1. Introduction

This document is intended to provide users of the Intel® Server Board X38ML with a guide to the different operating systems, adapter cards, and peripherals tested by Intel on this platform.

This document is updated as new adapters, peripherals, and operating systems are tested or until the Intel® Server Board X38ML is no longer in production. Each new release of the document presents updated information and continues to provide the information from previous releases.

Intel only provides support for those adapters and peripherals under the specified system configuration (system BIOS and Firmware revisions) and operating system versions with which they were tested.

1.1 Test Overview

Testing performed on the Intel® Server Board X38ML is classified under two separate categories: Basic Installation Testing and Adapter / Peripheral Compatibility and Stress Testing.

1.1.1 Basic Installation Testing

Basic installation testing is performed with each supported operating system. This testing validates the server board can install the operating system and that the base hardware feature set is functional. A small set of peripherals is used for installation purposes only. No add-in adapter cards are tested. During Basic Installation Testing, on-board RAID testing is conducted if RAID drivers are available for the operating system.



The latest version of an operating system signifies the latest supported version at the time of testing. 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 installation test process.

1.1.1.1 Support Commitment for Basic Installation Testing

Intel commits to provide the following level of customer support for operating systems that receive only basic installation testing:

- Intel will provide and test operating system drivers for each of the server board's integrated controllers, provided that the controller vendor has a driver available. Vendors are not required by Intel to develop drivers for operating systems that they do not already support. This may limit the functionality of certain server board integrated controllers.
- Intel will provide support to customer who experience issues with the installation and/or functionality of an operating system with the server board's integrated controllers if a driver is available.
- Intel will NOT provide support for issues related to the use of any add-in adapters or peripherals installed in the server system when an operating system that only received basic installation testing is in use.

- Support is defined as helping a customer to root cause an issue and determining an acceptable resolution to the issue associated with the operating system. The resolution may include, but is not limited to, on-board controller driver changes, engaging the vendor for resolution, BIOS changes, firmware changes, or determining an acceptable workaround for the issue with the customer.

1.1.2 Adapter / Peripheral Compatibility and Stress Testing

Adapter / Peripheral Compatibility and Stress testing is performed only on the most current release of a supported operating system at the time of testing. The Adapter / Peripheral Compatibility and Stress testing process consists of three areas:

- **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.
- **Adapter Compatibility:** Adapter compatibility validation (CV) testing uses test suites to gain an accurate view of how the server performs with a wide variety of adapters under the primary supported operating systems. These tests are designed to show hardware compatibility between the cards and the server platform and include functional testing only. CV testing does not include heavy stressing of the systems or the cards.
- **Stress Testing:** This test sequence uses configurations with add-in adapters installed in all available slots (depending on chassis used) and runs for a minimum of 72 hours (three days) without injecting errors. Each configuration passes an installation test, a network/disk stress test, and a tape backup test. Any fatal errors that occur require a complete test restart.

1.1.2.1 Support Commitment for Adapter / Peripheral Compatibility and Stress Testing

Intel commits to provide the following level of customer support for operating systems that receive Adapter / Peripheral Compatibility and Stress testing:

- Intel will provide support to customers who experience issues with the operating systems if they involve the installation or functionality of the server board with or without the adapters and peripherals listed in this document as having been tested under the particular operating system.
- Support is defined as assistance in root causing issues, and determining a customer acceptable resolution to the issue associated with the operating system. The resolution may include, but is not limited to, on-board controller driver changes, engaging the vendor for resolution, BIOS changes, firmware changes, or determining a customer acceptable workaround for the issue.
- Intel will provide and test operating system drivers for each on-board video, network, and storage controller.
- Intel will enable vendors to provide driver support for add-in adapters using these operating systems.
- Intel will complete some of the steps to achieve certification to ensure its customers do not encounter any problems, but the actual certification is the responsibility of the customer.



There is no support commitment for operating systems, adapter cards, and peripherals not listed in this document. Intel will consider requests for support on a case-by-case basis.

