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# **Intel® Modular Server System**

## **MFSYS25\MFSYS35**

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

**Revision 3.4**

**January, 2012**

**Enterprise Platforms and Services Division**

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## Revision History

<b>Date</b>	<b>Revision Number</b>	<b>Modifications</b>
November, 2007	1.0	Initial Release
January, 2008	1.1	Added support for Windows 2003 Server, clarified Virtualization Software testing/certification details
January 22 , 2008	1.2	Added Fujitsu 146GB 2.5" HDD
January 25 , 2008	1.3	Corrected 146BG FJ HDD – 10K instead of 15K drive
February 1, 008	1.4	Added SLES 10 64-bit Stress Testing and Novell Certification Status for both 32 & 64-bit versions
August, 2008	1.5	Added VMware ESX Server 3.0.2 U1 GA Certification and Windows 2008 Server support. Updated USB Device list.
December, 2008	1.6	Updated OS support. Added initial MFSYS35 HDD information.
January 9, 2009	1.7	Corrected Hard Drive FW revisions in Table 5.2 Tested Hard Drives
January 16, 2009	1.8	Corrected Xyratec external array information, added note for 3.5" drives-mixing of SAS and SATA not supported.
March, 2009	1.9	Updated Table 4.6 External Tape Drives and Table 5.2 Tested HDDs
June, 2009	2.0	Added Intel® Compute Module MFS5520VI to this document. Updated tables with new HDD and OS information.
July, 2009	2.1	Added back external storage information that was inadvertently removed.
September, 2009	2.2	Remove EOL external storage SSR212PP, correct ST9500430SS product family information.
October 21 2009	2.3	Added 2.5" SSD, SATA drives, updated supported OS, and system configuration information.
October 28, 2009	2.4	Added new 2.5" SAS drives, updated supported OS information.
January 14, 2010	2.5	Updated tables with new HDD and OS information. Added new tape drive and USD DVD drive.
April 28, 2010	2.6	Updated tables with new HDD and OS information.
May 10, 2010	2.7	Updated HDD table and added mixed drive storage clarification.
June 8, 2010	2.8	Updated OS information, and added new HDD
July 26, 2010	2.9	Added new HDD, updated HDD firmware.
December 17,2010	3.0	Added new HDD and storage.
March 2, 2011	3.1	Added new HDD and optical drives.
July 22, 2011	3.2	Added new HDD and SSD, updated supported OS.
January 11, 2012	3.3	Added new HDD. Removed MFSYS25V2 and MFS5520VIR products.
January 26, 2012	3.4	Corrected Seagate® Savvio® 15K.3 146GB HDD information

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# 1. Introduction

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This document is intended to provide users of the Intel® Modular Server System MFSYS25/MFSYS35, Intel® Compute Module MFS5000SI and Intel® Compute Module MFS5520VI 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 MFSYS25/MFSYS35, Intel® Compute Module MFS5000SI and Intel® Compute Module MFS5520VI 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 Test Overview

Testing performed on the Intel® Modular Server System MFSYS25/MFSYS35, Intel® Compute Module MFS5000SI and Intel® Compute Module MFS5520VI is classified under two separate categories: Basic Installation Testing, and Expansion Card/ Peripheral Compatibility and Stress Testing.

### 1.1.1 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.

#### 1.1.1.1 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 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 3<sup>rd</sup> 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.

### 1.1.2 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.

#### 1.1.2.1 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.

## 1.2 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 MFSYS25 and/or the Intel® Server Modular System MFSYS35.

## 2. MFS5000SI / MFS5520VI / MFSYS25 / MFSYS35

### 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 MFS5000SI, the Intel® Compute Module MFS5520VI or the Intel® Modular Server System MFSYS25/MFSYS35 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 2.1 Base System Configurations Tested**

Config 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	MFSYS25	D91400-003	MFS5000SI	D70726-402	P2.0.5	8633	32	1.25.1	1.0.0.25	2.91.140.11
2	MFSYS25	D91400-006I	MFS5000SI	D70726-402	P2.2.3	11328	43	1.30.3	1.0.0.25	2.91.140.45
3	MFSYS25	D91400-006I	MFS5000SI	D70726-402	P2.6	14717	43	1.34.9	1.0.0.27	3.00.0140.77
4	MFSYS35	D91403-004	MFS5000SI	D70726-402	P2.6	14717	43	1.34.9	1.0.0.27	3.00.0140.77
5	MFSYS25	D91400-006	MFS5000SI	D70726-402	V2.7 (1)	16239	48	1.35.1	1.0.0.27	3.02.0140.15
6	MFSYS35	D91403-004	MFS5000SI	D70726-402	V2.7 (1)	16239	48	1.35.1	1.0.0.27	3.02.0140.15
7	MFSYS25 MFSYS35	D91400-008 D91403-004	MFS5000SI MFS5520VI	D70726-501 E41515-402	V3.0	17040	48 34	1.35.3 1.15.1	1.0.0.27	3.02.0140.15
8	MFSYS25 MFSYS35	D91400-009 D91403-006	MFS5000SI MFS5520VI	D70726-501 E41515-402	V5.0	19055	48 38	1.36.4 1.17.4	1.0.0.27	3.4.0140.05
9	MFSYS25 MFSYS35	D91400-009 D91403-006	MFS5000SI MFS5520VI	D70726-501 E41515-402	V5.5	19584	48 43	1.36.5 1.18.2	1.0.0.27	3.4.0140.08
10	MFSYS25 MFSYS35	D91400-009 D91403-006	MFS5000SI MFS5520VI	D70726-501 E41515-402	V6.0	20104	50 48	1.36.6 1.19.2	1.0.0.27	3.5.0140.11
11	MFSYS25 MFSYS35	D91400-009 D91403-006	MFS5000SI MFS5520VI	D70726-501 E41515-402	V6.1	20225	50 48	1.36.6 1.19.2	1.0.0.27	3.5.0140.11
12	MFSYS25 MFSYS35	D91400-009 D91403-006	MFS5000SI MFS5520VI	D70726-501 E41515-402	V6.5	21247	50 50	1.36.6 1.20.1	1.0.0.27	3.6.0140.05
13	MFSYS25	D91400-009	MFS5000SI	D70726-501	V6.6	23953	50	1.36.6	1.0.0.27	3.7.0140.06

## Intel® Modular Server Systems

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	MFSYS35	D91403-006	MFS5520VI	E41515-402			54	1.20.1		
14	MFSYS25	D91400-009	MFS5000SI	D70726-501	V6.6	23953	50	1.36.6	1.0.0.27	3.7.0140.06
	MFSYS35	D91403-006	MFS5520VI	E41515-402			54	1.20.1		
15	MFSYS25	D91400-009	MFS5000SI	D70726-501	V6.7	28522	50	1.36.6	1.0.0.27	3.7.0140.06
	MFSYS35	D91403-006	MFS5520VI	E41515-402			55	1.20.1		
16	MFSYS25	D91400-009	MFS5000SI	D70726-501	V6.8	29714	50	1.36.6	1.0.0.27	3.8.0140.08
	MFSYS35	D91403-006	MFS5520VI	E41515-452			55	1.26.3		

**Notes:**

(1) Naming convention change from P.x.x to V.x.x, no change to FW package structure

### 3. 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 MFS5000SI and MFS5520VI. Each of the listed operating systems was tested for compatibility with the base system configuration listed in Section 2 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.

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 3.1 Operating Systems Tested for MFS5000SI**

Operating System	Type of Testing	Notes
Microsoft Windows* 2003 Enterprise (32-bit), R2 SP2	Configuration 16- Compatibility & Stress	
Microsoft Windows* 2003 Enterprise (64-bit), R2 SP2	Configuration 16- Compatibility & Stress	
Microsoft Windows* 2008 SP2 Enterprise (32-bit)	Configuration 16- Compatibility & Stress	
Microsoft Windows* 2008 SP2 Enterprise (64-bit)	Configuration 16- Compatibility & Stress	
Microsoft Windows* 2008 Enterprise R2 (64-bit)	Configuration 16- Compatibility & Stress	
Microsoft Hyper-V Server 2008 (64-bit)	Configuration 16- Compatibility & Stress	
Red Hat Enterprise Linux AS 5.0 U4 (32-bit)	Configuration 16- 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 16- Compatibility & Stress	
Red Hat RHEL Advanced Platform 6 (64-bit)	Configuration 16- Compatibility & Stress	
Red Hat RHEL Advanced Platform 6 (64-bit) with KVM	Configuration 16- Compatibility & Stress	

