

Lenovo PX

Version: 12.0 | 10/13/2026

Product Name	PX
Product Display Name	ThinkStation PX
Information Date	30-Sep-26
Hardware Maintenance Manual	PX HMM
Drivers & Software	PX Drivers & Software
Available Whitepapers	Power Configurator Memory Configurator Storage Configurator Intel VROC Configurator Discrete RAID Configurator Windows 11 Installation Windows 10 Installation Red Hat Enterprise Linux 9 Installation Red Hat Enterprise Linux 10 Installation Ubuntu Linux 22.04 LTS Installation Ubuntu Linux 24.04 LTS Installation BMC Installation Guide Intel AMT ThinkStation WiFi Solutions Thunderbolt 4 / USB 4 PCIe Gen 5 NVMe Storage

SECTION I: Platform Overview

Description	The pinnacle of Lenovo technology, the ThinkStation PX goes beyond the limits of desktop performance to enable even the most extreme workflows. Featuring a thermally advanced chassis co-designed with Aston Martin, the latest dual 4th Gen Intel® Xeon® Scalable processors, up to 120 cores, and support for up to four NVIDIA RTX™6000 Ada Generation GPUs, this workstation powerhouse runs the most complex computing workloads seamlessly.
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CPU

Processor Support	Dual 4th/5th Generation Intel Xeon Scalable Processors
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Socket Type	Socket-E (LGA-4677)
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Operating Systems

Preloaded	Windows 11 Pro 64-bit for Workstation Ubuntu 22.04 LTS (configuration specific) Ubuntu 24.04 LTS (configuration specific)
Supported	Red Hat Enterprise Linux 9.2 Red Hat Enterprise Linux 9.4 Red Hat Enterprise Linux 9.5 Red Hat Enterprise Linux 10.2 Ubuntu 20.04 LTS

Memory

Slots	Up to 16 DIMMS (8 DIMMs per CPU)
Channels	8 Memory Channels per CPU
Type	DDR5, 288-Pin, ECC RDIMM and 3DS RDIMM*
ECC Support	Yes
Speed	Up to 5600MHz
Max DIMM Size	128GB DDR5 ECC RDIMM 128GB DDR5 ECC 3DS-RDIMM
Max System Memory	2TB
Disclaimers	*Actual Memory Speed is dependent on the CPU.

Storage

Total Bays/Size	Up to 4
SATA	3 x SFF-8680 Receptacles 1 x SATA 3.0 Connectors
PCIe (M.2)	3 x M.2 NVMe 2280 PCIe Connectors Onboard 4 x M.2 NVMe 2280 Front Accessible Drives
Disclaimers	*See Storage Whitepaper for details on the available usage options.

Video

Integrated Graphics	Not Available
Discrete Graphics	RTX Pro 6000 Max-Q Blackwell (DP x4) – 96GB, GDDR7, PCIe5, Dual-Slot RTX Pro 5000 Blackwell (DP x4) – 72GB, GDDR7, PCIe5, Dual-Slot RTX Pro 5000 Blackwell (DP x4) – 48GB, GDDR7, PCIe5, Dual-Slot RTX Pro 4500 Blackwell (DP x4) – 32GB, GDDR7,

	PCIe5, Dual-Slot RTX Pro 4000 Blackwell (DP x4) – 24GB, GDDR7, PCIe5, Single-Slot RTX Pro 2000 Blackwell (MiniDP x4) – 16GB, GDDR7, PCIe5, Dual-Slot NVIDIA T400(MiniDP x3) – 4GB GDDR6, PCIe3, Single-Slot NVIDIA T1000(MiniDP x4) – 8GB GDDR6, PCIe3, Single-Slot NVIDIA RTX A2000(MiniDP x4) – 12GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX A4000 (DP x4) – 16GB GDDR6, PCIe4, Single-Slot NVIDIA RTX A4500(DP x4) – 20GB, GDDR6, PCIe4, Dual-Slot NVIDIA RTX A5000(DP x4) – 24GB, GDDR6, PCIe4, Dual-Slot NVIDIA RTX A5500(DP x4) – 24GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX A6000(DP x4) – 48GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX6000 Ada(DP x4) – 48GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX5880 Ada(DP x4) – 48GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX5000 Ada(DP x4) – 32GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX4500 Ada(DP x4) – 24GB GDDR6, PCIe4, Dual-Slot NVIDIA RTX4000 Ada(DP x4) – 20GB GDDR6, PCIe4, Single-Slot NVIDIA A1000(MiniDP x4) – 8GB GDDR6, PCIe4, Single-Slot NVIDIA A400(MiniDP x4) – 4GB GDDR6, PCIe4, Single-Slot NVIDIA A800 – 40GB GDDR6, PCIe4, Dual-Slot Nvidia Quadro SYNC II card / Nvidia RTX Pro Sync
Multi-GPU Support	Yes
Type	PCIe Add-In-Card
Bus Interface	PCIe x16
Disclaimers	

Slots

Slot 1	PCIe 4.0 x16, Full Height, Full Length, 75W (CPU 2)
Slot 2	PCIe 4.0 x16, Full Height, Full Length, 75W (CPU 2)
Slot 3	PCIe 5.0 x16, Full Height, Full Length, 75W (CPU 2)
Slot 4	PCIe 5.0 x16, Full Height, Full Length, 75W (CPU 2)
Slot 5	PCIe 4.0 x8, Full Height, Full Length, 25W, Open Ended (CPU 2)
Slot 6	PCIe 5.0 x16, Full Height, Full Length, 75W (CPU 1)
Slot 7	PCIe 4.0 x16, Full Height, Full Length, 75W (CPU 1)
Slot 8	PCIe 5.0 x16, Full Height, Full Length, 75W (CPU 1)
Slot 9	PCIe 4.0 x16, Full Height, Full Length, 75W (CPU 1)
Disclaimers	

Front I/O

USB	1 x USB-A 3.2 Gen 2 (10Gbps) 1 x USB-A 3.2 Gen 2 (10Gbps) (with Always On Charging) 2 x USB-C 3.2 Gen 2 (10Gbps)
Audio	1 x 3.5mm Global Headset Jack (Headphone + Mic in)
Media Card Reader	N/A
Flex Bay	3 x Front access drive bay Rear Flex Storage Enclosure (Shared with 2nd PSU Bay)
Disclaimers	Note: Actual USB throughout will vary depending on the type and quantity of USB devices used.

Rear I/O

USB	2 x USB-A 2.0 (480Mbps) 4 x USB-A 3.2 Gen 1 (5Gbps) 1 x USB-C 3.2 Gen 2x2 (20Gbps)
Audio	2 x Rear (Line Out, Line In retasked as Mic)
DisplayPort	As Supported by GPU
HDMI	As Supported by GPU
Serial Port	Optional 1x Rear Port
Ethernet	1 x 1GbE – RJ45 1 x 10GbE – RJ45
PS/2	Optional PS/2 (2 port) PCIe adapter
Optional Network Adapter	Broadcom 5720 Dual Port Gigabit PCIe Ethernet Adapter Broadcom 5719 Quad Port Gigabit PCIe Ethernet Adapter Bitland RTL8168H 1000M PCIe Ethernet Adapter Intel I210-T1 Single Port Gigabit PCIe Ethernet Adapter Intel I350-T2 Dual Port Gigabit PCIe Ethernet Adapter Intel I350-T4 Quad Port Gigabit PCIe Ethernet Adapter Intel AX210 WIFI PCIe Adapter with Internal Antennas NVIDIA ConnectX-6 Dual Port 25-Gigabit Ethernet Adapter Intel E810-DA2 Dual Port 25-Gigabit PCIe Ethernet Adapter*
Disclaimers	Note: Actual USB throughout will vary depending on the type and quantity of USB devices used. *The Intel E810-DA2 requires 2 x SFP28 transceivers.

Ethernet

Vendor	Aquantia 10 GbE AQC113C-B1-C Intel 1 GbE I219 (Vpro, AMT)
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Speeds	10/100/1000/10000Mbps Aquantia AQC113C 10/100/1000Mbps Intel I219
Functions	PXE, WOL, Jumbo Frames ASF, Teaming (Intel only)
Connectors	2 x RJ45
Disclaimers	Note: Network speeds listed are theoretical.

