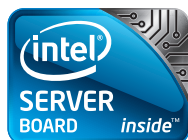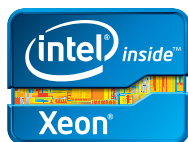(intel®)

Intel® Modular Server

A simple, flexible system that provides exceptional value

*Now with Integrated
Virtualization Management*

The Intel® Modular Server is a business-in-a-box server system with seamless installation, migration, and growth capabilities, integrating storage, computing, and networking to simplify complex IT environments. It has the ability to support up to six Intel® Server Compute Modules, up to fourteen 2.5" SAS/SATA/SSD, as well as two Ethernet Switch Modules, integrated SAN, and a Management Module.

Additionally, the Intel Modular Server now delivers increased business value with the introduction of the Intel® Modular Server Virtualization Manager. Integrated into the Modular Server's point-and-click graphical interface, the Intel Modular Server Virtualization Manager makes server virtualization, management and SAN setup incredibly simple.

Intel® Modular Server	
Features	**Benefits**
Scalable Server Compute Capacity	Supports up to six Server Compute Module based on the Intel® Xeon® processor E5-2600 product family.
Virtual, Integrated Shared Storage	Diskless Server Compute Modules utilize the integrated SAN, now offering the Intel® Shared LUN feature, with virtual drives to increase flexibility and maximize storage capacity. Purchase only what you need, when you need it.
Virtual Presence GUI Management	Manage your system from any location with the Virtual Presence GUI Management Interface.
Integrated Virtualization Management	Powerful suite of virtual machine management capabilities, including Live Migration, all with an integrated management interface for physical, virtual, and storage subsystems.
Integrated Networking	Dual Gb Ethernet switches offer ten 1 GbE uplinks per module.
Full Redundancy & Hot Swap Capabilities	Hot-swappable Server Compute Modules and storage drives let you increase capacity on-demand. Redundant modules and hot spare options improve IT availability of the Intel Modular Server.
Flexible Power Options	Chassis power supplies can utilize 100-240V power, eliminating special power requirements worldwide. The consolidated power and cooling features reduce operating costs.

Intel Modular Server Control lets you:

- Remote manage your server modules
- Power on/off
- Troubleshoot
- Remote KVM & CD
- Manage server configuration
- Configure shared storage
  - Assign drives to storage pools
  - Create virtual drives
  - Assign virtual drives to multiple server modules using the Intel® Shared LUN feature
  - Make a copy of any existing LUN using the Intel® LUN Copier feature
- Designate global/hot spares
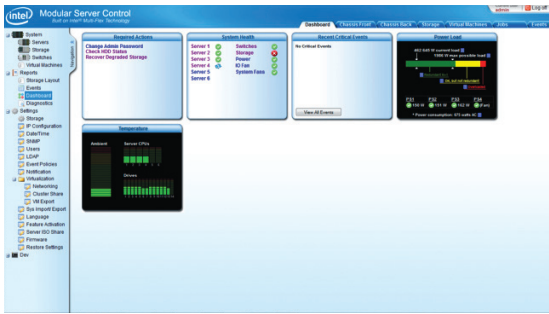- Reassign storage pools or virtual drives

NEW Integrated Virtualization Management:

Intel® Modular Server Virtualization Manager integrates virtual management functionality into the point-and-click GUI interface, enabling you to:

- Virtualize a compute module with just a few clicks
- Easily create and move VMs from module to module with drag-and-drop live migration
- Update entire system in one click
- See a complete storage map from physical HDDs to virtual HDDs to virtual machines
- View a unified VM event and audit log

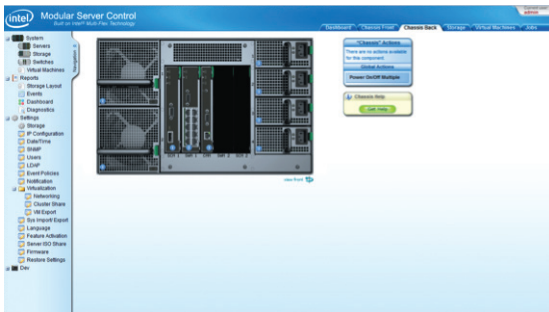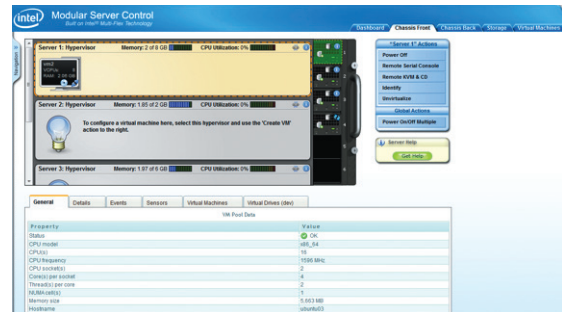| Intel® Modular Server Virtualization Manager Specifications	
CPU Utilization	Max 256 vCPUs per Compute Module Max 8 vCPUs per VM
Memory Support	256GB per Compute Module (physical host limit with 16GB DIMMs) RAM per VM limited to physical memory present
Virtual NIC Support	4 per guest OS
vLAN Support	Yes, support for virtual LANs on the virtual NICs inside the virtual infrastructure
Virtualized Storage Provisioning	Distributed storage resources to maximize flexibility and enable virtualization features such as Live Migration
Live Migration	Migrate running virtual machines
Unified Event Log	Provides a unified virtual machines event and audit log