1.2 Pass/Fail Test Criteria

For each operating system, adapter, and peripheral configuration, a test passes if specific criteria are met. Specific configurations with particular characteristics are 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 the client to the server and back match the original without error.
 - Clients remain connected to the server system.
 - Industry standard test suites run to completion with zero errors reported.

2. Base System Configurations

The following table lists the base system configurations tested. Base system configurations will change when new revisions of the Intel® Server Board X38ML are released or a new system BIOS is cut onto the board in the factory. Each base system configuration is assigned an identifier number that is referenced in the tables throughout this document. New base system configurations are added with each new release of this document.



Intel only provides support for adapters and peripherals under the specified base system configuration and operating systems versions with which they were tested.

Base System Configuration Identifier #	Board Type	PBA Number	BIOS Revision
1	X38ML	D95420-101	14
2	X38ML	D95420-201	23
3	X38ML	D95420-206	39
4	X38ML	D95420-206	42
5	X38ML	D95420-206	45
6	X38ML	D95420-201	42

3. Supported Operating Systems

The following table provides a list of supported operating systems for the Intel® Server Board X38ML. Each of the listed operating systems was tested for compatibility with the Intel® Server Board X38ML base system configuration listed in Section 2 of this document. Operating systems are supported only in the specified base system configuration(s) they were tested with.

The following table also indicates whether each operating system received Basic Installation Testing or Adapter / Peripheral Compatibility and Stress Testing. For information on the support commitments for Basic Installation Testing vs. Adapter / Peripheral Compatibility and Stress Testing, see Section 1 of this document.

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



The operating systems supported by Intel® System Management software or LANDesk* Client Manager software may be different from the operating systems supported by the Intel® Server Board X38ML. Refer to the Readme and User Guide documents included as part of each Intel® Server Management and LANDesk* Client Manager distribution for operating systems supported by that release.

Operating System	Base System Configuration Tested & Type of Testing	Notes
Microsoft Windows XP Professional* for IA32* SP2	Compatibility & Stress	Intel's testing was completed with Microsoft Windows XP Professional for IA32*. The Intel® Server Board X38ML supports the operating system portion of Microsoft Windows XP Professional for IA32* SP2. The application portion is not tested or supported.
SuSE* Enterprise Linux Server 10, SP1, IA32	Compatibility & Stress	Intel's testing was completed with SuSE* Enterprise Linux Server 10, SP1, IA32. The Intel® Server Board X38ML supports the operating system portion of SuSE* Enterprise Linux Server 10, SP1, IA32 only. The application portion is not tested or supported.
SuSE* Linux Enterprise Server 10 SP1, EM64T	Compatibility & Stress	Intel's testing was completed with SuSE* Linux Enterprise Server 10 SP1, EM64T. The Intel® Server Board X38ML supports the operating system portion of SuSE* Linux Enterprise Server 10 SP1, EM64T only. The application portion is not tested or supported.

Red Hat* Enterprise Linux 5 UP1, X86	Compatibility & Stress	Intel's testing was completed with Red Hat* Enterprise Linux 5 UP1, X86. The Intel® Server Board X38ML supports the operating system portion of Red Hat* Enterprise Linux 5 UP1, X86 only. The application portion is not tested or supported.
Red Hat* Enterprise Linux 5 UP1, EM64T	Compatibility & Stress	Intel's testing was completed with Red Hat* Enterprise Linux 5 UP1, EM64T. The Intel® Server Board X38ML supports the operating system portion of Red Hat* Enterprise Linux 5 UP1, EM64T only. The application portion is not tested or supported.
Microsoft Windows Server 2003* Enterprise Edition IA32, SP2	Basic Installation	
Microsoft Windows Server 2003* Enterprise Edition EM64T, SP2	Basic Installation	
Microsoft Windows Vista*, IA32	Basic Installation	
Microsoft Windows Vista*, EM64T	Basic Installation	
Microsoft Windows 2008*, IA32	Basic Installation	
Microsoft Windows 2008*, EM64T	Basic Installation	
Red Hat* Enterprise Linux 4.0 AS, UP6, X86	Basic Installation	
Red Hat* Enterprise Linux 4.0 AS, UP6, EM64T	Basic Installation	
SuSE* Linux Enterprise Server 9, SP4, X86	Basic Installation	
SuSE* Linux Enterprise Server 9, SP4, EM64T	Basic Installation	

