Lenovo P3 Tower Gen 2

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Product Name	P3 Tower Gen 2
Product Display Name	ThinkStation P3 Tower Gen 2
Information Date	30-Sep-26
Hardware Maintenance Manual	P3 Tower Gen 2 HMM
Drivers & Software	P3 Tower Gen 2 Drivers & Software
Available Whitepapers	P3 Tower Gen 2 Whitepapers

SECTION I: Platform Overview

Description	Experience the power of a workstation at the price of a desktop with the Lenovo ThinkStation P3 Tower Gen 2. Supporting the latest Intel® Core™ Ultra processors (Series 2) with an integrated NPU and up to NVIDIA RTX PRO™ 6000 Blackwell Max-Q Workstation Edition+ graphics, the P3 Tower is built for mission-critical tasks that require superior reliability and AI-optimized performance, providing the value you need without compromising on compute power.

CPU

Processor Support	Intel Arrow Lake-S Series
Socket Type	Socket-V (LGA 1851)

Operating Systems

Preloaded	Windows 11 Pro 64-bit Windows 11 Home 64-bit Ubuntu 24.04 LTS
Supported	Red Hat Enterprise Linux 10.0 Red Hat Enterprise Linux 10.1

Memory

Slots	4
Channels	Supports up to 4 DIMM Sockets, 2 Channels
Type	DDR5 ECC and non-ECC UDIMM
ECC Support	Yes, CPU Dependent
Speed	Up to 5600MT/s
Max DIMM Size	48GB DDR5 UDIMM 64GB DDR5 CUDIMM
Max System Memory	256GB
Disclaimers	*Memory speed impacted by number and type of DIMMs installed. *Memory speed can be dependent on the individual CPU capabilities.

Storage

Total Bays/Size	Up to 4 x 3.5"
SATA	3 x SATA Connectors, Gen 3
PCIe	1 x M.2 2240/2280 PCIe Connector, Gen 5 Onboard (from CPU) 2 x M.2 2240/2280/22110 PCIe Connector, Gen 4 Onboard (from PCH) Additional M.2 2280 NVMe Drive Supported by Single Adapter, Gen 3
eSATA	1 x eSATA Connector, Gen 3
Disclaimers	A configuration with four (4) 3.5" HDDs will block both onboard M.2 Gen 4 drive connectors, leaving the single onboard M.2 Gen 5 drive connector available. Additional parts/enclosures may be required for some configurations. Refer to storage whitepaper for more details.

Video

Integrated Graphics	Intel Graphics (CPU dependent)
Discrete Graphics	Nvidia RTX A400 (miniDP x4) – 4GB GDDR6, PCIe4, Single-Slot Nvidia RTX A1000 (miniDP x4) – 8GB GDDR6, PCIe4, Single-Slot Nvidia RTX 2000 Ada (miniDP x4) – 16GB GDDR6, PCIe4, Dual-Slot Nvidia RTX 4000 Ada (DP x4) – 20GB GDDR6, PCIe4, Single-Slot Nvidia RTX 5000 Ada (DP x4) – 32GB GDDR6, PCIe4, Dual-Slot Nvidia RTX Pro 6000 Blackwell Workstation Edition (DP x4) – 96GB GDDR7, PCIe5, Dual-Slot Nvidia RTX Pro 6000 Blackwell Max-Q Workstation Edition (DP x4) – 96GB GDDR7, PCIe5, Dual-Slot Nvidia RTX Pro 5000 Blackwell (DP x4) – 72GB GDDR7, PCIe5, Dual-Slot Nvidia RTX Pro 5000 Blackwell (DP x4) – 48GB

	GDDR7, PCIe5, Dual-Slot Nvidia RTX Pro 4500 Blackwell (DP x4) – 32GB GDDR7, PCIe5, Dual-Slot Nvidia RTX Pro 4000 Blackwell (DP x4) – 24GB GDDR7, PCIe5, Single-Slot Nvidia RTX Pro 2000 Blackwell (miniDP x4) – 16GB GDDR7, PCIe5, Dual-Slot
Multi-GPU Support	Yes
Type	PCIe Add-In-Card
Bus Interface	PCIe x16

Slots

Slot 1	PCIe 5.0 x16, Full Height, Full Length, 75W, With Latch
Slot 2	PCIe 3.0 x1, Full Height, Half Length, 25W, open-ended
Slot 3	PCIe 4.0 x4, Full Height, Half Length, 25W, With Latch
Slot 4	PCIe 3.0 x1, Full Height, Half Length, 25W, open-ended
Disclaimers	PCIe Slot 1 is limited to Graphics Adapters only. PCIe Slot 3 is a x16 mechanical slot, x4 electrical slot.

Front I/O

USB	2 x USB-A 3.2 Gen 2 (10Gb/s) 2 x USB-A 3.2 Gen 1 (5Gb/s) 1 x USB-C 3.2 Gen 2×2 (20Gb/s)
Audio	1 x Combo Audio Jack (3.5mm) 1 x Microphone Jack (3.5mm)
Media Card Reader	Optional: Front 3-in-1 Media Card Reader (USB 2.0)
Flex Bay	One 3.5" Flex Bay, Supports one of the following: – Flex storage enclosure – Front-access storage enclosure -Optical disk drive enclosure
Disclaimers	Actual USB throughput will vary depending on the type and quantity of USB devices used.

