Cisco UCS B420 M3 Blade Server

Product Overview

The Cisco® Unified Computing System™ (Cisco UCS®) combines Cisco UCS B-Series Blade Servers and C-Series Rack Servers with networking and storage access in a single converged system that simplifies management and delivers greater cost efficiency and agility with increased visibility and control. One of the latest additions to the Cisco UCS portfolio is the Cisco UCS B420 M3 Blade Server.

Designed for enterprise performance and scalability, the Cisco UCS B420 M3 Blade Server combines the advantages of 4-socket computing with the cost-effective Intel® Xeon® processor E5-4600 and E5-4600 v2 product family, for demanding virtualization and database workloads. With its industry-leading compute density, I/O bandwidth, and memory footprint, the Cisco UCS B420 M3 is a balanced high-performance platform that complements the Cisco UCS 4-socket blade server portfolio.

The Cisco UCS B420 M3 is a full-width blade (Figure 1). Up to four of these high-density, 4-socket blade servers can reside in the six-rack-unit (6RU) Cisco UCS 5108 Blade Server Chassis. In addition, the Cisco UCS B420 M3 is part of the Cisco Unified Computing System, which combines blade and rack servers with networking and storage access in a single unified system. Centrally configured through unified, model-based management, Cisco UCS simplifies and accelerates deployment of enterprise-class applications running in bare-metal, virtualized, and cloud-computing environments.

Figure 1. Cisco UCS B420 M3 Blade Server

Cisco UCS B420 M3 Main Features

The Cisco UCS B420 M3 Blade Server provides:

Up to four Intel® Xeon® processor E5-4600 and E5-4600 v2 processor family CPUs with a maximum of 48 cores per server

- Forty-eight DIMM slots for registered error-correcting code (ECC) DIMMs, with up to 1.5 TB of memory capacity (using 32-GB LRDIMMs)

Three mezzanine connectors enable up to 160 Gbps bandwidth:

- One dedicated connector for Cisco VIC 1240 mLOM
- Two connectors for Cisco VIC 1280, VIC port expander, or third-party network adapter cards
- Four hot-pluggable drive bays supporting SAS, SATA, and SSD drives
- RAID 0, 1, 5, and 10, with optional 1-GB flash memory-backed write cache

Cisco VIC 1240 and 1280 Technology

The Cisco UCS Virtual Interface Card (VIC) 1240 is a 4-port 10-Gbps Ethernet or Fibre Channel over Ethernet (FCoE)-capable mLOM designed exclusively for the M3 generation of Cisco UCS B-Series Blade Servers. When used in combination with an optional port expander, the Cisco UCS VIC 1240 can be expanded to up to eight 10-Gbps ports.

The Cisco UCS VIC 1280 is an 8-port 10-Gbps Ethernet or FCoE adapter that further expands Cisco UCS B420 M3 Blade Server bandwidth to 160 Gbps. The Cisco UCS VIC 1240 and 1280 enable a policy-based, stateless, agile server infrastructure that can present up to 256 PCI Express (PCIe) standards-compliant interfaces to the host, which can be dynamically configured as either network interface cards (NICs) or host bus adapters (HBAs). In addition, the Cisco UCS VIC 1240 and 1280 support Cisco® Data Center Virtual Machine Fabric Extender (VM-FEX) technology, which extends the Cisco UCS fabric interconnect ports to virtual machines, simplifying server virtualization deployment.

