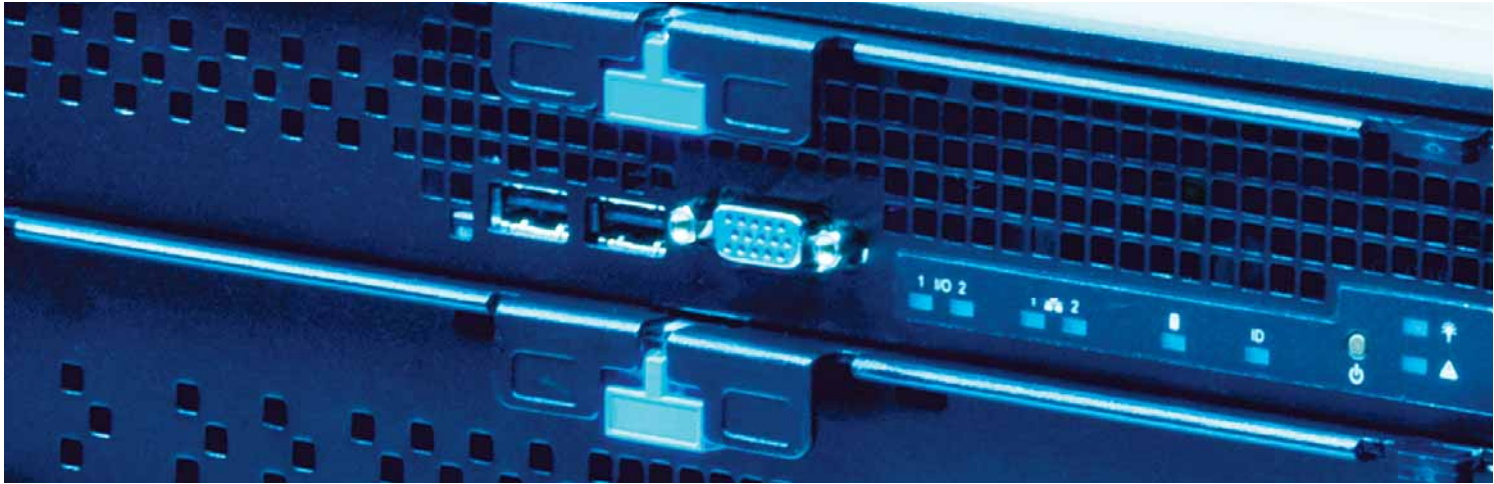


## Product Brief

Intel® Modular Server built on  
Intel® Multi-Flex Technology

# Intel® Modular Server Built on Intel® Multi-Flex Technology

A simple, flexible system that provides exceptional value

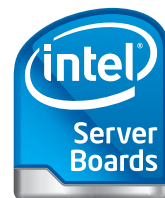


The Intel® Modular Server built on Intel® Multi-Flex Technology integrates storage, computing, and networking to simplify complex IT environments.



The Intel Modular Server is a business-in-a-box server system with seamless installation, migration, and growth capabilities. It has the ability to support up to six Server

Compute Modules, two hard disk drive options (six 3.5" SAS/SATA or fourteen 2.5" SAS hard disk drives), as well as two Ethernet Switch Modules, integrated SAN, and a Management Module. The Intel Modular Server is a flexible and powerful solution for the small to midsize business.



# Intel® Modular Server

## Features

## Benefits

<b>Scalable Server Compute Capacity</b>	<b>Supports up to six Multi-Core Intel® Xeon® dual processor-based Server Compute Modules.</b>
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.
<b>Virtual Presence GUI Management</b>	<b>Manage your system as if you were standing right in front of it with the Virtual Presence GUI Management Interface.</b>
Integrated Networking	Dual Gb Ethernet switches offer ten 1 GbE uplinks per module.
<b>Full Redundancy &amp; Hot Swap Capabilities</b>	<b>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.</b>
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
- 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 is available in two versions; MFS5000SI and MFS5520VI. Each Module includes:

- Support for up to two Multi-Core Intel® Xeon® processors
- 8 DIMMs of EC fully buffered DDR2 memory (up to 32 GB) for model MFS5000SI, or 12 DIMMs of registered or unbuffered DDR3 memory (up to 96GB) for model MFS5520VI
- Integrated LSI\* 1064e controller (access to shared storage)
- Integrated Remote KVM, Remote Media Redirection, and Remote Serial Console.