Operating System	Type of Testing	Notes
SuSE Linux Enterprise Server 11 SP1 Basic kernel (32-bit),	Configuration 16- Basic Installation, Compatibiltiy Only	
SuSE Linux Enterprise Server 11 SP1 Basic kernel (64-bit),	Configuration 16- Compatibility & Stress	
VMware ESX Server 3.5 U4	Configuration 16- Compatibility	
VMware ESXi Server 3.5 U4	Configuration 16- Compatibility	
Vmware ESX 3.5 for MFSYS25/MFSYS35 Storage	Configuration 16- Compatibility	
Vmware ESX 3.5i for MFSYS25/MFSYS35 Storage	Configuration 16 - Compatibility	
VMware ESX Server 4.0	Configuration 16 - Compatibility	
VMware ESXi Server 4.0	Configuration 16 - Compatibility	
VMware ESX Server 4.1	Configuration 16 - Compatibility	
VMware ESXi Server 4.1	Configuration 16 - Compatibility	
Client Web Browsers (for CMM interface)	Type of Testing	Notes
Microsoft Internet Explorer 8.0	Configuration 16 - Compatibility	
Mozilla Firefox 3.6.x	Configuration 16 - Compatibility	
Client Java Engines (for CMM interface and remote KVM)	Type of Testing	Notes
Sun Java Plugin 6.17	Configuration 16 - Compatibility	Sun Java Plugin 6.3 or above
Client OS	Type of Testing	Notes
Microsoft Windows* XP Professional, 32-bit, SP3	Configuration 16 - Compatibility	
Microsoft Windows* XP Professional, 64-bit, SP2	Configuration 16 - Compatibility	
Microsft Windows 7 (64 bit)	Configuration 16 - Compatibility	
Novell SuSe Linux Desktop 11 x86 SP1	Configuration 16 - Compatibility	
Novell SuSe Linux Desktop 11 64-bit SP1	Configuration 16 - Compatibility	

**Table 3.2 Operating Systems Tested for MFS5520VI**

Operating System	Type of Testing	Notes
Microsoft Windows* 2003 Enterprise (32-bit), R2 SP2	Configuration 16 - Compatibility & Stress	
Microsoft Windows* 2003 Enterprise (64-bit), R2 SP2	Configuration 16 - Compatibility & Stress	
Microsoft Windows* 2008 SP2 Enterprise (32-bit)	Configuration 16 - Compatibility & Stress	
Microsoft Windows* 2008 SP2 Enterprise (64-bit)	Configuration 16 - Compatibility & Stress	

Operating System	Type of Testing	Notes
Microsoft Windows* 2008 Enterprise R2 (64-bit)	Configuration 16- Compatibility & Stress	
Microsoft Hyper-V Server 2008 (64-bit)	Configuration 16- Compatibility & Stress	
Red Hat Enterprise Linux AS 5.0 U4 (32-bit)	Configuration 16- 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 16- Compatibility & Stress	
Red Hat RHEL Advanced Platform 6.0 (64-bit)	Configuration 16- Compatibility & Stress	
Red Hat RHEL Advanced Platform 6.0 (64-bit) with KVM	Configuration 16- Compatibility & Stress	
SuSE Linux Enterprise Server 11 SP1 Basic kernel (32-bit),	Configuration 16- Basic Installation, Compatibility Only	
SuSE Linux Enterprise Server 11 SP1 Basic kernel (64-bit),	Configuration 16- Compatibility & Stress	
VMware ESX Server 3.5 U4	Configuration 16– Compatibility	
VMware ESXi Server 3.5 U4	Configuration 16– Compatibility	
Vmware ESX 3.5 for MFSYS25/MFSYS35 Storage	Configuration 16– Compatibility	
Vmware ESX 3.5i for MFSYS25/MFSYS35 Storage	Configuration 16 - Compatibility	
VMware ESX Server 4.1	Configuration 16 - Compatibility	
VMware ESXi Server 4.1	Configuration 16 - Compatibility	
<b>Client Web Browsers (for CMM interface)</b>	<b>Type of Testing</b>	<b>Notes</b>
Microsoft Internet Explorer 8.0	Configuration 16 - Compatibility	
Mozilla Firefox 3.6.x	Configuration 16 - Compatibility	
<b>Client Java Engines (for CMM interface and remote KVM)</b>	<b>Type of Testing</b>	<b>Notes</b>
Sun Java Plugin 6.17	Configuration 16 - Compatibility	Sun Java Plugin 6.3 or above
<b>Client OS</b>	<b>Type of Testing</b>	<b>Notes</b>
Microsoft Windows* XP Professional, 32-bit SP3	Configuration 16 - Compatibility	
Microsoft Windows* XP Professional, 64-bit SP2	Configuration 16 - Compatibility	
Microsft Windows 7 (64 bit)	Configuration 16 - Compatibility	
Novell SuSe Linux Desktop 11 X86 SP1	Configuration 16 - Compatibility	
Novell SuSe Linux Desktop 11 64-bit SP1	Configuration 16 - Compatibility	

### 3.1 Operating System Certifications

Listed below are the operating systems that Intel plans to certify with the Intel® Compute Module MFS5000SI and Intel® Compute Module MFS5520VI. 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, MFS5000SI**

Operating System	Certification Listing	Comments
Microsoft Windows* 2003 Enterprise Server (32 & 64-bit )	Intel® Modular Server System MFSYS25/MFS5000SI Designed for Windows Server 2003, SID# 1270300	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/MFS5000SI Certified for Windows Server 2008, SID# 129928	Certification available. OEM must request certification by Microsoft for their specific product.
Red Hat* Enterprise Linux Advanced Server 5.0 (32 & 64-bit)	Intel® Modular Server System MFSYS25/MFS5000SI SID# 385741	Certification for compute module was completed with a single SCM configuration. Certification for compute module with dual SCM is not required. Red Hat checks Intel's results, certifies (if appropriate), and posts the certificate on their web site. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. <a href="http://hardware.redhat.com/hcl/?pagename=hcl&amp;view=certified&amp;vendor=399&amp;class=8#list">http://hardware.redhat.com/hcl/?pagename=hcl&amp;view=certified&amp;vendor=399&amp;class=8#list</a>
SUSE® LINUX Enterprise Server 10 SP1 for AMD64® & Intel® EM64T® with XEN	Intel® Compute Module MFS5000SI YES Certification Bulletin 95560	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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>
SUSE® LINUX Enterprise Server 11 for AMD64® & Intel® EM64T®	Intel® Compute Module MFS5000SI YES Certification Bulletin 131852	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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>

Operating System	Certification Listing	Comments
SUSE® LINUX Enterprise Server 11 for AMD64® & Intel® EM64T® with XEN	Intel® Compute Module MFS5000SI YES Certification Bulletin 131583	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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>
Virtualization Software	Certification Listing	Comments
VMware ESX Server 3.0.2 U1	Intel® Compute Module MFS5000SI	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESX Server 3.0.3 releases: 3.0.3 and 3.0.3 U1	Intel® Compute Module MFS5000SI	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESX Server 3.5 releases: 3.5, 3.5 U1, 3.5 U2, 3.5 U3, 3.5 U4 and 3.5 U5	Intel® Compute Module MFS5000SI	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESXi Server 3.5 releases: 3.5, 3.5 U1, 3.5 U2, 3.5 U3, 3.5 U4 and 3.5 U5	Intel® Compute Module MFS5000SI	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESX Server 4.0 releases: 4.0, 4.0 U1, 4.0 U2, 4.0 U3 and 4.0 U4	Intel® Compute Module MFS5000SI	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESXi Server 4.0 releases: 4.0, 4.0 U1, 4.0 U2, 4.0 U3 and 4.0 U4	Intel® Compute Module MFS5000SI	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESX Server 4.1 releases: 4.1, 4.1 U1 and 4.0 U2	Intel® Compute Module MFS5000SI	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESXi Server 4.1 releases: 4.1, 4.1 U1 and 4.0 U2	Intel® Compute Module MFS5000SI	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>



Table 3.4 Operating System Certifications, MFS5520VI

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 MFS5520VI 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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>
SUSE® LINUX Enterprise Server 10 for AMD64® & Intel® EM64T® with XEN (SP3 for SUSE® SLES 10)	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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>
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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>
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. <a href="http://developer.novell.com/yessearch/Search.jsp">http://developer.novell.com/yessearch/Search.jsp</a>
Virtualization Software	Certification Listing	Comments
VMware ESX Server 3.5 U5	Intel® Compute Module MFS5520VI	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>

VMware ESXi Server 3.5 U5	Intel® Compute Module MFS5520VI	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESX Server 4.0 U1	Intel® Compute Module MFS5520VI	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>
VMware ESXi Server 4.0i U1	Intel® Compute Module MFS5520VI	Certification for single SCM configuration only. This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up To view VMware compatibility listing visit: <a href="http://www.vmware.com/resources/compatibility/search.php">http://www.vmware.com/resources/compatibility/search.php</a>

