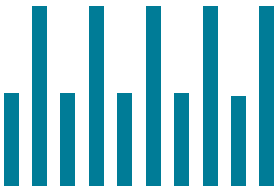
ACCELERATE YOUR DATA CENTER WORKLOADS

WITH AMD EPYC™ 7003 SERIES PROCESSORS

3rd Gen AMD EPYC™ processors raise the bar once more for workload performance, with up to 19% more instructions per clock (IPC)[1]. No matter the job, you can drive faster time to results, provide more and better data for decisions, and achieve better business outcomes. With our leadership approach, the world's highest performance server CPU, AMD EPYC 7763,[2] and AMD Infinity Architecture deliver innovation—up to 32MB of L3 cache per core, synchronized fabric and memory clock speeds designed for improved performance, plus hardware and virtual security features to help safeguard your business—right out of the box.

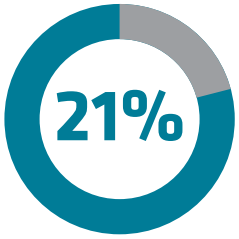
ACCELERATE YOUR SUPPLY CHAIN

- *Enterprise resource planning systems keep your supply chain moving products to customers.*
- *Support spiky and seasonal business demands with 2x more SAP® Enterprise Resource Planning (ERP) users for supply chain logistics.*[3]



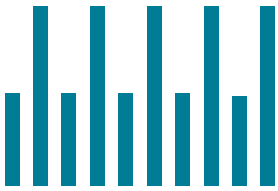
RESPOND FASTER TO MARKET CHANGES

- *Gain knowledge from data and use insights to make data-driven market decisions faster*
- *Achieve 14% higher 10TB decision support query performance and 21% better price/performance*[4]



SPEED APPS YOUR USERS CARE ABOUT

- *Web and mobile apps are the face of your company, and many of them run on Java® enterprise middleware.*
- *Gain up to 2X more performance compared to the highest published competitor's score*[5]

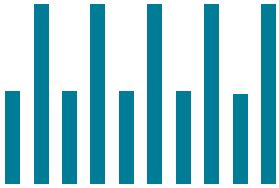


PROPEL YOUR HCI PRIVATE CLOUD

- *Virtualization is how you deploy and scale your private cloud applications quickly and easily*
- *Deliver 2.8X the VMware VMmark® vSAN™ 3.1 performance*[6]

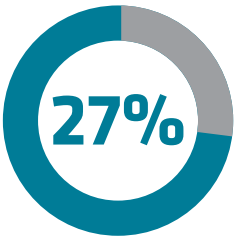
IMPROVE REMOTE USER EXPERIENCES

- *The world has transitioned to remote work, making virtual desktop environments more important than ever*
- *Support up to 2X more "knowledge worker" desktop sessions while meeting Login VSI™ rating of "very good" QoS response times*[7]



PREPARE FOR THE EXABYTE ERA

- *High performance computing (HPC) drives industries from oil and gas to molecular dynamics*
- *Iterate floating point based HPC applications faster with an estimated 27% higher per core performance*[8] *and 2X higher throughput performance*[9]



FASTER PROCESSING FOR BETTER RESULTS

The AMD Infinity Architecture is what helps make everything run exceptionally well on servers with AMD EPYC processors. Whether you need to accelerate computation, speed access to data, or help defend against ever-changing security threats, 3rd Gen AMD EPYC processors have what it takes to get the job done. Raising the bar on workload performance again, these processors deliver significant performance improvements compared to our world-record-setting[10] previous-generation processors so that you can:

- **ACCELERATE YOUR SUPPLY CHAIN.** Software such as the SAP® Sales and Distribution Benchmark require servers to do more activities in parallel. A high core count, improvements in the "Zen3" core, and large cache and memory capacities help speed enterprise resource planning software.
- **MAKE MARKET-DRIVEN DECISIONS.** Data analytics software relies on massive in-memory databases and highly parallelized processing. With the powerful combination of 8 DDR-4 memory channels, up to 128 threads, and a large L3 cache, you can process more information faster with 3rd Gen AMD EPYC processors compared to previous-generation processors.[4]
- **SPEED USER APPLICATIONS.** Java® software is highly parallelized, and can take advantage of 3rd Gen AMD EPYC processors. With their high thread count and larger L3 cache sizes, 2-socket servers with our processors outperform the competition by up to 2X.[5]
- **CREATE A BETTER PRIVATE CLOUD.** With new CPU core and memory improvements, AMD EPYC processors deliver leadership virtualization performance.[16] Add to this PCIe® Gen4 connectivity that speeds your disk I/O and east-west traffic.
- **DELIVER BETTER USER EXPERIENCES.** Virtual desktop infrastructure needs excellent response time. This is supported by a higher core count in AMD EPYC processors, more PCIe 4.0 lanes that deliver more throughput, and faster communication between the CPU and GPU that renders complex images.
- **GET READY FOR THE EXABYTE ERA.** Nearly every HPC workload is propelled by the AMD EPYC processor's higher core count, improved "Zen3" core performance, leading floating-point performance,[17] and PCIe Gen4 I/O.