Rear I/O

USB	2 x USB-A 3.2 Gen 1 (5Gb/s) 2 x USB-A 2.0 (480Mb/s)
Audio	1 x Line Out
DisplayPort	2 x Standard DP++ / DP 1.4 HBR3 Optional 1 x DP 1.2 (CPU dependent), via flexible I/O port card

HDMI	1 x Standard HDMI 2.1 TMDS Optional 1 x HDMI 2.0 (CPU dependent), via flexible I/O port card
Type-C	Optional 1 x USB-C 3.1 Gen 1 (CPU dependent), via flexible I/O port card
VGA Port	Optional 1 x VGA Port (CPU dependent), via flexible I/O port card
Serial Port	Optional 1 x Serial Port Cable Optional 1 x 4-Port Serial Port Expansion PCIe x1 Adapter
Ethernet	1 x 1GbE – RJ45
Parallel Port	Parallel Port Cable (300mm with ESD and 2.0 pitch)
Optional USB Adapter	Rear USB 4.0 PCIe x4 Adapter Rear USB-C 3.2 Gen 2×2 PCIe x4 Adapter Rear 2-Port USB 3.0 PCIe x1 Adapter Rear 2-port USB 2.0 Cable
Optional Network Adapter	Bitland RTL8125BGS Single Port PCIe x1 2.5Gigabit Ethernet Adapter Intel I210-T1 Single Port PCIe x1 Gigabit Ethernet Adapter Intel I350-T4 Quad Port PCIe x4 Gigabit Ethernet Adapter Intel X710-T2L Dual Port PCIe x8 10Gigabit Ethernet Adapter Intel E810-DA2 Dual Port PCIe x8 25Gigabit Ethernet Adapter Intel Gale Peak 2 BE200 WIFI7 + Bluetooth 5.4 PCIe Adapter
Disclaimers	Actual USB throughout will vary depending on the type and quantity of USB devices used.

Ethernet

Vendor	Intel Jacksonville I219-LM (w/ AMT 16.x)
Speeds	10/100/1000 Mbps
Functions	PXE, ASF, WOL, Jumbo Frames, Teaming
Connectors	1 x RJ45

Audio

Vendor	Realtek
Type	Integrated Audio
Internal Speaker	Yes, 2W (8 ohms)
Connectors	2 x Front 3.5mm Jacks (Microphone & Headphone) 1 x Rear 3.5mm Jack (Line Out)
Chipset	ALC623-CG
Number of Channels	2

Number of Bits/Audio Resolution	6 channels of DAC support 16/20/24-bit PCM format for 5.1 audio solution

Thermal

Temp Sensors	Ambient Sensor
Fans	1 x CPU Fan 1 x Front Fan 1 x Rear Fan 2 x Side Panel Fans (optional) 1 x Power Supply Fan (inside PSU)

Power Specifications

Power Supply	1100W	750W	500W
Power Efficiency	92% Efficient @ 50% Load	92% Efficient @ 50% Load	92% Efficient @ 50% Load
Main	C14	C14	C14
Operating Voltage Range	100 – 240V	100 – 240V	100 – 240V
Rated Voltage Range	90-264VAC	90-264VAC	90-264VAC
Rated Line Frequency	50Hz / 60Hz	47Hz / 63Hz	47Hz / 63Hz
Operating Line Frequency Range	50Hz / 60Hz	50Hz / 60Hz	50Hz / 60Hz
Rated Input Current	15A	10A	7A
Graphics	1 x 12VHPWR (16-pin)	1 x 8 pin (6+2)	1 x 8 pin (6+2)
Power Supply Fan	Yes	Yes	Yes
ENERGY STAR® Qualified (config dependent)	Yes	Yes	Yes
80 PLUS Compliant	Yes	Yes	Yes
Built-in Self Test (BIST) LED	No	No	No
Aux Power Drop	Yes	Yes	Yes

BIOS

Vendor	AMI
Self-Healing BIOS	Yes

Chassis Information

Color	Raven Black

PSU	1100W, 750W and 500W Available, Autosensing, 80 PLUS Platinum
Dimensions	415mm/16.34" H 370mm/14.57" D 180mm/7.09" W
Weight	14.38 kg / 31.70 lbs

Packaging Dimensions

Height (mm/in)	570mm / 22.44"
Width (mm/in)	315mm / 12.40"
Depth (mm)	500mm / 19.69"
Weight (kgs/lbs)	16.54 kg / 36.46 lbs

Security & Serviceability

TPM	Infineon SLB9672 TPM 2.0
Asset ID	Yes, 1024 x 8bit
vPro	Intel vPro for WS (AMT 16.x)
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	No
Boot Sequence Control	Yes
Padlock Support	Yes
Boot without keyboard and/or mouse	Yes
Access Panel	Tool-less Side Cover Removal
Optical Drive	Optional
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 Customer Support Center

Operating Environment

Air Temperature	Operating: 10°C to 35°C (50°F to 95°F) Non-Operating: -40°C to 60°C (-40°F to 140°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	Operating Humidity: 10% to 90% (Humidity+EELP)
Altitude	Operating: 0m to 3048m (0ft to 10000ft) Storage: 0m to 12192m (0ft to 40000ft)
Vibration	Package Vibration: Random,1.04G at 2-200 Hz, 15 Minutes (X,Y,Z) axes Operating Vibration: Random,0.27G at 5-500 Hz, 30 Minutes Per Surface (X,Y,Z) axes Non-Operating Vibration: Random,1.04G at 2-200 Hz, 15 Minutes Per Surface 6 faces
Shock	Operating Shock: Half-sine wave, 15G/3ms(X,Y), 30G/3ms(Z) Rack Operating Shock: Half-sine wave, 15G/5ms Non-operating Shock: Trapezoidal wave, 45G/11ms
Disclaimers	Extended operating temperatures are possible – please contact your Lenovo Rep

