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Propel Your SAP Applications

With Cisco UCS servers and AMD EPYC processors

Are you using Microsoft SQL Server to power your SAP landscapes? Gain performance and low TCO with Cisco UCS® and AMD EPYC™ processors.

The combination of Cisco UCS servers powered by AMD EPYC processors is such a powerful one that, with two sockets, we have outperformed all four-socket servers on the SAP Sales and Distribution benchmark running Microsoft SQL Server.[1] Why use a four-socket server for SAP when you only need two?

Cisco UCS with AMD EPYC processors is an excellent choice for your SQL and Oracle databases that drive your SAP enterprise applications. AMD has engineered AMD EPYC processors to produce an exceptional database engine. Two-socket servers based on 3rd Gen AMD EPYC processors offer up to 256 threads, 160 PCIe Gen4 lanes, and synchronized fabric and memory clocks, all contributing to better, faster time to results. Add in security features that help keep your data safe, and x86 compatibility that helps reduce migration risk. These features deliver excellent performance at an affordable price that can power your entire SAP landscape.

Highlights

- Gain excellent performance for SAP with Microsoft SQL Server
- Enjoy reduced TCO due to our superior operating model and Cisco® unified fabric
- Benefit from the same CPU features regardless of the number of cores you need
- Help secure your data with hardware-based memory encryption

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Scalable to meet your needs

You choose the processor, the number of cores, and the amount of memory you need for your environment. For large enterprise databases, we support up to 128 cores and 8 terabytes (TB) of memory.

Not all environments need 128 cores to operate optimally. There are many small- to medium-size enterprises and departmental Microsoft SQL Server and Oracle databases that support SAP. These can perform strongly with fewer cores. The ability to choose from 8 to 64 cores per processor allows you to balance price and performance. Additionally, you get the same great memory and I/O capacity, and you can choose to use all NVMe drives to further accelerate I/O.

Superior total cost of ownership

You can achieve a 7 percent savings on three-year total cost of ownership when you choose Cisco UCS compared to HPE servers with AMD EPYC processors.[2] And the savings accumulates in areas that matter:

- **Streamlined operational model:** Choosing Cisco UCS servers saves capital costs over HPE, however the most significant savings come from our simplified operational model with cloud-based, role- and policy-based management with the Cisco Intersight® platform.
- **Cisco unified fabric:** You expect the best in networking from Cisco, and our unified fabric—that combines production networking, storage

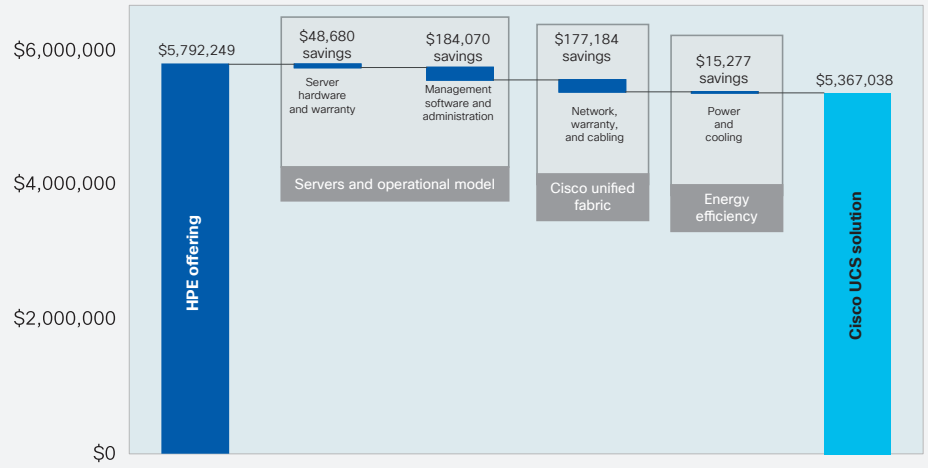

Figure 1. Total three-year total cost of ownership savings comparing 64 HPE ProLiant DL385 Gen 10 Plus servers with 64 Cisco UCS C245 M6 Rack Servers

Cisco UCS servers drive performance

With all things being equal, Cisco drives AMD EPYC processors to deliver excellent SAP performance.

