Brochure

Enterprise Application Solutions with Cisco UCS Servers

In Collaboration With

Cisco® solutions reflect a profound understanding of enterprise application requirements.

With a comprehensive line of Cisco Unified Computing System™ (Cisco UCS®) blade and rack servers, mapping servers to specific application requirements has never been easier. All Cisco UCS servers are based on Intel® Xeon® processors, which form the core of today's efficient data centers.

End-to-End Application Design

Businesses consider application solutions, not just hardware, as crucial factors in their decision-making processes–and Cisco focuses on delivering solutions. Businesses need high-performance solutions that support their applications end to end. They need solutions that incorporate servers, networks, and storage. They need solutions that enable applications to perform and scale effectively, with lower total cost of ownership (TCO). Solutions based on Cisco UCS are:

- **Optimized** to support your applications
- **Designed** with the right balance of CPU, memory, network, and storage access resources
- **Tested and validated** with Cisco Validated Designs, which accelerate application deployment and reduce risk

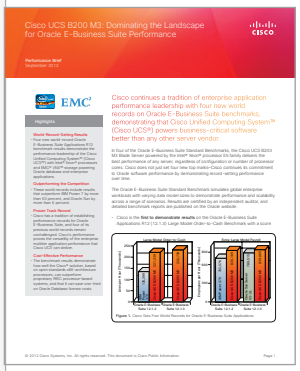
Single Unified System

Cisco UCS is the first solution to incorporate rack and blade servers as well as virtual machines into a single system that is physically distributed yet centrally managed. Cisco's unique architecture gives applications the resiliency they need to meet the demands of your business and scale dynamically to meet your changing needs. Cisco UCS offers:

- **Single unified system** that eliminates the need for manual, time-consuming, error-prone assembly of components into solutions
- **Unified management** that automates the setting of every aspect of a server's identity, configuration, and connectivity, accelerating deployment and reducing downtime.
- **Unified fabric** that provides high-bandwidth, low-latency access to every resource, increasing flexibility and performance while reducing cost
- **Simplified architecture** that eliminates multiple layers of switching and cabling, reducing capital expenditures (CapEx), operating costs (OpEx), and complexity

Proven Application Performance

Renowned application performance is not just a claim: It is a fact, validated by more than 70 world-record-setting performance benchmarks. With intelligent Intel® Xeon® processors, Cisco has demonstrated how well it runs physical, virtualized, and cloud-computing workloads; mission-critical business applications; enterprise middleware; database management systems; and high-performance computing solutions. Setting world performance records on benchmarks, Cisco UCS delivers the raw power of Intel Xeon processors for better application performance.


Cisco UCS B200 M3: Dominating the Landscape for Oracle E-Business Suite Performance

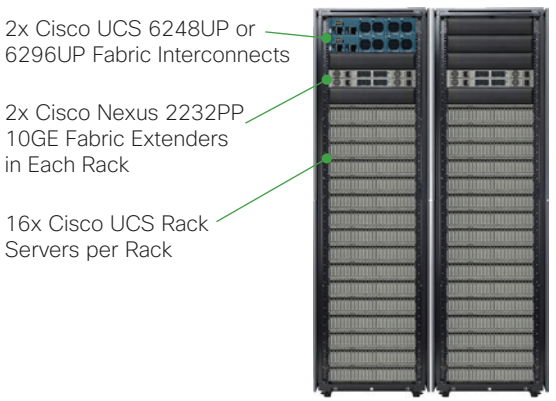
Big Data: Common Platform Architecture

Cisco understands that effective approaches to big data require more than just technology. They must deliver tangible results to businesses.

Cisco UCS is an excellent fit for big data challenges, increasing agility to expand business opportunities, scalability to manage growth, and resiliency to manage risk–all with management and operation efficiency that dramatically reduces TCO. Cisco SmartPlay bundles make big data deployment fast and economical.

Joint Solutions from the Leaders

The leaders in big data, including Cloudera, Greenplum, MarkLogic, Oracle, NetApp, and ParAccel, partner with Cisco to provide a broad range of big data solutions. Cisco and its partners understand the importance of effective technology infrastructure. Cisco UCS is the only partner platform for Oracle NoSQL and is the exclusive hardware reference for ParAccel and Greenplum MR.



