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Intel® Modular Server Systems MFSYS25V2

Tested Hardware and Operating System List

Revision 1.0

January, 2012

Enterprise Platforms and Services Division

Revision History

Date	Revision Number	Modifications
January, 2012	1.0	Initial Release for Intel® Modular Server System MFSYS25V2 with Intel® Modular Server Virtualization Manager activated .

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1. Introduction

This document is intended to provide users of the Intel® Modular Server System MFSYS25V2, Intel® Compute Module MFS5520VIR and Intel® Virtualization Manager with a guide to the different operating systems, expansion cards, and peripherals Intel plans to test on this platform.

This document will continue to be updated as new expansion cards, peripherals, and operating systems are tested or until the Intel® Modular Server System MFSYS25V2 and Intel® Compute Module MFS5520VIR 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 for those expansion cards and peripherals under the specified system configuration (System BIOS and Firmware revisions) and operating systems versions with which they were tested.

1.1   Document Organization

This document is divided into the four sections listed below.

(1) Introduction - Provides general information regarding the testing completed by Intel

(2) MFSYS25V2 Systems with Intel® Virtualization Manager– Provides base system configurations tested, supported software and hardware for the Intel® Modular Server System MFSYS25V2 and Intel® Compute Module MFS5520VIR with the Intel® Virtualization Manager feature activated.

(3) MFSYS25V2 Systems – Provides base system configurations tested, supported software and hardware for the Intel® Modular Server System MFSYS25V2 and the Intel® Compute Module MFS5520VIR. Note: Intel® Virtualization Manager is **NOT** activated.

1.2   Test Overview

Testing performed on the Intel® Modular Server System MFSYS25V2 and Intel® Compute Module MFS5520VIR with and without the Intel® Virtualization Manager activated is classified under two separate categories: Basic Installation Testing, and Expansion Card/ Peripheral Compatibility and Stress Testing.

1.2.1   Basic Installation Testing

Basic installation testing is performed with each supported operating system. Basic installation testing validates that 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 expansion cards are tested. Testing includes network connectivity and running of proprietary and 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 installation test process.

1.2.1.1   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 upon request. Vendors will not be 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 support customer issues that involve installation and/or functionality of operating system with the server board's integrated controllers only if a driver has been made available.

- Intel will NOT provide support for issues related to use of any 3rd party expansion cards or peripherals installed in the server system when an operating system that received basic installation testing only is in use.

- 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.

1.2.2   I/O Expansion Card / Peripheral Compatibility and Stress Testing

I/O Expansion Card / Peripheral Compatibility and Stress testing is performed only on the most current release of a supported operating system at the time of a given validation run. The I/O Expansion Card / Peripheral Compatibility and Stress testing process consists of three areas: Base Platform, I/O Expansion Card Compatibility, and Stress.

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.

I/O Expansion Card Compatibility: I/O Expansion Card compatibility validation (CV) testing uses test suites to gain an accurate view of how the server performs with the available expansion card 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. No heavy stressing of the systems or the cards is performed for CV testing.

Stress Testing: This test sequence uses configurations that include expansion cards in all available slots, for a minimum 72-hour test run without injecting errors. 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.

1.2.2.1   Support Commitment for I/O Expansion Card / Peripheral Compatibility and Stress Testing

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

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

- Intel will provide support for customer issues with these operating systems involving installation and/or functionality of the server board with or without the I/O Expansion Card 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 onboard video, network, and storage controller.

- Intel will enable vendors to provide driver support for I/O Expansion Cards using these operating systems.

- Intel will go through some of the steps to achieve certification to ensure its customers do not run across any problems, but the actual certification is the responsibility of the individual customer.

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

1.3   Pass/Fail Test Criteria

For each operating system, I/O Expansion card, 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 (BKMs) were used for the operating system installation.
    - In some cases rKVM BKMs used involve workarounds and 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® Compute Module testing was performed using the Intel® Server Modular System MFSYS25V2.

2. MFSYS25V2 with Intel® Virtualization Manager

This section provides information on the base system configurations tested, supported guest operating systems and supported hardware for Intel® Modular Server Systems MFSYS25V2 with the Intel® Virtualization Manager feature activated.

2.1 Base System Configurations

The following table lists the base system configurations tested with the Intel® Virtualization Manager feature activated. Base system configurations will change as new revisions of the Intel® Compute Module MFS5520VIR or the Intel® Modular Server System MFSYS25V2 are released and/or new system software stacks are cut onto the boards 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 will only provide support for I/O expansion cards and peripherals under the specified base system configuration and operating systems versions with which they were tested.

The following table lists the base system configurations tested with the Intel® Virtualization Manager activated.