**Table 3.4 Operating System Certifications, MFSYS25/MFSYS35 Storage**

Virtualization Software	Certification Listing	Comments
Vmware ESX 3.5 releases: 3.5 U3, 3.5 U4 & 3.5 U5	Intel® Modular Server MFSYS25 Intel® Modular Server MFSYS35	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up
Vmware ESX 4.0, 4.0 U1, 4.0 U2, 4.0 U3, 4.0 U4 for MFSYS25/MFSYS35 Storage	Intel® Modular Server MFSYS25 Intel® Modular Server MFSYS35	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up
Vmware ESX 4.1, 4.1 U1, 4.1 U2 for MFSYS25/MFSYS35 Storage	Intel® Modular Server MFSYS25 Intel® Modular Server MFSYS35	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> to sign up
Vmware ESXi 5.0 for MFSYS25/MFSYS35 Storage	Intel® Modular Server MFSYS25 Intel® Modular Server MFSYS35	This recipe is available only through the ESAA program. Please visit <a href="http://www.esaa-members.com">http://www.esaa-members.com</a> 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 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 U4	Supported	Supported(2)	Supported	Supported(2)
VMware ESXi 4.0 U4	Supported	Supported(2)	Supported	Supported(2)
VMware ESX Server 4.1 U2	Supported	Supported(2)	Supported	Supported(2)
VMware ESXi Server 4.1 U2	Supported	Supported(2)	Supported	Supported(2)
VMware ESXi Server 5.0	Supported	Supported(2)	Supported	Supported(2)

**Notes:**

- (1) Xen is not supported.
- (2) SP failover for SCM failures and SCM SAS port failures is supported on UFU v6.0 and later

## 4. 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.

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 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 4.1. Intel® Compute Module MFS5000SI / MFS5520VI Supported Items**

Manufacturer	Model Name	Model Number	Interface	Comments
<b>4.1 USB Devices</b>				
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 4.2 Intel® Modular Server System MFSYS25 / MFSYS35 Supported Peripherals**

Manufacturer	Model Name	Model Number	Interface	Comments
<b>4.2 External Tape Drives</b>				
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*
<b>4.3 External Storage</b>				
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	Supported by vendor. Tested under UFU 6.5.. Not tested under VMware.

## 5. Hard Disk Drives

The hard drives listed in the following table have been tested with the Intel® Modular Server System MFSYS25 / MFSYS35 by Intel validation labs and/or by individual drive vendors.

**Table 5.1 Tested Hard Drives**

Manufacturer	Product Family	Model Number	RPM	Drive Size (GB)	Drive FW Level (1)	Minimum Chasis FW Level	Notes
<b>2.5" SAS drive</b>							
Seagate	Constellation *	ST9500430SS	7,200	500GB	0002		Added June 2009
Seagate	Constellation .2*	ST91000640S S	7,200	1TB	002	UFU V6.8	Added July 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Seagate	Constellation .2*	ST9500620SS	7,200	500GB	002	UFU V6.8	Added July 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Seagate	Savvio* 10K.5	ST9900805SS	10,000	900GB	0002	UFU 6.8	Added July 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Seagate	Savvio* 10K.5	ST9600205SS	10,000	600GB	0002	UFU 6.8	Added December 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Seagate	Savvio* 10K.5	ST9450405SS	10,000	450GB	0002	UFU 6.8	Added December 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Seagate	Savvio* 10K.5	ST9300605SS	10,000	300GB	0002	UFU 6.8	Added December 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Seagate	Savvio* 10K.4	ST9600204SS	10,000	600GB	0004		Added April 2010
Seagate	Savvio* 10K.4	ST9450404SS	10,000	450GB	0004		Added May 2010, SD (9)

Seagate	Savvio* 10K.3	ST9300603SS	10,000	300GB	0002		
Seagate	Savvio* 10K.3	ST9146803SS	10,000	146GB	0002		
Seagate	Savvio* 10K.2	ST9146802SS	10,000	146GB	0003		
Seagate	Savvio* 10K.2	ST973402SS	10,000	73GB	0003		
Seagate	Savvio* 15K	ST936751SS	15,000	36GB	0001		
Seagate	Savvio* 15K	ST973451SS	15,000	73GB	0001		SD(9)
Seagate	Savvio* 15K.2	ST973452SS	15,000	73GB	0005		Added June 2009
Seagate	Savvio* 15K.2	ST9146852SS	15,000	146GB	0005		Added June 2009
Seagate	Savvio* 15K.3	ST9300653SS	15,000	300GB	0002	UFU 6.9	Added December 2011 SD(9) MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail
Seagate	Savvio* 15K.3	ST9146853SS	15,000	146GB	0002	UFU 6.9	Added December 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail
Toshiba	AL-10SE*	MBB2147RC	10,000	146GB	0105	UFU P2.6	Chassis must be at UFU P2.6 FW level
Toshiba	AL-10Sx*	MBB2073RC	10,000	73GB	0105	UFU P2.6	Chassis must be at UFU P2.6 FW level
Toshiba	AL-10Sx*	MBC2036RC	15,000	36GB	0005	UFU P2.6	Chassis must be at UFU P2.6 FW level
Toshiba	AL-10Sx*	MBC2073RC	15,000	73GB	0005	UFU P2.6	Chassis must be at UFU P2.6 FW level
Toshiba		MBE2073RC	15,000	73GB	0103	UFU P2.6	Chassis must be at UFU P2.6 FW level
Toshiba		MBD2147RC	10,000	147GB	0102	UFU P2.6	Chassis must be at UFU P2.6 FW level
Toshiba		MBD2300RC	10,000	300GB	0102	UFU P2.6	MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Toshiba		MBF2450RC	10,000	450GB	0107	UFU V6.5	MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.
Toshiba		MBF2600RC	10,000	600GB	0107	UFU V6.5	MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail.

Hitachi	UltraStar	HUC106060C SS600	10,000	600GB	A150	UFU V6.6	MFSYS25 chassis must be with I/O fan module D91260-004 or higher, see comments 7 for detail.
Hitachi	UltraStar	HUC106045C SS600	10,000	450GB	A150	UFU V6.6	MFSYS25 chassis must be with I/O fan module D91260-004 or higher, see comments 7 for detail.
Hitachi	UltraStar	HUC106030C SS600	10,000	300GB	A150	UFU V6.6	MFSYS25 chassis must be with I/O fan module D91260-004 or higher, see comments 7 for detail.
Western Digital	WD S25	WD6000BKH G	10,000	600GB	VG0402 HD	UFU 6.9	Added December 2011 MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail
Western Digital	WD S25	WD4500BKH G	10,000	450GB	VG0402 HD	UFU 6.9	Added December 2011 SD(9) MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail
Western Digital	WD S25	WD3000BKF G	10,000	300GB	VG0402 HD	UFU 6.9	Added December 2011 SD(9) MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail
Western Digital	WD S25	WD1460BKF G	10,000	146GB	VG0402 HD	UFU 6.9	Added December 2011 SD(9) MFSYS25 chassis must be with I/O fan module D91260-004 or higher and with power supplies D73299-008 or higher. See comments 7 and 8 for detail
<b>2.5" SATA drives</b>							
Toshiba		MHZ2250BK- G2	7200	250GB	011E		Chassis must be at UFU 5.0, Requires AXXTM3SATA. See Note (2)
Toshiba		MHZ2160BK- G2	7200	160GB	011E		Chassis must be at UFU 5.0, Requires AXXTM3SATA. See Note (2)
<b>SSD (2.5" SATA interface)</b>							
Intel	X25-E	SSDSA2SH03 2G1		32GB	045C87 90	UFU V5.0	Requires AXXTM3SATA
Intel	X25-E	SSDSA2SH06 4G1		64GB	045C87 90	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	SSDSA2BW0 80G3		80GB	4P1030 2	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2CW0 80G3		80GB	4P1030 2	UFU 6.8	Requires AXXTM3SATA



Intel	320	SSDSA2BW1 20G3		120GB	4P1030 2	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2CW1 20G3		120GB	4P1030 2	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2BW1 60G3		160GB	4PC103 02	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2CW1 60G3		160GB	4PC103 02	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2BW3 00G3		300GB	4PC103 02	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2CW3 00G3		300GB	4PC103 02	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2BW6 00G3		600GB	4P1030 2	UFU 6.8	Requires AXXTM3SATA
Intel	320	SSDSA2CW6 00G3		600GB	4P1030 2	UFU 6.8	Requires AXXTM3SATA
<b>3.5" SAS drives</b>							
Seagate	Cheetah* 15K.6	ST3450856SS	15,000	450GB	0004		
Seagate	Cheetah* 15K.6	ST3300656SS	15,000	300GB	0004		
Seagate	Barracuda ES.2*	ST31000640S S	7,200	1TB	0003		Added March 2009
Seagate	Barracuda ES.2*	ST3750630SS	7,200	750GB	0002		
Fujitsu	MBA Series	MBA3300RC	15,000	300GB	0103	UFU P2.6	
<b>3.5" SATA drives</b>							
Seagate	Barracuda ES.2*	ST3500320N S	7,200	500GB	SN05		
Hitachi	Ultrastar* A7K1000	HUA721050K LA330	7,200	500GB			
WD	RE4-GP	WD2002FYPS	5,400	2TB	04.05G 05		
WD	RE4	WD2003FYYS	5,400	2TB	01.00D 01		Added May 2010