## Mezzanine Card

Both Server Compute Modules support an optional dual channel gigabit Ethernet Mezzanine Expansion Card.

## Intel Modular Server Control lets you:

- Remote Manage your server modules
- Power on/off
- Troubleshooting
- Remote KVM & CD
- Server Configuration
- Configure Shared Storage
  - Assign drives to storage pools
  - Create a virtual drive
  - Assign virtual drives to multiple server modules using the Intel® Shared LUN 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



Under the Storage Configuration window, you can create storage pools and virtual drives, as well as map virtual drives to multiple servers using the Intel® Shared LUN feature

## Intel® Modular Server

Built on Intel® Multi-Flex Technology



A Chassis: Option A Front

A Chassis: Option B Front and Rear

C Storage Disk Drive



D Hard Disk Drive Carrier

E I/O Fan Module



B Server Compute Module



G Power Supply Module



F Main Fan Module

H Storage Control Module

J Ethernet Module

I Management Module

- Included
- Required
- Optional

### A Chassis

- 1–6 Server Compute Modules
- Storage Drive Bay

### B Server Compute Module (required)

- Model MFS5000SI or MFS5520VI
- Up to 2 Multi-Core Intel® Xeon® processors
- Up to 8 fully buffered DDR2 or up to 12 DDR3 DIMMs
- Optional Dual Gigabit Mezzanine expansion card

### C Storage Hard Disk Drive Bay (required)

- Up to 14 2.5" SAS drives, or
- Up to 6 3.5" SAS/SATA 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

<b>Chassis Configuration</b>	<ul style="list-style-type: none"> <li>6U rack mount or pedestal based</li> </ul>	<b>Management Module</b>	<b>I/O</b> <ul style="list-style-type: none"> <li>External 10/100 Ethernet port</li> <li>External serial port</li> </ul> <b>Remote Management</b> <ul style="list-style-type: none"> <li>Remote Media</li> <li>Remote Console</li> </ul>
<b>Front</b>	<ul style="list-style-type: none"> <li>Storage drive bay supports 14 hot-swap 2.5" SAS drives or 6 hot-swap 3.5" SAS/SATA drives</li> <li>Up to 6 Server Compute Modules</li> <li>One Hot Swap I/O Fan Module</li> </ul>	<b>Chassis Size</b>	<ul style="list-style-type: none"> <li>Height: 10.3 inches (6U)</li> <li>Width: 17.5 inches</li> <li>Depth: 28.4 inches</li> <li>Weight with full configuration: 187 lbs.</li> </ul>
<b>Rear</b>	<ul style="list-style-type: none"> <li>One Management Module</li> <li>Up to two Ethernet Switch Modules</li> <li>Up to two Storage Control Modules</li> <li>Four power supply bays for 3+1 redundancy</li> <li>Two hot swap fan modules</li> </ul>	<b>Chassis Power Requirements</b>	<ul style="list-style-type: none"> <li>Up to four 1,000-watt DC output power supply modules with 110-240V AC input</li> <li>Full system configuration power requirements: 3,000 watts</li> </ul>
<b>Mid-Plane</b>	<ul style="list-style-type: none"> <li>Connects subsystems to the Management Module</li> <li>Designed for multiple generations of Server Compute Modules</li> <li>Provides I/O for the system</li> </ul>	<b>Chassis Acoustical Noise Emissions</b>	<ul style="list-style-type: none"> <li>Sound power 70 dB maximum</li> </ul>
<b>Storage Control Module</b>	<ul style="list-style-type: none"> <li>RAID: 0, 1, 1E, 5, 6, 10</li> <li>I/O: <ul style="list-style-type: none"> <li>External extended storage mini SAS port</li> <li>Six internal 3Gbps SAS channels</li> </ul> </li> <li>Active-Active redundancy</li> <li>Battery Backup</li> </ul>	<b>Chassis Environment</b>	<ul style="list-style-type: none"> <li>Temperature operating: 10°C to 35°C 50°F to 95°F</li> <li>Temperature non-operating: -40°C to 70°C -40°F to 158°F</li> <li>Altitude: -30 to 1,500 m -100 to 5,000 ft</li> </ul>
<b>Ethernet Switch Module</b>	<b>Ports</b> <ul style="list-style-type: none"> <li>Ten external 10/100/1000 GbE full-duplex ports</li> <li>Twelve internal 1-GbE full-duplex ports</li> </ul> <b>Management</b> <ul style="list-style-type: none"> <li>Port, VLAN, and Advanced Switch Configuration via the Management Module</li> </ul> <b>Layer 2+ features</b> <ul style="list-style-type: none"> <li>ACL, QoS, Link Aggregation, 10K Jumbo Frame support, VLAN support, STP, and RSTP</li> <li>Non-blocking I/O, wire-speed performance</li> </ul>	<b>Chassis Safety</b>	<ul style="list-style-type: none"> <li>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</li> </ul>
		<b>Chassis Emissions</b>	<ul style="list-style-type: none"> <li>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</li> </ul>