Table 2.1 Base System Configurations Tested with Intel® Virtualization Manager Activated

ID #	Intel® Modular Server System	System PBA/TA Number	Intel® Compute Module	Compute Module PBA/TA Number	Unified Firmware Update Rev	GUI Rev	BIOS Rev	BMC FW Rev	Switch Rev	SCM Rev
1	MFSYS25V2	G18812-001	MFS5520VIR	E41515-452	V11.5	32243	55	1.27.1	1.0.0.27	3.8.0140.08

2.2 Supported Guest Operating Systems & Software

The following table provides a list of the guest operating systems and software applications that Intel plans to test with the Intel® Compute Module MFS5520VIR, Intel® Server System MFSYS25V2 and the Intel® Virtualization Manager activated. Each of the listed guest operating systems was tested for compatibility with the base system configuration listed in Section 6 of this document. Guest operating systems are supported only with the specified base system configuration(s) with which they were tested.

The following table also indicates whether each guest 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, please reference Section 1 of this document.

Any variations to the standard operating system installation processes 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 manufacturer's installation instructions or Intel's best-known methods.

Table 2.2 Guest Operating Systems Tested

Operating System	Type of Testing	Notes
Microsoft Windows* 2008 SP2 Enterprise (64-bit)	Configuration 1 - Compatibility & Stress	
Microsoft Windows* 2008 Enterprise R2 SP1 (64-bit)	Configuration 1- Compatibility & Stress	
Red Hat* Enterprise Linux (RHEL) 6 U1 (64-bit)	Configuration 1- Compatibility & Stress	
SuSE* Linux Enterprise Server 11 SP1 Basic kernel (64-bit),	Configuration 1- Compatibility & Stress	
Client Java Engines (for CMM interface and remote KVM)	**Type of Testing**	**Notes**
Microsoft Internet Explorer 8.0	Configuration 1 - Compatibility	
Mozilla Firefox 3.6.x	Configuration 1 - Compatibility	
Client Java Engines (for CMM interface and remote KVM)	**Type of Testing**	**Notes**
Sun Java Plugin 6.17	Configuration 1- Compatibility	Sun Java Plugin 6.3 or above
Client OS	**Type of Testing**	**Notes**
Microsoft Windows* XP Professional, 32-bit SP3	Configuration 1 - Compatibility	
Microsoft Windows* XP Professional, 64-bit SP2		
Microsft Windows 7 SP1 (64 bit)	Configuration 1 - Compatibility	
Novell SuSe Linux Desktop 11 X86 SP1		
Novell SuSe Linux Desktop 11 64-bit SP1	Configuration 1 - Compatibility	
Red Hat* Enterprise Linux (RHEL) Desktop 6 U1 (32-bit & 64-bit)	Configuration 1 - Compatibility	

2.2.1 Guest Operating System Storage Component Support

Table 2.3 Guest Operating System Storage Component Support

Operating System	Shared LUN Single SCM
Microsoft Windows* 2008 Enterprise SP2 (32-bit)	Supported
Microsoft Windows* 2008 Enterprise R2 (64-bit)	Supported
Red Hat Enterprise Linux AS 6.0 U1 (64-bit)	Supported
SuSE Linux Enterprise Server 11SP1 (64-bit),	Supported

Note: The Intel® Virtualization Manager supports a maximum of one SCM installed in the chassis. Dual SCM configurations are NOT supported.

2.3 Hard Disk Drives

The hard drives listed in the following table have been tested with the Intel® Modular Server System MFSYS25V2 and the Intel® Virtualization Manager feature activated by Intel validation labs and/or by individual drive vendors.

Table 2.4 Tested Hard Drives with Intel® Virtualization Manager Activated (MFSYS25V2 only)

Manufacturer	Product Family	Model Number	RPM	Drive Size (GB)	Drive FW Level (1)	Minimum Chasis FW Level	Notes
2.5" SAS drive							
Seagate	Constellation*	ST9500430SS	7,200	500GB	0002	UFU 10.4	Added June 2009
Seagate	Constellation.2*	ST91000640SS	7,200	1TB	002	UFU 10.4	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Constellation.2*	ST9500620SS	7,200	500GB	002	UFU 10.4	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.5	ST9900805SS	10,000	900GB	0001	UFU 10.1	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.4	ST9600204SS	10,000	600GB	0004	UFU 10.1	Added April 2010
Seagate	Savvio* 10K.4	ST9450404SS	10,000	450GB	0004	UFU 10.1	Added May 2010, SD (3)
Seagate	Savvio* 10K.3	ST9300603SS	10,000	300GB	0002	UFU 10.1	
Seagate	Savvio* 10K.3	ST9146803SS	10,000	146GB	0002	UFU 10.1	