SECTION II: Platform Detail

Board Size	10.51" x 9.72" (267mm x 247mm)
Layout	Custom ATX

Motherboard Core

Processor Support	Intel Arrow Lake-S Series
Socket Type	Socket-V (LGA 1851)
Memory Support	DDR5 up to 6400MT/s UDIMM Memory (ECC or non-ECC)*
Voltage Regulator	125W TDP Capable
Chipset (PCH)	Intel W880 Chipset
Flash	Single 64MB
Super I/O	Nuvoton NCT6801D
Clock	Intel Native isCLK
Audio	Realtek ALC623-CG Codec
Ethernet	Intel Jacksonville I219-LM
Disclaimers	*Memory speed dependent on CPU support.

Supported Components

Processor Level	Intel Arrow Lake
Processor	Intel Ultra 9 285K Intel Ultra 9 285 Intel Ultra 7 270K Plus Intel Ultra 7 265K Intel Ultra 7 265 Intel Ultra 5 250K Plus Intel Ultra 5 245K Intel Ultra 5 245 Intel Ultra 5 235 Intel Ultra 5 235A Intel Ultra 5 225
Memory Type	ECC/non-ECC UDIMMs – 5600MT/s non-ECC CUDIMMs – 6400MT/s
Memory	16GB DDR5 5600 MT/s ECC UDIMM 32GB DDR5 5600 MT/s ECC UDIMM 48GB DDR5 5600 MT/s ECC UDIMM 8GB DDR5 5600 MT/s non-ECC UDIMM 16GB DDR5 5600 MT/s non-ECC UDIMM 32GB DDR5 5600 MT/s non-ECC UDIMM 48GB DDR5 5600 MT/s non-ECC UDIMM 64GB DDR5 6400 MT/s non-ECC CUDIMM
Disclaimers	*Memory speed dependent on CPU support. NOTE: Lenovo does not support CPU overclocking on ThinkStation platforms.

Storage

3.5" SATA Hard Disk Drive (HDD)	2TB SATA HDD 5400rpm, 6Gb/s, 3.5" 2TB SATA HDD 7200rpm, 6Gb/s, 3.5" 2TB SATA HDD 7200rpm, 6Gb/s, 3.5" (enterprise class) 4TB SATA HDD 7200rpm, 6Gb/s, 3.5" (enterprise class) 6TB SATA HDD 7200rpm, 6Gb/s, 3.5" (enterprise class) 12TB SATA HDD 7200rpm, 6Gb/s, 3.5" (enterprise class)
2.5" SATA Solid State Drive (SSD)	3.84TB SATA SSD, 6Gb/s, TLC, 2.5" OPAL Enterprise 7.68TB SATA SSD, 6Gb/s, TLC, 2.5" OPAL Enterprise
M.2 PCIe Solid State Drive (SSD)	256GB M.2 (2280) PCIe SSD, Gen 4 x4, NVMe, OPAL 512GB M.2 (2280) PCIe SSD, Gen 4 x4, NVMe, OPAL 1024GB M.2 (2280) PCIe SSD, Gen 4 x4, NVMe, OPAL 2048GB M.2 (2280) PCIe SSD, Gen 4 x4, NVMe, OPAL 4096GB M.2 (2280) PCIe SSD, Gen 4 x4, NVMe, OPAL 512GB M.2 (2280) PCIe SSD, Gen 5 x4, NVMe, OPAL 1024GB M.2 (2280) PCIe SSD, Gen 5 x4, NVMe, OPAL 2048GB M.2 (2280) PCIe SSD, Gen 5 x4, NVMe, OPAL 4096GB M.2 (2280) PCIe SSD, Gen 5 x4, NVMe, OPAL

RAID

RAID Levels and Requirements	NVMe Drives Support RAID 0/1/5 SATA Drives Support RAID 0/1/5/10
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.

Optical Drive/Removable Media

DVD-ROM Drive	Slim DVD-ROM drive
DVD Burner/CD-RW Drive	Slim DVD Burner/CD-RW Drive
Blu-Ray Burner Drive	Slim Blu-Ray ODD DVD Burner
Media Card Reader Specifications	Optional Front 3-in-1 USB 2.0 Media Card Reader

Keyboard and Pointing Devices

Keyboard	Traditional USB Keyboard Calliope USB Keyboard EOS Wireless Keyboard
Pointing Devices	Calliope USB Mouse

PCIe Adapters

Network	Intel I210-T1 Single Port PCIe x1 Gigabit Ethernet Adapter Intel I350-T4 Quad Port PCIe x4 Gigabit Ethernet Adapter RTL8125BGS Single Port PCIe x1 2.5Gigabit Ethernet Adapter Intel X710-T2L Dual Port PCIe x8 10Gigabit Ethernet Adapter Intel E810-DA2 Dual Port PCIe x8 25Gigabit Ethernet Adapter (Fiber)
USB	USB-C 3.2 Gen 2 PCIe x4 Adapter (Single Port) USB 4 PCIe x4 Adapter (Single Port) USB 3.0 PCIe x1 Adapter (Dual Port)
WiFi Cards	Intel Gale Peak 2 BE200 WIFI7 + Bluetooth 5.4 PCIe
Serial Card	4-Port Serial Expansion Card PCIe x1
PCIe to M.2 Adapter Card	PCIe x4 to M.2 Adapter – Gen 3