Audio

Vendor	Realtek
Type	HD (2.0)
Internal Speaker	1 x 1.5 watt 4 ohm
Connectors	2 x Rear 3.5mm Jacks (Line Out, Line In retasked as Mic) 1 x Front 3.5mm Global Headset Jack (Headphone + Mic in)
Chipset	Realtek ALC897Q Codec (rear) Realtec ALC4032 (front)
Number of Channels	Rear Audio: 2 Channels Front Audio: 2 Channels
Number of Bits/Audio Resolution	Rear Codec: 10 Channel DAC Supports 16/20/24-bit PCM 2 Stereo ADC Supports 16/20/24-bit PCM Front Codec: One stereo DAC supports 8/16/22.05/24/32/44.1/48/96/176.4/192KHz Sample Rate, 16/24-bit One stereo ADC supports 8/16/22.05/24/32/44.1/48/96KHz Sample Rate, 16/24-bit
Disclaimers	*Note: Audio Codec ALC897Q can support 7.1 channel, but motherboard only has 2 rear jacks – MIC in and Line out, only 2 channel for Line out.

Thermal

Temp Sensors	Ambient Cabled Sensor – Thermistor, MB Header cabled to chassis front bezel PCIe Zone 1 Sensor – Thermistor PCIe Zone 2 Sensor – Thermistor PCIe Zone 3 Sensor – Thermistor PCIe Zone 4 Sensor – Thermistor M.2 Zone 1 Sensor – Thermistor M.2 Zone 2 Sensor – Thermistor MISC Sensor – Thermistor HDD 1 Sensor – I2C Temp Sensor HDD 2 Sensor – I2C Temp Sensor HDD 3 Sensor – I2C Temp Sensor PSU Bay 2 (HDD) Sensor – I2C Temp Sensor
Fans	2 x Front Fans (FRONT_FAN1) – 6-pin blind connect 1 Connector per 2 Fans 1 x Front Fan (FRONT_FAN2) – 4-pin blind connect 1 Connector per 1 Fans 1 x Front Fan (FRONT_FAN3) – 4-pin blind connect 1 Connector per 1 Fans

	2 x Rear Fans (REAR_FAN1) – 6-pin blind connect 1 Connector per 2 Fans 1 x CPU 1 Fan (CPU1_FAN) – 4-pin header with 3-pin key 1 x CPU 2 Fan (CPU2_FAN) – 4-pin header with 3-pin key 1 x PSU HDD Fan (PSU_HDD_FAN) – PSU Edge Connector 3 x HDD Fans (HDD_FAN_X) – 4-pin header with 3-pin key 2 x PSU1 Fans – internal of PSU 2 x PSU2 Fans – internal of PSU 1 x CPU1 Memory Fan – CPU1_Pump_DDR – 4-pin header with 3-pin key 1 x CPU2 Memory Fan – CPU2_Pump_DDR – 4-pin header with 3-pin key
Disclaimers	

Power Specifications

Power Supply	1850 watts
Power Efficiency	92% Efficient @ 50% Load
Main	C20
Operating Voltage Range	100 – 240V (autosensing)
Rated Voltage Range	90-264VAC
Rated Line Frequency	47Hz / 63Hz
Operating Line Frequency Range	50Hz / 60Hz
Rated Input Current	13 – 20A
Graphics	Up to 8 x 8-pin (6+2) PCIe*
Power Supply Fan	Yes
ENERGY STAR® Qualified (config dependent)	Yes
80 PLUS Compliant	Yes
Built-in Self Test (BIST) LED	Yes
Disclaimers	*Quantity of Graphics power cables is configuration dependent *See Power Configuration Whitepaper for additional details.

BIOS

Vendor	AMI
Disclaimers	

Chassis Information

Color	Storm Gray
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PSU	One Fixed 1850W, Autosensing, 92% PSU, 80 PLUS Platinum Qualified Optional: 2nd 1850W, Autosensing, 92% PSU, 80 PLUS Platinum Qualified
Thermal Solutions	2 Rear Fans 4 Front Fans 1 Fan per storage bay 1 Fan per CPU 2 Fans per PSU Memory Fans (configuration dependent)
Dimensions	434.4mm/17.1" H (without feet) 440.4mm/17.3" H (with feet) 575mm/22.6" D 220mm/8.7" W
Weight	35.6 kg / 78.48 lbs
Disclaimers	

Packaging Dimensions

Height (mm/in)	658mm / 25.91"
Width (mm/in)	397mm / 15.63"
Depth (mm/in)	802mm / 31.57"
Weight (kgs/lbs)	40.135 kg / 88.48 lbs
Disclaimers	

Security & Serviceability

TPM	Infineon SPI TPM SLB9672 TPM 2.0
Asset ID	Yes, 1024 x 8bit
vPro	Yes
Cable Lock Support	Yes, Optional Kensington Cable Lock
Serial, Parallel, USB, Audio, Network, Enable/Disable Port Control	Yes
Power-On Password	Yes
Setup Password	Yes
NIC LEDs (integrated)	Yes
Access Panel Key Lock	Yes
Boot Sequence Control	Yes
Padlock Support	No
Boot Without Keyboard and/or Mouse	Yes
Access Panel	Tool-less Side Cover Removal
Hard Drives	Tool-less
Expansion Cards	Tool-less

Processor Socket	Tool-less*
Color Coded User Touch Points	Yes
Color-coordinated Cables and Connectors	Yes
Memory	Tool-less
System Board	Retained with Screws
Restore CD/DVD/USB Set	Not Included, Restore Media Available via Lenovo Download Recovery Service or available through Lenovo Support.
Disclaimers	*Note: CPU Heatsink assembly requires a T30 bit.

Operating Environment

Air Temperature	Operating: 10°C to 35°C (50°F to 95°F)
Storage	Storage: -40°C to 60°C (-40°F to 140°F) in Original Shipping Carton Storage: -10°C to 60°C (14°F to 140°F) Without Carton
Humidity	Relative Humidity Operating: 10% to 80% (non-condensing) Relative Humidity Storage/Transit: 10% to 90% (non-condensing) Wet Bulb Temperature Operating: 25°C (77°F) max Wet Bulb Temperature Non-operating: 40°C (104°F) max
Altitude	Upper limits decrease 1°C (1.8°F) per 300 m (1000 ft) above sea level
Vibration	Operating Vibration: Random, 0.27G at 5-500 Hz, 30 Minutes Per Surface (X,Y,Z) Non-Operating Vibration: Random, 1.04G at 2-200 Hz, 15 Minutes Per Surface (±X,±Y,±Z)
Shock	Operating: X,Y axis: +/- 15G/3ms Z axis: +/- 30G/3ms Operating (Rack mounted): X,Y,Z axis: +/- 15G/3ms Non-operating target: Trapezoidal shock, 35g average, 11ms
Disclaimers	Extended operating temperatures are possible – please contact your Lenovo Rep

SECTION II: Platform Detail

Board Size	16.26" x 15.43" (413mm x 392mm)
Layout	Lenovo Custom Extended ATX

Motherboard Core

Processor Support	Intel Sapphire Rapids – Xeon Scalable Processors (Platinum, Gold, Silver) Intel Emerald Rapids – Xeon Scalable Processors (Platinum, Gold, Silver)
Socket Type	Socket E (LGA 4677)
Memory Support	DDR5 up to 5600MHz RDIMM / 3DS RDIMM Memory
CPU-CPU Interconnect	Intel UPI v2.0, 3 links, x24, at speeds 12.8GT/s, 14.4GT/s and 16GT/s
Voltage Regulator	Intel VR14.0 – 400W TDP Capable
Chipset (PCH)	Intel Emmitsburg (Intel C741 Series)
Flash	2 x 64MB
Super I/O	2 x MEC1723(176 pin)
Clock	External Clock
Audio	Rear Codec: Realtek ALC897Q (Rear I/O) Front Codec: Realtek ALC4032 (FPIO)
Ethernet	Aquantia 10Gb AQC113C-B1-C Intel 1Gb I219

