Intel Xeon 6 Processors

Built for modern data center, networking and edge deployments.

June 4, 2024 — At the Intel Technology Tour in Taiwan, Ryan Tabrah, vice president and general manager of Intel® Xeon® 6 with Efficient-cores (E-core) Products, along with Matt Langman, vice president and general manager of Intel® Xeon® 6 with Performance-cores (P-core) Products, announced the Intel Xeon 6 processor family. The Xeon 6 platform will give customers choice with new P-core and E-core SKUs, addressing an array of use cases and workloads, from compute-intensive high performance computing (HPC) and AI to scalable cloud-native applications.

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Intel Xeon 6 processors are available in the 6700 series and 6900 series platform offerings that share a common hardware platform and software stack bringing versatility, scalability and flexibility across a range of optimized products. This includes generation-on-generation improvements for double data rate (DDR5), peripheral component interconnect express 5.0 (PCIe 5), ultra path interconnect (UPI) and compute express link (CXL):

- **The 6700 series** offers up to 1.4x higher memory bandwidth – with multiplexer combined ranks (MCR) dual in-line memory module (DIMM) memory in P-core – to handle larger amounts of data at once and up to 1.1x increase in and out (I/O) bandwidth versus 5th Gen Intel® Xeon® processors, delivering a faster, more-efficient delivery system for data input and output.
- **The 6900 series** offers up to 1.8x increased inter-socket bandwidth versus 5th Gen Xeon processors. This allows faster, more-efficient communication between different parts of the system, significantly boosting performance, especially for the most demanding tasks.
- Both **6700 and 6900 series** support CXL® 2.0 – Type 1, Type 2 and Type 3. This new standard makes it easier for computers to connect and communicate with additional components like accelerators, memory expanders and other devices.

The silicon architecture of Xeon 6 processors represents the latest in cutting-edge technology, designed for improved efficiency and performance. Available today, Intel Xeon 6 processors with E-cores enhance performance and power efficiency for high-density, scale-out workloads, such as cloud-native applications, content delivery networks, network microservices and consumer digital services. With high core density and exceptional performance per watt, Intel Xeon 6 processors with E-cores provide efficient computing that reduces energy costs and supports sustainability goals.

As companies look to refresh aging systems to reduce costs and free up space, Xeon 6 processors with E-cores offer significant rack density advantages, enabling a 3-to-1 rack-level consolidation. This consolidation gives customers a 3.2x[1] improvement in rack-level performance and a 2.6x[1] increase in performance per watt compared with 2nd Gen Intel® Xeon® processors on media transcode workloads. By using less power and occupying less rack space, these Xeon 6 processors with E-cores free up space for innovative new AI projects.

Xeon 6 processors with E-cores are optimized for network and edge workloads and enable users to achieve up to 2.7x higher 5G-user plane function performance per watt[2] and up to 3.5x higher next-generation firewall performance per watt[3] – as tested with Intel Ethernet 800 Series –

compared to 2nd Gen Xeon processors. This helps to increase overall compute efficiency while supporting confidential computing capabilities for 5G networks and edge-to-cloud infrastructures.

Performance varies by use, configuration and other factors. Results may vary.

[1] See [7T1] at intel.com/processorclaims: Intel® Xeon® 6. Results may vary.

[2] See [7N1] at intel.com/processorclaims:Intel® Xeon 6. Results may vary.

[3] See [7N2] at intel.com/processorclaims:Intel® Xeon 6. Results may vary.

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