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AMD EPYC: Commercial Sales Playbook

October 2022

For feedback or more information,
contact z1.zenmaster@amd.com

AMD | Distribution with NDA

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COMMERCIAL SALES PLAYBOOK

Overview

ABOUT AMD

AMD is a leader in powerful multicore computing. With processors that power supercomputers and servers to professional systems, workstations, and laptops, AMD provides the processing performance to get the job done. Our solutions set the modern standard, with rapid innovation, powerful and responsive computing, a modern architecture, and an open ecosystem. AMD continues to drive innovation in high-performance computing, graphics, and visualization technologies — the building blocks for gaming, immersive platforms, and the data center. Hundreds of millions of consumers, leading Fortune 500 businesses, and cutting-edge scientific research facilities around the world rely on AMD technology to solve their toughest business challenges.

WHY AMD NOW?

- The market landscape has dramatically shifted over the last three years.
- AMD delivered generational IPC increase with a "Zen" architecture ROM-236
- AMD is the leader in x86-architecture process technology with 7nm, delivering leadership performance and total cost of ownership (TCO) with AMD EPYC™ processors
- Intel has struggled with roadmap execution, leading to significant supply shortages
- AMD EPYC™ processors are the cloud processor of choice, with configuration options for performance, capacity and value.

AMD MOMENTUM

- AMD achieved company record annual revenue in 2022. (AMD internal data)
- In 2Q-22, AMD carved out significant wins and set a new record high x86 market share of 27.7%, an incredible increase of seven percentage points over last year. (Mercury Research – 2022)
- AMD powers 8 of the top 10 supercomputers and is the first to achieve exascale computing.
- The No. 1 spot is now held by the Frontier system at Oak Ridge National Laboratory (ORNL) in the US. (Based on the latest HPE Cray EX235a architecture and equipped with AMD EPYC 64C 2-GHz processors)

IN GOOD COMPANY

AMD continues to drive deep co-development with some of the largest global leaders in technology, including:

- Acer
- Amazon Web Services
- Apple
- Asus
- Dell
- Google
- Hewlett Packard Enterprise
- Lenovo
- Microsoft
- Nutanix
- Sony
- Twitter
- VMware

EMPOWERING CHOICE AND INNOVATION

AMD brings disruptive competition that challenges the status quo in the IT industry and gives customers choice. Now more than ever, by embracing AMD's competitive solutions, businesses can push forward innovation and help drive down TCO.

AMD EPYC

AMD INSTINCT

AMD RADEON PRO

AMD RYZEN PRO

AMD THREADRIPPER PRO

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AMD EPYC

THE NEW STANDARD FOR MODERN BUSINESS

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AMD EPYC™ Processors: Overview

INTRODUCTION

AMD EPYC™ Processors set a new standard for the modern data center. Driven by the AMD Infinity Architecture, the AMD EPYC Processor family offers innovative capabilities and delivers leadership performance for workloads and advanced security features to help secure CPUs, applications, and data. The family includes:

- AMD EPYC 7002 Series Processors
- AMD EPYC 7003 Series Processors
- AMD EPYC 7003 Processors with AMD 3D V-Cache™ Technology
- High-Frequency AMD EPYC Processors

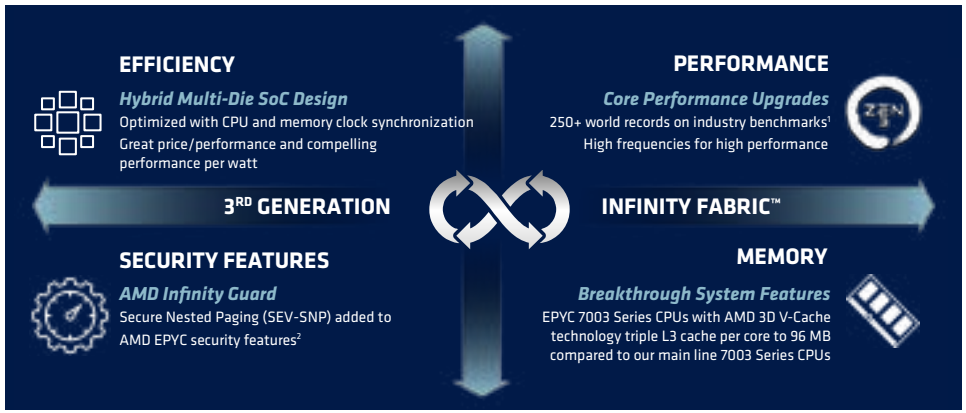
SECURITY LEADERSHIP

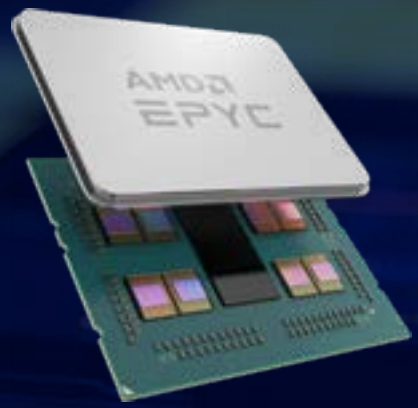
All AMD EPYC Processors are 'hardened at the core' with AMD Infinity Guard GD-183, which includes the AMD Secure Processor, Secure Memory Encryption, and Secure Encrypted Virtualization (SEV). These features help decrease potential attack surfaces as software boots, executes, and accesses data.

