Cisco UCS B200 M1 Blade Server
Simplicity, Efficiency, Performance, and Density

Unified Computing Through Virtualization

The Cisco® Unified Computing System is a next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system designed to reduce total cost of ownership (TCO) and increase business agility. The system integrates a low-latency, lossless 10 Gigabit Ethernet unified network fabric with enterprise-class, x86-architecture servers. The system is an integrated, scalable, multichassis platform in which all resources participate in a unified management domain.

Radically Simplified Server Deployment

Traditional blade servers add to data center complexity, with each chassis and chassis-resident switches acting as independent points of management. Scaling out IT infrastructure using these systems is costly in terms of the number of I/O interfaces that each chassis must support, the power and cooling they require, the administrative and management overhead of individual blade servers, and the business agility lost due to delayed deployment times.

The Cisco Unified Computing System represents a radical simplification of the traditional blade server deployment model with simplified, stateless blades and a blade server chassis that is centrally provisioned, configured, and managed by Cisco UCS Manager. The result is a unified system that significantly reduces the number of components while offering a just-in-time provisioning model that allows systems to be deployed or redeployed in minutes rather than hours or days.

Simplicity, Efficiency, Performance, and Density

The Cisco UCS B200 M1 Blade Server (Figure 1) balances simplicity, performance, and density for production-level virtualization and other mainstream data center workloads. The server is a half-width, two-socket blade server with substantial throughput and 50 percent more industry-standard memory compared to previous-generation Intel Xeon two-socket servers. A Cisco UCS 5108 Blade Server Chassis can house up to eight Cisco UCS B200 M1 Blade Servers, with a maximum of 320 per Cisco Unified Computing System.

Figure 1: Cisco UCS B200 M1 Blade Server

The Cisco UCS B200 M1 is designed to increase performance, energy efficiency, and flexibility for demanding virtualized and nonvirtualized applications. Based on Intel Xeon 5500 series processors (Figure 2), Cisco UCS B-Series Blade Servers adapt processor performance to application demands and intelligently scale energy use based on utilization.

Figure 2: Intel Xeon 5500 Series Processor

Each Cisco UCS B200 M1 uses network adapters for consolidated access to the unified fabric. This design reduces the number of adapters, cables, and access-layer switches needed for LAN and SAN connectivity. This Cisco innovation can significantly reduce capital and operating expenses, including administrative overhead, power, and cooling costs. Network adapter choices (Figure 3) include adapters optimized for virtualization, compatibility, and efficient, high-performance Ethernet.

Figure 3: Cisco UCS Network Adapters
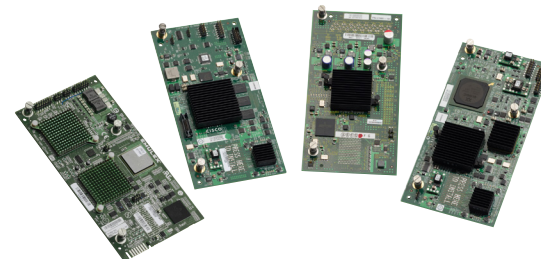
Cisco's innovative service profile technology embedded in the Cisco UCS Manager, provisions Cisco UCS B-Series Blade Servers and their I/O properties. Infrastructure policies needed to provision servers and deploy applications, such as policies for power and cooling, security, identity, hardware health, and Ethernet and storage networking, are encapsulated in the service profiles. Use of service profiles helps reduce the number of manual steps needed for provisioning, the opportunities for human error, and server and network deployment times. In addition, service profiles improve policy consistency and coherency across the entire Cisco Unified Computing System.

Features of the Cisco UCS B200 M1

- Up to two Intel Xeon 5500 series processors, which automatically and intelligently adjust server performance according to application needs, increasing performance when needed and achieving substantial energy savings when not
- Up to 96 GB of DDR3 memory in a half-width form factor for mainstream workloads, which serves to balance memory capacity and overall density

- Two optional front-accessible, hot-swappable SAS hard drives
- One dual-port mezzanine card for up to 20 Gbps of I/O per blade; mezzanine card options include a virtual interface card, converged network adapter, and 10 Gigabit Ethernet adapter

Simple, Centrally Managed Chassis

The Cisco UCS 5100 Series Blade Server Chassis is logically part of the Cisco Unified Computing System's fabric interconnects, adding no management complexity to the system. The chassis is so simple that it consists of only five basic components with all but its midplane hot pluggable and user serviceable. The unified fabric is brought into each chassis by up to two Cisco UCS 2100 Series Fabric Extenders that pass all I/O traffic to parent fabric interconnects. This interface to the unified fabric reduces the number of adapters, cables, chassis-resident LAN and SAN switches, and upstream ports that must be purchased, managed, powered, and cooled.

The Cisco UCS 5108 Blade Server Chassis physically houses blade servers and up to two Cisco UCS 2100 Series Fabric Extenders. Compared to complex traditional blade server chassis, the Cisco UCS 5108 Blade Server Chassis is dramatically simple, with removable partitions that allow it to support any combination of up to eight half-width and up to four full-width blade servers (Figure 4).

**Figure 4:** Cisco UCS B200 M1 Blade Servers Installed in Cisco UCS 5108 Blade Server Chassis

The Cisco UCS 5108 Blade Server Chassis accepts between one and four 92-percent-efficient, 2500W hot-swappable power supplies that can be configured in a nonredundant, N+1 redundant, or grid-redundant design. Designed for efficiency at low utilization levels, the chassis power configuration provides sufficient headroom to support future blade servers hosting processors using up to 130W each.

The chassis features a 63 percent open midplane (Figure 5) that promotes unobstructed, front-to-back airflow. The chassis and blade servers are cooled by eight redundant, hot-swappable fans.

The chassis midplane supports two 10-Gbps unified fabric connections per half slot to support today's server blades, with the ability to scale to up to two 40-Gbps connections using future blades and fabric extenders. The chassis is managed by Cisco UCS Manager software, providing autodiscovery, environmental monitoring, identity, and configuration management for all components of the chassis.

Figure 5: Cisco UCS 5108 Blade Server Chassis Open Midplane Design Increases Airflow Efficiency
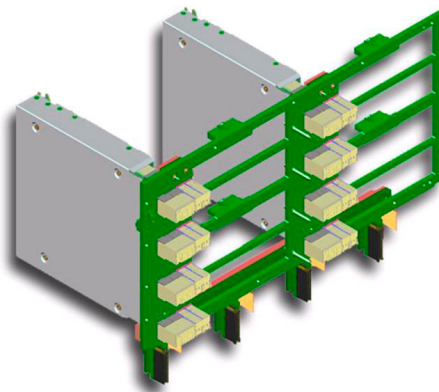
Cisco Unified Computing Services

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

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. The Cisco Unified Computing System 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

Visit http://www.cisco.com/go/unifiedcomputing.