Intel

Intel Xeon Gold 5418Y Processor (PK8071305120301)

Datasheet

Product Overview

- The Intel Xeon Gold 5418Y is a 4th Gen Intel Xeon Scalable processor for two-socket enterprise, cloud, and general-purpose server workloads.
- It provides 24 cores and 48 threads, with a 2.00 GHz base frequency, up to 3.80 GHz Intel Turbo Boost frequency, 45 MB cache, and a 185 W TDP.
- Built on Intel 7 process technology, the processor supports two-socket scalability, eight DDR5 memory channels, and up to 4 TB of memory.
- The processor supports DDR5-4400 memory with ECC and provides 80 PCI Express 5.0 lanes for network adapters, storage, and accelerator connectivity.
- Intel AMX, Intel DL Boost, AVX-512, two AVX-512 FMA units, and one default DSA device support AI, data movement, and analytics 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

- **24-Core Two-Socket Compute:** 24 cores and 48 threads provide parallel processing capacity for enterprise servers, cloud infrastructure, and demanding general-purpose workloads.
- **2.00 to 3.80 GHz Frequency Range:** The processor combines a 2.00 GHz base frequency with up to 3.80 GHz Intel Turbo Boost frequency for responsive server performance.
- **DDR5 and PCIe 5.0 Expansion:** Eight DDR5-4400 memory channels and 80 PCIe 5.0 lanes support high-throughput memory and I/O designs in two-socket servers.
- **AI and Data-Movement Acceleration:** Intel AMX, Intel DL Boost, and one default Intel DSA device support selected AI, inference, analytics, and data-movement workloads.

Detailed Features



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Component	Specification
Processor	Intel Xeon Gold 5418Y, 24 cores / 48 threads
Ordering Information	PK8071305120301, FC-LGA16A Tray, Spec Code SRMGH
Frequency and Cache	2.00 GHz base, up to 3.80 GHz turbo, 45 MB cache
Memory	Up to 4 TB DDR5-4400, 8 channels, ECC supported
Power and Expansion	185 W TDP, 2S scalability, PCIe 5.0 with 80 lanes, 16 GT/s UPI, 3 UPI links

Balanced Enterprise Server Compute

The 5418Y combines 24 physical cores with 48 threads, a 2.00 GHz base frequency, and a 185 W TDP. Its compute profile suits enterprise, cloud, and general-purpose server workloads.

Two-Socket Platform Support

Intel specifies 2S scalability, 16 GT/s UPI, and three UPI links. This supports multi-socket server platforms that need additional compute capacity and inter-socket bandwidth.

Speed Select Performance Profiles

Intel documents three SST-PP configurations: 24 active cores at 2.0 GHz and 185 W, 16 active cores at 2.3 GHz and 165 W, and 12 active cores at 2.7 GHz and 165 W.

PCIe 5.0 Expansion

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

High-Capacity ECC Memory

The processor supports up to 4 TB of DDR5-4400 memory across eight channels, with ECC support for server-class reliability. This gives two-socket systems room for virtualized workloads, caches, analytics, and service containers.

PCIe 5.0 I/O for Server Devices

Eighty PCIe 5.0 lanes provide direct expansion capacity for Ethernet adapters, storage controllers, accelerators, and other high-bandwidth devices. The lane budget helps designers build balanced I/O around a processor socket.

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. The processor also provides AVX-512 instructions and two AVX-512 FMA units.

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-5418Y
Intel ordering code	PK8071305120301
Intel Spec Code	SRMGH
Processor model	Intel Xeon Gold 5418Y Processor
Product collection	4th Gen Intel Xeon Scalable Processors
Code name	Products formerly Sapphire Rapids
Vertical segment	Server
Processor number	5418Y
Lithography	Intel 7
Marketing status	Launched
Launch date	Q1 2023
Embedded Options Available	Yes
Total cores	24
Total threads	48

Feature	Value
Processor base frequency	2.00 GHz
Max turbo frequency	3.80 GHz
Cache	45 MB
Intel UPI speed	16 GT/s
Max UPI links	3
TDP	185 W
SST-PP 5418Y(0)	24 active cores, 2.0 GHz base, 185 W
SST-PP 5418Y(1)	16 active cores, 2.3 GHz base, 165 W
SST-PP 5418Y(2)	12 active cores, 2.7 GHz base, 165 W
Scalability	2S
Sockets supported	FCLGA4677
Package carrier	E1B
Package size	77.5 mm x 56.5 mm
DTS max	94 °C
TCASE	81 °C
Max memory size	4 TB
Memory types	Up to DDR5-4400 MT/s 1DPC and 2DPC
Max memory channels	8
ECC memory supported	Yes
PCI Express revision	5
Max PCI Express lanes	80
Intel DL Boost	Yes
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 - Performance Profile	Yes
Intel Speed Select Technology - Base Frequency	Yes
High Priority Cores	8
High Priority Core Frequency	2.00 GHz

Feature	Value
Low Priority Cores	16
Intel Resource Director Technology	Yes
Intel Speed Shift Technology	Yes
Intel Turbo Boost Technology	2.0
Intel Hyper-Threading Technology	Yes
Instruction set extensions	Intel AMX, Intel SSE4.2, Intel AVX, Intel AVX2, Intel AVX-512
AVX-512 FMA units	2
Intel SGX	Yes with Intel SPS
Default maximum SGX EPC size	128 GB
Intel Total Memory Encryption	Yes
Intel AES New Instructions	Yes
Intel QuickAssist Software Acceleration	Yes
Intel Control-Flow Enforcement Technology	Yes
Intel Trusted Execution Technology	Yes
Intel Boot Guard	Yes
Intel Platform Firmware Resilience	Yes
Intel Run Sure Technology	Yes
Intel Virtualization Technology	VT-x, VT-d, and VT-x with EPT
Shipping media	Tray
Stepping	S3

Product Comparison

Feature	Intel Xeon Gold 5418Y / PK8071305120301	Intel Xeon Gold 5418N / PK8071305121701	Intel Xeon Gold 5416S / PK8071305122201
Processor family	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable
Network or edge positioning	Two-socket mainline general-purpose processor	N-series, two-socket network and edge processor	Two-socket balanced server processor
Total cores	24	24	16
Total threads	48	48	32
Processor base frequency	2.00 GHz	1.80 GHz	2.00 GHz
Max turbo frequency	3.80 GHz	3.80 GHz	4.00 GHz
Cache	45 MB	45 MB	30 MB
TDP	185 W	165 W	150 W
Scalability	2S	2S	2S
Max memory size	4 TB	4 TB	4 TB
Memory channels	8	8	8
Memory support	DDR5-4400 1DPC and 2DPC	DDR5-4000 1DPC and 2DPC	DDR5-4400 1DPC and 2DPC
ECC memory	Yes	Yes	Yes
PCI Express	5, 80 lanes	5, 80 lanes	5, 80 lanes
Default accelerator devices	DSA: 1	QAT: 2; DLB: 2; DSA: 1	QAT: 2; DLB: 2; DSA: 1
Intel AMX	Yes	Yes	Yes
Intel DL Boost	Yes	Yes	Yes
Best-fit role	Two-socket enterprise and general-purpose server	Two-socket network and edge server	Balanced two-socket enterprise and server compute

Accessories

Category	Accessories
Included Accessories	- Intel Xeon Gold 5418Y 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 5418Y Processor Ordering and Spec Information. https://www.intel.com/content/www/us/en/products/sku/232379/intel-xeon-gold-5418y-processor-45m-cache-2-00-ghz/ordering.html