ARCHITECTURE LEADERSHIP

The AMD Infinity Architecture helps make everything run exceptionally well on servers with AMD EPYC processors. Key features:

- "Zen 3" cores, delivering 19% average instructions per clock (IPC) uplift over prior generations MLN-003
- A leadership interconnect that delivers extraordinary levels of scale
- AMD Infinity Fabric™ technology that connects CPU cores, memory, bandwidth, and security mechanisms
- AMD 3D V-Cache Technology with true 3D die stacking, for increased interconnect density, improved per-core performance, and exceptional energy efficiency
- Breakthrough performance and efficiency and support for continual improvement of process technology





LEADING EFFICIENCY

Our multi-die design provides independent paths for innovation. We leapfrog the industry by using a 7nm process for the CPU cores and a 14nm process for I/O, memory access, and security functions. This allows us to improve each part of the system at an accelerated pace.

PLATFORMS FROM OUR OEM PARTNERS

- Cisco
- Dell
- Hewlett Packard Enterprise
- Lenovo
- Supermicro
- And more

TRAINING

Visit AMD Arena to stay current on AMD EPYC Processors with training courses, sales tools, webinars, and quizzes.

Visit AMD Meet the Experts Webinars for information on new products, partner showcases, insight from industry experts, and more.

AMD EPYC™ Processors: Workloads

ENTERPRISE

AMD EPYC processors can help create a more agile enterprise data center. Whether organizations are focused on scalability, big data analytics, or cost, AMD EPYC processors have the features that IT managers can use to:

- Scale data centers with a powerful, capable platform designed to deliver more value from upgrade, facility, and licensing investments
- Help reduce space, power, cooling, and administration costs
- Support workloads with the right balance of resources and a flexible architecture that can adapt to specialized workload needs
- Help protect virtual machines and applications, and data with advanced security features GD-183

Learn more

HPC

The balanced architecture of AMD EPYC processors makes it easy to optimize IT infrastructure for the right balance of per-core performance and overall server performance, without compromising on key processor features.

- High core count
- High memory capacity
- High I/O capacity for high-speed interconnects
- A broad ecosystem of compilers and libraries, including the AMD Optimizing C/C++ complier (AOCC) and AMD Optimizing CPU Libraries (AOCL)
- Software optimization guides and performance tuning guidelines to help boost application performance

Learn more

VERTICALS

AMD EPYC processors include high-performance cores, large memory configurations, and fast I/O to support workloads that run in local and remote environments across a wide range of industries, including:

- Automotive
- Financial services
- Healthcare
- Manufacturing
- Media and entertainment
- Oil and gas
- Retail
- Telco

Learn more

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AMD EPYC™ Processors in the Enterprise

CHALLENGES

- **Enterprise applications** need a balance of resources not often found in traditional processors. Some applications need large numbers of cores and high memory capacity to optimize parallelism and application throughput. Others need a smaller number of cores to optimize licensing costs. For example, choosing an Intel processor-based server with 16 cores to optimize Microsoft® application licensing could require choosing a more costly 2-socket server to gain more memory capacity or I/O, which is still sometimes not enough.
- **Data analytics applications** need lots of parallel disk I/O capability and large memory sizes for in-memory data analysis, resources that are often in short supply in traditional processor architectures. Once loaded in memory, applications need large numbers of computing cores and/or GPU accelerators to gain the most insight from data. In traditional servers, an investment in the highest-performing GPUs is limited by the need to separate them from the CPU with PCIe® switches that share limited bandwidth across the devices.

WHY AMD EPYC

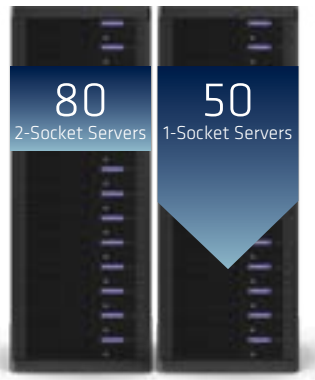
AMD EPYC makes it easy to support workloads with the right resources and a flexible architecture that can adapt to specialized needs.

- **Containers and microservices:** fast response time with a high core-to-container count ratio
- **Desktop virtualization:** improved user experiences with a system accelerated by up to 64 cores per CPU and sizable GPU capacity
- **In-memory databases:** large memory size and I/O for massive amounts of NVMe™ storage for persistent storage
- **Hyperconverged infrastructure (HCI):** leadership performance and value for virtualized IT
- **Big data:** large memory space, large I/O capacity with direct-to-disk capability
- **Software-defined storage:** high bandwidth for latency-sensitive storage environments and a consistent feature set regardless of CPU core count

Up to 38% Less hardware and software cost

Up to 38% Fewer licenses

Up to 37% Fewer servers



27% MLNTCO-006
Estimated first year TCO savings

AMD EPYC	$704
Intel Xeon	$972

Estimated first year TCO/VM to deliver 3,200 virtual machines. 1 core, 8 GB of memory per VM. 2P Intel Xeon 6242R vs. 1P AMD EPYC 7713P.