Cisco SmartPlay Solutions Make Big Data Deployment Fast and Economical

Cisco Smart-Play Solution	Cisco UCS Servers	Memory	Storage Capacity	Big Data Application
Big Data High Capacity	16x C240 M3 with Intel Xeon E5-2640	2048 GB per rack	576 TB per rack	Industry-leading storage density; ideal excellent for high-capacity Hadoop deployments.
Big Data High Performance	16x C240 M3 with Intel Xeon E5-2690	4096 GB per rack	384 TB per rack	Balanced computing power, I/O bandwidth, and storage capacity for high-performance Hadoop and NoSQL database deployments.
Big Data High-Performance SAS Half Rack	8x C240 M3 with Intel Xeon E5-2690	2048 GB per rack	115.2 TB per rack	High performance for demanding massively parallel processing (MPP) databases.

Cisco Common Platform Architecture

The Cisco Common Platform Architecture (CPA) for big data applications offers network scalability, performance, management, and monitoring to:

- Simplify operations
- Increase modularity
- Reduce risk
- Lower TCO

Cisco UCS rack servers provide the essential balance between processor performance, I/O performance, and a range of storage solutions to deliver agile big data infrastructure. Cisco UCS fabric interconnects establish a common management plane to scale up and out using both single- and multi-rack form factors. Cisco virtual interface cards (VICs) provide I/O flexibility, with the number and type of I/O devices created on demand.

For More Information

- Please visit http://www.cisco.com/go/bigdata
- View Cisco SmartPlay solutions for Big Data

Unified and Integrated Management

- Get integrated, unified management with Cisco UCS Manager
- Manage up to 10,000 servers and associated infrastructure with Cisco UCS Central Software

Scalable and Predictable Performance

- Get a high-performance platform with Intel Xeon processors and up to 384 internal disk drives per rack
- Scale linearly without degrading performance or increasing management challenges
- Achieve predictable performance with uniform network latency between nodes

Integration with Enterprise Applications

- Host both enterprise applications and big data applications in the same system to simplify management and accelerate movement between applications

Reduced Risk

- With pretested and validated architecture accelerates time to value while reducing risk

Lower TCO

- Reduce TCO through simplified architecture and integrated, unified management

Microsoft Exchange Server: Scalability and Flexibility

Microsoft Exchange Server on Cisco UCS delivers outstanding scalability and performance for tens of thousands of mailboxes.

With Cisco UCS and Microsoft Exchange Server, companies can consolidate their entire messaging system onto a single, flexible infrastructure, supporting both bare-metal and virtualized components side by side with a single management interface.

Excellent ROI and TCO

Hosting Microsoft Exchange Server on Cisco UCS yields:

- **Increased return on investment (ROI),** with excellent consolidation ratios of physical servers onto virtual servers using Microsoft Hyper-V or VMware vSphere for better utilization of the entire infrastructure
- **Radically simplified server configuration,** greatly reduces server deployment times and lowers initial costs
- **Inherent support for virtualization and scalability,** reducing the need for additional hardware to support growth—and when additional servers are needed, Cisco UCS servers can be deployed in minutes to a known and trusted configuration, supporting a low RTO (recovery time objective) allowing staff to get on with normal business operations
- **Better use of current of staff expertise,** helping organizations comply with data center policies and best practices, leading to reduced TCO for your Microsoft Exchange Server environment

Reliability, Availability, and Mobility

The solution is:

- Designed for high availability and fast disaster recovery so that employees never have to be without access to their email anywhere or from any device
- Deployed with prescriptive guidance using Cisco Validated Designs, which help create a highly secure, optimized environment and accelerate deployment while reducing risk

Business Size	Storage Configuration	Cisco UCS Server	Benefits for Microsoft Exchange Server
Small and medium sized	Internal	C240 M3 Rack Server	The Cisco UCS C240 M3 supports a standalone configuration that balances processing power, memory capacity (up to 768 GB), I/O bandwidth, and up to 36 TB of internal storage. Cisco SmartPlay pricing is available.
Small and medium sized	Shared	C220 M3 Rack Server	The Cisco UCS C220 M3 supports the same balance of resources and intelligent Intel Xeon processors with low-latency, high-bandwidth connectivity to shared storage systems. Cisco SmartPlay pricing is available.
Large	Shared	B200 M3 Blade Server	The Cisco UCS B200 M3 delivers the power of the Intel Xeon processor E5 family in a blade form factor. The server supports up to 768 GB of main memory to support virtualized Microsoft Exchange Server deployments, and the Cisco UCS VIC 1240 with the optional port expander card provides up to 80 Gbps of bandwidth for IP network and storage access.