Supported Components

Processor Level	Intel Xeon Platinum	Intel Xeon Gold	Intel Xeon Silver
Processor	Intel Xeon Emerald Rapids Platinum 8592+ Intel Xeon Emerald Rapids Platinum 8580 Intel Xeon Emerald Rapids Platinum 8570 Intel Xeon Emerald Rapids Platinum 8568Y+ Intel Xeon Sapphire Rapids Platinum 8490H Intel Xeon Sapphire Rapids Platinum 8468	Intel Xeon Emerald Rapids Gold 6548Y+ Intel Xeon Emerald Rapids Gold 6544Y Intel Xeon Emerald Rapids Gold 6542Y Intel Xeon Emerald Rapids Gold 6534 Intel Xeon Emerald Rapids Gold 6530 Intel Xeon Emerald Rapids Gold 6526Y Intel Xeon Sapphire Rapids Gold 6444Y Intel Xeon Sapphire Rapids Gold 6442Y Intel Xeon Sapphire Rapids Gold 6438Y+ Intel Xeon Sapphire Rapids Gold 6430 Intel Xeon Sapphire Rapids Gold 6418H Intel Xeon Sapphire Rapids Gold 6416H Intel Xeon Sapphire Rapids Gold 5420+ Intel Xeon Sapphire Rapids Gold 5418Y Intel Xeon Sapphire Rapids Gold 5416S Intel Xeon Sapphire Rapids Gold 5415+	Intel Xeon Sapphire Rapids Silver 4510 Intel Xeon Sapphire Rapids Silver 4416+ Intel Xeon Sapphire Rapids Silver 4410Y Intel Xeon Sapphire Rapids Silver 4410T
Memory Type	RDIMMs – 5600MT/s, CPU Dependent		3DS-RDIMMs – 4800MT/s, CPU Dependent

	RDIMMs – 4800MT/s, CPU Dependent	
Memory	16GB DDR5 ECC RDIMM PC5-5600 32GB DDR5 ECC RDIMM PC5-5600 64GB DDR5 ECC RDIMM PC5-5600 128GB DDR5 ECC RDIMM PC5-5600 16GB DDR5 ECC RDIMM PC5-4800 32GB DDR5 ECC RDIMM PC5-4800 64GB DDR5 ECC RDIMM PC5-4800	128GB DDR5 ECC 3DS-RDIMM PC5-4800
Disclaimers		Additional CPU SKU's certified. NOTE: Lenovo does not support CPU overclocking on ThinkStation platforms.

Storage

3.5" SATA Hard Disk Drive (HDD)	2TB SATA – 7200rpm, 6Gb/s, 3.5" 4TB SATA – 7200rpm, 6Gb/s, 3.5" (Enterprise Class) 6TB SATA – 7200rpm, 6Gb/s, 3.5" (Enterprise Class) 12TB SATA – 7200rpm, 6Gb/s, 3.5" (Enterprise Class)
M.2 PCIe Solid State Drive (SSD)	512GB M.2 PCIe – SSD, 2280, Gen5 (x4), NVMe, TLC, OPAL2.0 1024GB M.2 PCIe – SSD, 2280, Gen5 (x4), NVMe, TLC, OPAL2.0 2048GB M.2 PCIe – SSD, 2280, Gen5 (x4), NVMe, TLC, OPAL2.0 4096GB M.2 PCIe – SSD, 2280, Gen5 (x4), NVMe, TLC, OPAL2.0 512GB M.2 PCIe – SSD, 2280, Gen4 (x4), NVMe, TLC, OPAL2.0 1024GB M.2 PCIe – SSD, 2280, Gen4 (x4), NVMe, TLC, OPAL2.0 2048GB M.2 PCIe – SSD, 2280, Gen4 (x4), NVMe, TLC, OPAL2.0 4096GB M.2 PCIe – SSD, 2280, Gen4 (x4), NVMe, TLC, OPAL2.0
Disclaimers	Additional Storage devices certified.

RAID

RAID Requirements	M.2 and SATA RAID via Intel VROC Controller
Notes	Supported RAID levels for a system will vary from the stated capabilities of the RAID controller due to dependencies on the number and capacity of physical disks in the system and on customer requirements for performance, fault tolerance, or data redundancy. Max supported RAID 0/1/5/10.
Intel VROC	Intel Virtual RAID On CPU (VROC) – Basic, Supports 0/1/10 Intel Virtual RAID On CPU (VROC) – Premium, Supports 0/1/5/10

Optical Drive/Removable Media

Media Card Reader Specifications	Optional: 13-in-1 Media Card Reader Support SD slot 1.Secure Digital Card (SD) Mini SD (requires adapter) Micro SD (requires adapter) 2.Secure Digital High Capacity (SDHC) Mini SD High Capacity (requires adapter) Micro SD High Capacity (requires adapter) 3.SD Extended Capacity Memory Card (SDXC) Micro SD Extended Capacity (requires adapter) 4.SD Ultra High Speed II (SD UHSII) 5.MultiMediaCard(MMC) RS-MMC (requires adapter) MMC-Micro (requires adapter) CF slot 6.CompactFlash Type I 7.CompactFlash Type II 8.Microdrive MS slot 9.Memory Stick Memory Stick Micro (requires adapter) 10.Memory Stick Duo 11.Memory Stick PRO 12.Memory Stick PRO Duo 13.Memory Stick XC Duo Memory Stick XC Micro (requires adapter) Optional: 15-in-1 Media Card Reader Support SD slot 1.Secure Digital Card (SD) Mini SD (requires adapter) Micro SD (requires adapter) 2.Secure Digital High Capacity (SDHC) Mini SD High Capacity (requires adapter) Micro SD High Capacity (requires adapter) 3.SD Extended Capacity Memory Card (SDXC) Micro SD Extended Capacity (requires adapter) 4.SD Ultra High Speed II (SD UHSII) 5.MultiMediaCard(MMC) RS-MMC (requires adapter) MMC-Micro (requires adapter) CF slot 6.CompactFlash Type I 7.CompactFlash Type II 8.Microdrive MS slot 9.Memory Stick Memory Stick Micro (requires adapter) 10.Memory Stick Duo 11.Memory Stick PRO 12.Memory Stick PRO Duo 13.Memory Stick PRO-HG Duo Memory Stick HG Micro (requires adapter) 14.Memory Stick XC Duo Memory Stick XC Micro (requires adapter) 15.Memory Stick XC-HG Duo Memory Stick XC-HG Micro (requires adapter)
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Keyboard and Pointing Devices

Keyboard	USB Traditional Keyboard PS/2 Tradition Keyboard Smart Card Keyboard USB Calliope Keyboard USB Calliope AI Keyboard
Pointing Devices	USB Fingerprint Mouse USB Calliope Mouse

PS/2 Black Optical Mouse

Expansion Bays

5.25" External Access Bays	3 x Front access drive bays 1 x Rear PSU bay storage enclosure (Utilizes 2nd PSU bay)*
Disclaimers	See Storage Configuration whitepaper for detailed usage *Only available on single PSU configurations

PCIe Adapters

Network	Broadcom 5720 Dual Port Gigabit Ethernet Adapter Broadcom 5719 Quad Port Gigabit Ethernet Adapter Bitland RTL8168H 1000M PCIE Ethernet Adapter Intel I210-T1 Single Port Gigabit Ethernet Adapter Intel I350-T2 Dual Port Gigabit Ethernet Adapter Intel I350-T4 Quad Port Gigabit Ethernet Adapter NVIDIA ConnectX-6 Dual Port 25-Gigabit Ethernet Adapter Intel E810-DA2 Dual Port 25-Gigabit PCIe Ethernet Adapter*
Thunderbolt	Rear Maple Ridge Thunderbolt PCIe Adapter
WiFi Cards	Intel PCIe WiFi Card With BT Internal Antenna Kit (AX210 6E)
PS/2	PS/2 (2-Port) PCIe adapter
Com port	Serial COM port cable with 5V transceiver
PCIe to M.2 Adapter Card	ThinkStation PCIe Gen4 Quad M.2 SSD Adapter ThinkStation PCIe Gen5 Quad M.2 SSD Adapter
Other	BMC PCIe Adapter