RESULTS

- AMD EPYC world records
- Up to 2.1x the maximum knowledge worker desktop sessions MLN-004
- Up to 72% more Microsoft SQL Server® OLTP performance than the competition MLN-091
- Up to 61% better performance on the VMmark® 3.1 vSAN™ benchmark MLN-129
- Up to 127% more TPC Express Benchmark™ HS v2 HSph @ 3 TB MapReduce framework and 72% better price/performance than 2x Intel Xeon Gold processor on the MapReduce framework MLN-070

RESOURCES

- 4 Ways to Help Maximize Your Relational Database Investment
- 4 Ways to Help Maximize Your Data Analytics Investment
- 5 Reasons Why AMD EPYC CPUs Matter for Relational Databases
- 5 Reasons Why AMD EPYC CPUs Matter for Data Analytics
- AMD EPYC Performance Summary
- Database and analytics tech briefs
- Hyperconverged infrastructure (HCI) and virtualization tech briefs
- Java technical briefs
- Workload positioning briefs
- Virtual Infrastructure and HCI sales tools
- Learn more

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AMD EPYC™ Processors and HPC

DEMAND FOR ACCELERATION

Once the primary domain of scientists, high-performance computing (HPC) workloads are now used by many organizations, from oil and gas companies and financial institutions to weather and climate modeling services, genome sequencing companies, and universities. These innovative applications require the capability to process very large data sets and quickly run compute-intensive models and analysis techniques.

IT INFRASTRUCTURE CHALLENGES FOR HPC

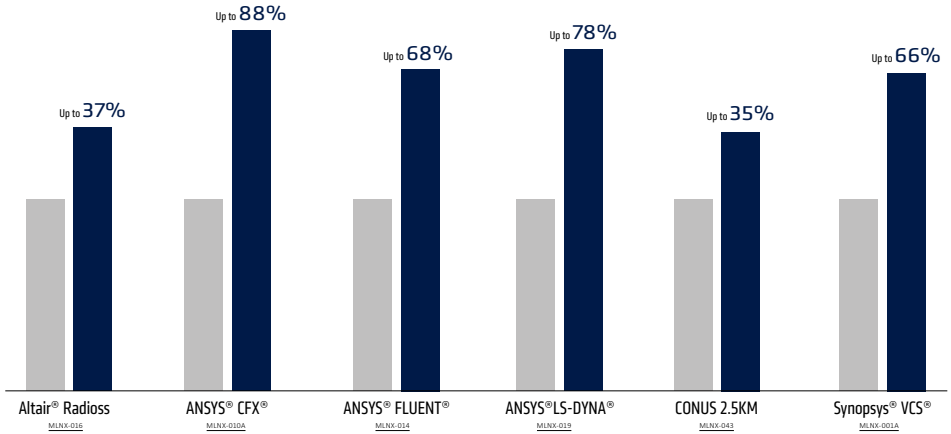
Even with modern systems, HPC workloads continue to be challenged by:

- Insufficient memory bandwidth to keep CPU compute engines occupied
- Inadequate density, requiring massive scale-out solutions to complete HPC tasks
- Growing need for GPU acceleration for highly parallel workloads
- Poorly optimized I/O
- Lack of data security during computation

SPEEDING HPC WORKLOADS

AMD EPYC processors balance the ratios of cores, memory, and I/O bandwidth to optimize performance for HPC applications.

- **Core density** with 8-64 cores per socket for massively parallel performance.
- **Massive memory** with up to 256 MB of L3 cache and 4 TB of memory per socket. Up to 8 memory channels help speed the flow of data into and out of the CPU and virtualy eliminate memory bottlenecks to unlock application performance.
- **Highly scalable I/O** with up to 128 lanes of PCIe bandwidth per socket (or up to 160 per 2 socket) without the need for a switch. Support for high-bandwidth network interfaces provides quick access to data. Up to 32 NVMe or SATA devices can be directly attached to optimize I/O and efficiently handle storage needs.
- **Embedded security processor** supports full memory encryption with no changes to applications. Secure root-of-trust technology helps securely boot software.
- **Consistent feature set** provides simultaneous multithreading (SMT), 8 memory channels, and 128 (1-socket) or 160 (2-socket) PCIe® lanes across SKUs.



POWERING THE FASTEST SUPERCOMPUTERS

- AMD EPYC processors power the many of the fastest and most energy efficient supercomputers in the world, according to the latest Top500 and Green500 lists.
- Oak Ridge National Laboratory's (ORNL) Frontier system delivers 1.1 exaflops, making it the world's fastest supercomputer and the first to break the exascale barrier.
- CSC's LUMI supercomputer delivers 152 petaflops of performance and 51.63 gigaflops/watt power-efficiency.