Cisco UCS Wins Best of TechEd 2012 Breakthrough Technology Award

Cisco UCS servers and Cisco UCS Manager completely automate configuration for low-level hardware, BIOS, and configuration settings, enabling solutions to be quickly deployed, cloned, and managed—even remotely. Cisco UCS servers also can be fully managed using Microsoft PowerShell or Microsoft System Center Orchestrator.

Security and Compliance

The combination of Microsoft Exchange Server and Cisco UCS helps organizations:

- Comply with legal discovery rules and implement policies for retention and deletion of email, making it easy to monitor compliance
- Enforce compliance through automated deployment and role-based administration, eliminating the risk of manual configuration errors that can cause downtime

For More Information

Please visit http://www.cisco.com/go/microsoft.

Microsoft SharePoint: Scale as Your Collaboration Needs Grow

Organizations of all sizes are bringing collaboration tools online, bringing remote and virtual workers together to form better teams.

Accelerate collaboration tool deployment using Cisco UCS with Microsoft SharePoint 2010 running on Microsoft Windows Server 2008 R2 Hyper-V. Cisco UCS with Cisco validated configurations helps ensure interoperability, decreases complexity, and increases efficiency for any size business.

Better Balance of Resources

Cisco brings a better balance of computing, I/O, storage, and virtualization resources to organizations, providing the flexibility to use Microsoft SharePoint 2010 in a virtualized environment or on bare metal and the capability to change deployment models without costly delays. Cisco UCS delivers:

- **Excellent response times** to users, where and when they need it
- **Fast, on-demand deployment** of resources (in minutes rather than days or months)
- **Cost-effective options** that support both local and networked storage
- **Continuous availability** with no single point of failure in the system's network fabric
- **Radically simplified configuration** with integrated management that spans both rack and blade servers, helping reduce total cost of ownership (TCO)

Cisco UCS Server	Benefits for Microsoft SharePoint 2010
Cisco UCS C240 M3 Rack Server	With up to 36 TB of internal disk storage and up to 768 GB of memory, the Cisco UCS C240 M3 can act as a standalone Microsoft SharePoint server, and it can act as a storage server with multiple web front-end servers. Cisco SmartPlay pricing is available.
Cisco UCS C220 M3 Rack Server	The Cisco UCS C220 M3 supports the same balance of resources as the Cisco UCS C240 M3 but with less internal storage capacity, making it excellent to use as a web front-end server or to manage the Microsoft SharePoint database in a shared-storage environment.
Cisco UCS B200 M3 Blade Server	The Cisco UCS B200 M3 provides up to 768 GB of main memory to support virtualized Microsoft SharePoint instances, with to 80 Gbps of bandwidth for the IP network and access to shared storage systems in enterprise environments.

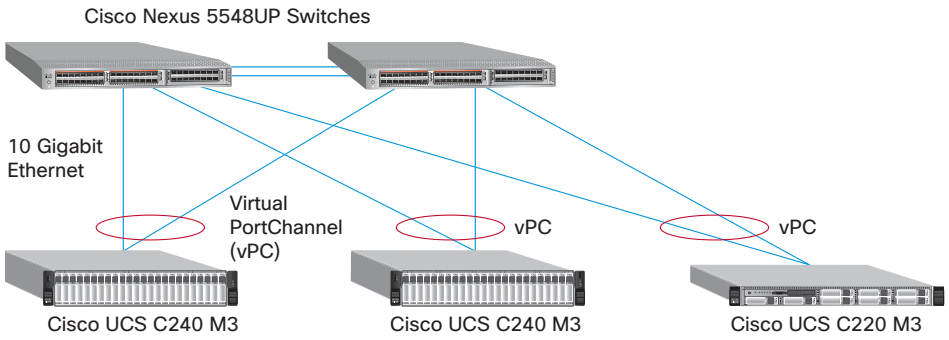
Easy Scalability

To meet the needs of the ever-growing user base, businesses need to plan for growth. Microsoft's flexible architecture together with Cisco's excellent range of server and connectivity options helps organizations scale computing and storage resources to meet increasing demands.

