Precision 7960 Tower

Technical Guidebook

Regulatory Model: D05X
Regulatory Type: D05X001
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DELL Technologies

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Contents

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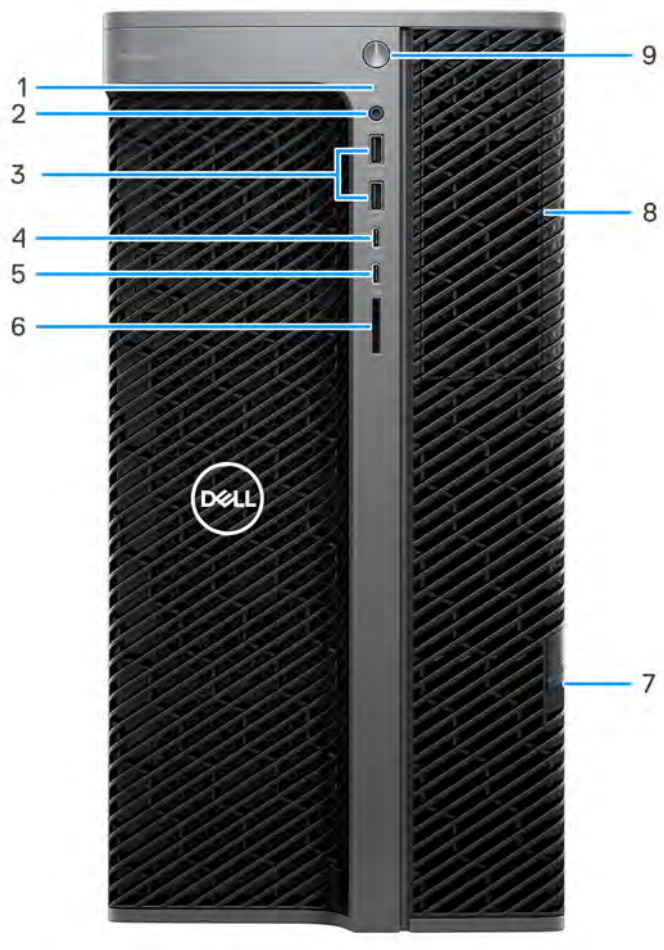
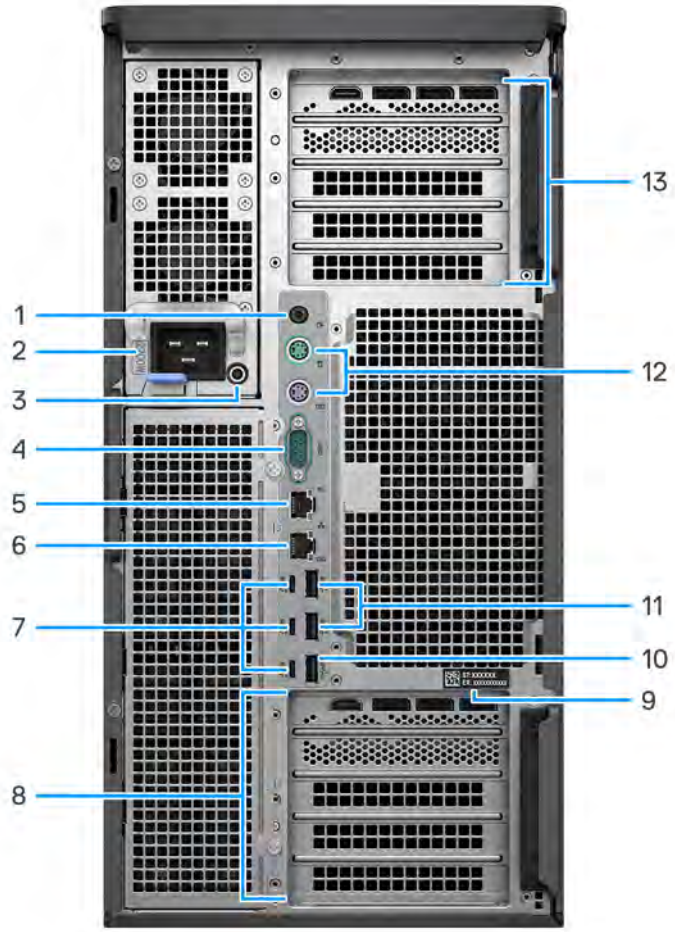
Views of Precision 7960 Tower