## Server Compute Module

	<b>MFS5000SI Compute Module</b>	<b>MFS5520VI Compute Module</b>
<b>Processors</b>	Up to two Intel® Xeon® processors 5100, 5200, 5300 and 5400 at 1066MHz and 1333MHz	Up to two Intel® Xeon® processors 5500 series
<b>Chipset</b>	Intel® 5000P Chipset	Intel® 5520 Chipset with Intel® ICH10R
<b>Thermal Solution</b>	Included with boxed processors	Intel® Thermal Solution STS100 series (two BXSTS100P heatsinks included with each module)
<b>I/O Technology</b>	Front Side Bus (800/1066/1333 MHz)	Intel® QuickPath Technology (4.8 GT/s, 5.8 GT/s, and 6.4 GT/s)
<b>Memory</b>	8 DIMMs of ECC fully buffered DDR2 (up to 32GB)	12 DIMMs of registered or unbuffered DDR3 (up to 96GB) <ul style="list-style-type: none"> <li>6 channel native (800/1066/1333 MHz)</li> </ul>
<b>Memory RAS Features</b>	Channel mirroring and channel independent mode	Channel mirroring, demand scrubbing, patrol scrubbing, and channel independent mode
<b>Integrated SAS HBA</b>	Integrated LSI* 1064e controller (access to shared storage)	
<b>Integrated LAN</b>	On-board dual Intel® 82563EB Gigabit Ethernet Controller (Additional Dual Gigabit Controller using optional mezzanine card AXXGBIOMEZ)	On-board dual Intel® 82575EB Gigabit Ethernet Controller (Additional Dual Gigabit Controller using optional mezzanine card AXXGBIOMEZV)
<b>Integrated Graphics</b>	ATI* ES1000 16MB Video Controller	Server Engines* LLC Pilot II* controller with 64MB DDR2 memory, 8MB allocated to graphics
<b>Mezzanine Card</b>	For additional dual channel Ethernet ports (AXXGBIOMEZ)	For additional dual channel Ethernet ports (AXXGBIOMEZV)

For more information on the Intel® Modular Server and Intel® Multi-Flex Technology, visit: [www.intel.com/go/mft](http://www.intel.com/go/mft)

For sales information and marketing tools, visit: [www.intelmodularserver.com](http://www.intelmodularserver.com)

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