For small, standalone environments, a single Cisco UCS C240 M3 Rack Server can support Microsoft SharePoint with up to 36 TB of internal storage. This solution can scale to increase capacity and redundancy through the addition of two servers. To handle even more users, web front-end servers can be hosted on Cisco UCS C220 M3 Rack Servers, and the Cisco UCS C240 M3 servers can be used as storage servers. For blade server environments, the Cisco UCS B200 M3 can support both functions with up to 80 Gbps of bandwidth to access shared storage. Cisco SmartPlay bundles make ordering simple and deployment easy.

For More Information

Please visit http://www.cisco.com/go/microsoft.



Cisco Supports Microsoft SharePoint with Servers That Have Massive Storage Capacity and High Performance for Web Front-End Servers

Microsoft SQL Server: Higher Performance and Lower Cost

Increase Microsoft SQL Server performance with Cisco servers.

Organizations using Cisco servers gain the power, flexibility, and management simplicity needed to meet Microsoft SQL Server workload demands while increasing IT agility.

Start with standalone servers for performance and bandwidth, or connect servers through Cisco UCS for automated configuration, simplified management, and massive I/O flexibility that provides SAN and network-attached storage (NAS) access. The integration of Microsoft SQL Server with Cisco UCS provides applications exceptional connectivity to your enterprise data.

Demanding I/O Performance

Microsoft SQL Server demands a balance of I/O performance and capacity, making architecture and system resources important considerations when choosing a system. Cisco servers and Microsoft SQL Server perform well for small and medium-sized businesses by providing massive amounts of internal storage. Cisco servers support medium-sized to large businesses with low-latency, high-speed connectivity to storage. Cisco servers provide mission-critical environments the performance and reliability they need, including the Intel Xeon processor E7 family for optimized performance.

The range of solutions that Cisco offers provide excellent performance, scalability, and flexibility, enabling IT departments to start small and easily scale to meet growing workload needs. For organizations consolidating workloads onto a smaller number of servers, Cisco servers are designed with enhanced virtualization support so that companies choosing Cisco get excellent performance from virtualized Microsoft SQL Server instances.

Business Environment	Cisco UCS Server	Maximum Memory	Intel Xeon Processor Family	Benefits with Microsoft SQL Server Software
Small to Medium sized	C240 M3 Rack Server	768 GB	E5-2600	· Excellent for small online transaction processing (OTP) or decision-support systems · High storage density in 2 rack units · Flexibility to support 12 Large Form-Factor (LFF) or 24 Small Form-Factor (SFF) disk drives · Up to 36 TB of storage with 12 LFF drives · Low-cost network connectivity with 4 Gigabit Ethernet ports · Economical performance with the Intel Xeon processor E5 family
Medium sized to large	B200 M3 Blade Server	768 GB	E5-2600	· Up to 80 Gbps of I/O capacity · Equal connectivity to SAN or NAS storage · Lower licensing cost with 2-socket server
Large (blade server environment)	B420 M3 Blade Server	1.5 TB	E5-4600	· Large memory capacity for greater performance · Up to 160 Gbps of I/O capacity · 4-socket server performance at an economical price
Large (rack server environment)	C260 M2 Rack Server	1 TB	E7-2800	· Massive memory capacity for greater caching · I/O flexibility and bandwidth with 6 PCIe slots · Up to 16 SFF disk drives for up to 16 TB of internal storage · Built-in dual 10 Gigabit Ethernet ports · Reliability enhanced by the Intel Xeon processor E7 family
Mission critical	C460 M2 High-Performance Rack Server	2 TB	E7-4800	· Extreme memory capacity · I/O flexibility and bandwidth with 10 PCIe slots · Up to 12 SFF disk drives for up to 12 TB of internal storage · Built-in dual 10 Gigabit Ethernet ports · Reliability enhanced by the Intel Xeon processor E7 family

For More Information

Please visit http://www.cisco.com/go/microsoft.