SECTION III: Supported Component Detail

CPU Specifications Group 1

CPU	Intel Core™ Ultra 9 285K	Intel Core™ Ultra 7 265K	Intel Core™ Ultra 5 245K	Intel Core™ Ultra 9 285	Intel Core™ Ultra 7 270K	Intel Core™ Ultra 7 250K
# of Cores	24c	20c	14c	24c	24c	18c
# of Threads	24	20	14	24	24	18
Processor Base Frequency	3.7GHz	3.9GHz	4.2Ghz	2.5GHz	3,7GHz	4.2GHz
Max Turbo Frequency	5.7GHz	5.5GHz	5.2Ghz	5.6GHz	5.5GHz	5.3GHz
Cache	36	30M	24M	36M	36MB	30MB
TDP	125W	125W	125W	65W	125W	125W
Intel ARK Spec Link	https://www.intel.com/content/www/us/en/products/sku/241060/intel-core-ultra-9-processor-285k-36m-cache-up-to-5-70-ghz/specifications.html	https://www.intel.com/content/www/us/en/products/sku/241063/intel-core-ultra-7-processor-265k-30m-cache-up-to-5-50-ghz/specifications.html	https://www.intel.com/content/www/us/en/products/sku/241067/intel-core-ultra-5-processor-245k-24m-cache-up-to-5-20-ghz/specifications.html	https://www.intel.com/content/www/us/en/products/sku/241061/intel-core-ultra-9-processor-285-36m-cache-up-to-5-60-ghz/specifications.html	Intel® Core™ Ultra 7 processor 270K Plus	Intel® Core™ Ultra 5 processor 250K Plus

CPU Specifications Group 2

CPU	Intel Core™ Ultra 7 265	Intel® Core™ Ultra 5 245	Intel Core™ Ultra 5 235	Intel Core™ Ultra 5 225	Intel Core™ Ultra 9 235A
# of Cores	20c	14c	14c	10c	14c
# of Threads	20	14	14	10	14
Processor Base Frequency	2.4GHz	3.5GHz	3.4GHz	3.3GHz	3.4GHz
Max Turbo Frequency	5.3GHz	5.1GHz	5GHz	4.9GHz	5GHz
Cache	36M	24M	24M	20M	24M
TDP	65W	65W	65W	65W	65W
Intel ARK Spec Link	https://www.intel.com/content/www/us/en/products/sku/241068/intel-core-ultra-7-processor-265-30m-cache-up-to-5-30-	https://www.intel.com/content/www/us/en/products/sku/241876/intel-core-ultra-5-processor-245-24m-cache-up-to-5-10-	https://www.intel.com/content/www/us/en/products/sku/241674/intel-core-ultra-5-processor-235-24m-cache-up-to-5-00-	https://www.intel.com/content/www/us/en/products/sku/241070/intel-core-ultra-5-processor-225-20m-cache-up-to-4-90-	Intel® Core™ Ultra 5 Processor 235A

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HDD Specifications

Drive	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
2.5" SATA Hard Disk Drive (HDD)	Not Available	Not Available	Not Available	Not Available
Connector	SATA	SATA	SATA	SATA
Transfer Rate (Gb/sec)	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)	7,200	7,200	7,200	7,200
Power Off to Spindle Stop (sec)	NA	NA	NA	NA
DC Power to Drive Ready (sec)	<30.0	<30.0	<30.0	<30.0
Average Latency (msec)	4.16	4.16	4.16	4.16
Input (VDC)	5 & 12	5 & 12	5 & 12	5 & 12
Typical (Watts)	5.6Max	9.5(Max)	11(Max)	8(Max)
Idle (Watts)	3.7Max	5.2(Max)	5.9(Max)	5.3(Max)
Physical Dimensions	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)	<535	<715	<715	<700
Operating (C) Ambient	0 to 55°C	5 to 55	5 to 55	5 to 55
Operating (C) Base Casting	<60	<60	<60	<60
Non-Operating (C) Ambient	(-40 to 70)	(-40 to 70)	(-40 to 70)	(-40 to 70)
Gradient (C per Hour)	20	20	20	20
Operating (Gs @ 2ms)	80	Read 70 Gs / Write 40 Gs	Read 70 Gs / Write 40 Gs	50 Gs
Non-Operating (Gs @ 2ms)	300	250	250	250

Solid State Storage Specifications

Drive	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	NVMe 2280	3.84TB SAT	7.68T SATA SSD,