Seagate	Savvio* 10K.2	ST9146802SS	10,000	146GB	0003	UFU 10.1	
Seagate	Savvio* 10K.2	ST973402SS	10,000	73GB	0003	UFU 10.1	
Seagate	Savvio* 10K.5	ST9300605SS	10,000	300GB	0002	UFU 10.4	Added December 2011 SD (3) MFSYS25V2 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.5	ST9450405SS	10,000	450GB	0002	UFU 10.4	Added December 2011 SD (3) MFSYS25V2 chassis must be with power supplies D73299-008 or higher
Seagate	Savvio* 10K.5	ST9600205SS	10,000	600GB	0002	UFU 10.4	Added December 2011 SD (3) MFSYS25V2 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.5	ST9900805SS	10,000	900GB	0002	UFU 10.4	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 15K	ST973451SS	15,000	73GB	0001	UFU 10.1	SD (3)
Seagate	Savvio* 15K.2	ST973452SS	15,000	73GB	0005	UFU 10.1	Added June 2009
Seagate	Savvio* 15K.2	ST9146852SS	15,000	146GB	0005	UFU 10.1	Added June 2009
Toshiba	AL-10SE*	MBB2147RC	10,000	146GB	0105	UFU 10.1	
Toshiba	AL-10Sx*	MBB2073RC	10,000	73GB	0105	UFU 10.1	
Toshiba	AL-10Sx*	MBC2073RC	15,000	73GB	0005	UFU 10.1	
Toshiba		MBE2073RC	15,000	73GB	0103	UFU 10.1	
Toshiba		MBD2147RC	10,000	147GB	0102	UFU 10.1	
Toshiba		MBD2300RC	10,000	300GB	0102	UFU 10.1	MFSYS25 chassis must be with power supplies D73299-008 or higher.
Toshiba		MBF2450RC	10,000	450GB	0107	UFU 10.1	MFSYS25 chassis must be with power supplies D73299-008 or higher.
Toshiba		MBF2600RC	10,000	600GB	0107	UFU 10.1	MFSYS25 chassis must be with power supplies D73299-008 or higher.
Hitachi	UltraStar	HUC106060CSS600	10,000	600GB	A150	UFU 10.4	
Hitachi	UltraStar	HUC106045CSS600	10,000	450GB	A150	UFU 10.4	
Hitachi	UltraStar	HUC106030CSS600	10,000	300GB	A150	UFU 10.4	

SSD (2.5" SATA interface)							
Intel	X25-M	SSDSA2M160G2		160GB	02G9	UFU 10.1	Requires AXXTM3SATA
Intel	X25-M	SSDSA2M080G2		80GB	02G9	UFU 10.1	Requires AXXTM3SATA
Intel	320	SSDSA2BW080G3		80GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW080G3		80GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW120G3		120GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW120G3		120GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW160G3		160GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW160G3		160GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW300G3		300GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW300G3		300GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW600G3		600GB	4PC10302	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW600G3		600GB	4PC10302	UFU 10.4	Requires AXXTM3SATA

Notes:

(1) Firmware revisions listed in this column are the minimum revision levels supported. As they become available, listed drives with newer revisions of firmware are also supported. OEM specific ve rsions of drive firmware are not supported. Hard drives within a storage pool are recommended to have the same level of drive firmware. However, a storage pool consisting of drives with different firmware levels is supported as long as the firmware meets minimum supported firmware revision requirements and firmware is not an OEM specific version of firmware.

(2) MFSYS25V2 mixed SAS and SSD mix models validated are as follows: Mix combination was limited to one physical SAS drive model and one SSD drive model. Mixing of drive models within a storage pool is not supported. The mixed drive models below contain the configuration which has been validated. Other combinations of a single SSD drive model and a single SAS drive model although not validated, are supported.

> 2 SSD drives – slots 1,2   12 SAS drives - slots 3-14
> 4 SSD drives – slots 1-4   10 SAS drives - slots 5-14

(3) SD (Similar Drive) -The hard disk drive is supported, but not tested. This hard drive model/capacity has not been tested with this server board, but Intel will support it based on successful testing of a larger capacity hard drive from the same hard drive family. Intel has high confidence that this hard drive will function correctly with the server board. This drive uses the exact same firmware and drivers as a larger capacity hard drive that has been successfully tested with this server board. The only difference between this drive and the one that was used in testing is the storage capacity. Intel provides the same level of support for all hard drives listed in this document, regardless of whether the drive was tested or not. Customers should

always test hard drives as part of the final system configuration prior to deployment. Given the fact that a larger capacity hard drive from the same drive family has successfully completed testing on this server board, this particular hard drive capacity point will not be tested.

