



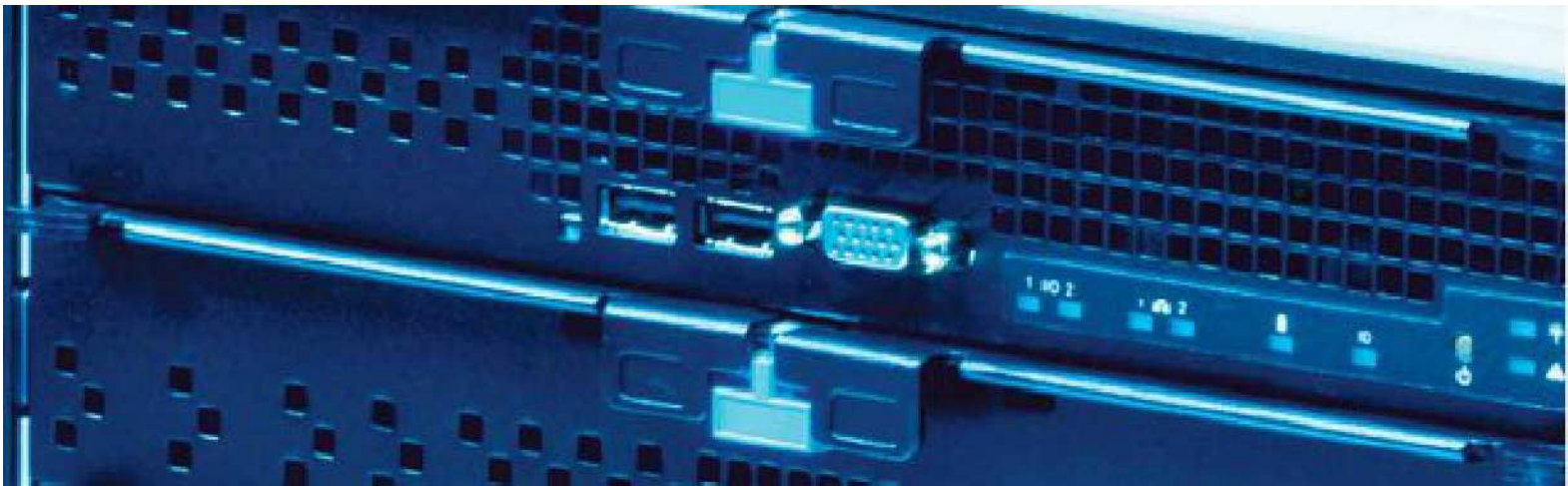
Product Brief

Intel® Modular Server

Intel® Modular Server

Built on Intel® Multi-Flex Technology

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. Part of the Intel® Server Continuity Suite, the Intel Modular Server Virtualization Manager is integrated into the Modular Server's *single pane of glass* management interface making server virtualization and SAN setup and management incredibly simple.



Intel® Modular Server

Features

Benefits

Scalable Server Compute Capacity	Supports up to six Intel® Xeon® dual processor-based Server Compute Modules.
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 as if you were standing right in front of it with the Virtual Presence GUI Management Interface.
Integrated Virtualization Management	Powerful suite of virtual machine management capabilities, including Live Migration, all with “single pane of glass” management 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.

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. Features include:

- RAID 0, 1, 1E, 5, 6, 10, 50
- Expansion to connect an external SAS RAID array through a mini x4 external SAS port to allow sharing of external storage with all Server Compute Modules
- Optional second Storage Management Module for redundancy and performance
- Battery backup
- Global and dedicated hot spares

Ethernet Switch Module

The Intel Modular Server can be configured with up to two Ethernet Switch Modules for redundancy. Each switch module features:

- Non-blocking wire-speed performance
- Ten external 10/100/1000 GbE full-duplex ports to provide enough performance to handle demanding applications
- Twelve internal 1 GbE full-duplex ports
- Layer 2+ features
- Switch configuration capabilities through the Management Module

Management Module

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

- Real time hardware information
- Context-sensitive actions

- Remote management
- Intuitive navigation with tabs and a navigation bar
- End-to-end management
- Direct device selection
- Web management via Microsoft® Internet Explorer® or Mozilla® Firefox®

Server Compute Module

The Server Compute Module MFS5520VIR includes:

- Support for up to two multi-core Intel® Xeon® processors 5600 series
- 12 DIMMs of registered or unbuffered DDR3 memory (up to 192GB)
- Integrated LSI® 1064e controller (access to shared storage)
- Integrated Remote KVM, Remote Media Redirection, and Remote Serial Console

Mezzanine Card

The Server Compute Modules support an optional dual channel 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.