EFFICIENCY

Hybrid Multi-Die SoC Design

Optimized with CPU and Memory Clock Sync

Great price/performance and leading performance/Watt[11]

PERFORMANCE

Core Performance Upgrades

100+ world records on industry benchmarks[10]

Higher frequencies for better performance

3RD GENERATION INFINITY FABRIC™

SECURITY

AMD Infinity Guard

Secure Nested Paging (SEV-SNP) added to AMD EPYC advanced security features[12]

MEMORY

Breakthrough System Features

First x86 CPU with up to 32 MB L3 cache per core

4, 6, and 8 channel memory optimization

WHAT'S NEW

- Improved "Zen3" core delivers up to 19% more instructions per clock[1]
- Enhanced memory performance with synchronized AMD Infinity Fabric and DRAM clocks
- Largest available x86 Layer 3 cache, up to 32 MB per core
- Strong virtualization security gets stronger with secure nested paging (SEV-SNP)
- Leadership efficiency with best performance per watt[11]
- Higher frequency CPU options designed for even better per-core performance
- 4-channel memory interleaving helps optimize low-core-count CPUs with lower memory costs for many workloads
- 6-channel memory interleaving provides efficient memory balance for mid and low core count CPUs
- 8-channel memory interleaving helps optimize core count with memory capacity and bandwidth for demanding workloads

NOTHING STACKS UP TO AMD EPYC™ PROCESSORS

With 3rd Gen AMD EPYC processors, your decision makers can quickly access data in the cloud (on or off premises) or in containers, virtual machines, or bare-metal servers. Based on the innovative AMD Infinity Architecture, our approach to processor design means you can turbocharge applications, get more work done in less time, and help secure your critical data no matter where it resides.

The heart of the AMD Infinity Architecture is a leadership interconnect that supports extraordinary levels of scale at every layer. Components communicate using AMD Infinity Fabric™ technology—a connection that is used within cores, between cores, and with off-chip components—to connect "Zen 3" processor cores, memory, bandwidth, and security mechanisms. As a result, the architecture offers breakthrough performance and efficiency and supports continual improvement of process technology to deliver on the promise of next-generation computing.

LEADING EFFICIENCY

Time is the new metric for efficiency. Our revolutionary multi-die design uses 7nm and 14nm processes, providing independent paths for innovation. This allows AMD EPYC processors to leapfrog the industry by using a 7nm process for the CPU cores combined with a 14nm process for I/O, memory access, and security functions. By moving away from a monolithic design and decoupling development, we can use the best process and improve each part of the system in a way and a pace that helps ensure you get the newest technology into your data center first.

The use of multiple dies and a fast fabric interconnect allows for a system-on-chip (SoC) design that eliminates the need for many external support chips and the I/O latencies they induce. This balanced system approach gives you an abundance of resources so that you can match workloads and resources and make the best use of capital. You'll find that 1- and 2-socket servers with AMD EPYC processors satisfy most of your workload needs, helping you increase density, reduce capital, power, and cooling expenses, and help control your software licensing costs. Whether you need 8 cores per processor or 64, you'll get the same "all in" feature set—I/O, memory, memory bandwidth, and security capabilities—to accelerate workloads and help safeguard information.

PERFORMANCE OPTIMIZATION

Whether you use enterprise applications, virtualized and cloud computing environments, software-defined infrastructure, high-performance computing, or data analytics applications, 3rd Gen AMD EPYC processors can help elevate your business productivity through fast application performance.

With up to 64 high-performance cores, fast execution pipelines, 4 MB L2 cache, 32 MB shared L3 cache, and more, the AMD Infinity Architecture helps 3rd Gen EPYC Processors surpass previous-generation processors to deliver exceptional performance.

