New 4th Gen AMD EPYC Processors for ThinkSystem V3 Servers

Article

AMD processors

Today, AMD has announced new 4th Gen AMD EPYC™ processors:

- 4th Gen AMD EPYC processors based on Zen 4c architecture (formerly codenamed "Bergamo")

  The newest iteration of 4th Gen AMD EPYC processors are optimized Zen 4c architecture. These processors have higher core counts, up to 128 cores, targeted at cloud native applications that are designed to exploit the scale, elasticity, resiliency, and flexibility of private & public clouds. The processors offer leadership x86 core density and energy efficiency while maintaining the proven, trusted Zen software compatibility.

- 4th Gen AMD EPYC processors with AMD 3D V-Cache Technology (formerly codenamed "Genoa-X")

  Designed with up to 96 powerful Zen 4 cores and up to 1.15 GB of L3 cache, 4th Gen AMD EPYC processors with AMD 3D V-Cache technology deliver breakthrough performance on targeted technical computing workloads such as Electronic Design Automation (EDA), Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA) software and solutions. For many challenging workloads, having access to this large L3 cache enables improved performance by continuously feeding the processor with data without having to access main memory outside of the CPU, and empowering customers to realize faster time-to-results.

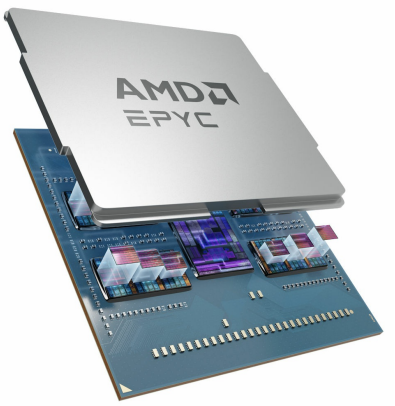

Figure 1. 4th Gen AMD EPYC processors with AMD 3D V-Cache Technology offer larger L3 cache, best suited for technical computing workloads

Processor features

The following table lists the features of the new AMD EPYC processors.

Key features of these processors:

- The processors with AMD 3D V-Cache have much larger L3 cache, up to 1150 MB
- The processors with Zen 4c architecture have higher core counts, up to 128 cores

Table 1. Processor specifications

EPYC model	Cores / Threads	Base Frequency	Max Boost Frequency†	L3 Cache	Memory channels	Memory bus	TDP
4th Gen AMD EPYC processors with AMD 3D V-Cache							
9184X	16 / 32	3.55 GHz	4.20 GHz	768 MB	12	4800 MHz	320W
9384X	32 / 64	3.1 GHz	3.9 GHz	768 MB	12	4800 MHz	320W
9684X	96 / 192	2.55 GHz	3.7 GHz	1150 MB	12	4800 MHz	400W
4th Gen AMD EPYC processors with Zen 4c architecture							
9734	112 / 224	2.2 GHz	3.0 GHz	256 MB	12	4800 MHz	340W
9754	128 / 256	2.25 GHz	3.2 GHz	256 MB	12	4800 MHz	360W

† The maximum single-core frequency that the processor is capable of operating

ThinkSystem V3 servers

Lenovo plans to support these processors in our full portfolio of ThinkSystem V3 servers based on AMD EPYC processors. You can make configurations in Lenovo DCSC configurator.

- ThinkSystem SD665 V3 Neptune DWC Server (twin 2S water cooled nodes)
- ThinkSystem SD665-N V3 Neptune DWC Server (2S water cooled node with NVIDIA GPUs)
- ThinkSystem SR675 V3 (3U GPU-rich)
- ThinkSystem SR665 V3 (2U 2-socket) - support planned for July 2023
- ThinkSystem SR645 V3 (1U 2-socket) - support planned for July 2023
- ThinkSystem SR655 V3 (2U 1-socket) - support planned for July 2023
- ThinkSystem SR635 V3 (1U 1-socket) - support planned for July 2023