Applications

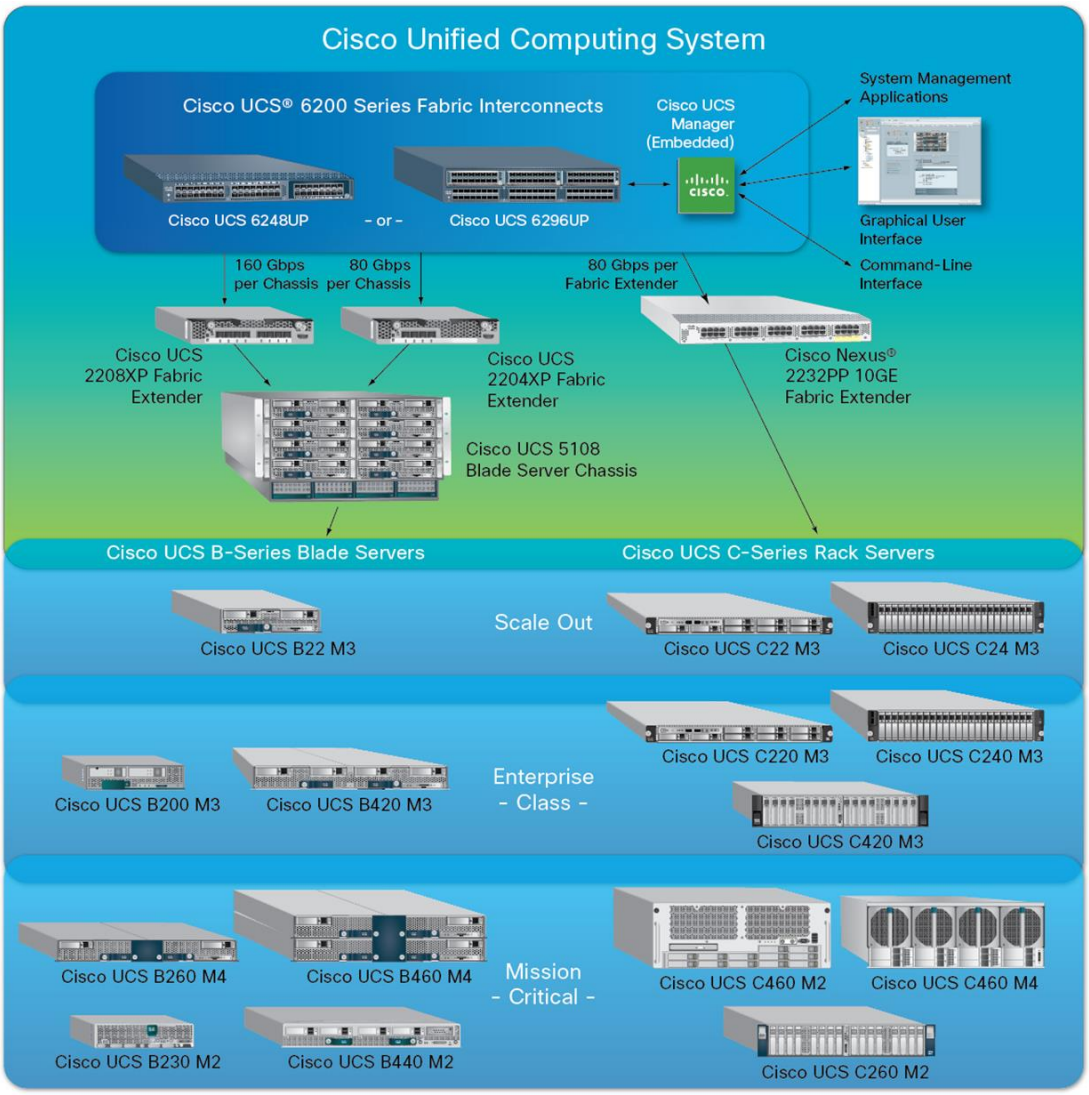
The Cisco UCS B420 M3 Blade Server continues Cisco's commitment to delivering uniquely differentiated value, fabric integration, and ease of management that is exceptional in the marketplace for enterprise-class applications:

- Virtual server workloads
- Virtual desktop infrastructure (VDI)
- Database
- Enterprise resource planning (ERP) and customer relationship management (CRM)
- Large memory and consolidation workloads

Cisco UCS Servers Change the Economics of the Data Center

Cisco continues to lead in data center innovation with the introduction of new building blocks such as the Cisco UCS B420 M3 Blade Server for the Cisco UCS, which combines consolidated management, stateless computing, and a unified fabric for both blade and rack servers (Figure 2). The Cisco UCS B420 M3 continues Cisco's commitment to reducing data center costs and improving operation efficiency and agility through a unified programmable system, policy-based automation, and integration with data center orchestration tools.

