

Cisco UCS 6200 Series Fabric Interconnects



Overview

The Cisco UCS 6200 Series Fabric Interconnects are a core part of the Cisco Unified Computing System™ (Cisco UCS™) and provide both network connectivity and management capabilities to all attached Cisco UCS B-Series Blade Servers and 5100 Series Blade Server Chassis (Figure 1). The Cisco UCS 6200 Series introduces a second-generation, expanded portfolio of Cisco UCS I/O subsystem components, characterized by 2-terabit (Tb) switching capacity, 160 Gbps bandwidth per chassis, higher port density, and lower power consumption. The portfolio offers a low total-cost-of-ownership (TCO) solution with an enhanced feature set such as Layer 3* and Cisco® FabricPath* features; unified ports; and line-rate, low-latency, lossless 10 Gigabit Ethernet, Fibre Channel over Ethernet (FCoE), and Fibre Channel functions. All chassis, and therefore all blades, attached to the fabric interconnects become part of a single, highly available management domain. In addition, by supporting unified fabric, the Cisco UCS 6200 Series provides both the LAN and SAN connectivity for all blades within its domain.

Backed by a broad system of industry-leading technology partners, the Cisco UCS 6200 Series Fabric Interconnects are designed to meet the challenges of next-generation data centers, including dense multi-socket, multicore, virtual machine-optimized services, in which infrastructure sprawl and increasingly demanding workloads are commonplace.

Business Problems the Cisco UCS 6200 Series Solves

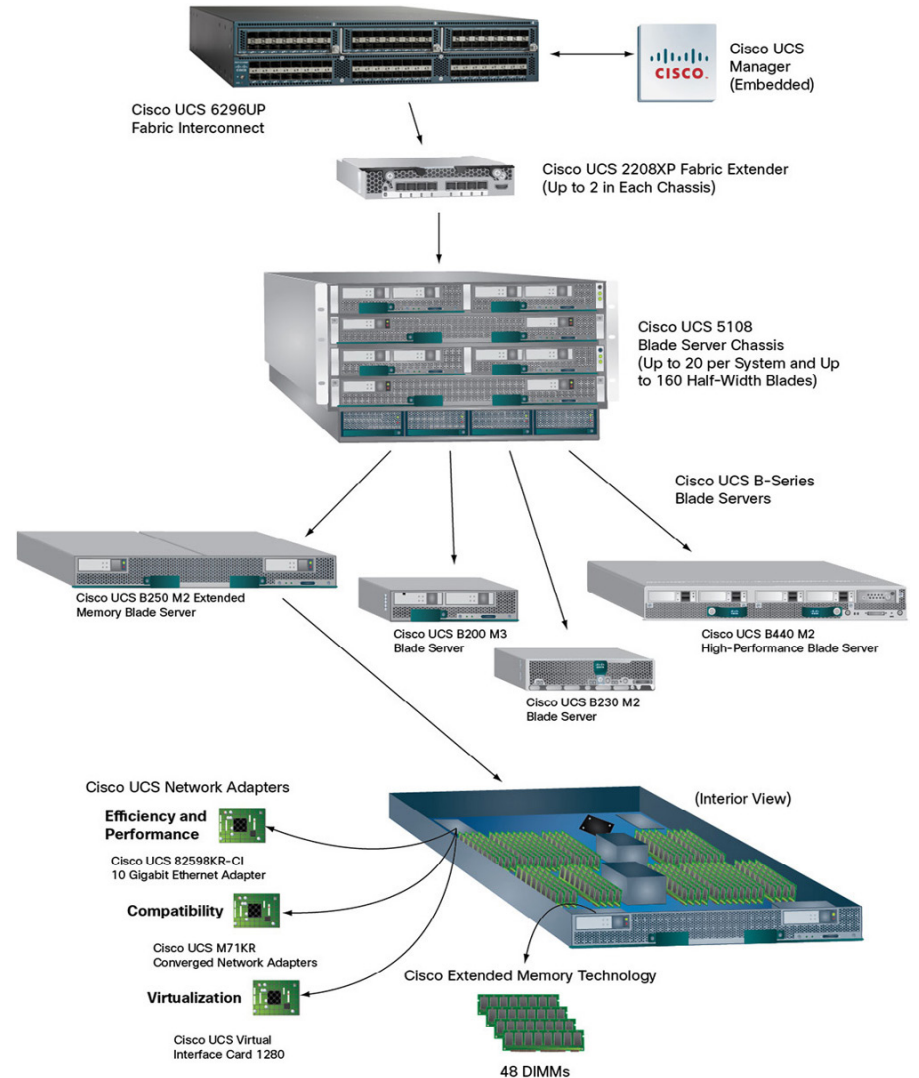
The Cisco UCS 6200 Series provides several unique features to customers. It sets the standard for industry leadership in 10 Gigabit Ethernet-based unified computing that will enable customers to build the infrastructure for large data centers and cloud computing environments. The Cisco UCS 6200 Series currently supports deployments with 20 Cisco UCS B-Series servers and Cisco UCS 5100 Series chassis.