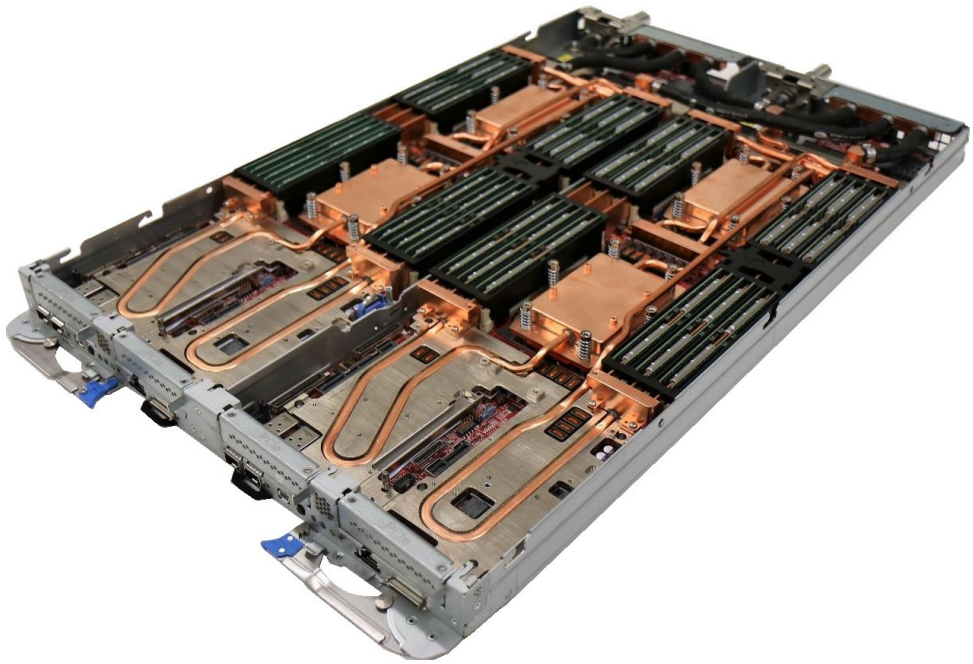

Figure 2. The Lenovo ThinkSystem SD665 V3 supports the new AMD processors

World record benchmark results

Lenovo has set **47 world records** with the new AMD EPYC 9754 processor installed in ThinkSystem V3 servers. See our benchmark reports for details:

On the SR665 V3, our 2U2S server

- ThinkSystem SR665 V3 Sets 10 World Records with New SPECcpu Benchmark Result
- ThinkSystem SR665 V3 Sets 5 World Records with New SPECjbb Benchmark Result
- ThinkSystem SR665 V3 Sets 3 World Records with New SPECPower on Windows Benchmark Result
- ThinkSystem SR665 V3 Sets World Record with New SPECPower on Linux Benchmark Result
- ThinkSystem SR665 V3 Sets 2 World Records with New SPECompG Benchmark Result

On the SR645 V3, our 1U2S server

- ThinkSystem SR645 V3 Sets 2 World Records with New SPECPower on Windows Benchmark Result
- ThinkSystem SR645 V3 Sets World Record with New SPECPower on Linux Benchmark Result

On the SR655 V3, our 2U1S server:

- ThinkSystem SR655 V3 Sets 8 World Records with New SPECjbb Benchmark Results
- ThinkSystem SR655 V3 Sets 8 World Records with New SPECcpu Benchmark Results
- ThinkSystem SR655 V3 Sets 2 World Records with New SPECompG Benchmark Result
- ThinkSystem SR655 V3 Sets World Record with New SPECPower on Linux Benchmark Result
- ThinkSystem SR655 V3 Sets World Record with New SPECPower on Windows Benchmark Result

On the SR635 V3, our 1U1S server

- ThinkSystem SR635 V3 Sets World Record with New SPECPower on Linux Benchmark Result
- ThinkSystem SR635 V3 Sets World Record with New SPECPower on Windows Benchmark Result
- ThinkSystem SR635 V3 Sets World Record with New SPECPower on Windows Benchmark Result

For more information

For more information, see the following pages:

- Lenovo-AMD alliance landing page:
  https://www.lenovo.com/us/en/servers-storage/alliance/amd/
- Lenovo DCSC configurator:
  https://dcsc.lenovo.com

Related product families

Product families related to this document are the following:

- ThinkSystem SD665 V3 Server
- ThinkSystem SD665-N V3 Server
- ThinkSystem SR635 V3 Server
- ThinkSystem SR645 V3 Server
- ThinkSystem SR655 V3 Server
- ThinkSystem SR665 V3 Server
- ThinkSystem SR675 V3 Server

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