**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. 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) This drive may experience degradation in performance in environments with elevated temperatures or during a fault condition within the MFSYS25 chassis.
- (3) MFSYS35 currently does not support a mix of SAS and SATA drives within the same chassis. All drives within the MFSYS35 subsystem must have the same interface.
- (4) MFSYS25 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

- (5) MFSYS25 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

- (6) MFSYS25 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

- (7) Chassis with TA#91400-006 or greater, come with new I/O fan module D91260-004 or higher. Chassis with old I/O fan module must replace with new I/O fan module. The TA number for the I/O Fan does not show in the GUI. The label on the bottom of the I/O module should be D91260-004 or higher.
- (8) Chassis with TA#D91400-013 or greater, come with new power supply D73299-008, and chassis with old power supplies must replace with newer power supplies D73299-008
- (9) SD (Similar Device) indicates that the expansion card/peripheral is supported, but not tested. This expansion card/peripheral model has not been tested with this server board, but Intel will support it based on successful testing of a similar expansion card/peripheral from the same family. Intel has high confidence that this expansion card/peripheral will function correctly with the server board. This expansion card/peripheral uses the same firmware and drivers, and has a nearly identical system interface to another expansion card/peripheral of the same family that has been successfully tested with this server board. In addition, Intel has secured IHV commitment to support the similar expansion card/peripheral equally. Customers should always test expansion card/peripheral as part of the final system configuration prior to deployment. All installation guidelines for the tested expansion card/peripheral also apply to the similar device.

## 6. Installation Guidelines

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### 6.1 Slipstreamed install for Windows 2003 Enterprise Edition (32 & 64 bit)

Method for performing Slipstreamed install for Windows 2003 Installation via CD-ROM drive. Both the CD-ROM and Floppy can not be simultaneously redirected on the MFSYS25 system.

**Implication:** The MFS500SI compute module will only support remote installation of the Windows 2003 Enterprise Edition R2 SP2 slipstreamed version. Local installation can be performed by either concurrent CD/floppy installation or via slipstreamed installation CD.

For remote install the LSI SAS driver must be slipstreamed into the installation media as both CD-ROM and Floppy can't be simultaneously redirected.

**Guideline:** To create a merged Windows 2003 CD perform the following:

1. Download and install the freeware program nLite from (<http://www.nliteos.com/index.html>)
2. Launch nLite
3. Select language desired and hit next
4. On the next screen browse to the location of the Windows 2003 CD
5. nLite will prompt for a location to copy the CD to for modification (C:\temp), it'll then copy the install CD to that folder
6. When the copy completes, hit next
7. Hit next on the presets screen
8. On the next screen, select "Integrate -> Drivers" and "Create -> Bootable ISO", hit Next.
9. Download and extract the 1.25.5 driver for the appropriate version of the OS (32-bit or 64-bit) and extract to a known location
10. Hit the Insert tab in the bottom left (single driver), browse to the location with the driver and select the "lsi\_sas.inf"
11. Select "Textmode driver", click on the description in the box, and hit OK
12. Hit Next to begin the process
13. When the process completes, hit next to bring up the Bootable ISO screen
14. Select the appropriate options for your system and hit "burn" to create the CD
15. When finished, the CD is ready for remote installation with no requirement for a driver floppy

**Status:** Intel has no plans to add support for concurrent Remote Floppy and Remote CD/DVD.

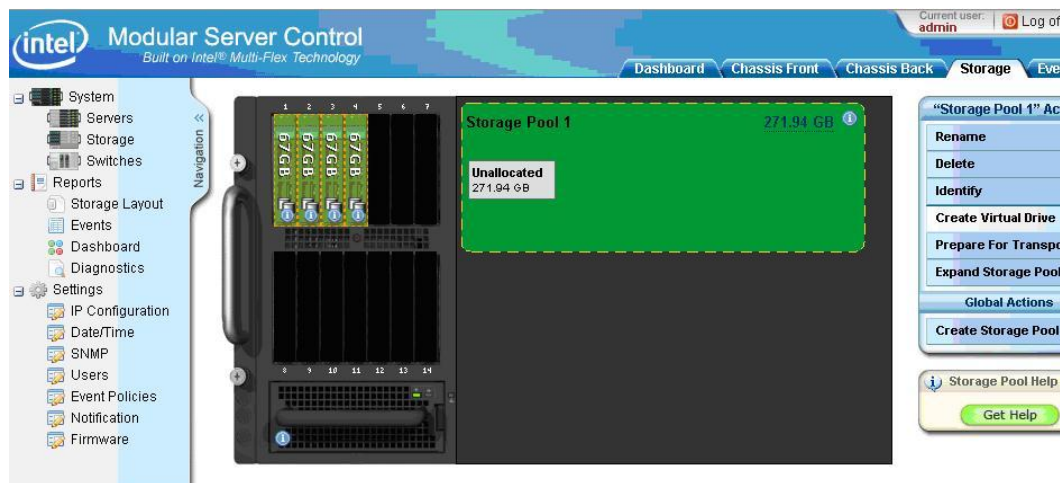
## 6.2 Windows 2003 Enterprise Edition (32 & 64 bit) Remote

### Installation Method

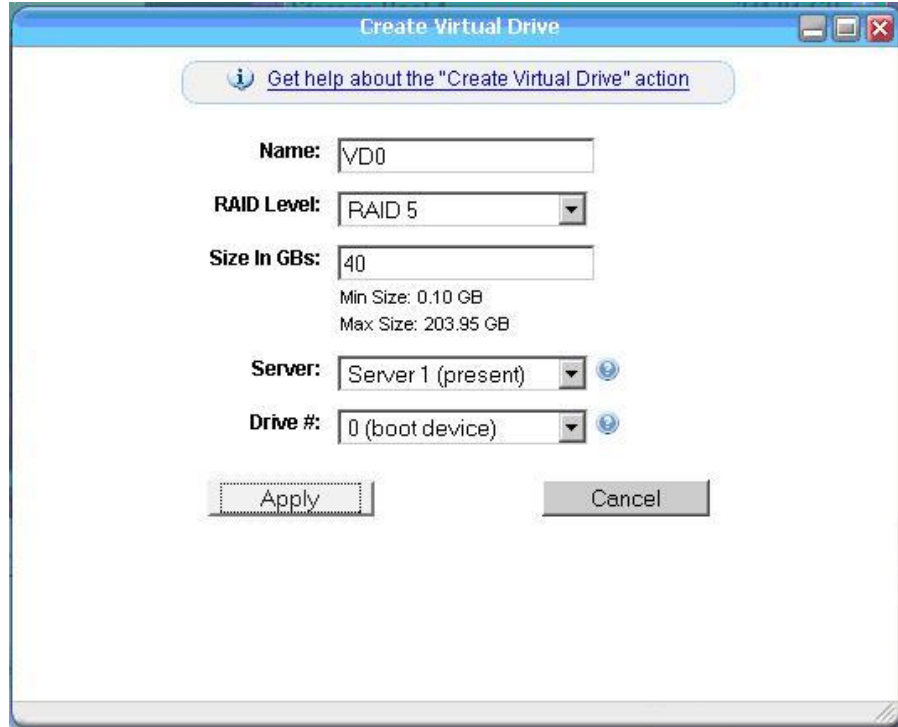
Method for performing Remote Windows 2003 Installation via CD-ROM drive.

Guideline: Note: Prepare a Slipstreamed CD per section 6.1.