SECTION III: Supported Component Detail

CPU Specifications Group 1

CPU	Intel Xeon Silver 4510	Intel Xeon Silver 4410T	Intel Xeon Silver 4410Y	Intel Xeon Silver 4416+	Intel Xeon Emerald Rapids Gold 6548Y+
# of Cores	12	10	12	20	32
# of Threads	24	20	24	40	64
Processor Base Frequency	2.40 GHz	2.70 GHz	2.00 GHz	2.00 GHz	2.50 GHz

Max Turbo Frequency	4.1 GHz	4.00 GHz	3.90 GHz	3.90 GHz	4.1 GHz
Cache	30 MB	26.25 MB	30 MB	37.5 MB	60 MB
TDP	150 W	150 W	150 W	165 W	250 W
Intel ARK Spec Link	Intel® Xeon® Silver 4510	Intel® Xeon® Silver 4410T	Intel® Xeon® Silver 4410Y	Intel® Xeon® Silver 4416+	Intel® Xeon® Gold 6548Y+

CPU Specifications Group 2

CPU	Intel Xeon Emerald Rapids Gold 6544Y	Intel Xeon Emerald Rapids Gold 6542Y	Intel Xeon Emerald Rapids Gold 6534	Intel Xeon Emerald Rapids Gold 6530	Intel Xeon Emerald Rapids Gold 6526Y
# of Cores	16	24	8	32	16
# of Threads	32	48	16	64	32
Processor Base Frequency	3.60 GHz	2.90 GHz	3.90 GHz	2.10 GHz	2.80 GHz
Max Turbo Frequency	4.1 GHz	4.1 GHz	4.2 GHz	4.0 GHz	3.9 GHz
Cache	45 MB	60 MB	22.5 MB	160 MB	37.5 MB
TDP	270 W	250 W	195 W	270 W	195 W
Intel ARK Spec Link	Intel® Xeon® Gold 6544Y	Intel® Xeon® Gold 6542Y	Intel® Xeon® Gold 6534	Intel® Xeon® Gold 6530	Intel® Xeon® Gold 6526Y

CPU Specifications Group 3

CPU	Intel Xeon Sapphire Rapids Gold 6444Y	Intel Xeon Sapphire Rapids Gold 6442Y	Intel Xeon Sapphire Rapids Gold 6438Y+	Intel Xeon Sapphire Rapids Gold 6430	Intel Xeon Sapphire Rapids Gold 6418H
# of Cores	16	24	32	32	24
# of Threads	32	48	64	64	48
Processor Base Frequency	3.60 GHz	2.60 GHz	2.00 GHz	2.10 GHz	2.10 GHz
Max Turbo Frequency	4.00 GHz	4.00 GHz	4.00 GHz	3.40 GHz	4.00 GHz
Cache	45 MB	60 MB	60 MB	60 MB	60 MB
TDP	270 W	225 W	205 W	270 W	185 W
Intel ARK Spec Link	Intel® Xeon® Gold 6444Y	Intel® Xeon® Gold 6442Y	Intel® Xeon® Gold 6438Y+	Intel® Xeon® Gold 6430	Intel® Xeon® Gold 6418H

CPU Specifications Group 4

CPU	Intel Xeon Sapphire	Intel Xeon Sapphire	Intel Xeon Sapphire	Intel Xeon Sapphire	Intel Xeon Sapphire
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	Rapids Gold 6416H	Rapids Gold 5420+	Rapids Gold 5418Y	Rapids Gold 5416S	Rapids Gold 5415+
# of Cores	18	28	24	16	8
# of Threads	36	56	48	32	16
Processor Base Frequency	2.20 GHz	2.00 GHz	2.00 GHz	2.00 GHz	2.90 GHz
Max Turbo Frequency	4.20 GHz	4.10 GHz	3.80 GHz	4.00 GHz	4.10 GHz
Cache	45 MB	52.5 MB	45 MB	30 MB	22.5 MB
TDP	165 W	205 W	185 W	150 W	150 W
Intel ARK Spec Link	Intel® Xeon® Gold 6416H	Intel® Xeon® Gold 5420+	Intel® Xeon® Gold 5418Y	Intel® Xeon® Gold 5416S	Intel® Xeon® Gold 5415+

CPU Specifications Group 5

CPU	Intel Xeon Emerald Rapids Platinum 8592+	Intel Xeon Emerald Rapids Platinum 8580	Intel Xeon Emerald Rapids Platinum 8570	Intel Xeon Emerald Rapids Platinum 8568Y+	Intel Xeon Sapphire Rapids Platinum 8490H
# of Cores	64	60	56	48	60
# of Threads	128	120	112	96	120
Processor Base Frequency	1.90 GHz	2.00 GHz	2.10 GHz	2.30 GHz	1.90 GHz
Max Turbo Frequency	3.90 GHz	4.00 GHz	4.00 GHz	4.00 GHz	3.50 GHz
Cache	320 MB	300 MB	300 MB	300 MB	112.5 MB
TDP	350 W	350 W	350 W	350 W	350 W
Intel ARK Spec Link	Intel® Xeon® Platinum 8592+	Intel® Xeon® Platinum 8580	Intel® Xeon® Platinum 8570	Intel® Xeon® Platinum 8568Y+	Intel® Xeon® Platinum 8490H

CPU Specifications Group 5

CPU	Intel Xeon Sapphire Rapids Platinum 8468
# of Cores	48
# of Threads	96
Processor Base Frequency	2.10 GHz
Max Turbo Frequency	3.80 GHz
Cache	105 MB
TDP	350 W
Intel ARK Spec Link	Intel® Xeon® Platinum 8468

HDD Specifications Group 1

Drive	2TB SATA – 5400rpm, 6Gb/s, 3.5"	2TB SATA – 7200rpm, 6Gb/s, 3.5"	4TB SATA – 7200rpm, 6Gb/s, 3.5" Enterprise	6TB SATA – 7200rpm, 6Gb/s, 3.5" Enterprise	12TB SATA – 7200 RPM 6Gb/s 3.5" Enterprise
3.5" SATA Hard Disk Drive (HDD)	Yes	Yes	Yes	Yes	Yes
2.5" SATA Hard Disk Drive (HDD)	Not Available	Not Available	Not Available	Not Available	Not Available
Connector	SATA	SATA	SATA	SATA	SATA
Transfer Rate (Gb/sec)	Average Data Rate, Read/Write 156MB/s	Average Data Rate, Read/Write 156MB/s	Sustained Data Transfer Rate 216-226MB/s	Sustained Data Transfer Rate 216-226MB/s	Max Sustained Data Transfer Rate 268MB/s
Spindle Speed (RPM)	5,400	7,200	7,200	7,200	7,200
Power Off to Spindle Stop (sec)	NA	NA	NA	NA	NA
DC Power to Drive Ready (sec)	<20.0	<20.0	<30.0	<30.0	<30.0
Average Latency (msec)	5.56	4.16	4.16	4.16	4.16
Input (VDC)	5 & 12	5 & 12	5 & 12	5 & 12	5 & 12
Typical (Watts)	6.8Max	6.8Max	9.5(Max)	11(Max)	8(Max)
Idle (Watts)	3.9Max	3.9Max	5.2(Max)	5.9(Max)	5.3(Max)
Physical Dimensions	101.6mm x 147mm x 26.1mm	101.6mm x 147mm x 26.1mm	101.85mm x 147mm x 26.1mm	101.85mm x 147mm x 26.1mm	101.85mm x 147mm x 26.1mm
Weight (grams)	<440	<495	<715	<715	<715
Operating (C) Ambient	0 to 55	0 to 55	5 to 55	5 to 55	5 to 55
Operating (C) Base Casting	<60	<60	<60	<60	<60
Non-Operating (C) Ambient	(-40 to 65)	(-40 to 70)	(-40 to 70)	(-40 to 70)	(-40 to 70)
Gradient (C per Hour)	20	20	20	20	20
Operating (Gs @ 2ms)	70(Read/Write)	80(Read/Write)	Read 70 / Write 40	Read 70 / Write 40	50 (Read/Write)
Non-Operating (Gs @ 2ms)	350	350	250	250	250
Disclaimers			*Some parameters may vary depending on the actual configuration.		