Display



1. Hard-drive activity indicator
2. Universal audio port
3. USB 3.2 Gen 1 ports
4. USB 3.2 Gen 2x2 Type-C port with PowerShare
5. USB 3.2 Gen 2 Type-C port
6. SD-card slot
7. SATA/SAS/NVMe drive flexbays
8. Optical drive slots
9. Power button

Back



1. Line-out port
2. Power adapter port
3. PSU BIST button
4. Serial port
5. RJ45 Ethernet port, 1 GbE
6. RJ45 Ethernet port, 10 GbE
7. USB 3.2 Gen 2 Type-C ports
8. Expansion card slots
9. Service tag
10. USB 3.2 Gen 1 port with Smart Power On
11. USB 3.2 Gen 1 ports
12. PS2 ports (for keyboard and mouse)
13. Expansion card slots

System-board call outs

This topics provides detailed call outs for the connectors on the system board:

System-board call outs (front side)

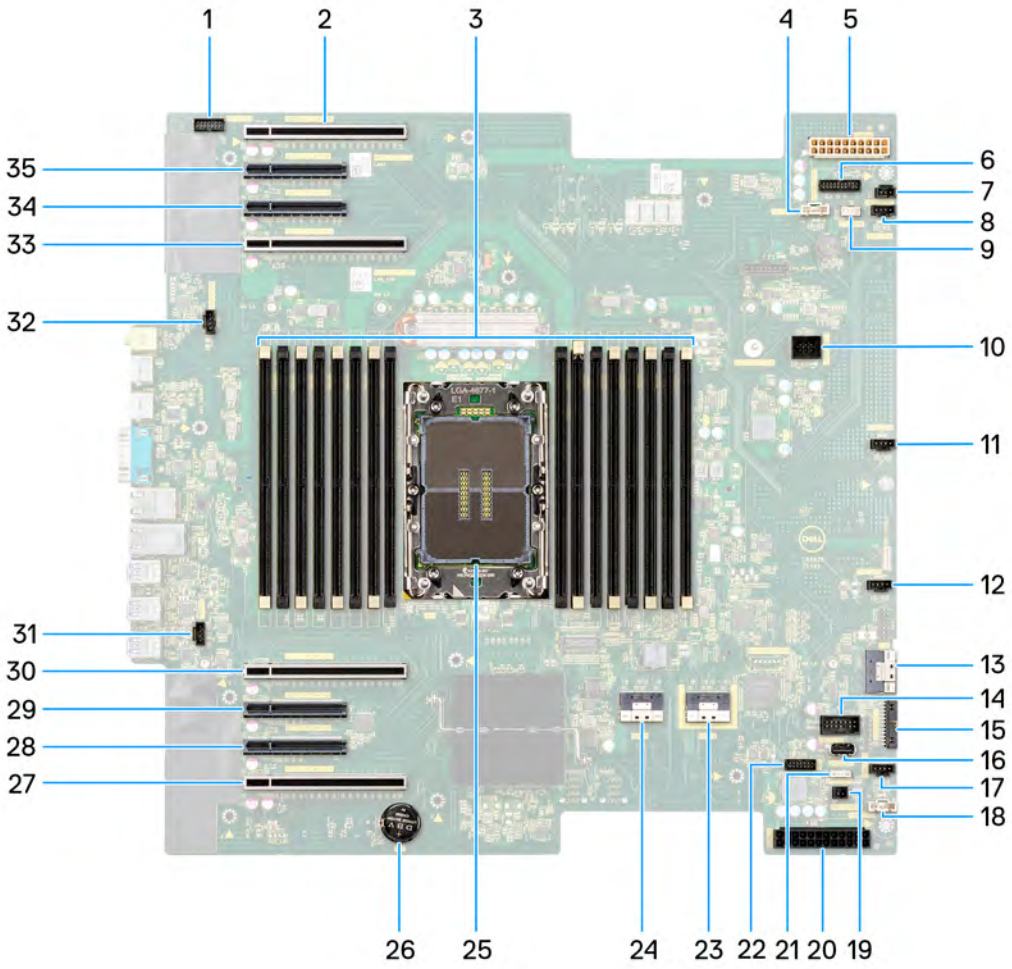


Table 1. Precision 7960 tower system board callouts (front side)

