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Intel

Intel Xeon Gold 5423N Processor (PK8071305321900)

Datasheet

Product Overview

- The Intel Xeon Gold 5423N is a 4th Gen Intel Xeon Scalable processor from the Sapphire Rapids Edge Enhanced family for network, edge, and server workloads.
- It provides 20 cores and 40 threads, with a 2.10 GHz base frequency, up to 4.00 GHz Intel Turbo Boost frequency, 37.5 MB cache, and a 145 W TDP.
- Built on Intel 7 process technology, the processor supports single-socket operation, eight DDR5 memory channels, and up to 4 TB of memory.
- The processor supports DDR5-4000 memory with ECC and provides 48 PCI Express 4.0 lanes for network adapters, storage, and accelerator connectivity.
- Intel vRAN Boost, Intel DL Boost, one default DSA device, and AVX-512 support selected virtualized radio access, 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

- **20-Core Edge Compute:** 20 cores and 40 threads provide parallel processing capacity for network functions, edge servers, communications infrastructure, and general server workloads.
- **2.10 to 4.00 GHz Frequency Range:** The processor combines a 2.10 GHz base frequency with up to 4.00 GHz Intel Turbo Boost frequency for responsive server performance.
- **DDR5 and PCIe 4.0 Expansion:** Eight DDR5-4000 memory channels and 48 PCIe 4.0 lanes support memory and I/O designs for single-socket edge servers.
- **vRAN and Data-Movement Support:** Intel vRAN Boost, Intel DL Boost, and one default Intel DSA device support selected virtualized RAN, inference, analytics, and data-movement workloads.

Detailed Features



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Component	Specification
Processor	Intel Xeon Gold 5423N, 20 cores / 40 threads
Ordering Information	PK8071305321900, FC-LGA16A Tray, Spec Code SRMQQ
Frequency and Cache	2.10 GHz base, up to 4.00 GHz turbo, 37.5 MB cache
Memory	Up to 4 TB DDR5-4000, 8 channels, ECC supported
Power and Expansion	145 W TDP, 1S only, PCIe 4.0 with 48 lanes, FCLGA4677 socket

Edge-Optimized Server Compute

The 5423N combines 20 physical cores with 40 threads, a 2.10 GHz base frequency, and a 145 W TDP. Its compute profile suits network functions, edge servers, communications infrastructure, and general server workloads.

Single-Socket Deployment

Intel specifies 1S Only scalability for the 5423N. This supports compact edge platforms that need predictable processor, memory, and I/O resources in one socket.

High Turbo Frequency

The processor reaches up to 4.00 GHz Intel Turbo Boost frequency. Combined with 20 cores and 40 threads, this provides a balance of parallel capacity and responsive performance for edge applications.

PCIe 4.0 I/O Expansion

Forty-eight PCIe 4.0 lanes provide direct expansion capacity for Ethernet adapters, storage controllers, accelerators, and other server devices in a single-socket design.

ECC Memory for Edge Platforms

The processor supports up to 4 TB of DDR5-4000 memory across eight channels, with ECC support for server-class reliability. This gives single-socket systems room for virtualized network functions, caches, analytics, and service containers.

vRAN Boost for Network Workloads

Intel vRAN Boost is listed for the processor and supports selected virtualized RAN workloads. Combined with the processor's network-oriented Edge Enhanced positioning, it helps target communications and edge deployments.

Acceleration for Data Movement

The processor provides one default DSA device and Intel DL Boost. It also supports AVX-512 instructions and two AVX-512 FMA units for selected analytics and compute workloads.

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-5423N
Intel ordering code	PK8071305321900
Intel Spec Code	SRMQQ
Processor model	Intel Xeon Gold 5423N Processor
Product collection	4th Gen Intel Xeon Scalable Processors
Code name	Products formerly Sapphire Rapids Edge Enhanced
Vertical segment	Server
Processor number	5423N
Lithography	Intel 7
Marketing status	Launched
Launch date	Q1 2023
Embedded Options Available	Yes
Total cores	20
Total threads	40

Feature	Value
Processor base frequency	2.10 GHz
Max turbo frequency	4.00 GHz
Cache	37.5 MB
TDP	145 W
Intel DL Boost	Yes
Scalability	1S Only
Memory types	DDR5-4000
Maximum memory speed	4000 MHz
Max memory size	4 TB
Max memory channels	8
Intel Optane Persistent Memory supported	No
ECC memory supported	Yes
PCI Express revision	4
Max PCI Express lanes	48
Sockets supported	FCLGA4677
Package carrier	E1B
Package size	77.5 mm x 56.5 mm
DTS max	97 °C
TCASE	83 °C
Intel vRAN Boost	Yes
Intel On Demand Activation Model	No
Intel QuickAssist Technology	0 default devices
Intel Dynamic Load Balancer	0 default devices
Intel Data Streaming Accelerator	1 default device
Intel In-memory Analytics Accelerator	0 default devices
Intel Advanced Matrix Extensions	No
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	No

Feature	Value
Intel Resource Director Technology	Yes
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 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	U1

Product Comparison

Feature	Intel Xeon Gold 5423N / PK8071305321900	Intel Xeon Gold 5433N / PK8071305321800	Intel Xeon Gold 5420+ / PK8071305120600
Processor family	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable
Positioning in this comparison	20-core single-socket edge processor	20-core single-socket edge processor	28-core two-socket enterprise processor
Total cores	20	20	28
Total threads	40	40	56
Processor base frequency	2.10 GHz	2.30 GHz	2.00 GHz
Max turbo frequency	4.00 GHz	4.10 GHz	4.10 GHz
Cache	37.5 MB	37.5 MB	52.5 MB
TDP	145 W	160 W	205 W
Scalability	1S Only	1S Only	2S
Max memory size	4 TB	4 TB	4 TB
Memory channels	8	8	8
Memory support	DDR5-4000	DDR5-4000	DDR5-4400 1DPC and 2DPC
ECC memory	Yes	Yes	Yes
PCI Express	4, 48 lanes	4, 48 lanes	5, 80 lanes
Default accelerator devices	QAT: 0; DLB: 0; DSA: 1; IAA: 0	QAT: 0; DLB: 0; DSA: 1; IAA: 0	QAT: 1; DLB: 1; DSA: 1; IAA: 1
Intel AMX	No	Yes	Yes
Intel DL Boost	Yes	Yes	Yes
Best-fit role	Single-socket network and edge server	Single-socket network and edge server	High-capacity two-socket enterprise and cloud server

Accessories

Category	Accessories
Included Accessories	- Intel Xeon Gold 5423N processor - Tray shipping media
Optional Accessories	- FCLGA4677-compatible server board and CPU heatsink solution - DDR5 ECC memory and PCIe 4.0 network or storage adapters

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[2] Intel. (2026). Intel Xeon Gold 5423N Processor Ordering and Spec Information. https://www.intel.com/content/www/us/en/products/sku/234916/intel-xeon-gold-5423n-processor-37-5m-cache-2-10-ghz/ordering.html