3.1 Operating System Certifications

The following table lists the operating systems that Intel will certify with the Intel® Server Board X38ML. 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 completed by Intel. For additional information, see the “Comments” column next to each operating system in the following table. Intel’s certification, 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 Server 2003*, Enterprise Edition, SP2	WHQL ID: 1268287	OEM must request certification by Microsoft for their specific product. https://winqual.microsoft.com/
Microsoft Windows Server 2003*, Enterprise Edition, SP2, EM64T	WHQL ID: 1268287	OEM must request certification by Microsoft for their specific product. https://winqual.microsoft.com/

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Operating System	Certification Listing	Comments
Red Hat* Enterprise Linux 5.0 AS	Certified ID: 398381	Red Hat checks Intel's results, certifies (if appropriate), and posts the certificate on their website. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. http://hardware.redhat.com/hcl/?pagename=hc&view=certified&vendor=399&class=8#list
Red Hat* Enterprise Linux 5.0 AS , EM64T	Certified ID: 398381	Red Hat checks Intel's results, certifies (if appropriate), and posts the certificate on their website. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. http://hardware.redhat.com/hcl/?pagename=hc&view=certified&vendor=399&class=8#list
SuSE* Linux Enterprise Server 10 SP1	Certified ID: 398381	
SuSE* Linux Enterprise Server 10 SP1, EM64T	Certified ID: 398381	

4. Adapters and Peripherals

Add-in adapter card and peripheral compatibility and stress testing is only performed with the latest version of an operating system at the time of testing. The following table shows the operating system and base system configurations used to validate each device. The adapters are divided into categories based on their functionality. All integrated on-board devices are tested by default and are not included in the following tables.

Note that not all adapter cards were tested under all operating systems. The following notation is used in the tested adapters and peripherals table below to indicate the support level that Intel provides for a particular adapter under a particular operating system:

Number (for example, 1)	This adapter or peripheral was tested and is supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
Number in brackets (for example, [1])	This adapter or peripheral was tested, but is NOT supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
NT	This adapter or peripheral was not tested under this operating system and is not supported under this operating system.
ND	This adapter or peripheral was not tested under this operating system due to limitations in IHV driver availability, and is not supported under this operating system.
SA (Similar Adapter)	This adapter is supported, but not tested. This adapter model was not tested with this server board, but Intel will support it based on successful testing of a similar adapter from the same adapter family. Intel has high confidence that this adapter will function correctly with the server board. This adapter uses the same firmware and drivers, and has a nearly identical system interface to another adapter of the same family that was successfully tested with this server board. In addition, Intel has secured IHV commitment to support the similar adapters equally. Customers should always test adapters as part of the final system configuration prior to deployment. All installation guidelines for the tested adapter also apply to the similar adapter.

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



Adapter card testing is normally performed with unused add-in adapters and on-board 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 using its built-in utilities.