Record-Setting Performance with Lower Cost

In its inaugural TPC-H™ result, Cisco asserted industry leadership in partnership with Microsoft, establishing Cisco UCS as the fastest 4-socket Intel Xeon processor–powered platform for running Microsoft SQL Server at the 1,000 GB scale factor.

More information for the benchmark cited above is provided on page 11

Oracle: Enterprise-Leading Business Application Performance

Oracle software propels businesses worldwide, and Cisco has established a tradition of providing record-setting performance and running Oracle software at lower cost.

Oracle software is essential for many business functions. Oracle Database and Oracle Real Application Clusters (RAC) support online transaction processing that enables all forms of commerce. Oracle E-Business Suite is a comprehensive suite of global business applications that help organizations make better decisions and reduce cost. Oracle E-Business Suite supports business functions ranging from customer relationship management (CRM) to supply chain management (SCM). After business transactions are completed, Oracle NoSQL Database helps analyze massive amounts of data to enable better business decisions in the future.

Oracle Runs Better on Cisco UCS

Oracle software runs better on Cisco UCS because of Cisco's unique architectural advantages which no other vendor can offer:

- **Unified management** supports predefined and programmed deployment so that best practices can be implemented through automation. Scaling of existing applications is now rapid, accurate, and repeatable.
- **Unified fabric** ties servers together with low-latency 10 Gigabit performance. Cisco Unified Fabric carries IP networking, storage, and management traffic with wireline-quality security. With Cisco UCS, Cisco is the first company to certify Oracle RAC software on a unified fabric, proving Cisco's performance and security.
- **Cisco virtual interface cards** support an I/O environment in which the number and type of devices can be configured on demand using either Ethernet or Fibre Channel. Used with Cisco Data Center Virtual Machine Fabric Extender (VM-FEX) technology, Cisco VICs directly connect virtual machines to the network, providing the same visibility and control normally reserved for physical devices.
- **Intel Xeon processors** power Cisco UCS servers with a price:performance ratio that makes traditional RISC processor–based systems obsolete. Although many vendors use the same processors, only Cisco brings their power to life with the architecture of Cisco UCS.

Better Performance at Lower Cost

The proof of superior architecture is better performance at lower cost. Cisco demonstrates the depth of its commitment to Oracle software by establishing a tradition of record-setting performance on both the Transaction Processing Council TPC-C Benchmark and Oracle E-Business Suite Standard Benchmarks.

Record Setting Performance from Cisco

Best 2-Socket Server TPC-C™ Results
Cisco UCS C240 M3 Rack Server[1]

Best Oracle E-Business Suite Performance
Cisco UCS B200 M3 Blade Server[2]

More information for the benchmarks cited above is provided on page 11.

For More Information

For more information about Cisco UCS servers running Oracle software, please visit http://www.cisco.com/go/oracle.

Cisco UCS Server	Role	Record-Setting Oracle Performance
C240 M3 Rack Server	Small and medium-sized businesses needing large amounts of internal storage	Footnote 1. The Cisco UCS C240 M3 claimed the fastest TPC-C benchmark results for any 2-socket server, even among competitors using the exact same processor, and outperforming a 2-processor IBM POWER7 system by 34% with 32% lower cost (for more information see page 11).
B200 M3 Blade Server	Medium-sized and large businesses using shared storage	Footnote 2. The Cisco UCS B200 M3 delivered the best performance of any server, regardless of configuration or number of processor cores, on the Oracle E-Business Suite 12.1.2 Order-to-Cash Benchmark. The record includes outperforming an IBM POWER7 processor-based server by more than 63% (for more information see page 11).

SAP: Higher Performance, Greater Efficiency

Cisco understands that better business decisions rely on SAP infrastructure for fast access to reliable information.