	M.2 Value 256GB M.2 NVMe OPAL Gen4	M.2 512GB PCIe SSD (OPAL) Gen4	M.2 1TB PCIe SSD (OPAL) Gen4	M.2 2TB PCIe SSD (OPAL) Gen4	M.2 4TB PCIe SSD (OPAL) Gen4	M.2 1TB OPAL TLC 2280 Gen5	M.2 2TB OPAL TLC 2280 Gen5	M.2 512GB OPAL TLC 2280 Gen5	M.2 4TB OPAL TLC 2280 Gen5	M.2 Value 512GB M.2 NVMe OPAL	M.2 Value 1TB M.2 NVMe OPAL	SSD, 2.5" OPAL Enterprise	2.5" OPAL Enterprise
Dimensions Millimeters (W x D x H)	22 x 80 x 2.38	22 x 80 x 2.38	22 x 80 x 2.38	22 x 80 x 2.38	22 x 80 x 2.38	22 x 80 x 2.38	22 x 80 x 2.38	22 x 80 x 2.38	22mm x 80mm x 2.38 mm	22 x 80 x 2.38	22 x 80 x 2.38	100.45 x 69.85 x 7.00	100.45 x 69.85 x 7.00
Interface Type	PCIe Gen 4×4	PCIe Gen 4×4	PCIe Gen 4×4	PCIe Gen 4×4	PCIe Gen 4×4	PCIe Gen 5×4	PCIe Gen 5×4	PCIe Gen 5×4	PCIe Gen5	PCIe Gen 4×4	PCIe Gen 4×4	SATA 6Gb/s interface	SATA 6Gb/s interface
Power Active (AVG)	5.9W	5.8W	8W	8.25 W	8.2W	8W(default)10 W(performance)	8W(default)10 W(performance)	8W(default)10 W(performance)	8.92 W Read/8.21 W Write	5.0W	5.0W	3.8W	3.9W
Power Idle	100 mW	35 mW	35 mW	25mW	20mW	10mW	10mW	10mW	50mW	50 mW	50 mW	1.5W	1.5W
Typical Sequential Read	3500 MB/s	6900 MB/s	6900 MB/s	6900 MB/s	6900 MB/s	14000 MB/s	14000 MB/s	12200 MB/s	14000 MB/s	7000 MB/s	7000 MB/s	540 MB/s	540 MB/s
Typical Sequential Write	450 MB/s	6200 MB/s	6800 MB/s	6800 MB/s	6800 MB/s	12500 MB/s	12500 MB/s	6300 MB/s	12000 MB/s	6600 MB/s	6600 MB/s	520 MB/s	520 MB/s
Burst Random Read (4K Queue Depth 32/8 thread);	250K IOPS	660K IOPS	680K IOPS	800K IOPS	800K IOPS	1600K IOPS	1600K IOPS	800K IOPS	800K IOPS	800K IOPS	95,000 IOPS	95,000 IOPS	
Burst Random Write (4K Queue Depth 32/8	90K IOPS	600K IOPS	600K IOPS	600K IOPS	600K IOPS	1600K IOPS	1600K IOPS	360K IOPS	1300K IOPS	1300K IOPS	65,000 IOPS	65,000 IOPS	

thread)													
Operating Temperature Range	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 80°C	0 to 70°C	0 to 70°C	0 to 70°C	0C to 70C	0 to 70°C	0 to 70°C	0~70'C	0~70'C
Endurance Rating (Lifetime Writes)	150 TB	150 TB	300 TB	600 TB	1600 TB	600TB	1200 TB	300TB	1600 TBW	200 TB	400 TB	10512	9110
Mean Time Between Failures (MTBF)	1.5M POH	2.0M POH	2.0M POH	2.0M POH	2.0M POH	2M POH	2M POH	2M POH	2.0 million hours	1.5M POH	1.5M POH	3.0 million	3.0 million
Hardware Encryption	AES 256 bit	AES 256 bit	AES 256 bit	AES 256 bit	AES 256 bit	AES 256 bit	AES 256 bit	AES 256 bit	OPAL	AES 256 bit	AES 256 bit	Yes	Yes
Disclaimers					N/A				N/A				

Optical Drive Specifications

Description	9mm Slim DVD ROM Drive (SATA)	9mm Slim DVD Burner/CD-RW Drive (SATA)	9mm Slim Blu-Ray ODD DVD Burner (SATA)
Interface Type	SATA 1.5 Gb/s	SATA 1.5 Gb/s	SATA 1.5 Gb/s
Dimensions	128±0.4×9.0 ±0.4×127±0.4(Max) Unit:mm (Without Bezel-W x H x D)	128±0.4×9.0 ±0.4×127±0.4(Max) Unit:mm (Without Bezel-W x H x D)	128±0.4×9.0 ±0.4×127±0.4(Max) Unit:mm (Without Bezel-W x H x D)
Disc Capacity	NA	NA	NA
Type	DVDROM	DVDWriter	BD Rambo
External Dimensions	NA	NA	NA
Speed	NA	NA	NA
Bay Type	9.0mm Tray	9.0mm Tray	9.0mm Tray
Color	Business Black or without bezel	Business Black or without bezel	Business Black or without bezel
Removable	No	No	No
Internal Buffer Size	0.5MB Min	0.5MB Min	4MB
Writes	NA	8XDVD+R / 8XDVD+RW / 6XDVD+R DL	6x BD-R / 2x BD-RE 8XDVD+R / 8XDVD+RW