The Dashboard gives an overall system status view within the Modular Server Control
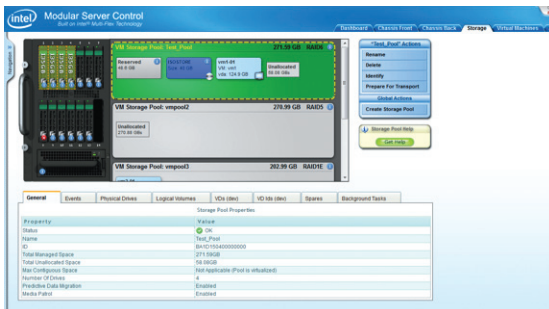

The Virtual Presence Modular Server Control allows you to see the components you physically have loaded in your system-even if they are powered down
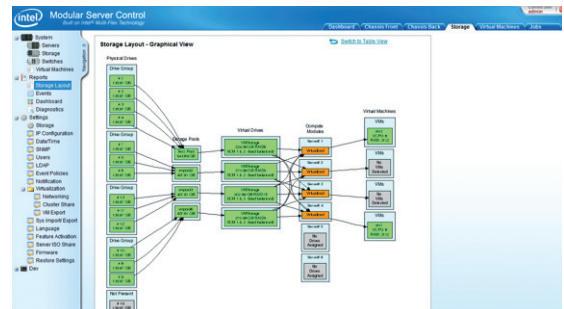

The back view of the chassis allows you to see the status of your modules and power supplies

Easily virtualize compute modules and create virtual machines with Intel Modular Server Virtualization Manager
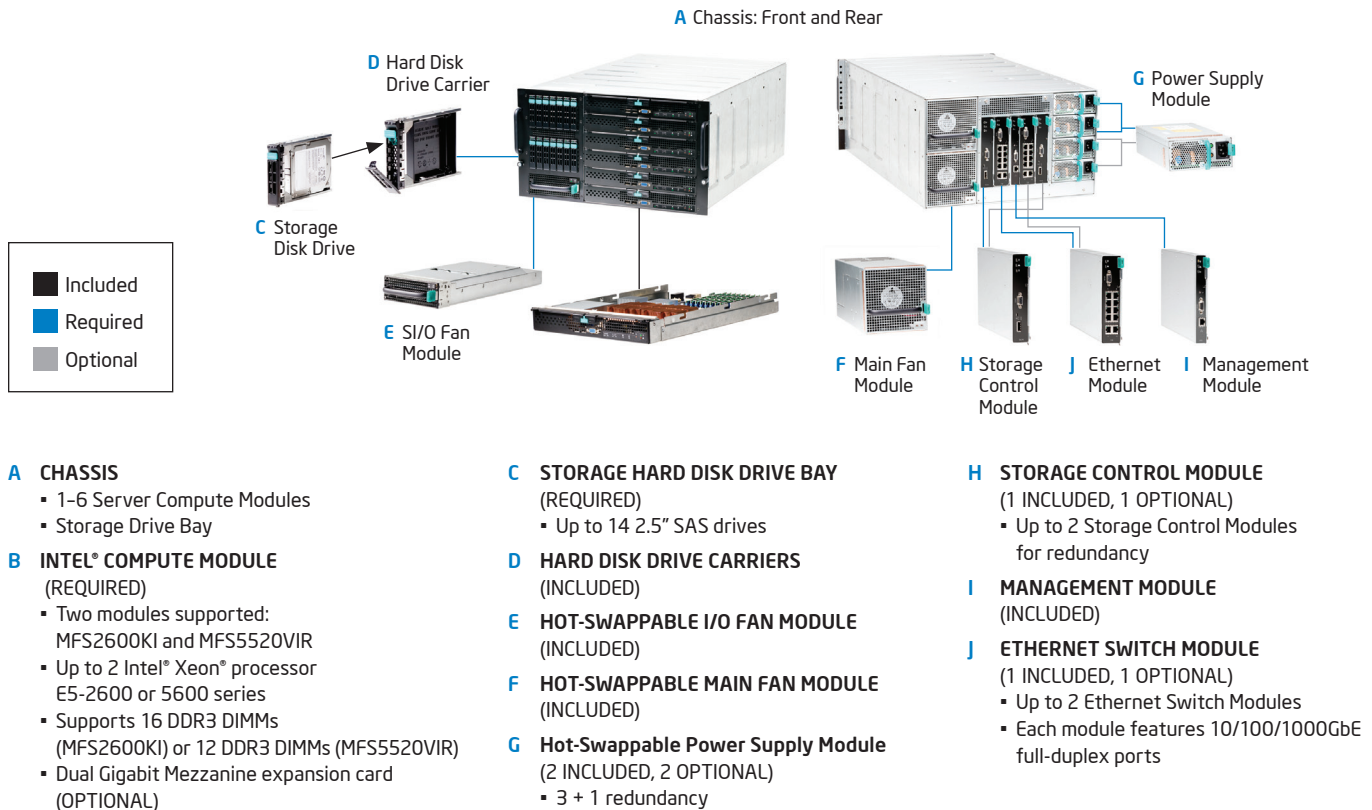