Intel Modular Server Control lets you:

- Remote manage your server modules
- Power on/off
- Troubleshoot
- Remote KVM & CD
- 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



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

NEW Integrated Virtualization Management:

Intel® Modular Server Virtualization Manager adds “single pane of glass” virtual management functionality, 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

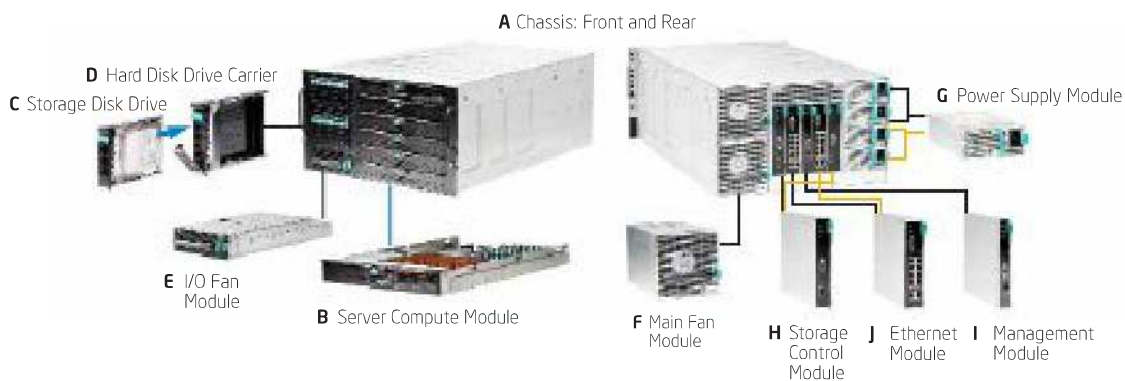


Create storage pools (either non-virtualized or virtualized) and virtual drives, and map virtual drives to multiple servers using the Intel Modular Server Virtualization Manager and Intel Shared LUN features



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

Intel® Modular Server



- A Chassis**
 - 1–6 Server Compute Modules
 - Storage Drive Bay
- B Server Compute Module (required)**
 - Up to 2 multi-core Intel® Xeon® processors
 - Up to 12 DDR3 DIMMs (1333MHz)
 - Optional Dual Gigabit Mezzanine expansion card
- 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

Technical Specifications

Chassis Configuration	<ul style="list-style-type: none"> 6U rack mount or pedestal based
Front	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Connects subsystems to the Management Module Designed for multiple generations of Server Compute Modules Provides I/O for the system
Storage Control Module	<ul style="list-style-type: none"> RAID: 0, 1, 1E, 5, 6, 10, 50 I/O: <ul style="list-style-type: none"> External extended storage mini SAS port Six internal 3Gbps SAS channels Active-Active redundancy Battery Backup
Ethernet Switch Module	<p>Ports</p> <ul style="list-style-type: none"> Ten external 10/100/1000 GbE full-duplex ports Twelve internal 1-GbE full-duplex ports <p>Management</p> <ul style="list-style-type: none"> Port, VLAN, and Advanced Switch Configuration via the Management Module <p>Layer 2+ features</p> <ul style="list-style-type: none"> ACL, QoS, Link Aggregation, 10K Jumbo Frame support, VLAN support, STP, and RSTP Non-blocking I/O, wire-speed performance

Management Module	<p>I/O</p> <ul style="list-style-type: none"> External 10/100 Ethernet port External serial port <p>Remote Management</p> <ul style="list-style-type: none"> Remote Media Remote Console
Chassis Size	<ul style="list-style-type: none"> Height: 10.3 inches (6U) Width: 17.5 inches Depth: 28.4 inches Weight with full configuration: 187 lbs.
Chassis Power Requirements	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Sound power 70 dB maximum
Chassis Environment	<ul style="list-style-type: none"> Temperature operating: 10°C to 35°C 50°F to 95°F Temperature non-operating: -40°C to 70°C -40°F to 158°F Altitude: -30 to 1,500 m -100 to 5,000 ft
Chassis Safety	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

Server Compute Module

MFS5520VIR Compute Module

Processors	Up to two Intel® Xeon® processors 5600 series
Chipset	Intel® 5520 Chipset with Intel® ICH10R
Thermal Solution	Intel® Thermal Solution STS100 series (two BXSTS100P heatsinks included with each module)
I/O Technology	Intel® QuickPath Technology (4.8 GT/s, 5.8 GT/s, and 6.4 GT/s)
Memory	12 DIMMs of registered or unbuffered DDR3 (up to 192GB) <ul style="list-style-type: none"> 6 channel native (800/1066/1333 MHz)
Memory RAS Features	Channel mirroring, demand scrubbing, patrol scrubbing, and channel independent mode
Integrated SAS HBA	Integrated LSI* 1064e controller (access to shared storage)
Integrated LAN	On-board dual Intel® 82575EB Gigabit Ethernet Controller (Additional Dual Gigabit Controller using optional mezzanine card AXXGBIOMEZV)
Integrated Graphics	Server Engines* LLC Pilot II* controller with 64MB DDR2 memory, 8MB allocated to graphics
Mezzanine Card	For additional dual channel Ethernet ports (AXXGBIOMEZV)

Intel® Modular Server Virtualization Manager

CPU Utilization	Max 256 vCPUs per Compute Module Max 8 vCPUs per VM
Memory Support	192GB per Compute Module (physical host) 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

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

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

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