SUPER-LINEAR SPEEDUP

- 16-node, 2x 64-core AMD EPYC™ 7773X has up to a 16.7x speedup compared to the 1-node, 2x EPYC 7773X on WRF® running the CONUS 2.5KM test case MLNX-043

RESOURCES

- AMD and HPC for Design and Simulation
- AMD Solutions for HPC Supercomputing
- 4 Ways to Maximize your HPC Investment
- 5 Reasons Why AMD EPYC Processors Matter for HPC
- AMD EPYC 7003 Series Processor HPC Tuning Guide
- HPC technical briefs
- Leading the Exascale Era

AMD EPYC™ Processors in Vertical Markets

AUTOMOTIVE

AMD EPYC processors are ideal for vehicle design workloads, simulations, operation of autonomous vehicles, and analysis of new business models. The CPUs deliver high memory and IO bandwidth, outstanding memory capacity, plus core performance to enable very high scalability for HPC applications and support in-memory and analytics-intensive applications.

KEY WORKLOADS

- AI and IoT
- ERP and OLAP
- HPC (CFD and FEA)
- Cloud
- Containers
- Virtualization

CASE STUDIES

- Mercedes-AMG
- Rimac
- More

RESOURCES

- Sales kit

FINANCIAL SERVICES

AMD EPYC processors are particularly attractive for two financial services sector initiatives: grid computing and data center consolidation. For grid computing, the processors deliver per-core performance and compute density. For data center consolidation, the CPUs' high performance-to-power ratios and low TCO help organizations pack their data centers and optimize their physical space.

KEY WORKLOADS

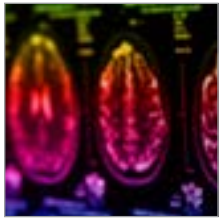
- Analytics and fraud detection
- High-frequency trading
- Risk management
- Robotic process automation
- Virtual infrastructure

CASE STUDIES

- Brinks
- DBS Bank Ltd.
- More

RESOURCES

- Sales kit



HEALTHCARE

Impressive memory bandwidth and intensive compute power make AMD EPYC processors ideal for predictive healthcare and medical research, and latency-sensitive EHR systems that rely on database and VDI performance. Fast cores deliver optimized performance, while helping maximize investments in software licensed by cores (Oracle, Microsoft SQL Server®, etc.)

KEY WORKLOADS

- Electronic health records (EHR)
- Medical imaging
- Real-time patient data
- Robotic surgery
- VDI

CASE STUDIES

- Inovis/Onyx
- Kearny Clinic
- More

RESOURCES

- Sales kit

MANUFACTURING

The manufacturing industry is undergoing a major shift to use big data and automation to create process efficiencies. AMD EPYC processors are extremely compelling for supporting far-reaching reforms in ERP and increasingly sophisticated virtualization.

KEY WORKLOADS

- ERP
- HPC
- Cloud
- Containers
- Virtualization

CASE STUDIES

- BluePrint Automation
- JOST
- More

RESOURCES

- Sales kit

MORE VERTICAL MARKETS

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AMD EPYC™ Processors in Vertical Markets (continued)

MEDIA AND ENTERTAINMENT

AMD EPYC processors offer the fast processing, advanced caching, and integration with advanced AMD GPUs that video processing and rendering applications need to perform.

KEY WORKLOADS

- Adobe® After Effects®
- Adobe® Premiere®
- Autodesk® 3ds Max®
- Autodesk® Maya®
- DaVinci Resolve
- Maxon Cinema 4D

CASE STUDIES

- Axis Studios
- Cinesite
- More

RESOURCES

- Sales kit

NETWORKING AND TELECOMMUNICATIONS

High core density and energy efficiency characteristics mean AMD EPYC processors can help reduce data center footprint, lower hardware expenditures, lower power, cooling, and network costs for improved TCO. They're also designed to excel in cloud-native environments.

KEY WORKLOADS

- Scale-out microservices
- Virtual machines
- Cloud

CASE STUDIES

- Vogo Networks
- More

RESOURCES

- Sales kit

OIL AND GAS

Oil and gas exploration is just one example where HPC is driving new innovations and knowledge discovery. AMD EPYC processors offer exceptional memory bandwidth and the capability to balance performance vs. per-core license costs to optimize deployments.

KEY WORKLOADS

- ANSYS CFX

CASE STUDIES

- CGG
- More

RESOURCES

- Sales kit

RETAIL

Retail is a demanding industry with rapidly changing trends, complex supply chains, and frequently thin margins. AMD EPYC processors support memory and storage performance, high availability, scalability across workloads, competitive infrastructure pricing, and low TCO.

KEY APPLICATIONS

- AI/ML and HPC
- Big data, IoT, ERP, OLAP
- Media analysis and security

CASE STUDIES

- Advantech
- OpenSooq
- More

RESOURCES

- Sales kit

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AMD EPYC™ Processors

AMD EPYC 7002 SERIES

AMD EPYC 7002 Series processors provide businesses advanced security features and ground-breaking application performance, helping drive faster insights and value. A system-on-chip (SoC) design eliminates the need for many external support chips, helping reduce capital and server design costs. And an "all-in" feature set delivers a uniform set of features regardless of the number of processor cores.