Create storage pools (either non-virtualized or virtualized) and virtual drives, and map virtual drives to multiple servers using the Intel Modular Server Virtualization Manager and Intel Shared LUN features

View a complete storage map from the virtual machine back to the hard drive

Intel® Modular Server

A Chassis: Front and Rear

D Hard Disk Drive Carrier

C Storage Disk Drive

G Power Supply Module

E SI/O Fan Module

F Main Fan Module **H** Storage Control Module **J** Ethernet Module **I** Management Module

Legend:
- ■ Included
- ■ Required
- ■ Optional

A CHASSIS
- 1–6 Server Compute Modules
- Storage Drive Bay

B INTEL® COMPUTE MODULE
(REQUIRED)
- Two modules supported: MFS2600KI and MFS5520VIR
- Up to 2 Intel® Xeon® processor E5-2600 or 5600 series
- Supports 16 DDR3 DIMMs (MFS2600KI) or 12 DDR3 DIMMs (MFS5520VIR)
- Dual Gigabit Mezzanine expansion card (OPTIONAL)

C STORAGE HARD DISK DRIVE BAY
(REQUIRED)
- Up to 14 2.5" SAS drives

D HARD DISK DRIVE CARRIERS
(INCLUDED)

E HOT-SWAPPABLE I/O FAN MODULE
(INCLUDED)

F HOT-SWAPPABLE MAIN FAN MODULE
(INCLUDED)

G Hot-Swappable Power Supply Module
(2 INCLUDED, 2 OPTIONAL)
- 3 + 1 redundancy

H STORAGE CONTROL MODULE
(1 INCLUDED, 1 OPTIONAL)
- Up to 2 Storage Control Modules for redundancy

I MANAGEMENT MODULE
(INCLUDED)

J ETHERNET SWITCH MODULE
(1 INCLUDED, 1 OPTIONAL)
- Up to 2 Ethernet Switch Modules
- Each module features 10/100/1000GbE full-duplex ports

Chassis

The chassis can be configured as either a 6U rack mount or as a horizontal pedestal base to provide flexibility in choosing the right setup for your business. It is designed to support multiple generations of Server Compute Modules, allowing swift upgrades to the latest computing technology.

Storage Control Module

The Storage Control Module manages the Shared Storage Bay and connects to the Chassis Management Module.

Ethernet Switch Module

The Intel Modular Server can be configured with up to two Ethernet Switch Modules for redundancy.

Management Module

The Management Module provides management capabilities for the entire system through a Virtual Presence GUI Management System.

Server Compute Module

The chassis supports up to 6 dual Intel Xeon processor Server Compute Modules for grow-as-you-go flexibility.

Mezzanine Card

The Server Compute Modules support an optional dual-port gigabit Ethernet Mezzanine Expansion Card.

Software

Key-enabled software features that permit additional configuration and management functionality:

- Intel® Shared LUN — Provides additional storage capabilities that allow advanced clustering and virtualization applications.
- Intel® Modular Server Storage Management Pack (formerly Intel® LUN Copier) — Enables local copies of any LUN when it is not being actively used. This feature simplifies tasks such as (a) creating a local copy of a data LUN and (b) creating a new OS LUN for provisioning/deployment.
- Intel® Modular Server Advanced Management Pack — Offers enhanced management capabilities to allow users to more easily deploy multiple chassis. It enables authentication of users using an LDAP server, forwarding events to an external SysLog server, and exporting and importing chassis settings including the storage and switch configuration.