Vendor	Model	Description	Interface	Keyin g	Form Factor	Microsoft Windows 2003*	Microsoft Windows Server 2003* Enterprise	Microsoft Windows XP* IA32	Red Hat* EL5	Red Hat* EL5 EM64T	SuSE* Linux ES10 SP1	SuSE* Linux ES10 SP1
Tehuti	TN7589-S	2 port, 10 GbE	PCI Express*	X4	PCI-Short	1	1	4	4	4	4	4
Intel	EXPI9300PT	1 port, 1 GbE	PCI Express	X1	PCI-Short	1	1	NT	1	1	1	1
Intel	EXPI9400PT	1 port 1000Base-T, 1 Gb	PCI Express	X1	PCI-Short	1	1	4	4	4	4	4
Intel	EXPI9402PT	2 port 1000Base-T, 1 Gb	PCI Express	X4	PCI-Short	1	1	4	4	4	4	4
Intel	EXPI9402PTL	PRO/1000 PT Quad Port LP Server Adapter	PCI Express	X4	PCI-Short	NT	NT	4	4	4	4	4
Mellanox	MHES14-X	Infinihost* III Lx	PCI Express	x4	PCI-Short	1	1	NT	4	4	4	4
Mellanox	MHGS18-XTC	Infinihost III Lx	PCI Express	x8	PCI-Short	1	1	NT	1	1	1	1
Silverstorm	7104-HCA-LPX1P(MHES18X) Ⓞ	Infinihost III Lx	PCI Express	x8	PCI-Short	1	1	NT	1	1	1	1
Silverstorm	7104-HCA-LPX1P-DDR (MHGS18X) Ⓞ	Infinihost III Lx	PCI Express	x8	PCI-Short	1	1	NT	1	1	1	1
SATA RAID Controllers	Note: Due to mechanical issues, the AMCC/3WARE* SATA controllers do not work in the Intel® Server System SR1520ML.											
LSI Logic	MegaRAID* SATA 3008ELP ⓄⓄ	SATA II 3 Gb/s 8 internal ports	PCI Express*	X4	PCI-LP/RP-Long	1	1	NT	1	1	1	1
AMCC/3Ware (see note above)	9650SE-12ML	SATA 3 Gb/s 12 ports	PCI Express	X4	PCI-Med	2	2	NT	NT	NT	2	NT
AMCC/3Ware	9650SE-16ML	SATA 3 Gb/s	PCI	X8	PCI-	SA	SA	NT	NT	NT	SA	NT

Vendor	Model	Description	Interface	Keying	Form Factor	Microsoft Windows 2003*	Microsoft Windows Server 2003* Enterprise	Microsoft Windows XP* IA32	Red Hat* EL5	Red Hat* EL5 EM64T	SuSE* Linux ES10 SP1	SuSE* Linux ES10 SP1
(see note above)		16 ports	Express		Med							
AMCC/3Ware (see note above)	9650SE-24M8	SATA 3 Gb/s 24 ports	PCI Express	X8	PCI-Med	SA	SA	NT	NT	NT	SA	NT
AMCC/3Ware (see note above)	9650SE-2LP	SATA 3 Gb/s 2 ports	PCI Express	X1	PCI-LP	SA	SA	NT	NT	NT	SA	NT
AMCC/3Ware (see note above)	9650SE-4LPML	SATA 3 Gb/s 4 ports	PCI Express	X4	PCI-LP	SA	SA	NT	NT	NT	SA	NT
AMCC/3Ware (see note above)	9650SE-8LPML	SATA 3 Gb/s 8 ports	PCI Express	X4	PCI-LP	SA	SA	NT	NT	NT	SA	NT
SAS RAID Controllers												
Intel	SRCSAS18E	SAS 3 Gb/s 8 internal ports	PCI Express*	X8	PCI-Med	1	1	NT	1	1	1	1
Intel	SRCSAS144E	SAS 3 Gb/s 4 internal ports	PCI Express	X4	PCI-Med	1	1	NT	4	4	4	4
Intel	SRCSASJV	SAS 3 Gb/s 8 internal ports	PCI Express	X8	PCI-Med	3	3	3	3	3	3	3
Intel	SRCSASRB	SAS 3 Gb/s 8 internal ports	PCI Express	X8	PCI-Med	3	3	3	3	3	3	3
Intel	SRCSATAWB	SAS 3 Gb/s 8 internal ports	PCI Express	X8	PCI-Med	3	3	3	3	3	3	3
Intel	SRCSASBB8I	SAS 3 Gb/s 8 internal ports	PCI Express	X8	PCI-Med	3	3	3	3	3	3	3
Intel	SRCSASLS4I	SAS 3 Gb/s 8 internal	PCI Express	X8	PCI-Med	3	3	3	3	3	3	3