These processors:

- Were the first AMD processors to feature a 7nm hybrid multi-die design and PCIe® Gen 4.0
- Continue to offer the most I/O and memory bandwidth among 2nd Gen processors
- Provide up to 64 high-performance cores per SOC
- Deliver world-record performance, with up to a 2x generational performance increase that outpaces 2nd Gen Intel Xeon Platinum processors by up to 102% ROM-544

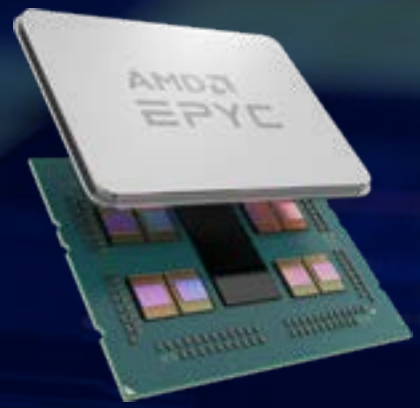
AMD EPYC 7003 SERIES

AMD EPYC™ 7003 Series Processors raise the bar for performance, with up to 19% more instructions per clock (IPC) compared to previous-generation processors.[MLN-003]

The SoC delivers up to 32 MB of L3 cache per core, synchronized fabric and memory clock speeds designed for improved performance, plus hardware and virtual security features to help safeguard businesses—right out of the box.

WHAT'S INSIDE

- Enhanced memory performance with synchronized fabric and DRAM clocks
- Up to 32 MB Layer 3 cache per core
- Strong virtualization security gets stronger with secure nested paging (SEV-SNP)
- Leadership energy efficiency for x86 servers, delivering exceptional performance and helping reduce energy costs EPYC-028
- Higher frequency CPU options designed for even better per-core performance
- Flexible memory configurations
- 4-channel memory interleaving helps optimize low-core-count CPUs with lower memory costs for machine learning
- 6-channel memory interleaving provides efficient memory balance for mid and low core count CPUs
- 8-channel memory interleaving helps optimize core count, memory capacity, and bandwidth for demanding workloads



PRODUCT BRIEFS

- AMD EPYC 7003 Series
- AMD EPYC 7003 Series with AMD 3D V-Cache Technology

LEARN MORE

- Per-core positioning briefs
- Workload positioning briefs

TOOLS

- Processor selector tools are available to help customers find the right processors for their workloads and environments. They can compare CPU models, explore TCO estimates, look at bare metal and greenhouse gas emission estimations, and discover the potential savings offered by cloud instances.

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AMD EYPC Processors with AMD 3D V-Cache Technology

OVERVIEW

3rd Gen AMD EPYC processors with AMD 3D V-Cache™ technology raise the bar again, with exceptional gains for several technical computing workloads.GD-204 These innovative processors offer up to 64 high-performance cores, fast execution pipelines, 4 MB L2 cache, and up to 768 MB shared L3 cache to surpass previous-generation processors to deliver exceptional performance.

AMD 3D V-CACHE TECHNOLOGY

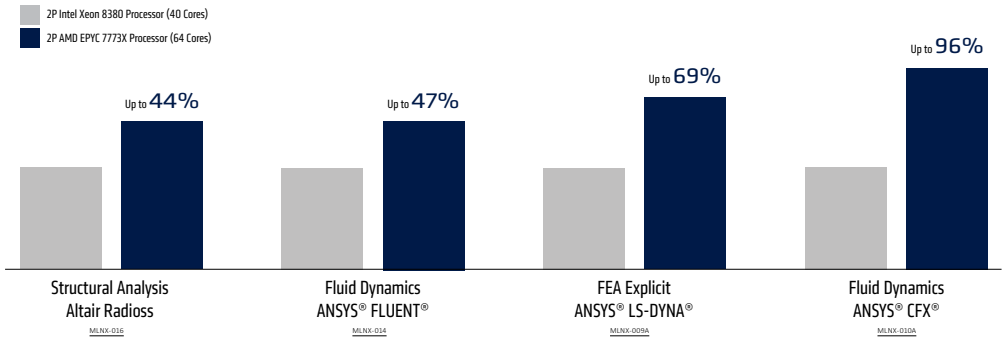
AMD 3D V-Cache Technology uses true 3D die stacking, which locates logic units and corresponding memory on top of each other instead of spreading them out, yielding significantly lower latency. The use of a copper-to-copper "bumpless" design enables 200X the interconnect density compared to current 2D technologies and over 15X the interconnect density compared to other 3D technologies using solder bumps. EPYC-026, EPYC-027

APPLICATION ACCELERATION

- CAE: Up to 119% max (69% average) faster ANSYS® LS-DYNA® performance MLNX-009A
- CFD: Up to an average of 96% more CFD problems solved per day than a comparable competitive 32-core count processor, while running Ansys® CFX® MLNX-010A
- EDA: Up to 66% faster simulations on Synopsys VCS™, compared to prior-generation CPUs MLNX-001A
- FEA: 44% more performance, on average, on Altair® Radioss® simulation applications compared to the competition's top of stack processor MLNX-016