The Cisco UCS 6200 Series provides:

- Architectural flexibility to support diverse business and application needs
- Infrastructure simplicity to decrease TCO

* Uncommitted capabilities

Figure 1. The Cisco Unified Computing System Is a Highly Available Cohesive Architecture





- Increased agility and flexibility for traditional deployments, with easy migration to virtualized, unified, and high-performance computing (HPC) environments
- Enhanced business resilience, with greater operational continuity
- Capability to use existing operating models and administrative domains for easy deployment

Cisco UCS 6200 Series Innovations

- High-performance, high-port-density, low-latency 10 Gigabit Ethernet, delivered by a cut-through switching architecture, for 10 Gigabit Ethernet server access in next-generation data centers
- FCoE-capable switches that support emerging IEEE Data Center Bridging (DCB) standards to deliver lossless Ethernet service with no-drop flow control
- Unified ports that support Ethernet, Fibre Channel, and FCoE
- A variety of connectivity options: 1 and 10 Gigabit Ethernet (fiber and copper), FCoE, and Fibre Channel
- Virtual machine-optimized services for higher asset utilization, simplified server connections, rapid server provisioning, security, and quality of service (QoS)
- Cisco FabricPath* and Layer 2 and Layer 3* infrastructure
- Policy-based virtual machine connectivity and mobility with virtual interface cards (VICs)
- Hard-disk-drive (HDD) health status monitoring within Cisco UCS Manager, reducing the need for OS agents
- Support for Small Computer System Interface over IP (iSCSI) bootup using Cisco UCS Manager service profiles

Investment Protection and Operational Best Practices

The Cisco UCS 6200 Series let customers take advantage of the cost and functional benefits of a unified fabric while protecting their investments in existing networking, storage, and server assets.

The Cisco UCS 6200 Series can easily be inserted into an existing data center network to provide immediate benefits without causing disruption or reworking of existing design and operation best practices.

* Uncommitted capabilities

Product and Technology Overview

The second generation of Cisco UCS 6200 Series Fabric Interconnects comes in both a one-rack-unit (1RU) 48-port form factor and a 2RU 96-port form factor.

The Cisco UCS 6248UP 48-Port Fabric Interconnect (Figure 2) is a 1RU 10 Gigabit Ethernet, FCoE, and Fibre Channel switch offering up to 960-Gbps throughput and up to 48 unified ports. The switch has 32 1/10-Gbps fixed Ethernet, FCoE, and Fibre Channel ports on the base with the option of one expansion slot with 16 unified ports.

Figure 2. Cisco UCS 6248UP 48-Port Fabric Interconnect



The Cisco UCS 6296UP 96-Port Fabric Interconnect (Figure 3) is a 2RU 10 Gigabit Ethernet, FCoE, and native Fibre Channel switch offering up to 1920-Gbps throughput and up to 96 unified ports. The switch has 48 1/10-Gbps fixed Ethernet, FCoE, and Fiber Channel ports on the base with the option of three expansion slots with 16 unified ports each.