		8XDVD-R / 6XDVD-RW / 6XDVD-R DL 24XCD-R / 16XCD-RW	/ 6XDVD+R DL 8XDVD-R / 6XDVD-RW / 6XDVD-R DL 5XDVD-RAM 24XCD-R / 16XCD-RW
Reads	8XDVD-ROM / 24XCD-ROM	8XDVD-ROM / 24XCD-ROM	6x BD-ROM /8x DVD-ROM / 5x DVD-RAM / 24x CD-ROM
Source	DC Power 5V	DC Power 5V	DC Power 5V
DC Power Requirements	+5V±5%	+5V±5%	+5V±5% Ripple less than 100mVp-p
DC Current	Max 2.5A@5v	Max 2.5A@5v	Max 2A@5v
Operating Systems Supported	Windows OS/Linux	Windows OS/Linux	Windows OS/Linux
Temperature	Operating: 5°C to 45 °C Non-Operating:-30°C to 60°C	Operating: 5°C to 45 °C Non-Operating:-30°C to 60°C	Operating: 5°C to 45 °C Non-Operating:-30°C to 60°C
Relative Humidity	Operating > Read: 15 % to 85 % (Non-Condensing) Write 15 % to 80 % (Depend on the Temperature) Storage/Transportation> 10 % to 80 % (Non-Condensing)	Operating > Read: 15 % to 85 % (Non-Condensing) Write 15 % to 80 % (Depend on the Temperature) Storage/Transportation> 10 % to 80 % (Non-Condensing)	Operating > Read: 15 % to 85 % (Non-Condensing) Write 15 % to 80 % (Depend on the Temperature) Storage/Transportation> 10 % to 80 % (Non-Condensing)

Integrated Graphics Adapter

Type	Intel® Xe LPG Graphics
Bus Interface	Processor onboard
Display Interface	DP/DP/HDMI/DP or HDMI or Type-C or VGA(1 of 4 optional)
Video Resolution (max)	8K60 or 5K60 HDR max(2* 5K60 HDR or 4* 4K60 HDR)

Discrete Graphics Adapter Group 1

Adapter	NVIDIA RTX A400	NVIDIA RTX A1000	NVIDIA RTX2000 Ada	NVIDIA RTX5000 Ada	NVIDIA RTX4000 Ada	NVIDIA RTX PRO 2000 Blackwell	NVIDIA RTX PRO 4000 Blackwell	NVIDIA RTX Pro 4500 Blackwell	NVIDIA RTX Pro 5000 Blackwell	NVIDIA RTX Pro 5000 Blackwell	NVIDIA RTX PRO 6000 Blackwell Max-Q Workstation Edition	NVIDIA RTX PRO 6000 Blackwell Workstation Edition
Bus Interface	PCI Express	PCI Express	PCI Express 4.0×8	PCI Express	PCIe 4.0 x 16	PCIe 5.0 x 8	PCIe 5.0 x16	PCIe 5.0 x16	PCIe 5.0 x16	PCIe 5.0 x16	PCIe 5.0 x16	PCIe 5.0 x16

	4.0×16	4.0×16		4.0×16								
Display Interface	DP *4	DP *4	mini DP *4	DP *4	DP *4	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b	4x DP 2.1b
Graphics Chipset	PG172 SKU 570	PG172 SKU 550	PG192 SKU 570	PG132 SKU 550	PG190 SKU 550	GB206 (Blackwell)	GB203 (Blackwell)	GB203 (Blackwell)	GB202 (Blackwell)	GB202 (Blackwell)	GB202 (Blackwell)	GB202 (Blackwell)
Memory Clock Frequency (MHz)	6001 MHz	6001 MHz	7 GHz (max)	9000 Mhz (max)	9000 Mhz (max)	1125 MHz	1230 MHz	1635 MHz	1755 MHz	1755 MHz	3500 MHz	3500 MHz
Memory Size	4GB GDDR6	8GB GDDR6	16GB	32GB	20GB	16 GB GDDR7 with ECC	24 GB GDDR7 with ECC	32 GB GDDR7 with ECC	48 GB GDDR7 with ECC	72 GB GDDR7 with ECC	96 GB GDDR7 with ECC	96 GB GDDR7 with ECC
Memory Interface	64 bits	64 bits	128 bits	GDDR6	GDDR6	128-bit	192-bit	256-bit	384-bit	384-bit	512-bit	512-bit
Memory Bandwidth	Up to 96 GB/s	Up to 192 GB/s	Up to 224 GB/s	Up to 576GB/s	Up to 360GB/s	288 GB/s	672 GB/s	896 GB/s	1344 GB/s	1344 GB/s	1792 GB/s	1792 GB/s
GPU Cores	CUDA Cores: 768	CUDA Cores: 2048	NVIDIA Ada Lovelace architecture-based CUDA Cores: 2816	NVIDIA Ada Lovelace Architecture-Based CUDA Cores: 12,800	NVIDIA Ada Lovelace Architecture-Based CUDA Cores: 6,144	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	CUDA Cores: 14,080 Tensor Cores: 440 RT Cores: 110	CUDA Cores: 24,064 Tensor Cores: 752 RT Cores: 188	CUDA Cores: 24,064 Tensor Cores: 752 RT Cores: 188
GPU Core Frequency (MHz)	420MHz (base) /2100 MHz (max boost)	1417MHz (base) /2100 MHz (max boost)	Base:1620 MHz Boost:2130 MHz Maximum boost: 3105 MHz	Base: 1155MHz/ Boost:2550 MHz	Base: 1500 MHz/ Boost:2175 MHz	1957 MHz	2055 MHz	2407 MHz	2377 MHz	2377 MHz	2280 MHz	2617 MHz
Maximum Power Consumption	30W	50W	70W	250W	130W	70 W	140 W	200 W	300 W	300 W	300 W	600W
Supported Resol	7680 x 4320	7680 x 4320	7680 x 4320	7680 x 4320	7680 x 4320	4x 3840 x 2160	4x 3840 x 2160	4x 3840 x 2160	4x 3840 x 2160	4x 3840 x 2160	4x 4096 x 2160	4x 4096 x 2160