No	Connector	Description
1	FP AUDIO	Front panel audio-cable connector
2	SLOT8	PCI Express Gen 4 x16 slot
3	DIMMx16 (DIMM1—DIMM16)	Memory module connectors
4	FAN SYS4	System fan connector
5	POWER2	Power cable connector
6	POWER CRTL	Power controller switch connector
7	INTRUSION	Intrusion switch connector
8	FAN SYS3	System fan connector
9	INT SPKR	Internal-speaker connector
10	DDR FAN 0/1	Memory-module fan connector

Table 1. Precision 7960 tower system board callouts (front side) (continued)

No	Connector	Description
11	FAN SYS2	System fan connector
12	FAN SYS1	System fan connector
13	FIO	Front I/O-daughter board connector
14	INT USB1	Internal USB 2.0
15	FRONTPANEL	Front I/O-power connector
16	INT USB2	Internal USB 2.0
17	FAN SYS0	System fan connector
18	FAN SYS5	System fan connector
19	PWR REMOTE	System fan connector
20	POWER1	Intel Virtual RAID on CPU
21	VROC Key	VROC key connector
22	TBT	Thunderbolt add-in card connector
23	REAR NVME2-3	Rear NVMe connector for externally facing M.2 flexbay drive
24	REAR NVME0-1	Rear NVMe connector for externally facing M.2 flexbay drive
25	CPU	Processor socket
26	RTC	Coin-cell battery
27	SLOT4	PCI Express Gen 4 x16 slot
28	SLOT3	PCI Express Gen 4 x8 slot wired as x4 electrically
29	SLOT2	PCI Express Gen 4 x8 slot wired as x4 electrically
30	SLOT1	PCI Express Gen 5 x16 slot
31	FAN REAR0	Rear Fan 0
32	FAN REAR1	Rear Fan 1
33	SLOT5	PCI Express Gen 5 x16 slot
34	SLOT6	PCI Express Gen 4 x8 slot
35	SLOT7	PCI Express Gen 4 x8 slot

System-board call outs (rear side)

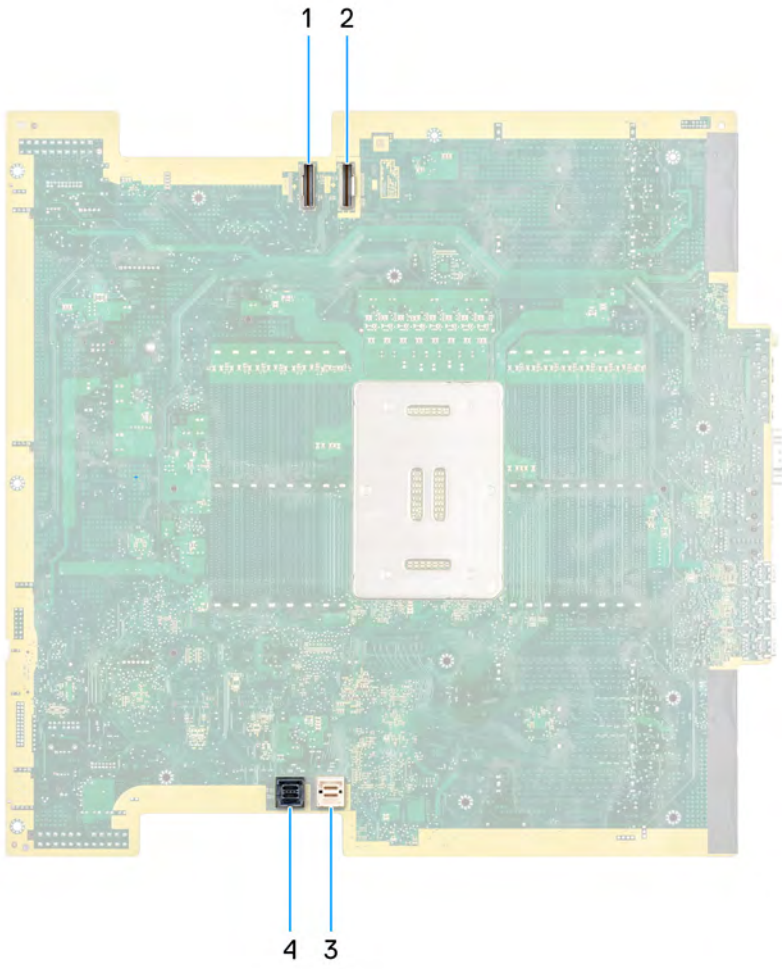


Table 2. Precision 7960 tower system board callouts (rear side)