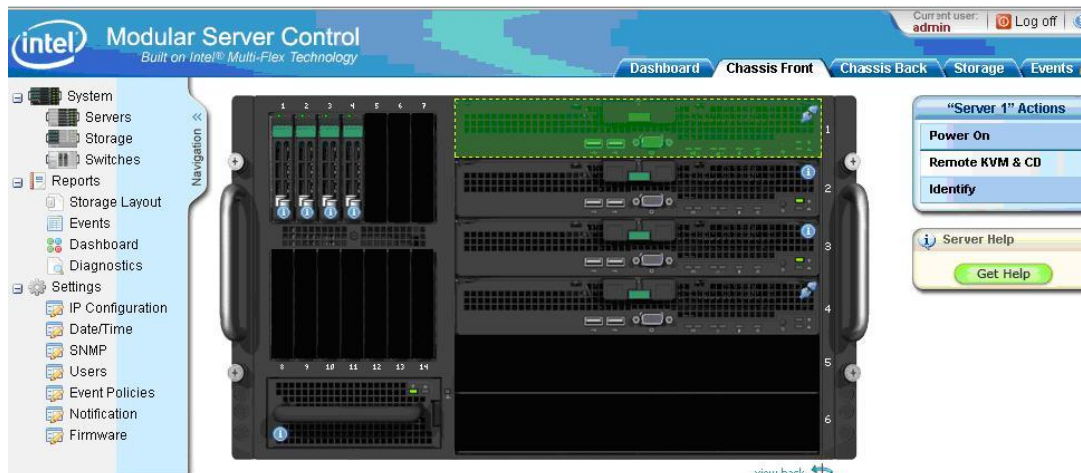
1. Plug your slipstreamed CD of your Windows operating system CD-ROM into the CD on your remote system.
2. Log in to the Modular Server and select the Storage Tab at the top.
3. If you have not already done so create a storage Pool and select it.
4. Select the Create Virtual Drive option under Actions.



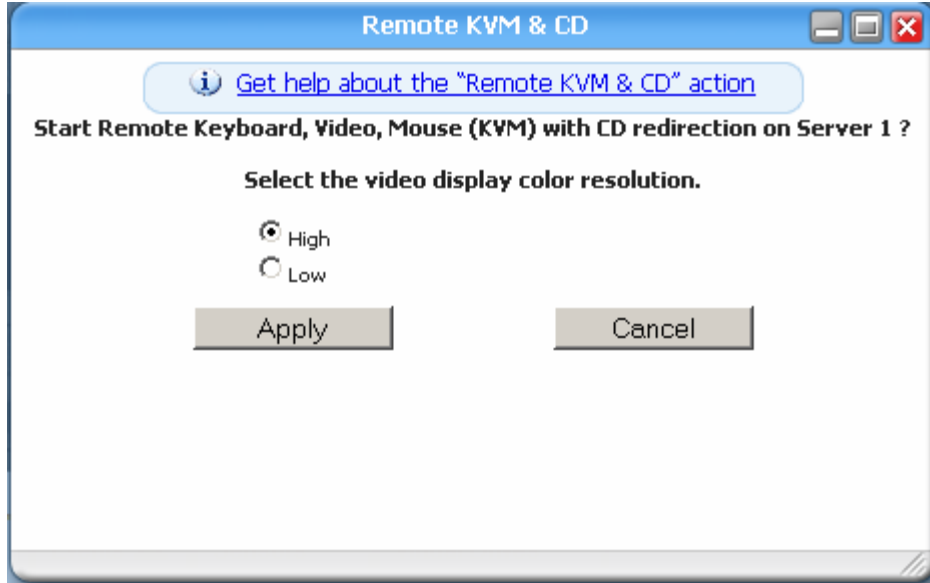
5. Enter a Name for the Virtual Disk.
6. Select a Raid Level appropriate for your application. The Raid levels that are available will be dependant on the number of drives used to create the storage pool.
7. Enter the size in GB for the virtual disk.
8. Select the Server that the virtual disk will be assigned
9. Select the Drive # for the virtual disk. For loading an operating system on a boot drive set the value to **0(boot device)**.



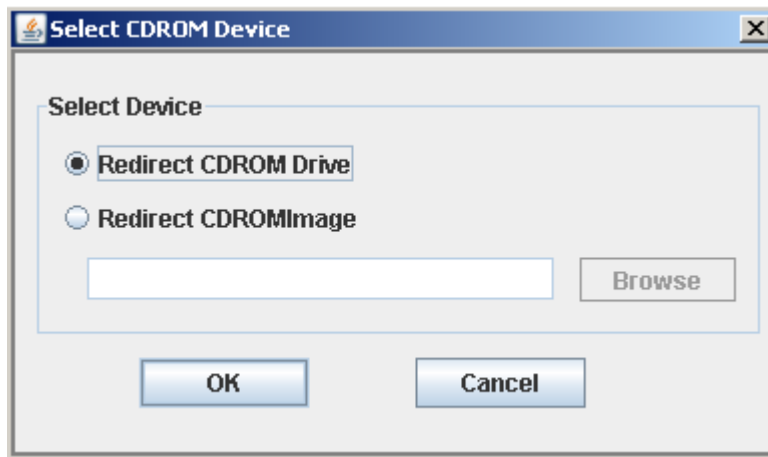
10. Confirm all your settings then Hit Apply. Hit OK when the confirmation dialog is displayed.
11. With the mouse, select the **Chassis Front** Tab.
12. Click on Server 1 on the Chassis picture with the Mouse.
13. Click on the Remote KVM & CD option under Server 1 Actions.



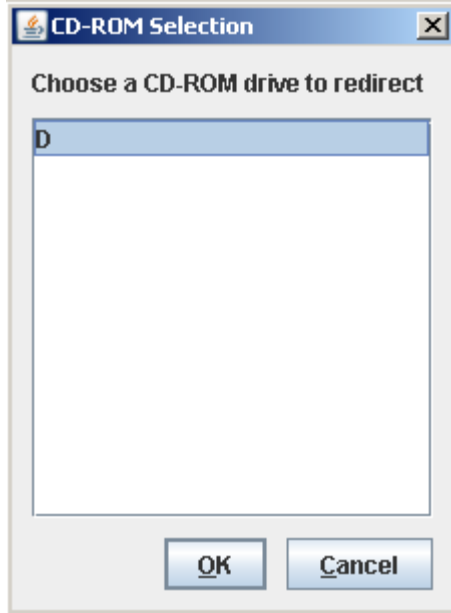
14. Select the video display color resolution.



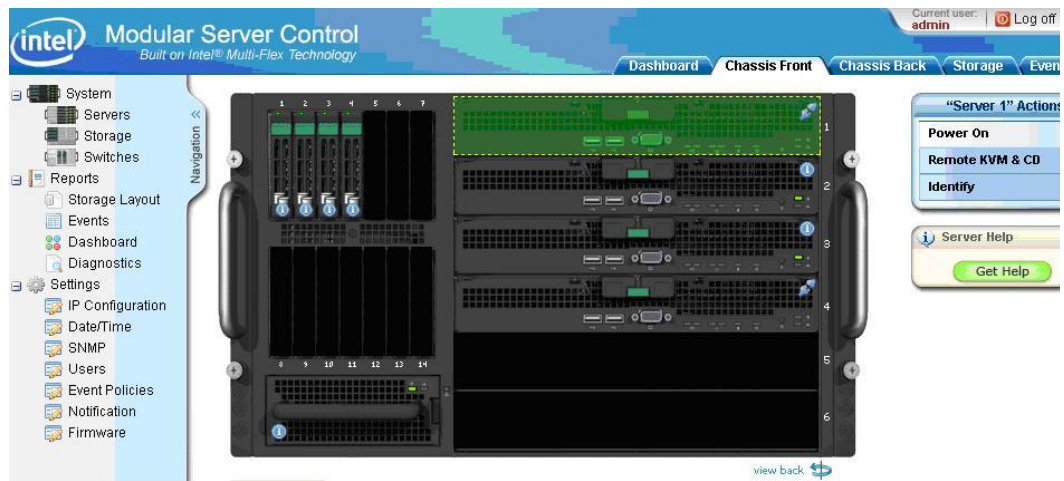
15. Choose the Device Menu Option and then click on the CDROM check box.
16. Choose the Redirect CDROM drive to select the CDROM on your system as the device to load the operating system from.



17. Choose the drive letter of the CDROM to redirect the CD.



18. Return to the Modular Server screen and select the **Chassis Front** TAB. Do not close out the KVM screen.
19. Select Server 1 and then hit the **Power On** option under “Server 1” Actions.



20. Select OK when requested to power on Server 1.
21. Return to the KVM screen and observe the bootup screen.
22. Continue with Windows setup following the directions for the operating installation.