For more information on the Intel® Modular Server, visit: www.intel.com/go/modular

For sales information and marketing tools, visit: www.intelmodularserver.com

Technical Specifications

Chassis Configuration	▪ 6U rack mount or pedestal based
Front	▪ Storage drive bay supports 14 hot-swap 2.5" SAS/SATA/SSD1 drives ▪ Up to 6 Server Compute Modules ▪ One Hot Swap I/O Fan Module
Rear	▪ One Management Module ▪ Up to two Ethernet Switch Modules ▪ Up to two Storage Control Modules ▪ Four power supply bays for 3+1 redundancy ▪ Two hot swap fan modules
Mid-Plane	▪ Connects subsystems to the Management Module ▪ Designed for multiple generations of Server Compute Modules ▪ Provides I/O for the system

Storage Control Module	▪ RAID: 0, 1, 1E, 5, 6, 10, 50
	▪ I/O:
	  ▪ External extended storage mini SAS port
	  ▪ Six internal 3GbPS SAS channels
	▪ Active-Active redundancy
	▪ Battery Backup

Ethernet Switch Module	**Ports** ▪ Ten external 10/100/1000 GbE full-duplex ports ▪ Twelve internal 1-GbE full-duplex ports **Management** ▪ Port, VLAN, and Advanced Switch Configuration via the Management Module **Layer 2+ features** ▪ ACL, QOS, Link Aggregation, 10K Jumbo Frame support, VLAN support, STP, and RSTP ▪ Non-blocking I/O, wire-speed performance
Management Module	**I/O** ▪ External 10/100 Ethernet port ▪ External serial port **Remote Management** ▪ Remote Media ▪ Remote Console
Chassis Size	▪ Height: 10.3 inches (6U) ▪ Width: 17.5 inches ▪ Depth: 28.4 inches ▪ Weight with full configuration: 187 lbs.
Chassis Power Requirements	▪ Up to four 1,000-watt DC output power supply modules with 110-240V AC input ▪ Full system configuration power requirements: 3,000 watts
Chassis Acoustical Noise Emissions	▪ Sound power 70 dB maximum
Chassis Environment	▪ Temperature operating: 10°C to 35°C 50°F to 95°F ▪ Temperature non-operating: -40°C to 70°C -4w0°F to 158°F ▪ Altitude: -30 to 1,500 m -100 to 5,000 ft
Chassis Safety	▪ UL60 950, CSA60 950, AS/NZS 3562, GB4943-1995, EN60 950 and 73/23/EEC, IEC 60 950, EMKO-TSE (74-SEC) 207/94, GOST-R 50377-92
Chassis Emissions	▪ Certified to FCC Class A; tested to CISPR 22 Class A, EN 55022 Class A and 89/336/EEC, VCCI Class A, AS/NZS 3548 Class A, ICES-003 Class A, GB9254-1998, MIC Notice 1997-42 Class A, GOST-R 29216-91 Class A, BSMI CNS13438

Compute Module Specifications

Server	Intel® Modular Server Compute Module MFS2600KI	Intel® Modular Server Compute Module MFS5520VIR
Order Code	**MFS2600KI**	**MFS5520VIR**
Intel® Server Chassis Support	Intel® Modular Server System MFSYS25V2	Intel® Modular Server System MFSYS25V2
Processor Support	**Intel® Xeon® processor E5-2600 product family**	**Intel® Xeon® processor 5500 or 5600 series**
Number of Processors Supported	2 per Compute Module	2 per Compute Module
Supported Speeds	Up to 8 GT/s (Intel® QuickPath Interconnect)	6.40 GT/s / 5.86 GT/s / 4.80 GT/s (Intel® QuickPath Interconnect)
Chipset	Intel® C602-J Chipset (PCH)	Intel® 5520 Server Chipset
Memory Capacity	16 DDR3 DIMMs (8 per processor)	12 DDR3 DIMMs (6 per processor)
Total Slots	1 Mezzanine expansion connector	1 Mezzanine expansion connector
Integrated SAS HBA	Connectivity to shared storage provided via onboard LSI* 1064e controller	Connectivity to shared storage provided via onboard LSI* 1064e controller
Integrated LAN	2 x Gigabit Ethernet (4 x with optional gigabit mezzanine card AXXGBIOMEZV)	2 x Gigabit Ethernet (4 x with optional gigabit mezzanine card AXXGBIOMEZV)
Integrated Graphics	Server Engines* LLC Pilot II* controller with 64 MB DDR2 memory	Server Engines* LLC Pilot II* controller with 64 MB DDR2 memory
Integrated Management	Remote management (KVM over IP), Remote Media Redirection, and Remote Serial Console	Remote management (KVM over IP), Remote Media Redirection, and Remote Serial Console
Application Management	Provided by Intel® System Management Software	Provided by Intel® System Management Software
Front Connectors	4 x USB, 1 x DB15 video	4 x USB, 1 x DB15 video