Vendor	Model	Description	Interface	Keying	Form Factor	Microsoft Windows 2003*	Microsoft Windows Server 2003* Enterprise	Microsoft Windows XP* IA32	Red Hat* EL5	Red Hat* EL5 EM64T	SuSE* Linux ES10 SP1	SuSE* Linux ES10 SP1
		ports										
Intel	SASMF8I	SAS 3 Gb/s 8 internal ports	PCI Express	X8	PCI-Med	3	3	3	3	3	3	3
Intel	SASWT4I	SAS 3 Gb/s	PCI Express	X4	PCI-LP/MD2	5	5	5	5	5	5	5
Intel	SASUC8I	SAS 3 Gb/s	PCI Express	X8	PCI-LP/MD2	5	5	5	5	5	5	5
LSI Logic	MegaRAID* SAS 8308ELP	SAS 3 Gb/s 8 internal ports	PCI Express	X4	PCI-LP/RP	1	1	NT	1	1	1	1
LSI Logic	MegaRAID SAS 8344ELP	SAS 3 Gb/s 4 internal / 4 external ports	PCI Express	X4	PCI-LP/RP	1	1	NT	1	1	1	1
LSI Logic	MegaRAID SAS 8408E	SAS 3 Gb/s 8 internal ports	PCI Express	X8	PCI-Med	1	1	NT	1	1	1	1
LSI Logic	MegaRAID SAS 8480E	SAS 3 Gb/s 8 external ports	PCI Express	X8	PCI-Med	1	1	NT	1	1	1	1
AMCC/3Ware	9690SA-8I	SAS/SATA 8 internal ports	PCI Express	X8	PCI-LP	2	2	NT	NT	NT	2	NT
AMCC/3Ware	9690SA-8E	SAA/SATA 8 external ports	PCI Express	X8	PCI-LP	SA	SA	NT	NT	NT	SA	NT
AMCC/3Ware	9690SA-414E	SAA/SATA 4 internal ports	PCI Express	X8	PCI-LP	SA	SA	NT	NT	NT	SA	NT
Adaptec	Adaptec RAID 2045	SAS 3 Gbit/s 4 external ports	PCI Express	x8	PCI-MD2	SA	SA	NT	SA	SANT	NT	NT

Vendor	Model	Description	Interface	Keyin g	Form Factor	Microsoft Windows 2003*	Microsoft Windows Server 2003* Enterprise	Microsoft Windows XP* IA32	Red Hat* EL5	Red Hat* EL5 EM64T	SuSE* Linux ES10 SP1	SuSE* Linux ES10 SP1
Adaptec	Adaptec RAID 2405	SAS 3 Gbit/s 4 internal port	PCI Express	X8	PCI- MD2	6	6	NT	6	6	NT	NT
Adaptec	Adaptec RAID 5085	SATA/SAS 2x4 external ports	PCI Express	X8	PCI- MD2	SA	SA	NT	SA	SA	NT	NT
Adaptec	Adaptec RAID 5405	SATA/SAS 1x 4 internal ports	PCI Express	X8	PCI- MD2	SA	SA	NT	SA	SA	NT	NT
Adaptec	Adaptec RAID 5445	SATA/SAS 1x4 internal/exter nal ports	PCI Express	X8	PCI- MD2	SA	SA	NT	SA	SA	NT	NT
Adaptec	Adaptec RAID 5805	SATA/SAS 2x4 internal	PCI Express	X8	PCI- MD2	SA	SA	NT	SA	SA	NT	NT
Video Controllers												
Matrox	G55-MDDE32LPD	PCI Express* Video Adapter	PCI Express X1	X1	PCI- Med	1	1	4	4	4	4	4
nVidia	PNY Quadro* 4 440 NVS	PCI Express Video Adapter	PCI Express X1	X1	PCI- Med	1	1	NT	1	1	1	1
PNY	VCQFX3500-PCIE-PB ϕ	PCI Express Video Adapter	PCI Express X16	X16	PCI- Med	1	1	4	1	1	1	1
nVidia	GeForce* PCX 8600	nVidia GeForce* 8600 GT	PCI Express	X16	PCI- Med	1	1	4	4	4	ND	ND
nVidia	GeForce* PCX 8800	nVidia GeForce	PCI Express	X16	PCI- Med	1	1	4	4	4	4	4

