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Intel

Intel Xeon Platinum 8471N Processor (PK8071305074701)

Datasheet

Product Overview

- The Intel Xeon Platinum 8471N is a 4th Gen Intel Xeon Scalable processor for high-density cloud, enterprise, network, and data-center server workloads.
- It provides 52 cores and 104 threads, with a 1.80 GHz base frequency, up to 3.60 GHz Intel Turbo Boost frequency, 97.5 MB cache, and a 300 W TDP.
- The processor is designed for single-socket server platforms, with eight DDR5 memory channels and high-bandwidth PCI Express 5.0 expansion.
- Up to DDR5-4800 MT/s at 1DPC and DDR5-4400 MT/s at 2DPC support high-capacity server memory, with ECC support for platform reliability.
- Eighty PCIe 5.0 lanes, one-socket scalability, and no UPI links support dense compute, networking, storage, and data-processing workloads within a single processor socket.
- Four default devices each for QAT, DLB, and DSA provide hardware acceleration options, while Intel SGX with a 128 GB default maximum EPC size supports protected deployments.

Product Highlights

- **52-Core Platinum Compute:** 52 cores and 104 threads provide high parallel processing capacity for network, cloud, enterprise, and data-center workloads.
- **Single-Socket PCIe Expansion:** One-socket scalability and 80 PCIe 5.0 lanes support high-speed networking, storage, accelerators, and other server I/O devices without UPI links.
- **DDR5 Memory Flexibility:** Eight memory channels support up to DDR5-4800 MT/s at 1DPC and DDR5-4400 MT/s at 2DPC, with ECC support for server-class systems.
- **Network and Data Acceleration:** Four default devices each for Intel QAT, DLB, and DSA provide acceleration options for cryptography, load balancing, and data movement.

Detailed Features



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Component	Specification
Processor	Intel Xeon Platinum 8471N, 52 cores / 104 threads
Ordering Information	PK8071305074701, FC-LGA16A Tray, Spec Code SRM7G
Frequency and Cache	1.80 GHz base, up to 3.60 GHz turbo, 97.5 MB cache
Memory	Up to DDR5-4800 MT/s 1DPC or DDR5-4400 MT/s 2DPC, 8 channels, ECC supported
Power and Expansion	300 W TDP, 1S-only scalability, PCIe 5.0 with 80 lanes, 0 GT/s UPI, 0 UPI links

High-Core-Count Network Performance

The 8471N combines 52 cores and 104 threads with a 1.80 GHz base frequency and up to 3.60 GHz Intel Turbo Boost frequency. This profile suits network infrastructure, cloud services, analytics, and general-purpose data-center workloads.

Single-Socket Platform Design

Intel specifies 1S Only scalability, 0 GT/s UPI, and zero UPI links. The processor is intended for single-socket platforms where high core density and local memory bandwidth are prioritized.

PCIe 5.0 Expansion Capacity

Eighty PCIe 5.0 lanes provide high-speed connectivity for Ethernet adapters, storage controllers, accelerators, and other I/O devices. The lane budget helps balance high-throughput expansion across a server platform.

DDR5 Memory Bandwidth

Eight memory channels support up to DDR5-4800 MT/s with one DIMM per channel and up to DDR5-4400 MT/s with two DIMMs per channel. ECC support helps maintain data integrity in server environments.

Server Instruction Set

The processor lists SSE4.2, AVX, AVX2, and AVX-512 instruction extensions for supported server workloads.

Integrated Accelerator Portfolio

Intel documents four default devices each for QAT, DLB, and DSA. These engines can offload supported cryptography, load-balancing, and data-movement operations from general-purpose cores.

Speed Select Performance Profiles

Intel Speed Select Technology provides three 52-core operating points: 1.8 GHz at 300 W, 1.8 GHz at 300 W, and 2.1 GHz at 300 W.

Protected Server Execution

Intel SGX with a 128 GB default maximum EPC size, Total Memory Encryption, AES instructions, Boot Guard, and Control-Flow Enforcement Technology help protect data and workloads across the server lifecycle.