utions and Max Refresh Rates (Hz) (Note: Analog and/or Digital)	x 24 bpp @ 120Hz 7680 x 4320 x 24 bpp @ 60Hz 7680 x 4320 x 36 bpp @ 60Hz 5120 x 3200 x 24 bpp @ 60Hz 5120 x 2880 x 24 bpp @ 60Hz	x 24 bpp @ 120Hz 7680 x 4320 x 24 bpp @ 60Hz 7680 x 4320 x 36 bpp @ 60Hz 5120 x 3200 x 24 bpp @ 60Hz 5120 x 2880 x 24 bpp @ 60Hz	x 24 bpp @ 120Hz 7680 x 4320 x 24 bpp @ 60Hz 7680 x 4320 x 36 bpp @ 60Hz 5120 x 3200 x 24 bpp @ 60Hz 5120 x 2880 x 24 bpp @ 60Hz	x 24 bpp at 120Hz 7680 x 4320 x 36 bpp at 60Hz	x 24 bpp at 120Hz 7680 x 4320 x 36 bpp at 60Hz	@ 165 Hz 2x 3840 x 2160 @ 360 Hz 2x 7680 x 4320 @ 100 Hz	@ 165 Hz 2x 7680 x 4320 @ 100 Hz	@ 165 Hz 2x 7680 x 4320 @ 100 Hz	@ 165 Hz 2x 7680 x 4320 @ 100 Hz	@ 165 Hz 2x 7680 x 4320 @ 100 Hz	@ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	@ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz
Thermal Solution	Ultra-quiet Active Fansink	Ultra-quiet Active Fansink	Active cooled (blower fan)	Active cooled	Active cooled	Active	Active	Active	Active	Active	Active	Active
Dimension	2.713" H x 6.137" L Single Slot, Low Profile	2.713" H x 6.137" L Single Slot, Low Profile	2.7" H x 6.6" L, Dual Slot	268.6 x 111.15 x 38.5	254.6 x 126.3 x 21.6	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	4.4" H x 10.5" L, dual 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	Not Available	Not Available	Not Available	SYNC 2	SYNC 2	NA	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync	RTX PRO Sync
SLI/NVLink Support	Not Available	Not Available	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA

Ethernet Specifications Group 1 Part 1

Card	Intel I210-T1 Single Port Gigabit Ethernet Adapter (Springville)	Intel I350-T4 Quad Port Gigabit Ethernet Adapter (Stony Lake T4)	RTL8125BGS 2.5G Single Port PCIex1	Intel X710-T2L PCIex8 10G Ethernet Adapter	Intel Wi-Fi 7 BE200 PCIE M.2 module SBB
Supplier PN	I210T1, MM# 941033	I350T4G1P20, MM# 928942	RTL8125BGS-CG	X710-T2L, MM# 99AT6H	BE200.NGWG, MM# 99C462

Data Rates Supported	10/100/1000Mbps copper	10/100/1000Mbps (Copper), 1000Mbps (Fiber)	10/100/1000/2500Mbps copper	100Mbps, 1/2.5/5/10Gbps	2.4G/5G/6G
Controller Details	Intel® Ethernet Controller I210	Intel Ethernet Controller I351	Ethernet Controller RTL8125B	Intel X710-AT2	Intel Wi-Fi 7 BE200
Controller Bus Architecture	PCIe 2.1 (5GT/s)	PCIe 2.1 (5GT/s)	PCIe 2.1 (5GT/s)	PCIE 3.0	
Data Transfer Mode	Ethernet	Ethernet	Ethernet	Ethernet	WLAN
Power Consumption	0.81W	Copper: I350T4V2= 5W LC-Fiber: I350F4= 6W	0.8W	9.6W	M.2 power supply: supply: 3.3V worst case: 2000mA
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-Te, 100/1000/2.5G BASE-T	5/2.5/1GbE, 10GBASE-T, 100BASE-TX	IEEE 802.11 be IEEE 802.11 a/b/d/e/g/h/i/k/n/r/u/v/w/ac/ax
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 /UEFI Boot	Wireless Functionality inPre-boot Environment WiFi UEFI	
Network Transfer Mode (Full/Half Duplex)	Supported	Supported	Supported	Support	NA
Network Transfer Rate	1,000Mbps Full Duplex	1,000Mbps Full Duplex	2500Mbps Full Duplex	10Gbps Full Duplex	NA
a	Windows 7/8/10, Linux, Free BSD, XEN,Vmware	Windows 7/8/10, Linux, Free BSD, XEN,Vmware	Windows 11 64	Win10, Win11, Linux	Windows11, Linux, Free BSD
Manageability	Supported	Supported	Supported		
Manageability Capabilities Alerting	Supported	Supported	Supported		
Lithography	NA				
TDP	Firmware Based Thermal Management	Firmware Based Thermal Management	Thermal Management	NA	
Operating Temperature Range	0°C to 55°C (32°F to 131°F)	0°C to 55°C (32°F to 131°F)	'-5℃~50℃(23°F to 122°F)	0°C to 55°C (32°F to 131°F)	0°C to 50°C
# of Ports	1	4	1	2	NA
Data Rate Per Port	10/100/1000Mbps (copper)	10/100/1000Mbps (copper), 1000Mbps (fiber)	10/100/1000/2500Mbps	100Mbps, 1G/2.5G/5G/10Gbps	2×2
System Interface Type	PCIe Gen 2.1	PCIe Gen 2.1	PCIe Gen 2.1	PCIE3.0	M.2: PCIe*, USB