Vendor	Model	Description	Interface	Keying	Form Factor	Microsoft Windows 2003*	Microsoft Windows Server 2003* Enterprise	Microsoft Windows XP* IA32	Red Hat* EL5	Red Hat* EL5 EM64T	SuSE* Linux ES10 SP1	SuSE* Linux ES10 SP1
		8800 GT										
USB Drives												
Maxtor	E01G300	Maxtor One Touch* II	USB 2.0		External	1	1	NT	1	1	1	1
Modems												
Hayes	H08-15328	Hayes V.92 Serial External	RS-232		External	1	1	4	4	4	4	4
CD-RW / DVD ROM Combo Drives												
Addonics	AEPDVRW888UM	AEPDVRW888UM	USB2.0		5.25 x 1.6	1	1	NT	1	1	1	1
DVD+R/RW												
lomega	Super DVD Writer 16x16	Super DVD Writer 16x16 Dual Layer	USB 2.0		External	1	1	3	3	3	3	3
Plextor	PX-755SA	PX-755SA	SATA		5.25 x 1.6	1	1	3	3	3	3	3
Plextor	PX-740UF	PX-740UF	USB 2.0		5.25 x 1.6	1	1	3	3	3	3	3
Plextor	PX-810UF	PX-810UF	USB2.0		5.25 x 1.6	NT	NT	4	4	4	4	4
Input Devices												
AOpen	O 35M	Mini Optical Mouse	PS/2 and USB		External	1	1	4	4	4	4	4
Logitech	931145-403	Logitech Optical Mouse	PS/2 and USB		External	1	1	4	4	4	4	4

Vendor	Model	Description	Interface	Keying	Form Factor	Microsoft Windows 2003*	Microsoft Windows Server 2003* Enterprise	Microsoft Windows XP* IA32	Red Hat* EL5	Red Hat* EL5 EM64T	SuSE* Linux ES10 SP1	SuSE* Linux ES10 SP1
Logitech	M002446716	Media Keyboard Elite	PS/2 and USB		External	1	1	4	4	4	4	4
Microsoft	B75-00092	Intellimouse* Optical	PS/2 and USB		External	1	1	NT	1	1	1	1
Removable Media Devices												
Crucial	CT1GBUFD	Gizmo!* 1GB	USB 2.0		External	1	1	NT	1	1	1	1
Mitsumi	D353FUE	D353FUE	USB		External	1	1	4	4	4	4	4
San Disk	SDCZ2-4096	Cruzer* 4GB	USB 2.0		External	1	1	4	4	4	4	4
DVD±R/RW												
lomega	Super DVD Writer 16x16	DVD+RW 16x8x8x, DVD-RW 16x6x8x, CD-RW 48x24x32x, DL DVD+R 4x, DAE 40x	USB 2.0		External	NT	NT	4	4	4	4	4
Samsung	TS-L633A	24x, 24x 8x Dual Layer	SATA/Slimline		5.25 x 0.5	NT	NT	4	4	4	4	4
Samsung	TS-L333A	N/A	SATA/Slimline		5.25 x 0.5	NT	NT	4	4	4	4	4

2. **Note:** These adapters are compatible with the Intel® Server Board X38ML but cannot fit into the Intel® Server System SR1520ML.

3. **Note:** *The nVidia GeForce* PCX 8600 is officially supported by the nVidia* embedded driver under Red Hat* Enterprise Linux 5 U1. Red Hat* Enterprise Linux 5 uses the VESA compatible driver. Due to the VESA driver issue that occurs only with Red Hat* Enterprise Linux 5 EM64T, the GeForce* PCX 8600 cannot enter the GUI.*

5. Hard Disk Drives

The hard drives previously listed in this section are now listed separately in the *Server Hard Drive Validation Test Report*, which includes the qualified hard drives for the Intel® Server Board X38ML. This document is located on Intel's secure IBL website and on the Intel Support site:

<http://support.intel.com/support/motherboards/server/sb/CS-025416.htm>