Cisco UCS eliminates the challenges that keep SAP applications from delivering the right information at the right time. With an innovative and unified architecture, Cisco UCS reduces SAP landscape sprawl, improves visibility into virtualized SAP environments, and shortens response time for SAP workloads at a lower cost.

The Right Platform for SAP Workloads

Designed with the knowledge that no two SAP deployments are identical, Cisco UCS offers choice and flexibility in server deployment. IT departments can run SAP enterprise applications on high-performance Cisco UCS blade or rack servers that support incremental scaling in a consolidated footprint.

A Leading Platform for SAP HANA

Cisco UCS and SAP HANA deliver the massive scale-out capabilities needed for big data, growth-oriented applications, and analytics. IT departments can rapidly scale deployments to many nodes in high-performance, highly available configurations. Using more servers and distributing data-loading and analysis tasks takes advantage of massively parallel processing to deliver outstanding response. Users can choose either EMC or NetApp storage and take advantage of SAP IT Process Automation by Cisco for special SAP HANA features.

Streamlined SAP Deployment and Management

Reliable, repeatable workflow automation built into Cisco UCS and Cisco Tidal Software helps streamline SAP deployment and migration processes.

- Perform troubleshooting procedures and isolate incidents to improve technical monitoring.
- Automate tasks for Run SAP operations and procedures to improve system administration.
- Automate incident response and corrective action processes to improve service desk operations.
- Perform custom operations and procedures across heterogeneous landscapes, including custom system copy procedures before and after system refreshes, for improved SAP landscape operation.

For More Information

Please visit http://www.cisco.com/go/sap

Optimized Performance for Virtualized SAP Environments

Cisco Data Center VM-FEX technology eliminates the burden of virtual machine switching from the hypervisor, giving SAP applications access to more host CPU cycles and I/O throughput.

The combination of Cisco UCS and Cisco Data Center VM-FEX technology delivers an integrated solution that enables performance gains through support for up to 11 percent more users and through reduced database access latency, effectively accelerating user queries by up to 29 percent.

See http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/whitepaper_c11_703103.pdf for more information.

SAP Environment	Cisco UCS Server	Benefits with SAP Enterprise Applications	SAP HANA Blade Server Scale-Out Solutions
Small to medium sized	B200 M3 Blade Server	· Up to 80 Gbps of I/O capacity · Equal connectivity to SAN or NAS storage · Lower licensing costs with 2-socket server	· Up to 8 TB of memory · EMC or NetApp external storage · High availability and disaster recovery across data centers
Medium sized to large	B420 M3 Blade Server	· Large memory capacity for higher performance · Up to 160 Gbps of I/O capacity · 4-socket server at an economical price	SAP HANA Rack Server All-in-One Solutions
Mission critical	C460 M2 High-Performance Rack Server	· Extreme memory capacity · I/O flexibility and bandwidth with 10 PCIe slots · Up to 12 TB of internal storage	· Extra-small, small, and medium-sized rack-mount solutions · Up to one-half TB of compressed user data · Sized to fit in one Cisco UCS C-Series Rack Server with internal storage

Virtual Desktop: Next-Generation Workspaces with Reduced TCO

Cisco is uniquely positioned to enable businesses to take advantage of the shift to the next-generation virtual workspace.

Traditional physical desktop infrastructures are evolving to support an adaptive virtualized workspace. Cisco and its partners bring you a full range of desktop and application virtualization solutions that are collaborative, mobile, and secure.

Reduced TCO and Improved ROI

Cisco provides a complete suite of validated and tested desktop and application virtualization designs to lower costs and manage deployment risks. Solutions from Cisco offer reduced complexity, with fewer installation steps and a simple, integrated, single point of management across both Cisco UCS blade and rack servers. This simplification enables businesses to gain competitive advantages and improve productivity without compromising performance or availability achieving a superior ROI.