3.   MFS5520VIR & MFSYS25V2 Systems

This section provides information on the base system configurations, supported operating systems and supported hardware for the Intel® Modular Server System MFSYS25V2 and the Intel® Compute Module MFS5520VIR.

3.1   Base System Configurations

The following table lists the base system configurations tested. Base system configurations will change as new revisions of the Intel® Compute Module MFS5520VIR or the Intel® Modular Server System MFSYS25V2 are released and/or new system software stacks are cut onto the boards 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 will only provide support for I/O expansion cards and peripherals under the specified base system configuration and operating systems versions with which they were tested.

The following table lists the base system configurations tested.

Table 3.1 Base System Configurations Tested

ID #	Intel® Modular Server System	System PBA/TA Number	Intel® Compute Module	Compute Module PBA/TA Number	Unified Firmware Update Rev	GUI Rev	BIOS Rev	BMC FW Rev	Switch Rev	SCM Rev
1	MFSYS25V2	G18812-001	MFS5520VIR	E41515-402	V10.1	23981	50	1.22.1	1.0.0.27	3.6.0140.05
2	MFSYS25V2	G18812-001	MFS5520VIR	E41515-402	V10.3	24345	54	1.22.1	1.0.0.27	3.7.0140.06
3	MFSYS25V2	G18812-001	MFS5520VIR	E41515-452	V10.4	29753	55	1.26.3	1.0.0.27	3.8.0140.08
4	MFSYS25V2	G18812-001	MFS5520VIR	E41515-452	V11.5	32243	55	1.27.1	1.0.0.27	3.8.0140.08

3.2   Supported Operating Systems & Software

The following table provides a list of the operating systems and software applications that Intel plans to test with the Intel® Compute Module MFS5520VIR. Each of the listed operating systems was tested for compatibility with the base system configuration listed in Section 2.1 of this document.   Operating systems are supported only with the specified base system configuration(s) with which they were tested.

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, please reference Section 1 of this document.

If no installation guidelines are noted in the following table, then the operating system installed as expected using manufacturer's installation instructions or Intel's best-known methods.

Table 3.2 Operating Systems Tested for MFS5520VIR

Operating System	Type of Testing	Notes
Microsoft Windows* 2003 Enterprise (32-bit), R2 SP2	Configuration 3 – Compatibility & Stress	
Microsoft Windows* 2003 Enterprise (64-bit), R2 SP2	Configuration 3 – Compatibility & Stress	
Microsoft Windows* 2008 SP2 Enterprise (32-bit)	Configuration 3 – Compatibility & Stress	
Microsoft Windows* 2008 SP2 Enterprise (64-bit)	Configuration 4 – Compatibility & Stress	
Microsoft Windows* 2008 Enterprise R2 (64-bit)	Configuration 4- Compatibility & Stress	
Microsoft Hyper-V Server 2008 (64-bit)	Configuration 3- Compatibility & Stress	
Red Hat Enterprise Linux AS 5.0 U4 (32-bit)	Configuration 3- Basic Installation	This OS is currently only supported in a single SCM environment. Shared LUN is not supported under this OS.
Red Hat Enterprise Linux AS 5.0 U4 Basic kernel (64-bit)	Configuration 3- Compatibility & Stress	
Red Hat RHEL Advanced Platform 6.0 (64-bit)	Configuration 3- Compatibility & Stress	
Red Hat RHEL Advanced Platform 6.0 (64-bit) with KVM	Configuration 3- Compatibility & Stress	
Red Hat* Enterprise Linux (RHEL) 6 U1 (64-bit)	Configuration 4- Compatibility & Stress	
SuSE Linux Enterprise Server 11 SP1 Basic kernel (32-bit),	Configuration 3- Basic Installation, Compatibiltiy Only	
SuSE Linux Enterprise Server 11 SP1 Basic kernel (64-bit),	Configuration 4- Compatibility & Stress	
Vmware ESX Server 3.5 U4	Configuration 3– Compatibility	
Vmware ESXi Server 3.5 U4	Configuration 3– Compatibility	
Vmware ESX Server 4.0	Configuration 3– Compatibility	
Vmware ESXi Server 4.0	Configuration 3– Compatibility	
Vmware ESX Server 4.1	Configuration 3– Compatibility	
Vmware ESXi Server 4.1	Configuration 3– Compatibility	