## 6.3 Red Hat Enterprise Linux 5.0 (32 & 64 bit) Remote Installation

### Method

Method for performing Remote Red Hat Enterprise Linux 5.0 Installation with DVD media via FTP

Guideline: Configure the MFSYS25 system as follows:

1. Ensure P2.0.5 or later SW stack is loaded
2. Management Module, Ethernet Switch (Ext 1 port and the compute module's ports in default vlan 1 setup) and client (desktop/laptop) in the same network
3. Client requires DVD unit installed direct or via USB port
4. Disable client's Firewall
5. Download and install Filezilla-Server application on the client. Application can be downloaded from <http://www.filezilla-project.org>. Version test: 0-9.24
6. When Filezilla Server is installed onto the client there will be a dialog popup
7. Click OK with the default listing

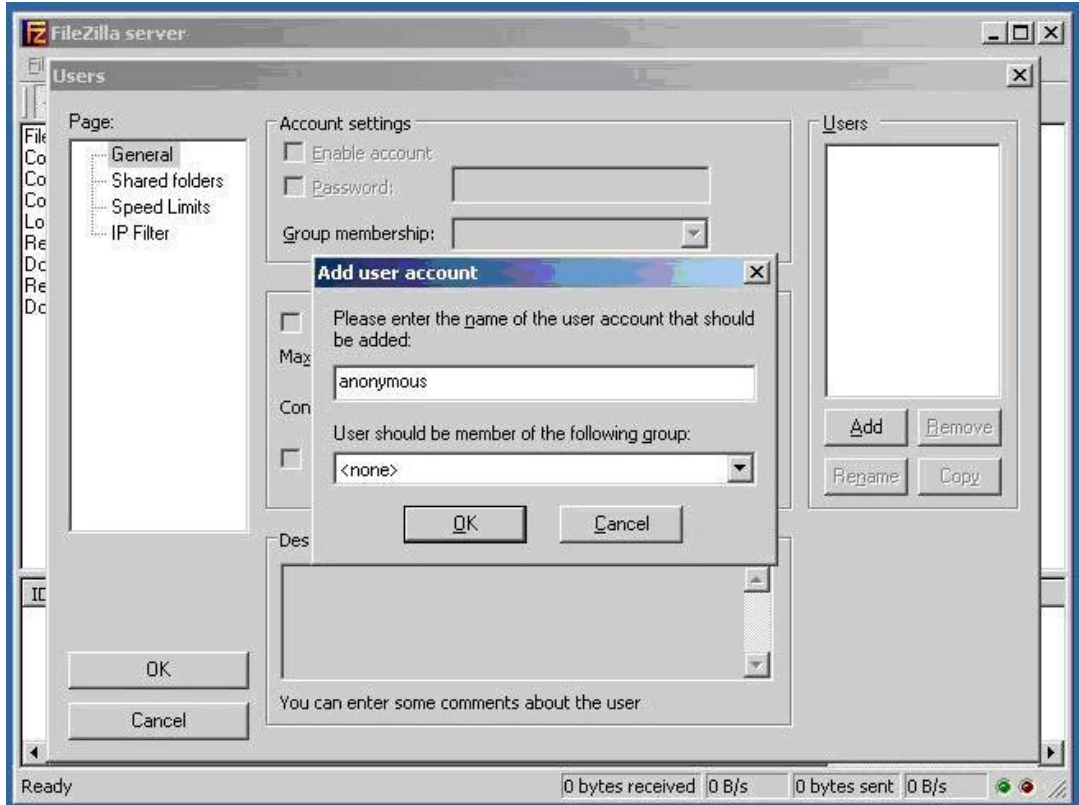


8. The Filezilla session should indicate "Logged on"

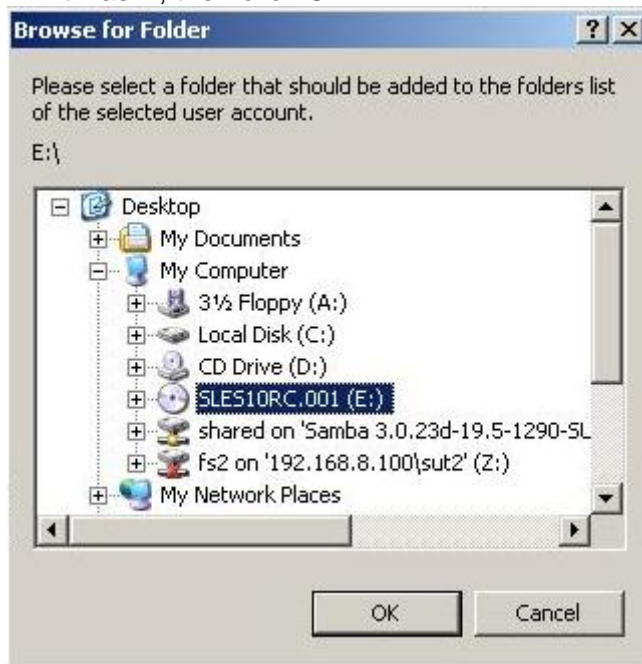


9. From Filezilla Server session, Click Edit
10. Select Users - The Users dialog pops up
11. Click "Add". A popup will appear - enter anonymous in the first field (user account). Accept default of <none> for second field then click OK.





12. From Filezilla server session click “Shared Folders”, then click “Add”, navigate down and select the client’s DVD’s unit drive-letter, in the example case below it was E, then click OK.