Solid State Storage Specifications Group 1

Drive	512GB M.2 PCIe – SSD, 2280, Gen4Px4, NVMe, TLC, OPAL2.0	1TB M.2 PCIe – SSD, 2280, Gen4Px4, NVMe, TLC, OPAL2.0	2TB M.2 PCIe – SSD, 2280, Gen4Px4, NVMe, TLC, OPAL2.0	4TB M.2 PCIe – SSD, 2280, Gen4Px4, NVMe, TLC, OPAL2.0	15.3TB U.3 PCIe – SSD, 15mm, Gen4PX4, NVMe, 2.5" OPAL2.0
Dimensions Millimeters (W x D x H)	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm
Interface Type	PCIe Gen4	PCIe Gen4	PCIe Gen4	PCIe Gen4	PCIe Gen4
Power Active (AVG)	5.5W Read/5.5W Write	5.8W Read/5.9W Write	5.8W Read/6W Write	6.5 W Read/8W Write	15.5W Read/18.3W Write
Power Idle	50mW	50mW	50mW	50mW	5 W
Typical Sequential Read	6400 MB/s	6400 MB/s	6400 MB/s	6400 MB/s	7000 MB/s
Typical Sequential Write	4400 MB/s	4400 MB/s	5000 MB/s	5000 MB/s	5900 MB/s
Operating Temperature Range	0C to 70C	0C to 70C	0C to 70C	0C to 70C	0C to 70C
Endurance Rating (Lifetime Writes)	200 TBW	400 TBW	800 TBW	1600 TBW	28000 TBW
Mean Time Between Failures (MTBF)	2.0 million hours	2.0 million hours	2.0 million hours	2.0 million hours	2.0 million hours
Hardware Encryption	OPAL	OPAL	OPAL	OPAL	OPAL
Disclaimers			SSD performance measured with Crystal Disk Mark version 6.0.2 with the default 1000 MB data set. Sequential measurements are with 1 Thread, Queue-Depth 32. Random measurements are with 4 threads and queue-depth 32.		

Solid State Storage Specifications Group 2

Drive	512GB M.2 PCIe – SSD, 2280, Gen5Px4, NVMe, TLC, OPAL2.0	1TB M.2 PCIe – SSD, 2280, Gen5Px4, NVMe, TLC, OPAL2.0	2TB M.2 PCIe – SSD, 2280, Gen5Px4, NVMe, TLC, OPAL2.0	4TB M.2 PCIe – SSD, 2280, Gen5Px4, NVMe, TLC, OPAL2.0
Dimensions Millimeters (W x D x H)	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm	22mm x 80mm x 2.38mm
Interface Type	PCIe Gen5	PCIe Gen5	PCIe Gen5	PCIe Gen5
Power Active (AVG)	7.5W Read/5.7W Write	8.3W Read/7.9W Write	8.6W Read/8.5W Write	8.6W Read/8.5W Write
Power Idle	50mW	50mW	50mW	50mW
Typical Sequential	11000 MB/s	14000 MB/s	14000 MB/s	14000 MB/s

Read				
Typical Sequential Write	5500 MB/s	11000 MB/s	12000 MB/s	12000 MB/s
Operating Temperature Range	0C to 70C	0C to 70C	0C to 70C	0C to 70C
Endurance Rating (Lifetime Writes)	200 TBW	400 TBW	800 TBW	1600 TBW
Mean Time Between Failures (MTBF)	2.0 million hours	2.0 million hours	2.0 million hours	2.0 million hours
Hardware Encryption	OPAL	OPAL	OPAL	OPAL
Disclaimers		SSD performance measured with Crystal Disk Mark version 6.0.2 with the default 1000 MB data set. Sequential measurements are with 1 Thread, Queue-Depth 32. Random measurements are with 4 threads and queue-depth 32.		
Disclaimers				

Discrete Graphics Adapter Group 1

Adapter	NVIDIA T400	NVIDIA T1000	NVIDIA RTX A400	NVIDIA RTX A1000	NVIDIA RTX A2000
Bus Interface	PCIe 3.0 x16	PCIe 3.0 x16	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x16
Display Interface	3x mDP 1.4	4x mDP 1.4	4x mDP 1.4a	4x mDP 1.4a	4x mDP 1.4a
Graphics Chipset	TU117 (Turing)	TU117 (Turing)	GA107 (Ampere)	GA107 (Ampere)	GA106 (Ampere)
Memory Clock Frequency (MHz)	1250 MHz	1250 MHz	1500 MHz	1500 MHz	1500 MHz
Memory Size	4 GB GDDR6	8 GB GDDR6	4 GB GDDR6 with ECC	8 GB GDDR6 with ECC	12 GB GDDR6 with ECC
Memory Interface	64-bit	128-bit	64-bit	128-bit	192-bit
Memory Bandwidth	80 GB/s	160 GB/s	96 GB/s	192 GB/s	288 GB/s
GPU Cores	CUDA Cores: 384	CUDA Cores: 896	CUDA Cores: 768 Tensor Cores: 24 RT Cores: 6	CUDA Cores: 2,304 Tensor Cores: 72 RT Cores: 18	CUDA Cores: 3,328 Tensor Cores: 104 RT Cores: 26
GPU Core Frequency (MHz)	1425MHz	1395MHz	1762 MHz	1462 MHz	1200 MHz
Maximum Power Consumption	30 W	50 W	50 W	50 W	70 W
Supported Resolutions and Max Refresh Rates	3x 3840 x 2160 @ 120Hz 3x 5120 x 2880 @ 60Hz	4x 3840 x 2160 @ 120Hz 4x 5120 x 2880 @ 60Hz	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz	4x 4096 x 2160 @ 120Hz 4x 5120 x 2880 @ 60Hz	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz

(Hz) (Note: Analog and/or Digital)		2x 7680 x 4320 @ 60Hz		2x 7680 x 4320 @ 30Hz	2x 7680 x 4320 @ 60 Hz
Thermal Solution	Active	Active	Active	Active	Active
Dimension	2.7" H x 6.1" L, single Slot	2.7" H x 6.1" L, single Slot	2.7" H x 6.4" L, single slot	2.7" H x 6.4" L, single slot	2.7" H x 6.6" L, dual slot
Advanced Display	NA	NA	NA	NA	NA
SLI/NVLink Support	NA	NA	NA	NA	NA
Disclaimers					

Discrete Graphics Adapter Group 2

Adapter	NVIDIA RTX A4000	NVIDIA RTX A4500	NVIDIA RTX A5000	NVIDIA RTX A5500	NVIDIA RTX A6000
Bus Interface	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16
Display Interface	4x DP 1.4a	4x DP 1.4a	4x DP 1.4a	4x DP 1.4a	4x DP 1.4a
Graphics Chipset	GA104 (Ampere)	GA102 (Ampere)	GA102 (Ampere)	GA102 (Ampere)	GA102 (Ampere)
Memory Clock Frequency (MHz)	1750 MHz	2000 MHz	2000 MHz	2000 MHz	2000 MHz
Memory Size	16 GB GDDR6 with ECC	20 GB GDDR6 with ECC	24 GB GDDR6 with ECC	24 GB GDDR6 with ECC	48 GB GDDR6 with ECC
Memory Interface	256-bit	320-bit	384-bit	384-bit	384-bit
Memory Bandwidth	448 GB/s	640 GB/s	768 GB/s	768 GB/s	768 GB/s
GPU Cores	CUDA Cores: 6,144 Tensor Cores: 192 RT Cores: 48	CUDA Cores: 7,168 Tensor Cores: 224 RT Cores: 56	CUDA Cores: 8,192 Tensor Cores: 256 RT Cores: 64	CUDA Cores: 10,240 Tensor Cores: 320 RT Cores: 80	CUDA Cores: 10,752 Tensor Cores: 336 RT Cores: 84
GPU Core Frequency (MHz)	1560 MHz	1650 MHz	1695 MHz	1665 MHz	1800MHz
Maximum Power Consumption	140 W	200 W	230 W	230 W	300 W
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or Digital)	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz
Thermal Solution	Active	Active	Active	Active	Active
Dimension	4.4" H x 9.5" L, single slot	4.4" H x 10.5" L, dual slot, full	4.4" H x 10.5" L, dual slot, full	4.4" H x 10.5" L, dual slot, full	4.4" H x 10.5" L, dual slot, full

		height	height	height	height
Advanced Display	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync
SLI/NVLink Support	NA	NVLink	NVLink	NVLink	NVLink
Disclaimers					