We outpaced the competition driving SAP performance based on 3rd Gen AMD EPYC processors, setting the top result on the SAP Sales and Distribution benchmark.

As of the date of this brief, our two-socket Cisco UCS C245 M6 Rack Server outperformed all four-socket servers running Microsoft SQL Server, so why use four CPUs when you only need two?

Our benchmark results, not only for SAP Sales and Distribution, but also on industry-standard benchmarks, are a matter of excellent engineering. With power and cooling designed to support record-setting performance, you gain the best that 3rd Gen AMD EPYC processors have to deliver. Firmware settings that control boost frequencies can be set as a matter of policy through the Cisco Intersight cloud-operations platform.

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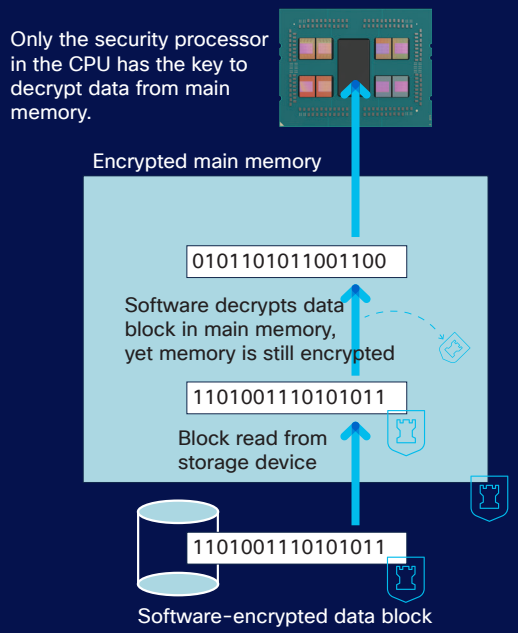
Protect your data from prying eyes

When you combine encrypted storage with AMD Secure Memory Encryption, you help keep your data encrypted from end to end.

1. Data is software encrypted on the NVMe, SSD, or hard disk drive (HDD).
2. When a data block is read into main memory, SME provides additional protection.
3. When the data block is decrypted in software, it remains encrypted in memory by SME.
4. The data block is in plaintext only when it is in the AMD EPYC processor, the only entity knowing the memory encryption key.



access, and management all into one—is the second-most significant area for savings.

- **Energy efficiency:** Our focus on sustainability results in less energy used over the three-year period.

We used the UCS TCO Advisor tool to calculate these savings based on 64 HPE ProLiant DL325 servers, each with two AMD EPYC 7343 processors and 1 TB of main memory, compared to 64 Cisco UCS C245 M6 Rack Servers, also with the same processors and memory configuration.

Enterprise Strategy Group recently evaluated the UCS TCO Advisor tool and found it to be fair and accurate. They also evaluated our TCO claims for Cisco UCS. For full details, you can refer to the ESG report.

Hardware-based data security features

Data security has never been more important. AMD Infinity Guard[3] security features provide a modern multifaceted, hardware-based approach to data center security, with minimal performance impact. These features help servers repel today's sophisticated attacks, helping protect your sensitive data, avoid downtime, and reduce resource drain.

- **AMD Secure Memory Encryption (SME)** helps protect system memory from view while keeping it transparent to the operating system and applications. It helps protect the integrity of memory from bare metal to the cloud.
- **AMD Secure Encrypted Virtualization (SEV)** helps protect your data in a virtualized environment. Each virtual machine is assigned a unique encryption key. This helps prevent attacks into and between virtual machines. Additionally, AMD Secure Nested Paging adds strong memory integrity protection capabilities to help prevent malicious hypervisor-based attacks.