Figure 3. Cisco UCS 6296UP 96-Port Fabric Interconnect



The Cisco UCS 6200 Series Fabric Interconnects fit into the access layer as defined in Cisco's broad unified computing strategy and provide a differentiated solution for x86-based servers and the data center. Cisco UCS fabric interconnects are a required component of Cisco UCS B-Series systems and can enhance and augment network design and architecture by combining with Cisco Nexus® 5000 Series Switches (unified I/O, LAN, and SAN terabit-class access-layer Cisco switches), Cisco Nexus 1000V Series Switches (soft switches), Cisco Data Center Virtual Machine Fabric Extender (VM-FEX) technology, and Cisco Nexus 2000 Series Fabric Extenders for Cisco UCS C-Series Rack-Mount Server aggregation.



The Cisco UCS 6200 Series offers several main features and benefits that lower TCO, including:

- Additional bandwidth up to 1920 Gbps, and increased port density up to 96 ports in 2RUs
- Reduced port-to-port latency: from 3.2 microseconds (ms) to 2 ms
- High-performance, flexible unified ports capable of line-rate, low-latency, lossless 1/10 Gigabit Ethernet, [FCoE](#), and 1/2/4- and 2/4/8-Gbps Fibre Channel
- Centralized, unified management with [Cisco UCS Manager](#) software
- Efficient cooling and serviceability, including front-to-back cooling, redundant front-plug fans and power supplies, and rear cabling
- Fibre Channel and 10 Gigabit Ethernet uplink connectivity with expansion module options
- Layer 2 and Layer 3* switching, 40 Gigabit Ethernet*, and Cisco FabricPath* capable
- Support for 1024 VLANs

Features and Benefits

- Embedded Cisco UCS Manager and industry-leading high port density: The Cisco UCS 6200 Series can scale to 20 (40* on roadmap) Cisco UCS 5100 Series chassis with reduced oversubscription rates, and all elements connected to the fabric interconnects can participate in a single highly available management domain, thereby lowering TCO.
- Flexible solution and deployment options: Standards and technology synergies with the Cisco Nexus 5000, 2000, and 1000V Series product lines—for example, Layer 3*, Layer 2 Multipathing* (L2MP), FCoE, and virtual PortChannel (vPC) technologies—enables tighter integration with these products in data center and grid and cloud computing scenarios. The capability to integrate with both the Cisco UCS B-Series and C-Series servers gives the Cisco UCS 6200 Series architectural flexibility and simplicity in large data center deployments.
- Unified ports: Unified ports offer design flexibility, eliminate protocol-specific bandwidth constraints, and reduce switching infrastructure costs.

* Uncommitted capabilities

- Cisco Data Center [VM-FEX](#): This technology offers policy-based virtual machine connectivity and mobility with VICs.
- Unified fabric: Unified fabric decreases TCO by reducing the number of network interface cards (NICs) and host bus adapters (HBAs), switches, and cables needed.
- Port-based licensing model: Port-based licensing enables a pay-as-you-go model, on-demand addition of ports, and lower TCO.

Why Cisco?

The Cisco Unified Computing System continues Cisco's long history of innovation in delivering integrated systems for improved business results based on industry standards and using the network as the platform. Recent examples include IP telephony, LAN switching, unified communications, and unified I/O. Cisco began the unified computing phase of our Data Center 3.0 strategy several years ago by assembling an experienced team from the computing and virtualization industries to augment our own networking and storage access expertise. As a result, Cisco delivered foundational technologies, including the Cisco Nexus Family, supporting unified fabric and server virtualization. Cisco UCS completes this phase, delivering innovation in architecture, technology, partnerships, and services. Cisco is well positioned to deliver this innovation by taking a systems approach to computing that unifies network intelligence and scalability with innovative application-specific integrated circuits (ASICs), integrated management, and standard computing components.

For More Information

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