No	Connector	Description
1	Front NVME0-1 (rear access)	Front NVMe connector for externally facing M.2 flexbay drive
2	Front NVME2-3 (rear access)	Front NVMe connector for externally facing M.2 flexbay drive
3	SATA 4-7 (rear access)	SATA hard drive data-cable connector
4	SATA 0-3 (rear access)	SATA hard drive data-cable connector

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Specifications of Precision 7960 Tower

Dimensions and weight

The following table lists the height, width, depth, and weight of your Precision 7960 Tower.

Table 3. Dimensions and weight

Description	Values
Height	430.70 mm (16.96 in.) / 434.20 mm (17.09 in.) with rubber feet
Width	218.00 mm (8.58 in.)
Depth	538.30 mm (21.19 in.) / 569.15 mm (22.41 in.) with lock structure
Weight **NOTE:** The weight of your computer depends on the configuration ordered and manufacturing variability.	• 37.56 kg (82.82 lbs.) —maximum • 23.81 kg (52.50 lbs.)—typical • 21.04 kg (46.39 lbs.)—minimum

Processor

The following table lists the details of the processors that are supported by your Precision 7960 Tower.

Table 4. Processor

Processor type	Processor wattage	Processor core count	Processor thread count	Processor speed	Processor cache
Intel Xeon W5-3423	220 W	12	24	2.10 GHz to 4.20 GHz	30 MB
Intel Xeon W5-3425	270 W	12	24	3.20 GHz to 4.60 GHz	30 MB
Intel Xeon W5-3433	220 W	16	32	2.0 GHz to 4.20 GHz	45 MB
Intel Xeon W5-3435X	270 W	16	32	3.10 GHz to 4.70 GHz	45 MB
Intel Xeon W7-3445	270 W	20	40	2.60 GHz to 4.80 GHz	52.5 MB
Intel Xeon W7-3455	270 W	24	48	2.50 GHz to 4.80 GHz	67.5 MB
Intel Xeon W7-3465X	300 W	28	56	2.50 GHz to 4.80 GHz	75 MB
Intel Xeon W9-3475X	300 W	36	72	2.20 GHz to 4.80 GHz	82.5 MB

Table 4. Processor (continued)

Processor type	Processor wattage	Processor core count	Processor thread count	Processor speed	Processor cache
Intel Xeon W9-3495X	350 W	56	112	1.90 GHz to 4.80 GHz	105 MB
Intel Xeon W5-3525	290 W	16	32	3.20 GHz to 4.80 GHz	45 MB
Intel Xeon W5-3535X	300 W	20	40	2.90 GHz to 4.80 GHz	52.5 MB
Intel Xeon W7-3545	310 W	24	48	2.70 GHz to 4.80 GHz	67.5 MB
Intel Xeon W7-3555	325 W	28	56	2.70 GHz to 4.80 GHz	75 MB
Intel Xeon W7-3565X	335 W	32	64	2.50 GHz to 4.80 GHz	82.5 MB
Intel Xeon W9-3575X	340 W	44	88	2.20 GHz to 4.80 GHz	97.5 MB
Intel Xeon W9-3595X	385 W	60	120	2.00 GHz to 4.80 GHz	112.5 MB

Chipset

The following table lists the details of the chipset supported by your Precision 7960 Tower.