SUPER-LINEAR SPEEDUP

- Breakthrough per-core performance with 3X the L3 cache, with 768 MB per socket MLNX-012
- 16-node, 2x 64-core AMD EPYC™ 7773X has up to a 16.7x speedup compared to the 1-node, 2x EPYC 7773X on WRF® running the CONUS 2.5KM test case MLNX-043



RESOURCES

- AMD EPYC 7003 Series Processors with AMD 3D V-Cache Technology
- AMD 3D V-Cache Technology

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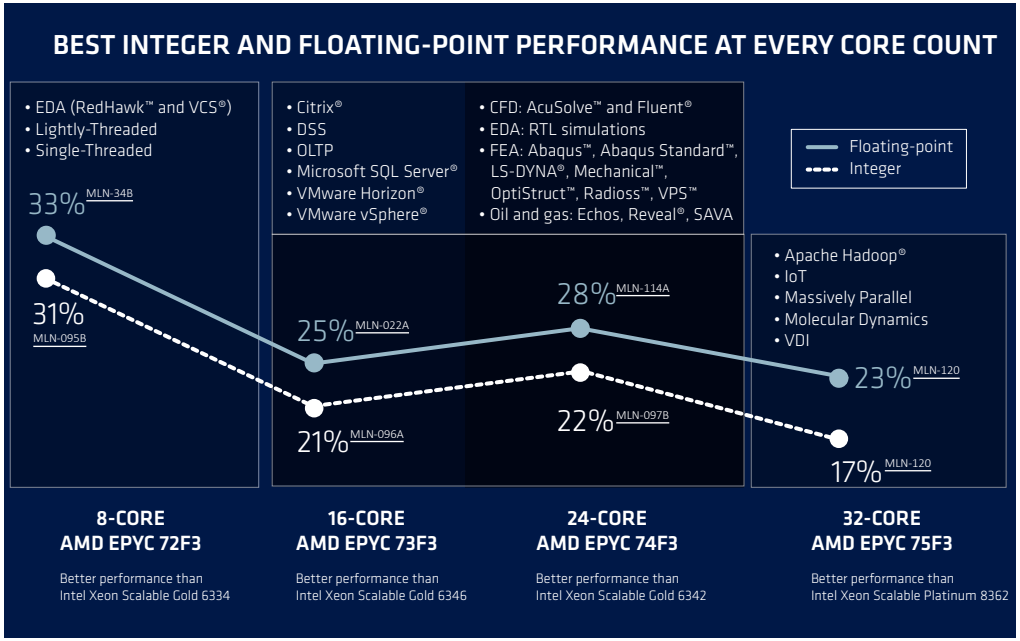
AMD EPYC™ High-Frequency Processors

OVERVIEW

Getting the most out of available cores is key to optimizing workload results. Our high-frequency processors make it easy to match the right number of cores to the right job. Applications can tap into the fastest per-core performance, MLN-057C or select from a sliding scale of 8 to 32 high-frequency cores to balance performance and maximize software value, without sacrificing budget.

- **8-Core AMD EPYC 72F3:** Our high-frequency processor with the lowest core count. It delivers the fastest per-core performance of the product family, making it ideal for applications that scale better by processor speed than by number of cores.
- **16-Core AMD EPYC 73F3:** Offers a mid core count that's ideal for license- and scalability-constrained workloads that need more processor speed, more cores, or a balance of the two in 1- or 2-socket servers.
- **24-Core AMD EPYC 74F3:** Ideal for mixed workloads that don't have defining characteristics or need a combination of speed and memory, or organizations looking to balance performance and maximize software value.
- **32-Core AMD EPYC 75F3:** Ideal for parallelized applications that scale up or scale out. For core-licensed or processor-licensed software, it offers record-setting performance MLN-139 with the economy of a 1-socket server.



8-CORE AMD EPYC 72F3

- Beats all published scores on integer throughput per core by 17% MLN-095C
- World-record Microsoft SQL Server® 2019 $/query result MLN-108
- World-record SPECrate®2017 integer per core result MLN-057C and SPECrate®2017 floating-point per core result MLN-058B
- World-record SPECspeed®2017 Integer result MLNWR-010 and 11% faster than the competition's best result

16-CORE AMD EPYC 73F3

- Best 16-core SPECrate®2017_int_base result MLN-021B
- Best 16-core SPECrate®2017_fp_base result MLN-022A
- Outperforms 2nd and 3rd Gen Intel Xeon Processors by up to 21% running HCI-enabled applications MLN-117

24-CORE AMD EPYC 74F3

- Best performance per dollar MLN-114A
- Fastest 24-core integer MLN-023A and floating-point MLN-027A performance
- Up to 33% faster at 1.15x performance/$ and 1.27x performance/W than 3rd Gen Xeon Gold 6342 processors MLN-114A
- Up to 73% better performance running the VMmark vSAN benchmark compared to the competition at the same core count MLN-118

32-CORE AMD EPYC 75F3

- Best 32-core performance MLN-028A
- Up to 17% faster than 3rd Gen Intel Xeon Platinum 8362 MLN-120A
- Up to 12% better HPC performance at 1.86x performance/$ MLN-109A
- Top SQL Server 2019 TPC-H @ 1000GB non-clustered result MLN-107