Superior Security

Solutions deployed with Cisco UCS provide flexible and secure access, with increased control and compliance. This security is delivered through:

- Detailed security policy access control with Cisco UCS and Cisco Nexus 1000V Series Switches
- Enhanced security with segmentation of virtual desktops using Cisco Virtual Security Gateway (VSG) integrated with Cisco Nexus 1000V Series Switches
- Secure, efficient, virtualization-aware networking with Cisco VICs that directly connect virtual desktops to the network, leaving more CPU cycles to deliver better desktop performance
- High-performance, low-latency 10-Gbps unified fabric that carries IP, storage, and management traffic over a single network, reducing CapEx and OpEx
- Cisco virtual desktop solutions provide consistent security policy enforcement networkwide, supporting data protection, access control, and better compliance with industry regulations

Broad Range of Solutions

Cisco collaborates with and supports all major desktop virtualization vendors, including Citrix, VMware, and Microsoft. This collaboration together with the broad range of Cisco UCS configurations results in solutions that can fit nearly any company's needs today and into the future. Cisco virtual desktop solutions provide greater desktop density—up to 186 virtual machines per server—supported with industry-leading memory capacities and excellent performance with Intel Xeon processors and Intel VT-d technology. Organizations can start small with the balanced configuration and scale out by adding Cisco UCS blade or rack servers to meet user demand quickly and efficiently.

For More Information

Please visit:

- http://www.cisco.com/go/vdi
- http://www.cisco.com/go/solutionpak.

For information on the Cisco Solution for Citrix VDI-in-a-Box, please visit:

- http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/fle_sb_citrix.pdf

Option	Cisco UCS Server	Maximum Memory	Maximum Storage	Virtual Desktop Application
Balanced configuration (70 to 80 users)	C260 M2 Rack Servers 2 Intel Xeon processors E7-2830	128 GB	2.4 TB	Balanced processor, memory, and disk storage for small and medium-sized businesses or branch and remote offices
Performance configuration (140 to 150 users)	C260 M2 Rack Server 2 Intel Xeon processors E7-2870	256 GB	2.4 TB	Enhanced performance through the use of the Intel Xeon processor E7-2870 with more cores and greater memory for small and medium-sized businesses
Scalable memory and configuration (1000 users)	B200 M3 Blade Server	768 GB	External storage recommended	Enhanced performance combined with massive memory and storage capability to support more users and more virtualized applications
Power-user configuration	B230 M2 Blade Server	512 GB	External storage recommended	Increased processor density, memory capacity, and network bandwidth to handle knowledge and power worker requirements

Cisco Understands Enterprise Applications

Cisco makes massive investments in the design of some of the highest performing servers available anywhere—servers that can be used on their own or integrated into unified systems. Cisco designs, tests, and validates its servers and solutions to accelerate deployment and reduce cost. Solutions using Cisco servers deliver world-record performance running real-world applications.

The Heartbeat of Applications

Cisco understands that CPU power is the heartbeat of any application, and that today's multicore processors require a better balance of CPU, memory, and I/O capacity to deliver application performance that goes beyond that of the competition, helping organizations reduce their TCO.

Understanding Virtualized Environments

Cisco was the first to recognize that virtualized environments achieve better performance and economies of scale when 2-socket servers are paired with large memory footprints. Cisco has led the industry by offering servers with high memory capacity since 2009, when Cisco UCS was first delivered.

Balancing CPU Power with I/O Bandwidth

When enterprise applications are matched with the most powerful Intel Xeon processors and sufficient memory, they have a voracious appetite for network and storage access bandwidth. Cisco responded to those application demands with virtual interface cards that directly connect network and storage resources to servers and virtual machines alike and then deliver up to 160 Gbps of network and storage bandwidth to a single blade server.

Every Application is Different

Cisco earned its reputation for understanding applications and solutions through its investment in research and development, to optimize application performance. Cisco makes these optimizations available to customers in the form of tested and validated solutions that help accelerate deployment and reduce costs and risks.

Making Information Technology More Effective

Application solutions are enhanced when deployed as part of Cisco UCS. They become ever more scalable, available, manageable and secure. Cisco UCS provides an intelligent infrastructure and a unified fabric that streamlines application deployment as part of an automated, repeatable process.

Higher Level of Understanding

Cisco understands that businesses deploy applications, not hardware, and they see delivering solutions as the most important factor in their decision-making processes. Businesses need high-performance solutions with end-to-end support for their applications. These solutions must incorporate servers, networks, and storage, to help applications perform and scale, and they must do so with lower TCO. When customers choose Cisco, they are choosing to work with a company that fully understands what is needed to deliver real solutions to meet real application needs.