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	Yes	NA
MACsec IEEE 802.1 AE	Coming Soon	Coming Soon	Not Available	NA	
IEEE 1588	Supported	Supported	Supported	Supported	NA
Supported Under vPro	Not Available	Not Available	Not Available	Supported	
Disclaimers					

Ethernet Specifications Group 1 Part 2

Model	i210-T1	I350-T4	RTL8125BGS 2.5G Single Port PCIex1	Intel X710-T2L PCIex8 10G Ethernet Adapter	Intel Wi-Fi 7 BE200 PCIE M.2 module SBB
Connector	RJ-45 Copper	4 x Ports RJ-45 Copper	RJPA54-5JE3-M1A-0R	2 x RJ45 Cpper	RF cable
Website	i210 T1	i350 T4	RTL8125BGS	X710-T2L	BE200
100BASE-TX (IEEE 802.3 specification conformance)			Yes		
1000BASE-T (IEEE 802.3 specification conformance)			Yes		
Auto-Negotiation	IEEE* 802.3* Auto-negotiaton	IEEE* 802.3* Auto-negotiaton	suported	IEEE* 802.3* Auto-negotiaton	IEEE 802.11 be Auto-negotiaton
Intel® vPro™	Not Available	Not Available	Not Available	Not Support	Supported
Intel® Standard Manageablity	Supported		Supported		Supported
Power Optimizer Platform Low-power Management Systems	Supported		Supported		Supported
Energy Efficient Ethernet	Supported	Supported	Supported	Enabled for 10/5/2.5/1GBASE-T	
TCP/UDP Checksum and Segmentation Offload (IPv4 and IPv6)	Supported	Supported	Supported	Supported	
Receive Side Scaling	Supported	Supported	Supported	Supported	
Dual Tx and Rx Queues	Yes	Yes	Yes	Yes	
Jumbo Frames (up to 9KB)	Supported	Supported	Jumbo Frames (up to 16KB)	Supported	Supported
Teaming	Supported	Supported	Supported	Supported	
Integrated Switched Voltage Regulator (iSVR)			Yes		

Shared Flash with System BIOS			Not Available		
Wake from Deep Sx	Supported	Supported	Supported	No Supported	Supported(S4)
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	
Network Proxy/ARP Support	Supported	Supported	Supported	Supported	Supported

Media Card Reader

Description	Media Card reader (3 in 1) TWR
Interface Type	USB2.0
Form Factor	USB 2.0 Mass Storage Device

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, 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	Supervisor, SMP and Power-On Passwords Can Protect Boot and ROM-based Setup – Support Electronic Lock – Chassis Intrusion Detection – UEFI Secure Boot Support – HDD Password Can Protect HDD Data – Windows UEFI Firmware Update Support – Device Guard Support – Optional Access Panel Lock, Kensington Lock, and Pad Lock, BIOS Guard, Boot Guard -BIOS Self-Healing Gen 2 (RoT: EC) -Secure Wipe 2.0 -Subscription Certificate Storage -Certificate-based BIOS Authentication and Management – Phase 2 -BIOS Modification and Event Logging – Phase 1 -Customized BIOS Defaults -BIOS Settings in Intune Settings Catalog -Microsoft Modern (Cloud) Bare Metal Recovery “cBMR” -BIOS Initialization to Factory Default
Intel(R) AMT (includes ASF 2.0)	Allows System to be Supported from a Remote Location
Intel(R) TXT	Intel(R) Trusted Execution Technology 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 2.8 Device Guard Support Spec

Industry Standard Specification Support

UEFI	Unified Extensible Firmware Interface v2.9
ACPI (Advanced Configuration and power Management Interface)	Advanced Configuration and Power Interface v6.2
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 v4.0
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 Universal Serial Bus v3.2
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	GDX Scip control
Batteries	UN38.3,MSDS
Safety, EMC Connection to the Telephone Network and Labeling	Not applicable

Acoustic Noise Emissions Declaration

LWAd(bels) Idle	3.5
LWAd(bels) Oper	3.5

Safety, EMC Connection to the Telephone Network and Labeling

Industry Standard Specifications	not applicable
Remote Manageability Software Solutions	not applicable
System Software Manager	Lenovo ThinkStation supports software management tools by Lenovo Vantage.

Regulations & Standards

EMC & Safety	FCC/IC VCCI BSMI KC RCM GS UL IEC62368 CB Report/Certificate Saudi Arabia EQM Kuwait KUCAS

	China CCC Mark Singapore PSB South Africa SABS Russia/Belarus/Kazakhstan/Kyrgyzstan/Armenia-EAC Morocco-CM Mexico-NOM Serbia KVALITET Ukraine UKrCEPRO India-BIS China SRRC Indonesia-DJID Malaysia-SIRIM Philippines-NTC Chile-SUBTEL Thailand-NBTC Morocco-ANRT Singapore-IMDA India-ETA

Environmentals

Energy Star	ENERGY STAR 9.0
EPEAT	EPEAT Certification Available on Select Models
ErP Lot-3 2013	Yes
Hazardous Substances	GDX Scip control
Materials Used	System 95% PCC recycled plastic front bezel Packaging Carton: 90% Recycled and/or FSC certified content3 Cushion: 90% Recycled EPE
TCO Certification	10.0
Disclaimers	EPEAT registered where applicable. EPEAT registration varies by country. See www.epeat.net for registration status by country.