AMD EPYC™ Processors: Performance

250+ WORLD RECORDS AND COUNTING

DATABASES AND ANALYTICS

31 STRUCTURED DATA AND ANALYTICS

28 UNSTRUCTURED DATA & ANALYTICS

INFRASTRUCTURE / HCI / SDI

21 CLOUD AND VIRTUALIZATION

12 INTEGER PERFORMANCE

BUSINESS APPLICATIONS

8 ERP BUSINESS APPLICATIONS

46 JAVA® BASED PERFORMANCE

26 ENERGY EFFICIENCY

HPC / ENGINEERING / TECHNICAL

85 HIGH-PERFORMANCE COMPUTING APPS

10 FLOATING-POINT PERFORMANCE

12 HPC ENERGY EFFICIENCY

SEE AMD EPYC PROCESSORS IN ACTION

AMD EPYC processors deliver outstanding performance across a variety of industry-standard applications, including HPC, software-defined infrastructure, big data, and cloud.

See 3rd Gen AMD EPYC processors in action.

See 2nd Gen AMD EPYC processors in action.

DESIGNED TO PERFORM

Accelerated performance comes from a commitment to greater parallelism. With up to 64 cores per SOC and "Zen 2" and "Zen 3" features, AMD EPYC processors surpass first-generation AMD EPYC CPUs with improved execution pipelines, higher clock rates, and larger cache sizes. The processors power the highest-performing x86 servers for the modern data center, with world record performance across major industry benchmarks. As of 3/21/2022, the AMD EPYC family of processors claim 250+ world records, including SPEC CPU® 2017, TPC®, and VMware® VMmark® 3.1. EPYC-022

RESOURCES

- AMD EPYC world records
- AMD EPYC Performance Summary
- AMD EPYC tech docs and white papers
- Propel Better Business Outcomes with 2nd Gen AMD EPYC Processors

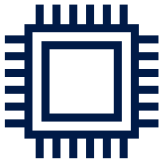
For feedback or more information, contact z1.zenmaster@amd.com

AMD EPYC™ Processors: Business Benefits

ACCELERATE SUPPLY CHAINS

- Tap into high core counts and large cache and memory capacities
- Get more SAP® Sales and Distribution Benchmark work done in parallel MLN-101

TRUST AN INDUSTRY LEADER



- Leadership architecture
- Leadership performance
- Leadership security features

GET READY FOR THE EXABYTE ERA

- Speed HPC workloads with high core counts, improved "Zen 3" performance, and leading floating-point performance MLN-019A

SPEED USER APPLICATIONS

- Accelerate Java® workloads
- 2-socket servers with 3rd Gen AMD EPYC processors outperform the competition by up to 56% MLN-092B

ACCELERATE MODELING AND SIMULATION

- Up to 66% max speedup on RTL simulation with Synopsis VCS® MLNX-001A
- Up to 82% maximum speedup (23% average) on computational fluid dynamics with Ansys® Fluent® MLNX-003C

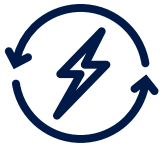
MAKE MARKET-DRIVEN DECISIONS

- Achieve 14% higher 10-TB TPC-H decision support query performance and 21% better price/ performance comparing servers based on 2x EPYC 7763 with 4x Xeon 8280 MLN-068

CREATE A FAST PRIVATE CLOUD

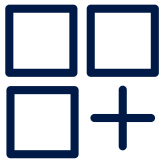
- Support 54% more virtual machines and gain 61% better performance with servers running VMware® VMmark® vSAN™ 3.1 equipped with 2x EPYC 7763 compared to 2x Xeon MLN-129

GAIN EFFICIENCY



- AMD EPYC processors power the most energy efficient x86 servers, delivering exceptional performance and reducing energy costs. EPYC-028

DELIVER BETTER USER EXPERIENCES



- Optimize VDI response time
- Spread work across multiple cores
- Render complex images quickly with accelerated CPU and GPU communication

For feedback or more information, contact z1.zenmaster@amd.com

AMD EPYC™ Processors: Engaging Customers

STARTING CONVERSATIONS

I need to grow my server infrastructure, but I don't have excess space.

AMD EPYC Processors deliver high performance-to-power ratios and can offer low TCO to help users optimize their data centers and physical space, enabling more performance from a similar space or similar power from less space. MLNTCO-005A

I'm running out of power in my racks so I can't add more servers.

A two-socket server with 3rd Gen AMD EPYC™ 7763 CPUs is 74% more energy efficient than a two-socket server with two 3rd Gen Intel Xeon Platinum 8380 CPUs. MLN-094A

I require more virtual machines, but I need to keep my costs down.

With AMD EPYC processors, you can tap into a large core count and large memory capacity in a single-socket configuration to help reduce license costs. MLN-129

We need to refresh our servers, but I want to do something that is future-ready.