Discrete Graphics Adapter Group 3

Adapter	NVIDIA RTX 2000 Ada	NVIDIA RTX 4000 Ada	NVIDIA RTX 4500 Ada	NVIDIA RTX 5000 Ada	NVIDIA RTX 5880 Ada
Bus Interface	PCIe 4.0 x8	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16
Display Interface	4x mDP 1.4a	4x DP 1.4a	4x DP 1.4a	4x DP 1.4a	4x DP 1.4a
Graphics Chipset	AD107 (Ada Lovelace)	AD104 (Ada Lovelace)	AD103 (Ada Lovelace)	AD102 (Ada Lovelace)	AD102 (Ada Lovelace)
Memory Clock Frequency (MHz)	2000 MHz	2250 MHz	2250 MHz	2250 MHz	2250 MHz
Memory Size	16 GB GDDR6 with ECC	20 GB GDDR6 with ECC	24 GB GDDR6 with ECC	32 GB GDDR6 with ECC	48 GB GDDR6 with ECC
Memory Interface	128-bit	160-bit	192-bit	256-bit	384-bit
Memory Bandwidth	224 GB/s	360 GB/s	432 GB/s	576 GB/s	960 GB/s
GPU Cores	CUDA Cores: 2,816 Tensor Cores: 88 RT Cores: 22	CUDA Cores: 6,144 Tensor Cores: 192 RT Cores: 48	CUDA Cores: 7,680 Tensor Cores: 240 RT Cores: 60	CUDA Cores: 12,800 Tensor Cores: 400 RT Cores: 100	CUDA Cores: 12,080 Tensor Cores: 440 RT Cores: 110
GPU Core Frequency (MHz)	2130 MHz	2175 MHz	2580 MHz	2550 MHz	2460 MHz
Maximum Power Consumption	70 W	130W	210 W	250 W	285 W
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or Digital)	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz	4 x 4096 x 2160 @ 120Hz 4 x 5120 x 2880 @ 60Hz 2 x 7680 x 4320 @ 60Hz	4x 4096x2160 @ 120Hz 4x 5120x2880 @ 60Hz 2x 7680x4320 @ 60Hz	4x 4096x2160 @ 120Hz 4x 5120x2880 @ 60Hz 2x 7680x4320 @ 60Hz
Thermal Solution	Active	Active	Active	Active	Active
Dimension	2.7" H x 6.6" L, dual slot	4.4" H x 9.5" L, single slot	4.4" H x 10.5" L, dual slot	4.4" H x 10.5" L, dual-slot	4.4" H x 10.5" L, dual-slot
Advanced Display	NA	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync
SLI/NVLink Support	NA	NA	NA	NA	NA

Disclaimers					
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Discrete Graphics Adapter Group 4

Adapter	NVIDIA RTX 6000 Ada	NVIDIA RTX PRO 2000 Blackwell	NVIDIA RTX PRO 4000 Blackwell	NVIDIA RTX PRO 4500 Blackwell	NVIDIA RTX Pro 5000 Blackwell
Bus Interface	PCIe 4.0 x16	PCIe 5.0 x 8	PCIe 5.0 x16	PCIe 5.0 x16	PCIe 5.0 x16
Display Interface	4x DP 1.4a	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b
Graphics Chipset	AD102 (Ada Lovelace)	GB206 (Blackwell)	GB203 (Blackwell)	GB203 (Blackwell)	GB202 (Blackwell)
Memory Clock Frequency (MHz)	2500 MHz	1125 MHz	1750 MHz	1750 MHz	1750 MHz
Memory Size	48 GB GDDR6 with ECC	16 GB GDDR7 with ECC	24 GB GDDR7 with ECC	32 GB GDDR7 with ECC	48 GB GDDR7 with ECC
Memory Interface	384-bit	128-bit	192-bit	256-bit	384-bit
Memory Bandwidth	960 GB/s	288 GB/s	672 GB/s	896 GB/s	1344 GB/s
GPU Cores	CUDA Cores: 18,176 Tensor Cores: 568 RT Cores: 142	CUDA Cores: 4,352 Tensor Cores: 136 RT Cores: 34	CUDA Cores: 8,960 Tensor Cores: 280 RT Cores: 70	CUDA Cores: 10,496 Tensor Cores: 328 RT Cores: 82	CUDA Cores: 14,080 Tensor Cores: 440 RT Cores: 110
GPU Core Frequency (MHz)	2505 MHz	1957 MHz	2055 MHz	2407 MHz	2377 MHz
Maximum Power Consumption	300 W	70 W	140 W	200 W	300 W
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or Digital)	4x 4096x2160 @ 120Hz 4x 5120x2880 @ 60Hz 2x 7680x4320 @ 60Hz	4x 3840 x 2160 @ 165 Hz 2x 3840 x 2160 @ 360 Hz 2x 7680 x 4320 @ 100 Hz	4x 3840 x 2160 @ 165 Hz 2x 7680 x 4320 @ 100 Hz	4x 3840 x 2160 @ 165 Hz 2x 7680 x 4320 @ 100 Hz	4x 3840 x 2160 @ 165 Hz 2x 7680 x 4320 @ 100 Hz
Thermal Solution	Active	Active	Active	Active	Active
Dimension	4.4" H x 10.5" L, dual slot, full height	2.7" H x 6.6" L, dual slot	4.4" H x 9.5" L, single slot, full height	4.4" H x 10.5" L, dual slot, full height	4.4" H x 10.5" L, dual slot, full height
Advanced Display	RTX PRO Sync	NA	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync
SLI/NVLink Support	NA	NA	NA	NA	NA

Discrete Graphics Adapter Group 5

Adapter	NVIDIA RTX PRO 6000 Blackwell Max-Q Workstation Edition
Bus Interface	PCIe 5.0 x16
Display Interface	4x DP 2.1b
Graphics Chipset	GB202 (Blackwell)
Memory Clock Frequency (MHz)	1750 MHz
Memory Size	96 GB GDDR7 with ECC
Memory Interface	512-bit
Memory Bandwidth	1792 GB/s
GPU Cores	CUDA Cores: 24,064 Tensor Cores: 752 RT Cores: 188
GPU Core Frequency (MHz)	2280 MHz
Maximum Power Consumption	300 W
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or Digital)	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz
Thermal Solution	Active
Dimension	4.4" H x 10.5" L, dual slot, full height
Advanced Display	RTX PRO Sync
SLI/NVLink Support	NA

Ethernet Specifications Group 1 Part 1

Card	Intel® I210-T1 Single Port Gigabit Ethernet Adapter	Intel I350-T2 Dual Port Gigabit Ethernet Adapter	Intel® I350-T4 Quad Port Gigabit Ethernet Adapter	Intel® E810-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	Bitland RTL8168H 1000M PCIE HP
Supplier PN	I210T1, MM# 941033	I350T2G1P20, MM# 928941	I350T4G1P20, MM# 928942	999P08	5804-00001
Data Rates Supported	10/100/1000Mbps copper	10/100/1000Mbps (Copper), 1000Mbps (Fiber)	10/100/1000Mbps (Copper), 1000Mbps (Fiber)	25/10/1G	10/100/1000Mbps copper
Controller Details	Intel® Ethernet Controller I210	Intel Ethernet Controller I350	Intel® Ethernet Controller I351	Intel Ethernet Controller E810	REALTEK RTL8125BG
Controller Bus Architecture	PCIe 2.1 (5GT/s)	PCIe 2.1 (5GT/s)	PCIe 2.1 (5GT/s)	PCIe 4.0	PCIe 2.1 (5GT/s)
Data Transfer Mode	Ethernet	Ethernet	Ethernet	Ethernet	Ethernet
Power Consumption	0.81W	Copper: I350-T2 V2= 4.4W	Copper: I350T4V2= 5W LC-Fiber: I350F4= 6W	13.7W	Coming Soon