Vmware ESXi Server 5.0	Configuration 4– Compatibility	
Client Web Browsers (for CMM interface)	**Type of Testing**	**Notes**
Microsoft Internet Explorer 8.0	Configuration 4– Compatibility	
Mozilla Firefox 3.6.x	Configuration 4– Compatibility	
Client Java Engines (for CMM interface and remote KVM)	**Type of Testing**	**Notes**
Sun Java Plugin 6.17	Configuration 4– Compatibility	Sun Java Plugin 6.3 or above
Client OS	**Type of Testing**	**Notes**
Microsoft Windows* XP Professional, 32-bit SP3	Configuration 4– Compatibility	
Microsoft Windows* XP Professional, 64-bit SP2	Configuration 3– Compatibility	
Microsft Windows 7 SP1 (32-bit & 64 bit)	Configuration 4– Compatibility	
Novell SuSe Linux Desktop 11 X86 SP1	Configuration 3– Compatibility	
Novell SuSe Linux Desktop 11 64-bit SP1	Configuration 4– Compatibility	
Red Hat* Enterprise Linux (RHEL) Desktop 6 U1 (32-bit & 64-bit)	Configuration 4 - Compatibility	

3.2.1   Operating System Certifications

Listed below are the operating systems that Intel plans to certify with the Intel® Compute Module MFS5520VIR. 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.

Table 3.3 Operating System Certifications, MFS5520VIR

Operating System	Certification Listing	Comments
Microsoft Windows* 2003 Enterprise Server R2 SP2 (32 & 64-bit)	Intel® Modular Server System MFSYS25/ MFS5520VI Designed for Windows Server 2003, SID# 1327210	Certification available at launch. OEM must request certification by Microsoft for their specific product.
Microsoft Windows* 2008 Enterprise Server (32 & 64-bit)	Intel® Modular Server System MFSYS25/ MFS5520VI Certified for Windows Server 2008, SID# 1327208	Certification available. OEM must request certification by Microsoft for their specific product.

Microsoft Windows* 2008 Enterprise Server R264-bit	Intel® Modular Server System MFSYS25/ MFS5520VI Certified for Windows Server 2008 R2	Certification available. OEM must request certification by Microsoft for their specific product.
Red Hat* Enterprise Linux Advanced Server 5.0 U3 (32 & 64-bit)	Intel® Modular Server System MFSYS25/ MFS5520VI SID# 501826	Certification for compute module was completed with a single SCM configuration. Certification for compute module with dual SCM is not required.
SUSE® LINUX Enterprise Server 10 SP3 for AMD64® & Intel® EM64T®	Intel® Compute Module MFS5000VI YES Certification Bulletin 131946	Certification for compute module was completed with a single SCM configuration. Certification for compute module with dual SCM is not required. YES Certification Bulletin's can be located on Novell's website. http://developer.novell.com/yessearch/Search.jsp
SUSE® LINUX Enterprise Server 10 SP3 for AMD64® & Intel® EM64T® with XEN	Intel® Compute Module MFS5520VI YES Certification Bulletin 131947	Certification for compute module was completed with a single SCM configuration. Certification for compute module with dual SCM is not required. YES Certification Bulletin's can be located on Novell's website. http://developer.novell.com/yessearch/Search.jsp
SUSE® LINUX Enterprise Server 11 for AMD64® & Intel® EM64T®	Intel® Compute Module MFS5520VI YES Certification Bulletin 131854, 132648	Certification for compute module was completed with a single SCM configuration. Certification for compute module with dual SCM is not required. YES Certification Bulletin's can be located on Novell's website. http://developer.novell.com/yessearch/Search.jsp
SUSE® LINUX Enterprise Server 11 for AMD64® & Intel® EM64T® with XEN	Intel® Compute Module MFS5520VI YES Certification Bulletin 131855, 132650	Certification for compute module was completed with a single SCM configuration. Certification for compute module with dual SCM is not required. YES Certification Bulletin's can be located on Novell's website. http://developer.novell.com/yessearch/Search.jsp
Virtualization Software	**Certification Listing**	**Comments**
VMware ESX Server 3.5 U5	Intel® Compute Module MFS5520VIR	This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php
VMware ESXi Server 3.5 U5	Intel® Compute Module MFS5520VIR	This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php
VMware ESX Server 4.0 releases: 4.0 U1, 4.0 U2, 4.0 U3 and 4.0 U4	Intel® Compute Module MFS5520VIR	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php
VMware ESXi Server 4.0i releases: 4.0 U1, 4.0i U2, 4.0i U3 and 4.0 U4	Intel® Compute Module MFS5520VIR	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php

VMware ESX Server 4.1 releases: 4.1, 4.1 U1 and 4.1 U2	Intel® Compute Module MFS5520VIR	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php
VMware ESXi Server 4.1 releases: 4.1, 4.1 U1 and 4.1 U2	Intel® Compute Module MFS5520VIR	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php
VMware ESXi Server 5.0	Intel® Compute Module MVS5520VIR	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up To view VMware compatibility listing visit: http://www.vmware.com/resources/compatibility/search.php