13. To verify your FTP setup is correct:  
Open client’s CMD prompt window and type:  
C:> ftp localhost

User: anonymous  
 Password: (just hit enter key)  
 ftp> dir

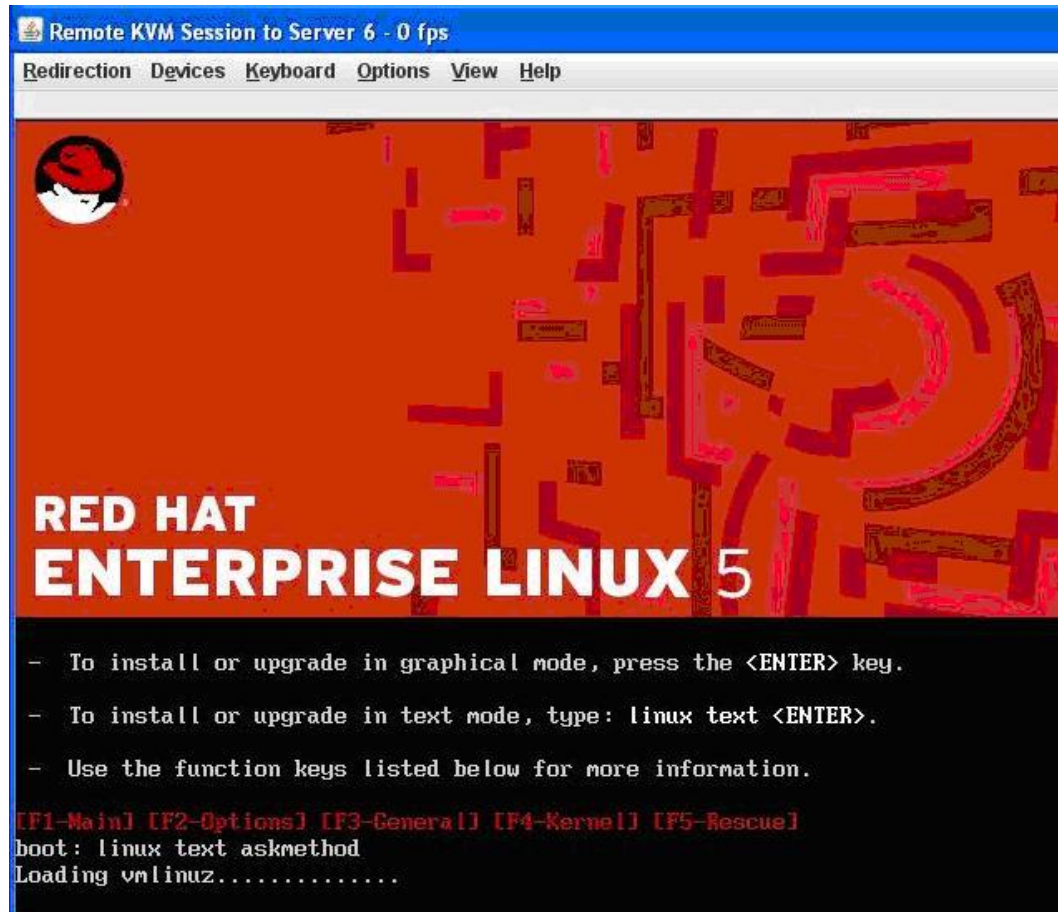
14. You should see the whole directory tree of the RHEL-5 DVD media you are trying to install from

```

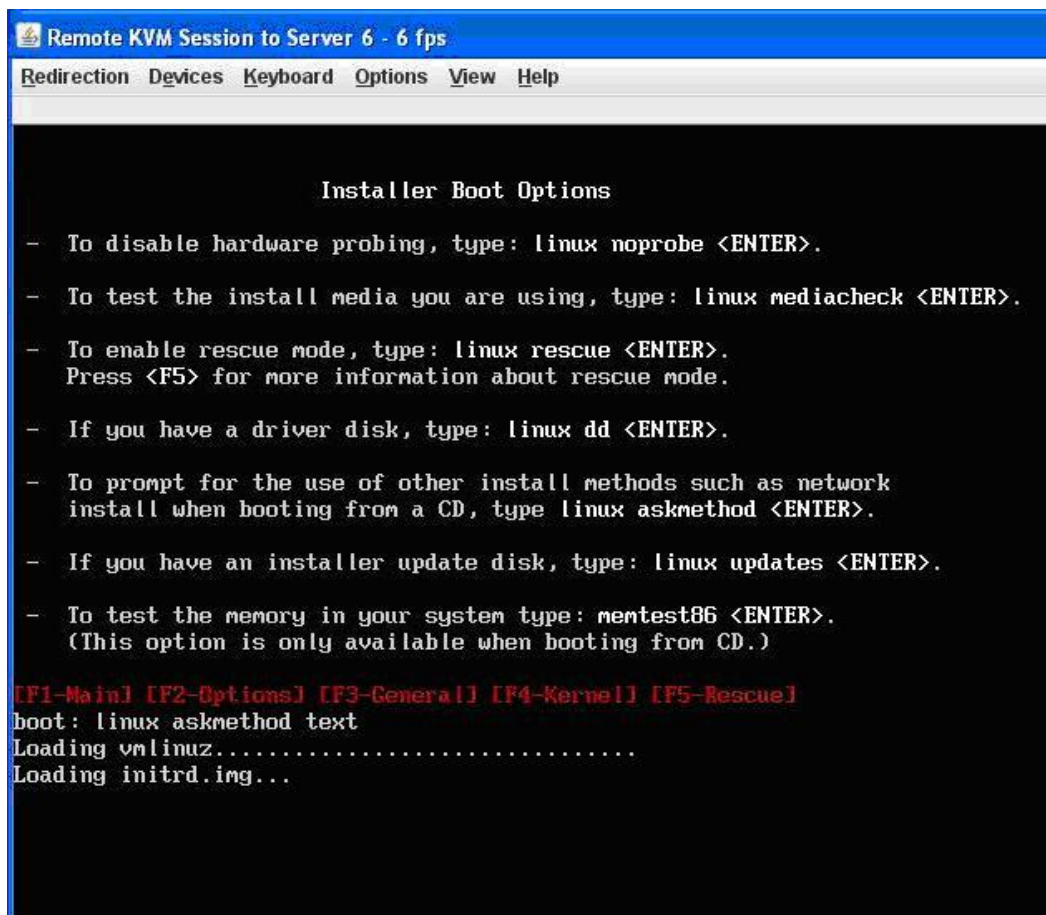
C:\ISO>
C:\ISO>ftp localhost
Connected to CLIENT23.ATS.INTEL.COM.
220-FileZilla Server version 0.9.24 beta
220-written by Tim Kosse (Tim.Kosse@gmx.de)
220 Please visit http://sourceforge.net/projects/filezilla/
User (CLIENT23.ATS.INTEL.COM:(none)): anonymous
331 Password required for anonymous
Password:
230 Logged on
ftp> dir
200 Port command successful
150 Opening data channel for directory list.
-r--r--r-- 1 ftp ftp      5466721 Apr 26  2007 ARCHIVES.gz
-r--r--r-- 1 ftp ftp      17992 Apr 26  2007 COPYING
-r--r--r-- 1 ftp ftp      25733 Apr 26  2007 COPYING.de
-r--r--r-- 1 ftp ftp       1455 Apr 26  2007 COPYRIGHT
-r--r--r-- 1 ftp ftp       1620 Apr 26  2007 COPYRIGHT.de
-r--r--r-- 1 ftp ftp     4930840 Apr 26  2007 ChangeLog
-r--r--r-- 1 ftp ftp      38612 Apr 26  2007 INDEX.gz
-r--r--r-- 1 ftp ftp     18493 Apr 26  2007 NEWS
-r--r--r-- 1 ftp ftp      8956 Apr 26  2007 README
-r--r--r-- 1 ftp ftp       583 Apr 26  2007 README.BETA
drwxr-xr-x 1 ftp ftp         0 Apr 26  2007 boot
-r--r--r-- 1 ftp ftp      5552 Apr 26  2007 content
-r--r--r-- 1 ftp ftp       189 Apr 26  2007 content.asc
-r--r--r-- 1 ftp ftp      2173 Apr 26  2007 content.key
-r--r--r-- 1 ftp ftp     36279 Apr 26  2007 control.xml
-r--r--r-- 1 ftp ftp       405 Apr 26  2007 directory.yast
drwxr-xr-x 1 ftp ftp         0 Apr 26  2007 docu
-r--r--r-- 1 ftp ftp       877 Apr 26  2007 gpg-pubkey-0dfb3188-41ed929b.as
c
-r--r--r-- 1 ftp ftp       613 Apr 26  2007 gpg-pubkey-307e3d54-44201d5d.as
c
-r--r--r-- 1 ftp ftp      1694 Apr 26  2007 gpg-pubkey-3d25d3d9-36e12d04.as
c
-r--r--r-- 1 ftp ftp      1036 Apr 26  2007 gpg-pubkey-7e2e3b05-44748aba.as
c
-r--r--r-- 1 ftp ftp      2173 Apr 26  2007 gpg-pubkey-9c800aca-40d8063e.as
c
-r--r--r-- 1 ftp ftp      1803 Apr 26  2007 gpg-pubkey-a1912208-446a0899.as
c
-r--r--r-- 1 ftp ftp     61747 Apr 26  2007 ls-1R.gz
drwxr-xr-x 1 ftp ftp         0 Apr 26  2007 media.i
drwxr-xr-x 1 ftp ftp         0 Apr 26  2007 patches
-r--r--r-- 1 ftp ftp      5604 Apr 26  2007 pubring.gpg
drwxr-xr-x 1 ftp ftp         0 Apr 26  2007 scripts
drwxr-xr-x 1 ftp ftp         0 Apr 26  2007 suse
226 Transfer OK
ftp: 1864 bytes received in 0.39Seconds 4.77Kbytes/sec.
ftp>
ftp>

```

15. The Filezilla FTP server is now setup and ready to use  
 16. Log in CMM-GUI  
 17. Create a Storage Pool and Virtual Drive  
 18. Assign to a compute module as LUN 0  
 19. Via GUI select the compute module's Remote KVM session and select CD-ROM Redirection and map to the DVD-drive-letter (x) on client  
 20. Power on the compute module via GUI  
 21. When presented with Red Hat Boot Option table, hit F2 then type following at the boot prompt:  
 linux text askmethod



or  
hit F2 then type same command there.

The image shows a terminal window titled "Remote KVM Session to Server 6 - 6 fps". The window has a menu bar with "Redirection", "Devices", "Keyboard", "Options", "View", and "Help". The main content is a text-based installer boot options menu. The menu lists several options for booting Linux, such as disabling hardware probing, testing install media, enabling rescue mode, and using driver disks. The user has selected the "linux askmethod" option, and the terminal shows the progress of loading the kernel and initial RAM disk.