		Fiber: I350-F2= 5.5W			
IEEE Standards Compliance	IEEE 802.3/10BASE-T, 100BASE-TX, 1000BASE-T	IEEE 802.3/10BASE-T, 100BASE-TX, 1000BASE-T	IEEE 802.3/10BASE-T, 100BASE-TX, 1000BASE-T	IEEE802.3by/IEEE802.3ae/IEEE802.3z	IEEE 802.1P Layer 2 Priority Encoding IEEE 802.1Q VLAN tagging IEEE 802.3az Draft 3.2 (EEE)
Boot ROM Support	PXE boot, Intel iSCSI Remote Boot for Windows, Linux and Vmware, Intel BootAgent Software via PXE or BootP, WDMS or UEFI	PXE boot, Intel iSCSI Remote Boot for Windows, Linux and Vmware, Intel BootAgent Software via PXE or BootP, WDMS or UEFI	PXE boot, Intel iSCSI Remote Boot for Windows, Linux and Vmware, Intel BootAgent Software via PXE or BootP, WDMS or UEFI	PXE/UEFI boot	PXE boot
Network Transfer Mode (Full/Half Duplex)	Supported	Supported	Supported	Supported	Supported
Network Transfer Rate	1,000Mbps Full Duplex	1,000Mbps Full Duplex	1,000Mbps Full Duplex	25Gbps Full Duplex	1,000Mbps Full Duplex
Operating System Driver Support	Windows 7/8/10, Linux, Free BSD, XEN,Vmware	Windows 7/8/10, Linux, Free BSD, XEN,Vmware	Windows 7/8/10, Linux, Free BSD, XEN,Vmware	Windows 11	Windows Server 2008, 2012, 2016, 2019 Linux (RHEL/SLES), Vmware
Manageability	Supported	Supported	Supported	Supported	Supported
Manageability Capabilities Alerting	Supported	Supported	Supported	Supported	Supported
Operating Temperature Range	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)
# of Ports	1	2	4	2	1
Data Rate Per Port	10/100/1000Mbps (copper)	10/100/1000Mbps (copper), 1000Mbps (fiber)	10/100/1000Mbps (copper), 1000Mbps (fiber)	25/10/1Gbps	10/100/1000Mbps (copper)
System Interface Type	PCIe Gen 2.1	PCIe Gen 2.1	PCIe Gen 2.1	PCIe4.0 x8	PCIe Gen 2.1
NC Sideband Interface	Not Available	Not Available	Not Available	Not Available	Not Available
Jumbo Frames Supported	Yes	Yes	Yes	Yes	Yes
1000Base-T	Yes	Yes	Yes	Not Available	Yes
MACsec IEEE 802.1 AE	Not Available	Not Available	Not Available	Not Available	Not Available
IEEE 1588	Supported	Supported	Supported	Supported	Not Available
Supported Under vPro	Not Available	Not Available	Not Available	Not Available	Not Available
Disclaimers					

Ethernet Specifications Group 1 Part 2

Model	Intel® I210-T1 Single Port Gigabit Ethernet Adapter	Intel I350-T2 Dual Port Gigabit Ethernet Adapter	Intel I350-T4 Quad Port Gigabit Ethernet Adapter	Intel® E810-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	Bitland RTL8168H 1000M PCIE HP
Connector	RJ-45 Copper	2 x Ports RJ-45 Copper	4 x Ports RJ-45 Copper	2 x SFP28	1 Port RJ-45
Website	i210 T1	i350 T2	i350 T4	E810-XXDA2	RTL8168H
Auto-Negotiation	IEEE* 802.3* Auto-negotiaton	IEEE* 802.3* Auto-negotiaton	IEEE* 802.3* Auto-negotiaton	IEEE* 802.3* Auto-negotiaton	Auto-Negotiation with Next Page capability
Intel® vPro™	Not Available	Not Available	Not Available	Not Available	Not Available
Intel® Standard Manageability	Supported	Supported	Supported	Not Available	Not Available
Power Optimizer Platform Low-power Management Systems	Supported	Supported	Supported	Not Available	Supported
Energy Efficient Ethernet	Supported	Supported	Supported	Supported	Supported
TCP/UDP Checksum and Segmentation Offload (IPv4 and IPv6)	Supported	Supported	Supported	Supported	Supported
Receive Side Scaling	Supported	Supported	Supported	Supported	Supported
Dual Tx and Rx Queues	Yes	Yes	Yes	Yes	Not Available
Jumbo Frames (up to 9KB)	Supported	Supported	Supported	Supported	Supported
Teaming	Supported	Supported	Supported	Supported	Supported
Integrated Switched Voltage Regulator (iSVR)	Supported	Not Available	Not Available	Not Available	Supported
Shared Flash with System BIOS	Not Available	Not Available	Not Available	Not Available	Supported
Wake from Deep Sx	Supported	Supported	Supported	Supported	Supported
Server Operating System Support	Windows Server 2008, 2012, 2016, 2019 Linux (RHEL/SLES), Free BSD, Xen, Vmware	Windows Server 2008, 2012, 2016, 2019 Linux (RHEL/SLES), Free BSD, Xen, Vmware	Windows Server 2008, 2012, 2016, 2019 Linux (RHEL/SLES), Free BSD, Xen, Vmware	Windows Server 2008, 2012, 2016, 2019 Linux (RHEL/SLES), Free BSD, Xen, Vmware	Windows Server 2008, 2012, 2016, 2019 Linux (RHEL/SLES), Vmware

Network Proxy/ARP Support	Supported	Supported	Supported	Supported	Supported
Disclaimers					

Ethernet Specifications Group 2 Part 1

Card	Broadcom 5720 Dual Port Gigabit PCIe Ethernet Adapter	Broadcom 5719 Quad Port Gigabit PCIe Ethernet Adapter	NVIDIA ConnectX-6 25G 2-Ports Adapter
Supplier PN	BCM95720A2003LC	BCM95719A1904LC	900-9X663-0073-SQ0
Data Rates Supported	10/100/1000Mbps copper	10/100/1000Mbps copper	25/10/1 GbE
Controller Details	BCM 5720	BCM 5719	MCX621202AS-ADAT
Controller Bus Architecture	PCIe 2.1 (5GT/s)	PCIe 2.1 (5GT/s)	PCIe Gen 4.0 (16.0GT/s)
Data Transfer Mode	Ethernet	Ethernet	Ethernet
Power Consumption	2.23W	5.78W	14W
IEEE Standards Compliance	IEEE 802.3ab IEEE 802.3az IEEE 802.3x IEEE 802.1q	IEEE 802.3ab IEEE 802.3az IEEE 802.3x IEEE 802.1q	IEEE 802.3 by IEEE 802.3ae IEEE 802.3az IEEE 802.3ap IEEE802.3ad IEEE802.1AX IEEE802.1Q, 802.1P IEEE802.1Qau IEEE802.1Qaz IEEE802.1Qbb IEEE802.1Qbg IEEE 1588v2
Boot ROM Support	PXE boot	PXE boot	PXE boot
Network Transfer Mode (Full/Half Duplex)	Supported	Supported	Supported
Network Transfer Rate	1,000Mbps Full Duplex	1,000Mbps Full Duplex	25Gbps Full Duplex
Operating System Driver Support	Windows 11, 64-bit, Windows 10, 64-bit, Linux	Windows 11, 64-bit, Windows 10, 64-bit, Linux	RHEL/CentOS/Windows /VMware
Manageability	Supported	Supported	Supported
Manageability Capabilities Alerting	Supported	Supported	Supported
Operating Temperature Range	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)
# of Ports	2	4	2
System Interface Type	PCIe Gen 2.1	PCIe Gen 2.1	PCIe Gen 4.0 (16.0GT/s)
NC Sideband Interface	Not Available	Not Available	Not Available
Jumbo Frames Supported	Yes	Yes	Yes
1000Base-T	Yes	Yes	Yes
IEEE 1588	Not Available	Not Available	Not Available