As PCIe® 4.0 NVME becomes the standard and GPUs become available, AMD EPYC processors allow you to take advantage of first-to-market technology. As your memory requirements continue to grow, you'll have the capacity to access up to 4 TB of RAM per socket.

We need to address growing security concerns. I can't afford the time it takes to upgrade applications or a performance hit.

Built in at the silicon level, AMD Infinity Guard offers the advanced capabilities required to help defend against internal and external threats and keep your data safe, There's virtually zero impact to system performance, and no changes to application software are required. GD-183

HANDLING OBJECTIONS

Why should I switch to AMD given that Intel has been leading the market for the past decade?

AMD has been the source of major market innovations over several decades. While Intel continues to deliver incremental performance improvements with persistent price increases in the x-86 server market, AMD has a history of bringing innovation and healthy competition to the processor market.

Will my applications running on Intel work on AMD?

Most, if not all, off-the-shelf and shrink-wrapped applications in the industry should work on our AMD platforms as we both are x86-based devices.

I can't migrate virtual machines to EPYC servers.

The process and time required to migrate a virtual machine from previous- to current-generation Intel servers is similar to that used to migrate from Intel to AMD.

I'm running Intel's compiler and math libraries (MKL) and I don't want to recompile for AMD.

There is no need to recompile. We can help customers tune their code to tap into EPYC capabilities, such as full memory bandwidth, without having to recompile "from scratch".

What IT changes are required for system management and support?

There are no additional or different changes required to implement and deploy AMD servers in your infrastructure. Our solutions are x86-based and support both Linux® and Windows®, just like Intel-based systems.

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AMD EPYC™ Processors: Resources

CUSTOMER SUCCESS STORIES

- Design and manufacturing
- Energy
- Financial services
- Healthcare
- HPC
- Media and entertainment
- Science and technology
- Read more case studies

POSITIONING BRIEFS

- Per-core positioning briefs
- Workload positioning briefs

PRODUCT BRIEFS

- AMD EPYC™ 7002 Series Processors: A New Standard for the Modern Datacenter
- AMD EPYC 7003 Series Processors: The New Standard for the Modern Data Center
- AMD EPYC 7003 Series CPUs with AMD 3D V-Cache™ Technology

TECHNICAL BRIEFS

- Database and analytics technical briefs
- Hyperconverged infrastructure (HCI) and virtualization technical briefs
- Java technical briefs

HPC

- 4 Ways to Maximize your HPC Investment
- AMD EPYC 7003 Series Processor HPC Tuning Guide
- AMD and HPC for Design and Simulation
- AMD Solutions for HPC Supercomputing
- More HPC technical briefs

PERFORMANCE

- AMD EPYC world records
- AMD EPYC 7002 Series Product Brief—Leadership Performance
- EPYC Tech Docs and White Paper online library
- AMD EPYC Performance Summary

VERTICAL SALES KITS

- 5 Reasons why EPYC matters for Big Data
- 5 Reasons Why AMD EPYC Processors Matter for HPC
- Automotive Vertical Sales Enablement Kit
- Financial Services Vertical Sales Enablement Kit
- Healthcare Vertical Sales Enablement Kit
- Manufacturing Vertical Sales Enablement Kit
- Media and Entertainment Vertical Sales Enablement Kit
- Oil and Gas Vertical Sales Enablement Kit
- Retail Vertical Sales Enablement Kit
- Telco Vertical Sales Enablement Kit

TOOLS

- AMD EPYC Processor Selector Tool with Kit Configuration
- AMD EPYC Server Virtualization TCO Estimation Tool
- AMD EPYC Bare Metal and Greenhouse Gas Emissions TCO Estimation Tool
- AMD Cloud Cost Advisor

TRAINING

- AMD Arena
- AMD Meet the Experts Webinars

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AMD
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COMMERCIAL SALES PLAYBOOK

DISCLOSURES

GD-183: AMD Infinity Guard features vary by EPYC™ Processor generations. 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-204: "Technical Computing" or "Technical Computing Workloads" as defined by AMD can include: electronic design automation, computational fluid dynamics, finite element analysis, seismic tomography, weather forecasting, quantum mechanics, climate research, molecular modeling, or similar workloads.

ROM-236: Based on AMD internal testing, average per thread performance improvement at ISO-frequency on a 32-core, 64-thread, 2nd generation AMD EPYC™ platform as compared to 32-core 64-thread 1st generation AMD EPYC™ platform measured on a selected set of workloads including sub-components of SPEC CPU® 2017_int and representative server workloads. SPEC® and SPEC CPU® are registered trademarks of Standard Performance Evaluation Corporation. Learn more at www.spec.org.

ROM-544: Comparison based on best performance system SPECrate®2017_int_base scores with one chip published at www.SPEC.org as of 2/12/20. 1P EPYC 7742 powered server scores a world record result of 355 SPECrate®2017_int_base (http://spec.org/cpu2017/results/res2020q1/cpu2017-20191223-20460.pdf). The next highest published score is 354 SPECrate®2017_int_base on a 1P EPYC 7742 powered server http://spec.org/cpu2017/results/res2019q4/cpu2017-20191209-20297.pdf

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