Intel

Intel Xeon Gold 6434 Processor (PK8071305118801)

Datasheet

Product Overview

- The Intel Xeon Gold 6434 is a 4th Gen Intel Xeon Scalable processor designed for high-frequency enterprise, cloud, and general-purpose server platforms.
- It provides 8 cores and 16 threads, with a 3.70 GHz base frequency, up to 4.10 GHz Intel Turbo Boost frequency, 22.5 MB cache, and a 195 W TDP.
- Built on Intel 7 process technology, the processor supports 2S scalability and up to 4 TB of ECC memory.
- It supports DDR5-4800 at 1DPC or DDR5-4400 at 2DPC, with eight memory channels and 80 PCI Express 5.0 lanes for network adapters, storage, and accelerators.
- Intel AMX, Intel DL Boost, and one default DSA device support selected AI, inference, analytics, and data-movement workloads.
- Hardware security features include Intel SGX with Intel SPS, Total Memory Encryption, Boot Guard, Control-Flow Enforcement Technology, and Intel virtualization technologies.

Product Highlights

- **8-Core High-Frequency Compute:** 8 cores and 16 threads provide responsive processing for enterprise servers, cloud infrastructure, virtualization, and general-purpose workloads.
- **3.70 to 4.10 GHz Frequency Range:** The processor combines a 3.70 GHz base frequency with up to 4.10 GHz Intel Turbo Boost frequency for high per-core performance.
- **DDR5-4800 and PCIe 5.0 I/O:** DDR5-4800 at 1DPC, DDR5-4400 at 2DPC, eight memory channels, and 80 PCIe 5.0 lanes support high-throughput server designs.
- **AI and Data-Movement Acceleration:** Intel AMX and DL Boost support selected AI and inference workloads, while one default DSA device supports data-movement operations.

Detailed Features



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Component	Specification
Processor	Intel Xeon Gold 6434, 8 cores / 16 threads
Ordering Information	PK8071305118801, FC-LGA16A Tray, Spec Code SRMGD
Frequency and Cache	3.70 GHz base, up to 4.10 GHz turbo, 22.5 MB cache
Memory	Up to 4 TB ECC memory, DDR5-4800 1DPC or DDR5-4400 2DPC, 8 channels
Power and Expansion	195 W TDP, 2S scalability, PCIe 5.0 with 80 lanes, 16 GT/s UPI, 3 UPI links

8-Core High-Frequency Compute

The 6434 combines 8 physical cores with 16 threads, a 3.70 GHz base frequency, and up to 4.10 GHz turbo frequency. Its profile suits enterprise servers, cloud infrastructure, virtualization, and general-purpose workloads.

2S Platform Support

Intel specifies 2S scalability, 16 GT/s UPI, and three UPI links. This supports server platforms designed for dual-socket compute capacity and inter-socket bandwidth.

High-Frequency Server Platform

The processor combines an 8-core design, 22.5 MB cache, 195 W TDP, 80 PCIe 5.0 lanes, and eight memory channels for high-frequency server deployments.

PCIe 5.0 I/O Expansion

Eighty PCIe 5.0 lanes provide direct expansion capacity for Ethernet adapters, storage controllers, accelerators, and other high-bandwidth server devices.

Flexible ECC Memory Speeds

The processor supports up to 4 TB of ECC memory across eight channels, with DDR5-4800 at 1DPC and DDR5-4400 at 2DPC. This supports server systems with different DIMM population requirements.

High-Bandwidth PCIe 5.0 Connectivity

Eighty PCIe 5.0 lanes provide direct expansion capacity for Ethernet adapters, storage controllers, accelerators, and other high-bandwidth devices. The lane budget supports balanced I/O across a dual-socket platform.

Acceleration for AI and Data Movement

Intel AMX and DL Boost support selected AI and inference workloads, while one default DSA device supports data-movement operations. These capabilities extend the processor beyond general-purpose compute.

Security and Virtualization Foundation

The processor includes Intel SGX with Intel SPS, Total Memory Encryption, Boot Guard, Control-Flow Enforcement Technology, AES instructions, VT-x, VT-d, and Extended Page Tables. These capabilities help protect workloads and support virtualized server platforms.