Supported Under vPro	Not Available	Not Available	Not Available
Disclaimers			

Ethernet Specifications Group 2 Part 2

Model	Broadcom 5720 Dual Port Gigabit PCIe Ethernet Adapter	Broadcom 5719 Quad Port Gigabit PCIe Ethernet Adapter	NVIDIA ConnectX-6 25G 2-Ports Adapter
Connector	2 Port RJ-45	4 Port RJ-45	2 x Ports SFP28
Website	ConnectX-6 (MCX621202AS-ADAT)		
Auto-Negotiation	IEEE* 802.3ab Auto-negotiaton	IEEE* 802.3ab Auto-negotiaton	Support
Intel® vPro™	Not Available	Not Available	Not Available
Intel® Stable Image Platform Program (SIPP)	Not Available	Not Available	Not Available
Intel® Standard Manageability	Not Available	Not Available	Not Available
Power Optimizer Platform Low-power Management Systems	Supported	Supported	No
Energy Efficient Ethernet	Supported	Supported	Supported
TCP/UDP Checksum and Segmentation Offload (IPv4 and IPv6)	Supported	Supported	Supported
Receive Side Scaling	Supported	Supported	Supported
Dual Tx and Rx Queues	Supported	Supported	128
Jumbo Frames (up to 9KB)	Supported	Supported	Supported
Teaming	N/A		
Integrated Auto Connect Battery Saver (ACBS) Battery Savings	No		
Timing and Synchronization	Supported		
Integrated Switched Voltage Regulator (iSVR)	No		
Shared Flash with System BIOS	Not Supported		
Wake from Deep Sx	Supported		Supported
Server Operating System Support	Windows 11, 64-bit, Windows 10, 64-bit, Linux	Windows 11, 64-bit, Windows 10, 64-bit, Linux	RHEL/CentOS/Windows /VMware
Network Proxy/ARP Support	Supported	Supported	Supported
Disclaimers			

Media Card Reader

Description	UHS-II 13-in-1 USB3.0 MCR	UHS-II 15-in-1 USB3.0 MCR
Interface Type	USB 3.0	USB 3.0
Form Factor	USB 3.0 Mass Storage Device	USB 3.0 Mass Storage Device
Disclaimers		

SECTION IV: BIOS/Certifications/Standards/Environmental

BIOS Specifications

WMI Support	Compliant With Microsoft WBEM and the DMTF Common Information Model
ROM-Based Setup Utility (F1)	System Configuration Setup Program (text only interface) Available at Power-on With F1 Key
Bootblock Recovery	Recovers System BIOS if the Flash ROM Becomes Corrupted
Replicated Setup	Saves System Configuration Settings to a File That Can Then be Used to Replicate the Settings to Other Systems
Boot Control	Boot Control Available Through ROM-based Setup Utility or With F12 Key at Power-on
Memory Change Alert	Power-on Error Message in the Event of a Decrease in System Memory
Thermal Alert	Power-on Error message in the Event of a Fan Failure
Asset Tag	Supports Ability to Set SMBIOS Type 2 Baseboard Asset Tag Field
System/Emergency ROM Flash Recovery With Video	Supports Process to Recover the System BIOS if the Flash ROM Becomes Corrupted
Remote Wakeup/Remote Shutdown	System Admin Can Power On/Off a Client Computer from a Remote Location to Provide Maintenance
Quick Resume Time	Supports Low Power S3 (suspend to RAM) and Prompt Resume Times
ROM Revision Level	System UEFI (BIOS) Version Reported in SMBIOS Type 0 Structure and in BIOS Setup
Keyboard-less Operation	System Can be Booted Without a Keyboard
Per-port Control	Allows I/O Ports to be Individually Enabled/Disabled Through ROM-based Setup or WMI Interface
Adaptive Cooling	Offers Multiple Settings for Fan Control Ranging Between Better Performance and Better Acoustics

Security	User and Administrator Passwords Can Protect Boot and ROM-based Setup – Chassis Intrusion Detection – UEFI Secure Boot Support – HDD Password Can Protect HDD Data – Windows UEFI Firmware Update Support – Device Guard Support
Intel(R) AMT (includes ASF 2.0)	Allows System to be Supported from a Remote Location
Intel(R) TXT	Provides a Security Foundation to Build Protections Against Software Based Attacks
Memory Modes	Supports Mirroring, Lock Step, and Sparing Memory Modes
Windows 10 Ready	Supports Windows 10 Requirements for Secure Flash, UEFI v 2.6 Device Guard Support Spec

Industry Standard Specification Support

UEFI	Unified Extensible Firmware Interface v2.7
ACPI (Advanced Configuration and Power management Interface)	Advanced Configuration and Power Interface v6.1
ASF 2.0	DMTF Alert Standard Format Specification v2.0
ATA (IDE)	AT Attachment 6 with Packet Interface (ATA/ATAPI-6)
CD Boot	El Torito Bootable CD-Rom Format Specification, v1.0
EHCI	Enhanced Host Controller Interface for Universal Serial Bus, Revision v1.0
PCI	NA (No PCI slot)
PCI Express	PCI Express Base Specification v3.0
SATA	Serial ATA Revision 3.0 Specification
TPM	Trusted Computing Group TPM Specification v2.0
UHCI	Universal Host Controller Interface Design Guide, Revision v1.1
USB	Universal Serial Bus Revision v1.1 Universal Serial Bus v2.0 Universal Serial Bus v3.0
SMBIOS	DMTF System Management Spec v3.2.1
XHCI	XHCI SPEC Revision v1.2

Social and Environmental Responsibility

Quality Control	Lenovo is a member of an eco declaration system that enforces regular independent quality control
Hazardous Substances and Preparation	· Products do not contain more than; 0.1% lead, 0.01% cadmium, 0.1% mercury, 0.1% hexavalent chromium, 0.1% polybrominated biphenyls (PBB) or 0.1% polybrominated diphenol ethers (PBDE)

	· Products do not contain Asbestos · Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbontetrachloride, 1,1,1-trichloroethane, methyl bromide · Products do not contain more than: 0.005% polychlorinated biphenyl (PCB), 0.005% polychlorinated terphenyl (PCT) in preparation · Products do not contain more than 0.1% short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP · Parts with direct and prolonged skin contact do not release nickel in concentrations above 0.5 microgram/cm²/week"
Batteries	Not Available
Safety, EMC Connection to the Telephone Network and Labeling	Not Applicable, no Connection to a Telephone Network

Safety, EMC Connection to the Telephone Network and Labeling

System Software Manager	Lenovo ThinkStation Supports Software Management Tools by Lenovo Vantage
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Regulations & Standards

EMC & Safety	FCC DoC for North America VCCI Certification for Japan BSMI Certification for Taiwan EU/EFTA CE Mark & DoC UL/CUL UL-GS IEC62368 CB Report/Certificate Saudi Arabia SASO Kuwait KUCAS China CCC Mark Hong Kong SAR (CB report) Singapore PSB South Africa SABS Morocco-CM Mexico-NOM Kazakhstan-EAC Serbia KVALITET Ukraine UKrCEPRO India-BIS UK-UKCA mark&DoC UAE LVE/UAE RoHS Austrilia/New Zealand – RCM
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Environmentals

Energy Star	ENERGY STAR® 9.0
EPEAT	EPEAT® 1.0 GOLD
Greenguard	Greenguard

RoHS	RoHS Compliant
ErP Lot-3 2013	Yes
Hazardous Substances	• Products do not contain more than; 0.1% lead, 0.01% cadmium, 0.1% mercury, 0.1% hexavalent chromium, 0.1% polybrominated biphenyls (PBB) or 0.1% polybrominated diphenol ethers (PBDE) • Products do not contain Asbestos • Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbontetrachloride, 1,1,1-trichloroethane, methyl bromide • Products do not contain more than; 0.005% polychlorinated biphenyl (PCB), 0.005% polychlorinated terphenyl (PCT) in preparation • Products do not contain more than 0.1% short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP • Parts with direct and prolonged skin contact do not release nickel in concentrations above 0.5 microgram/cm_/week"
TCO Certification	Not Available
Disclaimers	EPEAT registered where applicable. EPEAT registration varies by country. See www.epeat.net for registration status by country.