

FIVE REASONS AMD EPYC™ MATTERS



2nd Generation AMD EPYC™ Processors:

Leadership that sets a new standard for the modern data center.

LEADERSHIP ARCHITECTURE

2nd Generation AMD Infinity Architecture delivers performance, scale, efficiency and security features for the agility to move at the speed of your business, now and into the future.

LEADERSHIP PERFORMANCE

AMD EPYC™ 7002 Series Processors deliver world record performance with ~2X generational¹ performance increase and outpacing Intel Xeon Platinum 8280L by up to 87%.²

LEADERSHIP SECURITY

Advanced security features with silicon-embedded processors that helps your organization take control of security and minimize risks to your most important assets.

1. Silicon based innovations

AMD EPYC™ 7002 Series processors deliver innovation. AMD is a leader in understanding fundamental business challenges and designs processors that can help unlock lower TCO and better ROI.

- System on chip design makes servers simpler and save power
- Embedded security processor that doesn't need added hardware
- First x86 server processors featuring 7nm hybrid-multi-die design and PCIe® 4 support

2. Performance that others can't match

AMD EPYC 7002 Series processors utilize Infinity Architecture to remove performance bottlenecks and deliver World Record performance.

- World Record performance across major industry benchmarks including: SPEC CPU® 2017,³ TPC,⁴ and VMware® VMmark® 3⁵
- Up to 4 times more IO bandwidth than Intel Xeon Scalable processors⁶
- Up to 45% more memory bandwidth than Intel Scalable processors in the same class⁷

3. Value

AMD EPYC processors delivers value – helping reduce your licensing costs and boosting your performance without breaking the bank.

- Use single socket servers without complexity or compromise
- Double the cores in the same space and power envelope
- Cut your 'per-socket software' licensing costs – one VMware™ license for 64 cores

4. 'Hardened at the core' to help minimize risks

AMD EPYC processors continue to build on their legacy of unique security features that are built into the processor, offering capabilities other platforms don't have.

- Help prevent certain side-channel attacks
- Special safeguards for virtualization and cloud
- Scrutinize software boots for corruption for greater reliability

5. Speed your applications – even specialized ones

AMD EPYC processors let you support your workloads with the right resources and a flexible architecture that can adapt to even specialized needs. For business and scientific workloads, EPYC unlocks possibilities other platforms don't.

- VIRTUALIZATION AND CLOUD: World record virtualization performance⁵ and core capacity help customers reduce TCO, increase revenue streams with existing capacity, and provide advanced security features to private and public cloud customers alike
- CONTAINERS AND MICROSERVICES: improve response time with high core-to-container ratios and near linear scaling of container capacity per server
- IN-MEMORY DATABASES: Massive memory footprint and industry leading I/O allow large numbers of NVMe drives for fast, in memory performance
- HPC: highest core count, highest DRAM capacity,⁸ highest I/O capacity for GPU acceleration and highest-speed interconnect in the industry
- AI/ML WORKLOADS: More PCIe Gen4 lanes than any other x86 server processor, able to support the most directly connected (without PCIe switch) GPUs per server in the industry

¹Results as of 8/7/2019 using SPECrate(R)2017_int_base. The EPYC 7742 2P score is 654 on the SPECrate®2017_int_base, <https://spec.org/cpu2017/results/res2019q3/cpu2017-20190722-16242.html>. EPYC 7601 2P score of 304 results at <http://spec.org/cpu2017/results/res2019q2/cpu2017-20190411-11817.pdf>. $654 / 304 = 2.15$ or 2x higher integer performance for the EPYC 7742. SPEC®, SPECrate® and SPEC CPU® are registered trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information. ROM-37

²Results as of 8/7/2019 using SPECrate(R)2017_int_base. EPYC 7742 score of 682, <https://spec.org/cpu2017/results/res2019q3/cpu2017-20190722-16242.html>. Intel Platinum 8280L score 364, <http://spec.org/cpu2017/results/res2019q2/cpu2017-20190429-12779.pdf>, July 28, 2019. SPEC®, SPECrate® and SPEC CPU® are registered trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information. ROM-38

³Based on SPECrate®2017 peak integer scores. A 2P EPYC™ 7742 processor powered server has higher SPECrate®2017_int_peak score of 749 and a base score of 682 as of August 7, 2019, <http://spec.org/cpu2017/results/res2019q3/cpu2017-20190722-16242.html>. The next highest int_peak score with a 2P Intel Platinum 9282 of 676 and a base score of 643, <http://spec.org/cpu2017/results/res2019q3/cpu2017-20190624-15369.pdf>, on July 28, 2019. SPEC®, SPECrate® and SPEC CPU® are registered trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information. ROM-114.

⁴Results as of 8/7/2019. 8-node EPYC™ 7702 result published at TPC website <http://www.tpc.org/3341>. Previous #1 published result on the TPC website at: <http://www.tpc.org/3306>. Product availability 8/7/2019. TPC and TPC Benchmark are registered trademarks of the Transaction Processing Performance Council. ROM-140

⁵AMD 7702 score of 12.88 can be found at <https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2019-08-07-HPE-ProLiant-DL385Gen10.pdf>. Product available Aug 7, 2019. The next highest score, 9.02, with the 8280, can be found at <https://www.vmware.com/products/vmmark/results3x.0.html> VMware VMmark 3.x results can be found at <https://www.vmware.com/products/vmmark/results3x.html>. ROM-35

⁶One EPYC 7002 Series has 433% more IO bandwidth than one Intel Scalable processors; and / or Two [or One] EPYC 7002 Series processors have 167% more IO bandwidth than two Intel Scalable processors. Based on processor lanes multiplied by PCIe® bandwidth. PCIe 4 = 16 GB/s link bandwidth vs. PCIe 3 = 8 GB/s. ROM-21

⁷EPYC™ 7002 series has 8 memory channels, supporting 3200 MHz DIMMs yielding 204.8 GB/s of bandwidth vs. the same class of Intel Scalable Gen 2 processors with only 6 memory channels and supporting 2933 MHz DIMMs yielding 140.8 GB/s of bandwidth. $204.8 / 140.8 = 1.454545 - 1.0 = .45$ or 45% more. AMD EPYC has 45% more bandwidth. Class based on industry-standard pin-based (LGA) X86 processors. ROM-11

⁸Each 2nd Gen AMD EPYC processors support up to 4TB of DRAM. Intel Scalable processors support up to 2TB with Platinum 8200 and 1TB with the 9200 processors per ark.intel.com, July 9, 2019. ROM-39