Outstanding memory bandwidth per socket[13] and leadership I/O throughput per socket[14] take performance beyond conventional constraints. High-speed connections between cores and memory, combined with a fabric clock that is coupled to run at maximum memory speeds, reduces memory latency over previous-generation processors to further accelerate data access and computation.

Performance means nothing if applications can't take advantage of it. We work with the open source community and major software vendors to help ensure their applications work with and take advantage of our architecture. With a broad and growing ecosystem of open tools and libraries and x86-application compatibility, you can have confidence that your software will work and perform.

CPU AND GPU INNOVATION

AMD is the first vendor to create a pair of matched CPUs and GPUs. Both 3rd Gen AMD EPYC Processors and AMD Instinct™ MI100 and AMD Radeon Instinct™ MI50 GPU accelerators feature 7nm process technology and PCIe Gen 4 support.

These impressive devices have advanced platform connectivity, linking quad-GPU hives with up to 552 GB/s peak peer-to-peer theorectical I/O bandwidth.[16] GPUs can be directly connected to CPUs with up to 64 GB/s of bandwidth and use this fast connection to help ensure that even your most GPU-intensive applications are never starved for data.

FLEXIBLE MEMORY CONFIGURATIONS

Whether you need a little or a lot of memory, 3rd Gen EPYC processors provide options designed with your needs in mind.

- Up to 4 TB of DDR4 memory running at 3200MHz
- Support for 4, 6, and 8 memory channel configurations
- 4 and 6 channel memory interleaving designed to improve the performance of low-memory configurations
- Up to 32 MB of L3 cache per core, helping increase data analytic speeds
- Near line rate data transmission with synchronized clock speeds between the Infinity Fabric and memory

MODERN SECURITY FEATURES THAT ARE "HARDENED AT THE CORE"

Physical and virtual threats pose a risk throughout your organization and extend to your customers. Putting up safeguards requires a comprehensive security foundation that isn't an afterthought but is an integral part of your infrastructure. Powered by an industry-leading embedded co-processor, AMD EPYC helps maintain a secure compute environment from power-on to run time.

The architecture is "hardened at the core", with security features within the chip and system. An industry-leading co-processor on the SoC scrutinizes the boot process and helps manage up to 509 unique encryption keys known only to the processor. Combined, these technologies help decrease potential attack surfaces as software is booted and executed and processes your critical data.

When enabled, new Secure Encrypted Virtualization-Secure Nested Paging (SEV-SNP) adds strong memory integrity protection capabilities to help prevent malicious hypervisor-based attacks like data replay, memory re-mapping, and more, to create an isolated execution environment and help keep your virtualized data center safe.

READY TO MAKE THE SWITCH?

As an IT practitioner, you know how important it is to keep your workloads and IT infrastructure operating at peak efficiency and within budget constraints. With the revolutionary AMD Infinity Architecture that delivers efficiency, performance, memory, and security features, AMD can help you guard your most important assets, power your workloads, and modernize your data center so that you can move at the speed of your business.

DISCLOSURES

1. See amd.com/en/claims/epyc#faq-MLN-003.
2. EPYC 7763. See amd.com/en/claims/epyc#faq-MLN-016.
3. See amd.com/en/claims/epyc#faq-MLN-076.
4. EPYC 7763. See amd.com/en/claims/epyc#faq-MLN-068.
5. EPYC 7763. See amd.com/en/epyc#faq-MLN-044A.
6. EPYC 7713. See amd.com/en/claims/epyc#faq-MLN-064.
7. EPYC 7763. See amd.com/en/claims/epyc#faq-MLN-004.
8. EPYC 72F3. See amd.com/en/claims/epyc#faq-MLN-034.
9. EPYC 7763. See amd.com/en/claims/epyc#faq-MLN-041K.
10. For a complete list of world records see amd.com/worldrecords.
11. See amd.com/en/claims/epyc#faq-MLNWR-047.
12. 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-183.
13. See amd.com/en/claims/epyc#faq-MLN-056.
14. See amd.com/en/claims/epyc#faq-MLN-055.
15. See amd.com/en/claims/epyc#faq-MI100-07.
16. See amd.com/en/claims/epyc#faq-MLN-063.
17. See amd.com/en/claims/epyc#faq-MLN-019.