Table 3.4 Operating System Certifications, MFSYS25V2 Storage

Virtualization Software	Certification Listing	Comments
VMware ESX Server 4.1 U1	Intel® Modular Server MFSYS25V2 Storage	This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up
VMware ESXi Server 4.1 U1	Intel® Modular Server MFSYS25V2 Storage	This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up
VMware ESX Server 4.1 U2	Intel® Modular Server MFSYS25V2 Storage	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up
VMware ESXi Server 4.1 U2	Intel® Modular Server MFSYS25V2 Storage	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up
VMware ESXi Server 5.0	Intel® Modular Server MFSYS25V2 Storage	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit http://www.esaa-members.com to sign up

Note: Per the VMware Compatibility guide for storage, VMware "ESX, ESXi Embedded and ESXi Installable are equivalent products from a storage compatibility perspective. If a product is listed as supported for ESX, the product is also supported for ESXi Embedded and ESXi Installable corresponding versions." To view VMware Storage compatibility listings visit: http://www.vmware.com/resources/compatibility/search.php?deviceCategory=san

3.2.2　　　Operating System Storage Component Support

Table 3.5 Operating System Storage Component Support

Operating System	Single SCM	Dual SCM	Shared LUN Single SCM	Shared LUN Dual SCM
Microsoft Windows* 2003 Enterprise (32-bit), R2 SP2	Supported	Supported	Supported	Supported
Microsoft Windows* 2003 Enterprise (64-bit), R2 SP2	Supported	Supported	Supported	Supported
Microsoft Windows* 2008 Enterprise SP2 (32-bit)	Supported	Supported	Supported	Supported
Microsoft Windows* 2008 Enterprise R2 (64-bit)	Supported	Supported	Supported	Supported

Red Hat Enterprise Linux AS 5.0 U4(32-bit)	Supported	Not Supported	NotSupported	Not Supported
Red Hat Enterprise Linux AS 5.0 U4(64-bit)	Supported	Supported(1)	Supported	Supported(1)
Red Hat Enterprise Linux AS 6.0 U4(64-bit)	Supported	Supported(1)	Supported	Supported(1)
SuSE Linux Enterprise Server 11(32-bit),	Supported	Not Supported	Not Supported	Not Supported
SuSE Linux Enterprise Server 11SP1 (64-bit),	Supported	Supported(1)	Supported	Supported(1)
VMWare ESX 3.5 U4	Supported	Supported	Supported	Supported
VMware ESXi 3.5 U4	Supported	Supported	Supported	Supported
VMWare ESX 4.0	Supported	Supported	Supported	Supported
VMWare ESXi 4.0	Supported	Supported	Supported	Supported
VMware ESX Server 4.1 U2	Supported	Supported	Supported	Supported
VMware ESXi Server 4.1 U2	Supported	Supported	Supported	Supported
VMware ESXi Server 5.0	Supported	Supported	Supported	Supported

Notes:

(1)   Xen is not supported

3.3   I/O Expansion Cards & Peripherals

I/O Expansion card and 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 expansion cards and peripherals are divided into categories based on their functionality.   All integrated on-board devices are tested by default and are therefore not included in the following tables.

If there are installation guidelines affecting a particular expansion card/peripheral and operating system combination, these are referenced in the following table.   If there are no installation guidelines noted in the following table, then the expansion card/peripheral installed and functioned as expected using manufacturer's installation instructions or Intel's best-known methods.

Table 3.6 Intel® Compute Module MFS5520VIR Supported Items

Manufacturer	Model Name	Model Number	Interface	Comments
3.3.1	**USB Devices**			
TEAC	USB Floppy	FD-05-PUB	USB	
NEC	USB Floppy	UF0002	USB	
IOMega	USB Optical Drive	DVD R/W (Super 16xU2)	USB	
Liteon	USB Optical Drive	SHM-165P6SX	USB	
Liteon	USB Optical Drive	SOSW-1673SU	USB	
Liteon	USB Optical Drive	DX-20A4H	USB	
Liteon	USB Optical Drive	eSAU208-1114	USB	
TEAC	USB Optical Drive	PU-DVR10-90 (DRIV REV A02)	USB	
Sony	USB Optical Drive	DRX-830UL-G	USB	
Sony	USB Optical Drive	DRX-840U	USB	
Sony	USB Optical Drive	DRX-S77U W UC2	USB	
HP	USB Optical Drive	DVD1040E	USB	
Sony	USB Optical Drive	DRX-S70UW	USB	