Technical Specifications

Product Specifications

Feature	Value
User SKU	INTL-Platinum-8471N
Intel ordering code	PK8071305074701
Intel Spec Code	SRM7G
Processor model	Intel Xeon Platinum 8471N Processor
Product collection	4th Gen Intel Xeon Scalable Processors
Code name	Products formerly Sapphire Rapids
Vertical segment	Server
Processor number	8471N
Lithography	Intel 7
Marketing status	Launched
Launch date	Q1 2023
Use conditions	Server / Enterprise
Total cores	52
Total threads	104

Feature	Value
Processor base frequency	1.80 GHz
Max turbo frequency	3.60 GHz
Cache	97.5 MB
Intel UPI speed	0 GT/s
Max UPI links	0
TDP	300 W
Scalability	1S Only
Sockets supported	FCLGA4677
Package carrier	E1A
Package size	77.5 mm x 56.5 mm
DTS max	92 °C
TCASE	76 °C
Max memory size	Up to 4 TB, depending on memory type and platform configuration
Memory types	Up to DDR5-4800 MT/s 1DPC; up to DDR5-4400 MT/s 2DPC
Max memory channels	8
ECC memory supported	Yes
PCI Express revision	5.0
Max PCI Express lanes	80
Intel On Demand Activation Model	No
Intel QuickAssist Technology	4 default devices
Intel Dynamic Load Balancer	4 default devices
Intel Data Streaming Accelerator	4 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 - Base Frequency	Yes
Intel Speed Select Technology - Performance Profile	Yes
Intel DL Boost	Yes
High Priority Cores	16

Feature	Value
High Priority Core Frequency	1.90 GHz
Low Priority Cores	36
Low Priority Core Frequency	1.30 GHz
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 AMX, Intel SSE4.2, Intel AVX, Intel AVX2, Intel AVX-512
AVX-512 FMA units	2
Intel Crypto Acceleration	Yes
Intel QuickAssist Software Acceleration	Yes
Intel Platform Firmware Resilience	Yes
Intel Control-Flow Enforcement Technology	Yes
Intel Total Memory Encryption	Yes
Intel AES New Instructions	Yes
Intel SGX	Yes with Intel SPS
Default maximum SGX EPC size	128 GB
Intel OS Guard	Yes
Intel Trusted Execution Technology	Yes
Execute Disable Bit	Yes
Intel Boot Guard	Yes
Intel Run Sure Technology	Yes
Mode-based Execute Control	Yes
Intel Virtualization Technology	VT-x, VT-d, and VT-x with EPT
Shipping media	Tray
Stepping	E5

Product Comparison

Feature	Intel Xeon Platinum 8471N / PK8071305074701	Intel Xeon Platinum 8470N	Intel Xeon Platinum 8468V
Processor family	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable	4th Gen Intel Xeon Scalable
Product positioning	52-core, single-socket Platinum processor with SST-PP	52-core, two-socket Platinum processor with SST-PP	48-core Speed Select Platinum processor
Total cores	52	52	48
Total threads	104	104	96
Processor base frequency	1.80 GHz	1.70 GHz	2.40 GHz
Max turbo frequency	3.60 GHz	3.60 GHz	3.80 GHz
Cache	97.5 MB	97.5 MB	97.5 MB
TDP	300 W	300 W	330 W
Max memory size	Up to 4 TB, depending on memory type	Up to 4 TB, depending on memory type	Up to 4 TB, depending on memory type
Scalability	1S Only	2S	2S
UPI	0 GT/s, 0 links	16 GT/s, 3 links	16 GT/s, 3 links
Memory channels	8	8	8
PCI Express lanes	80	80	80
Default accelerator devices	QAT: 4; DLB: 4; DSA: 4	QAT: 4; DLB: 4; DSA: 4	QAT: 1; DLB: 1; DSA: 1; IAA: 1
Intel AMX	No	No	Yes
Best-fit role	Network infrastructure and dense single-socket compute	Network infrastructure and dual-socket compute	Configurable two-socket enterprise and data-center compute

Accessories

Category	Accessories
Included Accessories	- Intel Xeon Platinum 8471N processor (tray shipping media)
Optional Accessories	-

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