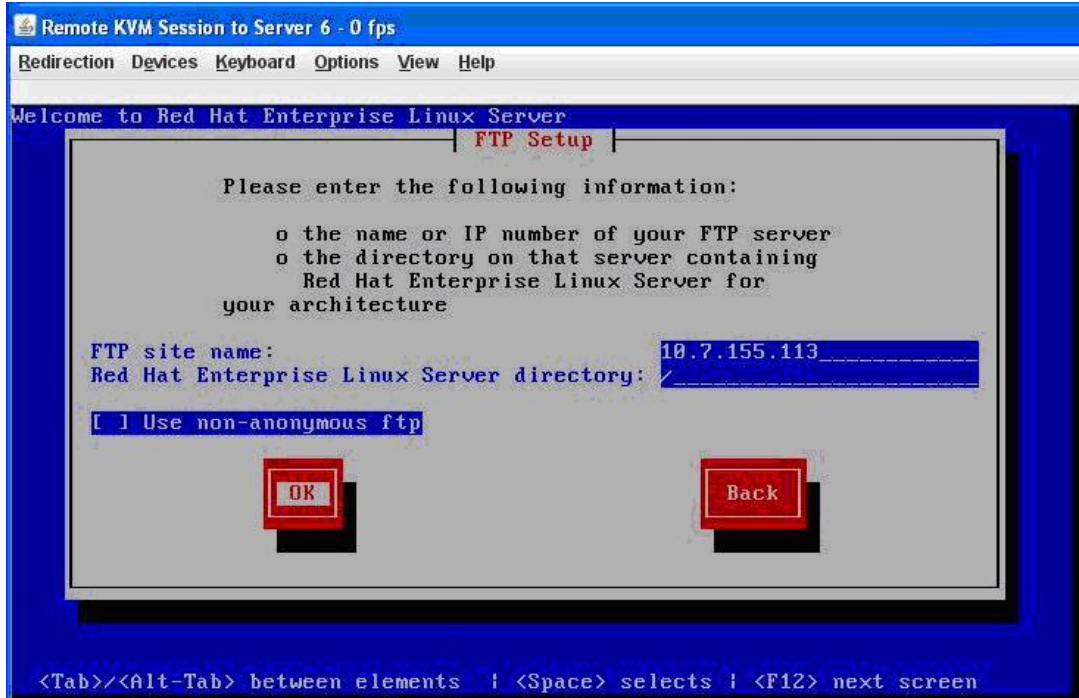
```
Remote KVM Session to Server 6 - 6 fps
Redirection Devices Keyboard Options View Help

                Installer Boot Options

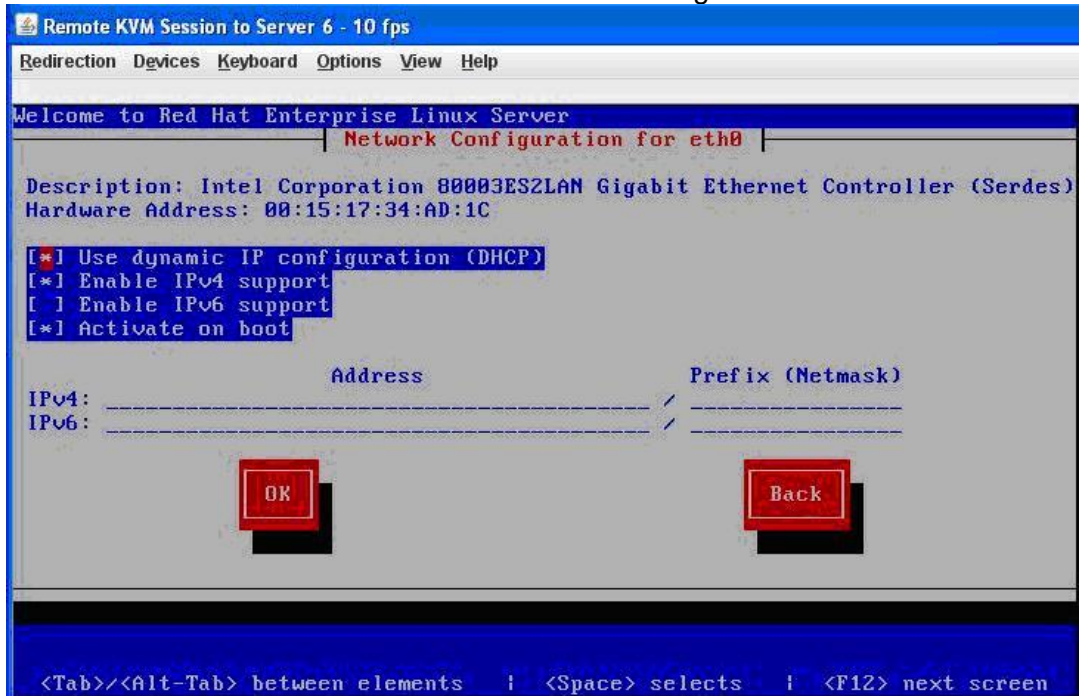
- To disable hardware probing, type: linux noprobe <ENTER>.
- To test the install media you are using, type: linux mediacheck <ENTER>.
- To enable rescue mode, type: linux rescue <ENTER>.
  Press <F5> for more information about rescue mode.
- If you have a driver disk, type: linux dd <ENTER>.
- To prompt for the use of other install methods such as network
  install when booting from a CD, type linux askmethod <ENTER>.
- If you have an installer update disk, type: linux updates <ENTER>.
- To test the memory in your system type: memtest86 <ENTER>.
  (This option is only available when booting from CD.)

[F1-Main] [F2-Options] [F3-General] [F4-Kernel] [F5-Rescue]
boot: linux askmethod text
Loading vmlinuz.....
Loading initrd.img...
```

22. When asked for Installation Method - Select FTP then click OK
23. When asked for Networking Device - Select (hi-lite) eth0 as your main interface then click OK (Use TAB key to move around)
24. When presented dialog Configure TCP/IP - Select IPv4 and deselect IPv6 and OK
25. On the RedHat's FTP Setup page, enter as:
  - FTP site name: x.x.x.x (your client IP)
  - RH Enterprise Linux Server Directory: /



26. Select DHCP mode when asked for network configuration for Eth0 and Eth1



## 6.4 SuSE Linux Enterprise Server 10 (32 & 64 bit) Remote

### Installation Method

Method for performing SuSE Linux Enterprise Server 10 Installation via SMB

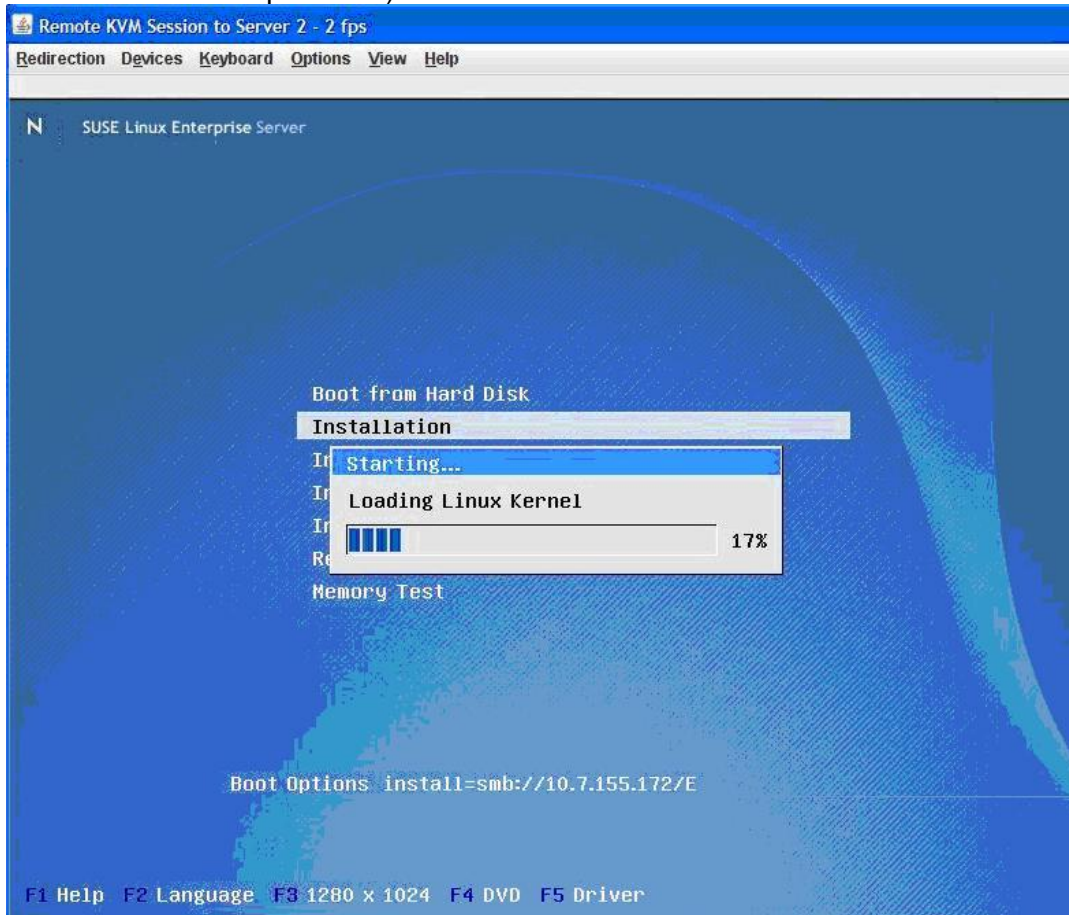
Guideline: Configure the MFSYS25 system as follows:

1. Ensure P2.0.5 or later SW stack is loaded
2. Management Module, Ethernet Switch (1 port and with compute module ports in default vlan 1 setup) and client (desktop/laptop) in same network
3. Client requires DVD unit installed direct or via USB port
4. Disable client's Firewall
5. Share the client's DVD-unit with "all read/write permissions"



6. Log into CMM and via GUI create a Storage Pool and Virtual Drive and assign it to the compute module as LUN 0.
7. Via GUI select the compute module's Remote KVM session and select CD-ROM Redirection and map to the DVD-drive-letter (E) on client

8. Select Video color resolution = High
9. Power on the compute module via the GUI
10. When server boots to the option table, use down-arrow key to select second option from the given list "Installation" then type (Boot Options line):  
install=smb://x.x.x.x/drive-letter  
where:  
    x.x.x.x : your client's IP  
    drive-letter : the client's DVD unit drive letter assigned by OS (in example it is E)



11. The installation process will result in a reboot in about 25 minutes
12. The whole SLES installation will finish in about 45 minutes