Table 3.7 Intel® Modular Server System MFSYS25V2 Supported Peripherals

Manufacturer	Model Name	Model Number	Interface	Comments
3.3.2	**External Tape Drives**			
Quantum	Quantum LTO-3 HH	LTO-3 HH SAS	SAS	Tested by vendor. Intel tested with the following configurations: Windows 2003* with Symantec Backup Exec 12 Windows 2008* with Symantec Backup Exec 12
Quantum	Quantum LTO-4 HH	LTO-4 HH SAS	SAS	Tested under Windows 2008*
Tandberg	Tandberg StorageLibrary T24	Model 2471-LTO	SAS	Tested under Windows 2008*
3.3.3	**External Storage**			
Promise	VTrak E310sS	VTE310sS	SAS	Single storage controller

Promise	VTrak E310sD	VTE310sD	SAS	Dual storage controller. Not tested with or supported under Red Hat Enterprise Linux AS 5.0 U3 (32 bit or 64 bit)
Promise	VTrak E610sS	VTE610sS	SAS	Single storage controller
Promise	VTrak E610sD	VTE610sD	SAS	Dual storage controller. Not tested with or supported under Red Hat Enterprise Linux AS 5.0 U3 (32 bit or 64 bit)
Dot Hill	Dot Hill 2522	2522	SAS	Support by vendor. Tested under UFU 6.5. Not tested with VMware.

3.4   Hard Disk Drives

The hard drives listed in the following table have been tested with the Intel® Modular Server System MFSYS25V2 by Intel validation labs and/or by individual drive vendors.

Table 3.8 Tested Hard Drives

Manufacturer	Product Family	Model Number	RPM	Drive Size (GB)	Drive FW Level (1)	Minimum Chasis FW Level	Notes
2.5" SAS drive							
Seagate	Constellation*	ST9500430SS	7,200	500GB	0002	UFU10.4	Added June 2009
Seagate	Constellation.2*	ST91000640SS	7,200	1TB	002	UFU 10.4	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Constellation.2*	ST9500620SS	7,200	500GB	002	UFU 10.4	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.5	ST9900805SS	10,000	900GB	0001	UFU 10.1	Added July 2011 MFSYS25 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.4	ST9600204SS	10,000	600GB	0004	UFU 10.1	Added April 2010
Seagate	Savvio* 10K.4	ST9450404SS	10,000	450GB	0004	UFU 10.1	Added May 2010, SD (3)
Seagate	Savvio* 10K.3	ST9300603SS	10,000	300GB	0002	UFU 10.1	
Seagate	Savvio* 10K.3	ST9146803SS	10,000	146GB	0002	UFU 10.1	
Seagate	Savvio* 10K.2	ST9146802SS	10,000	146GB	0003	UFU 10.1	
Seagate	Savvio* 10K.2	ST973402SS	10,000	73GB	0003	UFU 10.1	
Seagate	Savvio* 10K.5	ST9300605SS	10,000	300GB	0002	UFU 10.4	Added December 2011 SD (3) MFSYS25V2 chassis must be with power supplies D73299-008 or higher.

Seagate	Savvio* 10K.5	ST9450405SS	10,000	450GB	0002	UFU 10.4	Added December 2011 SD (3) MFSYS25V2 chassis must be with power supplies D73299-008 or higher
Seagate	Savvio* 10K.5	ST9600205SS	10,000	600GB	0002	UFU 10.4	Added December 2011 SD (3) MFSYS25V2 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 10K.5	ST9900805SS	10,000	900GB	0002	UFU 10.4	Added December 2011 MFSYS25V2 chassis must be with power supplies D73299-008 or higher.
Seagate	Savvio* 15K	ST936751SS	15,000	36GB	0001	UFU10.1	
Seagate	Savvio* 15K	ST973451SS	15,000	73GB	0001	UFU 10.1	SD (3)
Seagate	Savvio* 15K.2	ST973452SS	15,000	73GB	0005	UFU 10.1	Added June 2009
Seagate	Savvio* 15K.2	ST9146852SS	15,000	146GB	0005	UFU 10.1	Added June 2009
Toshiba	AL-10SE*	MBB2147RC	10,000	146GB	0105	UFU P2.6	
Toshiba	AL-10Sx*	MBB2073RC	10,000	73GB	0105	UFU P2.6	
Toshiba	AL-10Sx*	MBC2036RC	15,000	36GB	0005	UFU P2.6	
Toshiba	AL-10Sx*	MBC2073RC	15,000	73GB	0005	UFU P2.6	
Toshiba		MBE2073RC	15,000	73GB	0103	UFU P2.6	
Toshiba		MBD2147RC	10,000	147GB	0102	UFU P2.6	
Toshiba		MBD2300RC	10,000	300GB	0102	UFU P2.6	MFSYS25 chassis must be with power supplies D73299-008 or higher.
Toshiba		MBF2450RC	10,000	450GB	0107	UFU V6.5	MFSYS25 chassis must be with power supplies D73299-008 or higher.
Toshiba		MBF2600RC	10,000	600GB	0107	UFU V6.5	MFSYS25 chassis must be with power supplies D73299-008 or higher.
Hitachi	UltraStar	HUC106060CSS600	10,000	600GB	A150	UFU V6.6	
Hitachi	UltraStar	HUC106045CSS600	10,000	450GB	A150	UFU V6.6	
Hitachi	UltraStar	HUC106030CSS600	10,000	300GB	A150	UFU V6.6	
2.5" SATA drives							
Toshiba		MHZ2250BK-G2	7200	250GB	011E		Requires AXXTM3SATA See Note (2)
Toshiba		MHZ2160BK-G2	7200	160GB	011E		Requires AXXTM3SATA. See Note (2)
SSD (2.5" SATA interface)							
Intel	X25-E	SSDSA2SH032G1		32GB	045C8790	UFU V5.0	Requires AXXTM3SATA
Intel	X25-E	SSDSA2SH064G1		64GB	045C8790	UFU V5.0	Requires AXXTM3SATA