For More Information

Please visit:

- http://www.cisco.com/go/dcv
- http://www.cisco.com/go/ucs
- http://www.cisco.com/go/datacenterapps
- http://www.cisco.com/go/ucsatwork

Cisco UCS Performance

Cisco UCS with Intelligent Intel Xeon Processors

Cisco UCS is based on industry-standard, x86-architecture servers with Cisco innovations and intelligent Intel Xeon processors. Cisco integrates them into a system with a better balance of resources.that brings processor power to life. Cisco UCS servers are equipped with the two most advanced microprocessor families from Intel:

- **Intel Xeon processor E7 family**: The Intel Xeon processor E7 family is designed to meet the mission-critical IT challenge of managing and keeping business-critical data secure. Powerful, reliable servers such as the Cisco UCS C460 M2 High-Performance Rack Server are equipped with the top-of-the-line Intel Xeon processor E7 family to deliver performance that is excellent for the most data-demanding workloads, with improved scalability and increased memory and I/O capacity. These features help businesses quickly adapt to short-term changes in business needs while addressing requirements for long-term business growth. Advanced reliability and security features help maintain data integrity, accelerate encrypted transactions, and increase the availability of mission-critical applications. The powerful and reliable Intel Xeon processor E7 product family delivers flexibility for business-critical solutions.
- **Intel Xeon processor E5 family**: The Intel Xeon processor E5 family is at the core of a flexible and efficient data center that meets diverse business needs. This family of processors is designed to deliver versatility, with the best combination of performance, built-in capabilities, and cost effectiveness. The Intel Xeon processor E5 family delivers exceptional performance to a broad range of data center environments and applications: from virtualization and cloud computing to design automation and real-time financial transactions. With these processors, I/O latency is dramatically reduced with Intel Integrated I/O, which helps eliminate data bottlenecks, streamline operations, and increase agility.

More Information About Performance Benchmarks Cited In This Document

Transaction Processing Performance Council (TPC) Benchmarks

The results cited on page 6 are based on the detailed benchmarks available at http://www.tpc.org/tpch/default.asp as of January 29, 2013:

- **Cisco UCS C460 M2 High-Performance Rack Server,** 134,117 QphH™@1000GB, $1.30 USD per QphH™@1000GB, available December 7, 2011

The comparative results cited on page 7 are based on the detailed benchmarks available at http://www.tpc.org/tpcc/default.asp as of January 29, 2013:

- Cisco UCS C240 M3 Rack Server**,** 1,609,186.39 tpmC™ at US$0.47/tpmC™; available September 27, 2012
- IBM POWER 780 Server Model 9179-MHB**,** 1,200,011.00 tpmC at US$0.69/tpmC™; available October 13, 2010

Oracle Application Benchmarks

The performance comparisons described on page 7 are derived from detailed benchmark reports published by Oracle at http://www.oracle.com/us/solutions/benchmark/apps-benchmark/results-166922.html as of January 29, 2013. The systems cited in this document were configured as follows:

- **Cisco UCS B200 M3 Blade Server** was configured with two 2.90-GHz Intel Xeon processors E5-2690 (16 cores total) and 128 GB of memory; was running Oracle Linux 5.7 (64-bit), Oracle E-Business Suite R12 (12.1.2), and Oracle 11g Database (11.2.0.1; 64-bit); and was connected to EMC VNX5300 storage system, configured using Oracle Automatic Storage Management (ASM) with 600-GB RAID 5 storage for data.
- **IBM Power 730 Express Server** was configured with two 3.72-GHz IBM POWER7 processors (12 cores total) and 48 GB of memory; was running IBM AIX 6.1 TL04 (64-bit), Oracle E-Business Suite R12 (12.1.2), and Oracle 11g Database (11.2.0.1; 64-bit); and was connected to an IBM Storwize V7000 storage array.

For More Information

For more information about Cisco UCS performance on industry benchmarks, please visit http://www.cisco.com/go/ucsatwork.

Enterprise Application Solutions with Cisco UCS Servers

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

LE-37501-01 03/13