Figure 2. Cisco UCS Components



For example, Cisco innovations, such as the form-factor-agnostic Cisco UCS Manager software, allow administrators to create a software model of a desired server (using Cisco service profiles and templates) and then instantiate that server and its I/O connectivity by associating a model with physical resources. This stateless approach contrasts with the traditional method of configuring each system resource manually, one at a time, through individual element managers. Unlike vendors of traditional systems, Cisco uses a unified management model with service profiles that can be moved easily between any Cisco UCS servers - whether blade server or rack server - in a Cisco UCS Manager domain.

Other Cisco UCS building blocks include new Cisco UCS VIC options, expanded Cisco UCS fabric interconnects, and additional fabric extender options that increase throughput, investment protection, and management simplicity for both blade and rack servers. Here are a few examples of investment protection:

- Fabric extenders can be upgraded in the same Cisco UCS 5108 Server Chassis using the same fabric interconnects.
- Fabric interconnects can be upgraded independently of fabric extenders and blade servers within the chassis.
- The Cisco UCS 5108 Chassis high-performance midplane provides eight blades with 1.2 terabits (Tb) of available Ethernet throughput for future blade and I/O requirements.

In addition, Cisco continues to innovate in all these areas, helping ensure that newer, more powerful blade servers have matching I/O bandwidth and computing power through continuous innovation across the Cisco UCS environment.

The Cisco UCS B420 M3 is also part of a large family of blade servers: the Cisco UCS B-Series Blade Servers. The Cisco UCS B-Series servers employ many innovative Cisco technologies to help customers handle the most challenging workloads. Cisco UCS B-Series servers operating in a Cisco UCS management framework incorporate:

- A standards-based unified network fabric
- Cisco Data Center VM-FEX virtualization support
- Cisco UCS Manager software
- Cisco fabric extender architecture
- Cisco Extended Memory Technology

Again, Cisco is innovating across all these technologies. These Cisco UCS architectural advantages combine to make Cisco UCS the first truly unified data center platform, transforming IT departments through policy-based automation and deep integration with familiar systems management and orchestration tools.

Features and Benefits

Table 1 summarizes the features and benefits of the Cisco UCS B420 M3 server.

Table 1. Features and Benefits

Feature	Benefit
Unified fabric	• Manage blade and rack servers from the Cisco UCS 6100 or 6200 Series Fabric Interconnects using Cisco UCS Manager
Centralized management and stateless computing	• Through Cisco UCS Manager service profiles, reduces the number of manual steps required to deploy servers in the data center, improving server policy consistency and coherency • Allows servers and support infrastructure to be provisioned in minutes instead of days, shifting IT's focus from maintenance to strategic initiatives • Reduces configuration errors significantly as blades are added or repurposed • Enables service profile movement from blade to blade, rack server to blade, blade to rack server, or blade to blade in another chassis
Autodiscovery and configuration	• Requires no configuration; as with all Cisco UCS components, blades are automatically recognized and configured by Cisco UCS Manager
Extensive monitoring	• Through Cisco UCS Manager, provides extensive environmental monitoring for each blade • Allows use of user thresholds to optimize environmental management of the blade
Large memory footprint	• 48 DIMM slots provide configuration flexibility, performance, and expansion