Intel	X25-M	SSDSA2M160 G2		160GB	02G9	UFU V5.5	Requires AXXTM3SATA
Intel	X25-M	SSDSA2M080 G2		80GB	02G9	UFU V5.5	Requires AXXTM3SATA
Intel	320	SSDSA2BW08 0G3		80GB	4P1030 2	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW08 0G3		80GB	4P1030 2	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW12 0G3		120GB	4P1030 2	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW12 0G3		120GB	4P1030 2	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW16 0G3		160GB	4PC103 02	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW16 0G3		160GB	4PC103 02	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW30 0G3		300GB	4PC103 02	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW30 0G3		300GB	4PC103 02	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2BW60 0G3		600GB	4P1030 2	UFU 10.4	Requires AXXTM3SATA
Intel	320	SSDSA2CW60 0G3		600GB	4P1030 2	UFU 10.4	Requires AXXTM3SATA

Notes:

(1) Firmware revisions listed in this column are the minimum revision levels supported. As they become available, listed drives with newer revisions of firmware are also supported. OEM specific versions of drive firmware are not supported. Mixed drive firmware levels within the same storage pool is not supported.

(2) This drive may experience degradation in performance in environments with elevated temperatures or during a fault condition within the MFSYS25V2 chassis.

(3) MFSYS25V2 mixed SAS and SSD mix models validated are as follows: Mix combination was limited to one physical SAS drive model and one SSD drive model. Mixing of drive models within a storage pool is not supported. The mixed drive models below contain the configuration which has been validated. Other combinations of a single SSD drive model and a single SAS drive model although not validated, are supported.

        2 SSD drives – slots 1,2   12 SAS drives - slots 3-14

        4 SSD drives – slots 1-4   10 SAS drives - slots 5-14

(4) MFSYS25V2 mixed SATA and SSD mix models validated are as follows: Mix combination was limited to one physical SATA drive model and one SSD drive model. Mixing of drive models within a storage pool is not supported. The mixed drive models below contain the configuration which has been validated. Other combinations of a single SSD drive model and a single SATA drive model although not validated, are supported.

        2 SSD drives – slots 1,2   12 SATA drives - slots 3-14

        4 SSD drives – slots 1-4   10 SATA drives - slots 5-14

(5) MFSYS25V2 mixed SAS and SATA mix models validated are as follows: Mix combination was limited to one physical SAS drive model and one SATA drive model. Mixing of drive models within a storage pool is not supported.

> 2 SAS drives – slots 1,2   12 SATA drives - slots 3-14
>
> 4 SAS drives – slots 1-4   10 SATA drives - slots 5-14
>
> 6 SAS drives – slots 1-6   8 SATA drives - slots 7-14
>
> 8 SAS drives – slots 1-8   6 SATA drives - slots 9-14

(6) SD (Similar Drive) - The hard disk drive is supported, but not tested. This hard drive model/capacity has not been tested with this server board, but Intel will support it based on successful testing of a larger capacity hard drive from the same hard drive family. Intel has high confidence that this hard drive will function correctly with the server board. This drive uses the exact same firmware and drivers as a larger capacity hard drive that has been successfully tested with this server board. The only difference between this drive and the one that was used in testing is the storage capacity. Intel provides the same level of support for all hard drives listed in this document, regardless of whether the drive was tested or not. Customers should always test hard drives as part of the final system configuration prior to deployment. Given the fact that a larger capacity hard drive from the same drive family has successfully completed testing on this server board, this particular hard drive capacity point will not be tested.