Either way, your main memory or virtual machine memory is encrypted with keys that only the dedicated security processor in the CPU knows. Data is encrypted when it is read into memory. When you decrypt disk blocks in memory, they are still hidden from view because main memory is encrypted (see sidebar)

Cisco UCS servers

You can choose the server that's best for your SQL or Oracle database and SAP application needs: by choosing the server size and local storage capacity, number of sockets, and number of cores per socket. Now you can optimize your entire environment—with open APIs for broad interoperability and unparalleled automation. Our AMD EPYC processor-powered servers include:

- 1- or 2-CPU configurations
- Unified management with the Cisco Intersight cloud-operations platform
- Cisco Validated Designs that help you implement pretested and validated configurations for enterprise applications, virtual desktop environments, databases, and more

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Learn more

For more information on

- SAPs performance
- SAP running on Cisco UCS

Footnotes

1. The Cisco UCS C245 M6 score of 358,600 SAPS with SAP certification number 2022022 established September 21, 2022, outperforms all 4-socket server results posted at SAP.com based on Microsoft SQL Server as of December 2, 2022.
2. This comparison is based on the Cisco UCS TCO Advisor tool on December 1, 2022. Savings are based on three-year TCO for 64 HPE ProLiant DL325 Gen 10 Plus v2 SFF servers, each with two AMD EPYC 7343 processors, 1 TB of main memory, and a 10/25Gb 2P SFP28 Broadcom BCM57414 and an SN1100Q 16Gb 2-port FC HBA, compared to 64 Cisco UCS C245 M6 Rack Servers with the same processors and memory configuration and one Cisco VIC 1457 mLOM 10/25 Gbps SFP28 adapter. Network support for Ethernet, SAN, and management networks for the HPE configuration consists of 4 Cisco Nexus 9300 48-port switches, 4 Cisco MDS 9148S 16G Multilayer Switch, and one Catalyst 1000 48-port Gigabit Ethernet switch. Networking for the Cisco solution consists of 2 Cisco UCS 64108 Fabric Interconnects. HPE management includes iLO licensing, and Cisco management includes Intersight Essentials subscriptions. Pricing based on list prices as of December 2, 2022.
3. AMD Infinity Guard features vary by EPYC processor generation. Infinity Guard security features must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at https://www.amd.com/en/technologies/infinity-guard. GD-183

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Cisco UCS C245 M6 Rack Server

This high-performance server, the 2RU Cisco UCS C245 M6 Rack Server, is well suited to power your large SQL and Oracle databases and SAP applications. With up to 24 front-facing small-form-factor (SFF) SAS or SATA drives, including up to 4 NVMe drives, the server lets you store all of your data locally, or in third-party storage in Cisco® converged infrastructure solutions through the Cisco unified fabric.

Cisco UCS C225 M6 Rack Server

Optimized to deliver full I/O capacity with either one or two processors, the Cisco UCS C225 M6 Rack Server is one of the most versatile solutions in the industry. This high-density, 1RU, rack server supports a range of database and enterprise workloads. It's an excellent choice for converged infrastructure solutions that incorporate third-party storage, or when local storage provided by the server is sufficient. With up to 10 front-facing SFF NVMe, SAS, or SATA drives, you can go all solid-state in this compact form factor.

Manage it all with Intersight

The Cisco Intersight platform provides an essential control point for organizations. With Intersight, you can get more value from your infrastructure by simplifying operations across on-premises data centers, edge sites, and public clouds, continuously optimizing and accelerating service delivery.

A unified, secure SaaS platform comprising modular services that bridge applications with infrastructure, Intersight provides correlated visibility and management across bare-metal servers, hypervisors, and application components, helping you transform with AIOps to reach the scale and velocity your stakeholders demand.

Intersight helps your teams securely collaborate and work smarter and faster together by automating lifecycle workflows and enabling consistency and governance with extensible, open capabilities that natively integrate with third-party platforms and tools.

New levels of power

Supercharge your SAP and SQL Server environment with Cisco UCS C225 M6 and C245 M6 rack servers with AMD EPYC Processors. With the Cisco UCS C245 M6, outperform all four-socket server configurations running Microsoft SQL Server 2017 and easily manage the entire infrastructure with Cisco Intersight. New levels of power are available to both your enterprise users and your departmental users with balanced performance to meet the needs of your business.