Feature	Benefit
Bandwidth of up to 160 Gbps	• 3 mezzanine connectors enable up to 160 Gbps bandwidth: ◦ 1 dedicated connector for Cisco VIC 1240 mLOM ◦ 2 connectors for Cisco VIC 1280, VIC port expander, or third-party network adapter cards • Cisco VIC support: ◦ Cisco VIC 1240 provides 4x 10-Gbps bandwidth for Ethernet and FCoE traffic ◦ Cisco VIC 1280 provides 8x 10-Gbps bandwidth Ethernet and FCoE traffic ◦ VIC port expander for the Cisco VIC 1240 provides 4x 10-Gbps for Ethernet and FCoE traffic
OS image deployment flexibility	• 2 Cisco FlexFlash secure digital high-capacity (SDHC) flash card sockets as an option for redundant OS images • 16 GB SD flash memory cards available
Up to 4 TB of internal storage	• Up to 4 hot-pluggable SAS or SATA HDDs or SSDs for up to 4 TB of internal storage • LSI SAS 2208R integrated controller • RAID 0, 1, 5, and 10 support • Optional 1-GB flash-backed write cache
4-socket computing using cost-effective Intel Xeon processor E5-4600 and E5-4600 v2 product family	• Support for 2-socket and 4-socket configurations • 4, 6, 8, 10, or 12 cores, varying by processor model • Automated energy efficiency reduces energy costs by automatically putting the processor and memory in the lowest available power state while still delivering the performance required and flexible virtualization technology that optimizes performance for virtualized environments, including processor support for migration and direct I/O • Support for Intel Advanced Vector Extensions (AVX), which provides new instructions that can significantly improve performance for applications that rely on floating-point or vector computations • Through the increased performance provided by the Intel Xeon processor E5-4600 and E5-4600 v2 product family, UCS B420 M3 offers an improved price-to-performance ratio that complements the 4-socket blade portfolio • Hardened protection for virtual and cloud Environments: Establish trusted pools of virtual resources with Intel® Trusted Execution Technology (Intel® TXT). Intel TXT ensures that physical servers and hypervisors boot only into cryptographically verified "known good states." It safeguards your business more effectively by protecting your platform from the insertion of malware during or prior to launch

Specifications

Cisco UCS B-Series Blade Servers are important components of the Cisco UCS environment and are enabled by the Cisco UCS Manager and Cisco UCS 6100 Series Fabric Interconnects, 5100 Series Blade Server Chassis, and 2100 Series Fabric Extenders.

Table 2 summarizes the specifications for the Cisco UCS B420 M3.

Table 2. Product Specifications

Item	Specification
Processors	4 Intel Xeon processor E5-4600 and E5-4600 v2 product family CPUs
Processor cores	4, 6, 8, 10 or 12 cores, varying by processor model
Memory	• 48 DIMM slots • Maximum of 1.5 TB with 32-GB DDR3 RDIMMs
Mezzanine adapter slots	3 (one mLOM dedicated to Cisco UCS VIC 1240)
Disk drives	Up to 4 optional front-access SAS or SATA HDDs or SSDs
Disk drive options	100-, 200-, 300-, 400-GB and 800 GB SSDs; 146-, 300-, 600-, and 900-GB SAS; and 500-GB and 1-TB SATA
Maximum internal storage	Up to 4 TB
Drive controller	• LSI SAS 2208R integrated controller • SAS and SATA support • RAID 0, 1, 5, and 10 support
Flash memory	2 slots for 16-GB SD flash memory cards (future enablement through software update)
Management	Managed from the Cisco UCS 6100 or 6200 Series Fabric Interconnects by Cisco UCS Manager

Table 3 provides links to additional specifications and information for the Cisco UCS B420 M3 Blade Server as well as system specifications for the Cisco UCS environment.

Table 3. Additional Specifications and Information

Item	Specification
Warranty information	Cisco.com Product Warranties page
Environmental specifications	http://www.cisco.com/en/US/docs/unified_computing/ucs/hw/site_prep/guide/siteprep_tech_specs.html#wp1037127
Regulatory standards compliance	http://www.cisco.com/en/US/docs/unified_computing/ucs/hw/regulatory/compliance/ucs_regulatory_compliance_Information.html#wp44961

Cisco Unified Computing Services

Using a unified view of data center resources, Cisco and our industry-leading partners deliver services that accelerate your transition to a unified computing environment. Cisco Unified Computing Services helps you quickly deploy your data center resources and optimize ongoing operations to better meet your business needs. For more information about these and other Cisco Data Center Services offerings, visit http://www.cisco.com/go/dcservices.

Why Cisco?

Cisco has significant experience in listening to customer requirements and providing solid technology innovation for the enterprise data center. Cisco delivers standards-based solutions backed by a broad partner ecosystem of industry leaders to provide end-to-end customer solutions. Unified computing elevates the traditional product classification of network, server, storage, operating systems, and applications to a data center-wide vision. Cisco, as one of the largest technology providers in the world, has the resources, expertise, and customer focus to deliver on the unified computing vision.

For More Information

For more information about Cisco UCS B-Series Blade Servers, visit http://www.cisco.com/en/US/products/ps10280/index.html or contact your local Cisco representative.

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