Technical Specifications

Product Specifications

Feature	Value
User SKU	INTL-6434
Intel ordering code	PK8071305118801
Intel Spec Code	SRMGD
Processor model	Intel Xeon Gold 6434 Processor
Product collection	4th Gen Intel Xeon Scalable Processors
Code name	Products formerly Sapphire Rapids
Vertical segment	Server
Processor number	6434
Lithography	Intel 7
Marketing status	Launched
Launch date	Q1 2023
Embedded Options Available	No
Use conditions	Server/Enterprise
Total cores	8

Feature	Value
Total threads	16
Processor base frequency	3.70 GHz
Max turbo frequency	4.10 GHz
Cache	22.5 MB
Intel UPI speed	16 GT/s
Max UPI links	3
TDP	195 W
Intel DL Boost	Yes
Scalability	2S
Memory types	Up to DDR5-4800 MT/s 1DPC; up to DDR5-4400 MT/s 2DPC
Max memory size	4 TB
Max memory channels	8
ECC memory supported	Yes
PCI Express revision	5.0
Max PCI Express lanes	80
Sockets supported	FCLGA4677
Package carrier	E1B
Package size	77.5 mm x 56.5 mm
DTS max	96 °C
TCASE	64 °C
Intel On Demand Activation Model	No
Intel Data Streaming Accelerator	1 default device
Intel Advanced Matrix Extensions	Yes
Intel Speed Select Technology - Core Power	Yes
Intel Speed Select Technology - Turbo Frequency	Yes
Intel Speed Select Technology - Base Frequency	Yes
High Priority Cores	2
High Priority Core Frequency	3.90 GHz
Low Priority Cores	6
Intel Resource Director Technology	Yes

Feature	Value
Intel Speed Shift Technology	Yes
Intel Turbo Boost Technology	2.0
Intel Hyper-Threading Technology	Yes
Intel Transactional Synchronization Extensions	Yes
Intel 64	Yes
Instruction set extensions	Intel AMX, Intel SSE4.2, Intel AVX, Intel AVX2, Intel AVX-512
AVX-512 FMA units	2
Intel QuickAssist Software Acceleration	Yes
Intel Control-Flow Enforcement Technology	Yes
Intel Total Memory Encryption	Yes
Intel AES New Instructions	Yes
Intel Software Guard Extensions	Yes with Intel SPS
Default maximum SGX EPC size	128 GB
Intel Trusted Execution Technology	Yes
Intel OS Guard	Yes
Execute Disable Bit	Yes
Intel Boot Guard	Yes
Intel Platform Firmware Resilience	Yes
Intel Run Sure Technology	Yes
Mode-based Execute Control	Yes
Intel Crypto Acceleration	Yes
Intel Virtualization Technology	VT-x, VT-d, and VT-x with EPT
Shipping media	Tray
Stepping	S3

Product Comparison

Feature	Intel Xeon Gold 6434 / PK8071305118801	Intel Xeon Gold 6430	Intel Xeon Gold 6426Y
Processor family	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable
Positioning in this comparison	8-core high-frequency two-socket processor	32-core high-capacity two-socket enterprise processor	16-core high-frequency two-socket processor
Total cores	8	32	16
Total threads	16	64	32
Processor base frequency	3.70 GHz	2.10 GHz	2.50 GHz
Max turbo frequency	4.10 GHz	3.40 GHz	4.10 GHz
Cache	22.5 MB	60 MB	37.5 MB
TDP	195 W	270 W	185 W
Scalability	2S	2S	2S
Intel UPI	16 GT/s; 3 links	16 GT/s; 3 links	16 GT/s; 3 links
Max memory size	4 TB	4 TB	4 TB
Memory channels	8	8	8
Memory support	DDR5-4800 1DPC; DDR5-4400 2DPC	DDR5-4400 1DPC and 2DPC	DDR5-4800 1DPC; DDR5-4400 2DPC
ECC memory	Yes	Yes	Yes
PCI Express	5, 80 lanes	5, 80 lanes	5.0, 80 lanes
Default accelerator devices	DSA: 1	DSA: 1	DSA: 1
Intel AMX	Yes	Yes	Yes
Intel DL Boost	Yes	Yes	Yes
Best-fit role	High-frequency two-socket enterprise and cloud compute	High-capacity two-socket enterprise and cloud server	High-frequency two-socket enterprise and cloud compute

Accessories

Category	Accessories
Included Accessories	- Intel Xeon Gold 6434 processor - Tray shipping media
Optional Accessories	- FCLGA4677-compatible server board and CPU heatsink solution - DDR5 ECC memory and PCIe 5.0 network or storage adapters

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[2] Intel. (2026). Intel Xeon Gold 6434 Processor Ordering and Spec Information. https://www.intel.com/content/www/us/en/products/sku/232375/intel-xeon-gold-6434-processor-22-5m-cache-3-70-ghz/ordering.html