Table 5. Chipset

Description	Values
Chipset	Intel W790
Processor	Intel Xeon W5/W7/W9 processors
DRAM bus width	• 64-bit (for single-channel) • 128-bit (for dual-channel)
Flash EPROM	• 16 MB (nRPMC) • 32 MB (RPMC)
PCIe bus	Up to Gen5
Non-volatile memory	Yes
BIOS configuration Serial Peripheral Interface (SPI)	256 Mbit (32 MB) located at SPI_FLASH
Trusted Platform Module (TPM) 2.0 (Discrete TPM Enabled)	24 KB located at TPM 2.0 on chipset
Firmware-TPM (Discrete TPM disabled)	By default the Platform Trust Technology feature is visible to the operating system.
NIC EEPROM	LOM configuration contained within SPI flash ROM instead of LOM e-fuse

Operating system

Your Precision 7960 Tower supports the following operating systems:

- Windows 11 Pro for Workstations
- Windows 11 Pro for Workstations Downgrade (Windows 10 Pro for Workstations Image-factory installed)
- Windows 10 CMIT Government Edition, 64-bit (China only)
- Ubuntu 22.04 LTS, 64-bit
- Red Hat Enterprise Linux 8.6 and 9.3 (depending on the processor)

Memory

The following table lists the memory specifications of your Precision 7960 Tower.

Table 6. Memory specifications

Description	Values
Memory slots	16 DIMMS
Memory type	DDR5
Memory speed	4800 MT/s
Maximum memory configuration	4 TB
Minimum memory configuration	16 GB
Memory size per slot	16 GB, 32 GB, 64 GB, 128 GB, 256 GB
Memory configurations supported	• 16 GB, 1 x 16 GB, DDR5 RDIMM, 4800 MT/s • 32 GB, 1 x 32 GB, DDR5 RDIMM, 4800 MT/s • 32 GB, 2 x 16 GB, DDR5 RDIMM, 4800 MT/s • 64 GB, 1 x 64 GB, DDR5 RDIMM, 4800 MT/s • 64 GB, 2 x 32 GB, DDR5 RDIMM, 4800 MT/s • 64 GB, 4 x 16 GB, DDR5 RDIMM, 4800 MT/s • 96 GB, 6 x 16 GB, DDR5 RDIMM, 4800 MT/s • 128 GB, 2 x 64 GB, DDR5 RDIMM, 4800 MT/s • 128 GB, 4 x 32 GB, DDR5 RDIMM, 4800 MT/s • 128 GB, 8 x 16 GB, DDR5 RDIMM, 4800 MT/s • 192 GB, 6 x 32 GB, DDR5 RDIMM, 4800 MT/s • 192 GB, 12 x 16 GB, DDR5 RDIMM, 4800 MT/s • 256 GB, 4 x 64 GB, DDR5 RDIMM, 4800 MT/s • 256 GB, 16 x 16 GB, DDR5 RDIMM, 4800 MT/s • 384 GB, 6 x 64 GB, DDR5 RDIMM, 4800 MT/s • 384 GB, 12 x 32 GB, DDR5 RDIMM, 4800 MT/s • 512 GB, 2 x 256 GB, DDR5 RDIMM, 4800 MT/s • 512 GB, 4 x 128 GB, DDR5 RDIMM, 4800 MT/s • 512 GB, 8 x 64 GB, DDR5 RDIMM, 4800 MT/s • 512 GB, 16 x 32 GB, DDR5 RDIMM, 4800 MT/s • 768 GB, 6 x 128 GB, DDR5 RDIMM, 4800 MT/s • 768 GB, 12 x 64 GB, DDR5 RDIMM, 4800 MT/s • 1 TB, 4 x 256 GB, DDR5 RDIMM, 4800 MT/s • 1 TB, 8 x 128 GB, DDR5 RDIMM, 4800 MT/s • 1 TB, 16 x 64 GB, DDR5 RDIMM, 4800 MT/s • 1.5 TB, 6 x 256 GB, DDR5 RDIMM, 4800 MT/s • 1.5 TB, 12 x 128 GB, DDR5 RDIMM, 4800 MT/s • 2 TB, 8 x 256 GB, DDR5 RDIMM, 4800 MT/s • 2 TB, 16 x 128 GB, DDR5 RDIMM, 4800 MT/s • 3 TB, 12 x 256 GB, DDR5 RDIMM, 4800 MT/s • 4 TB, 16 x 256 GB, DDR5 RDIMM, 4800 MT/s

NOTE:

- When 12th or 16th memory DIMM slots are populated in your computer, the 4800 MT/s memory speed will clock down to 4400 MT/s.
- Intel Xeon W5-3423 and W5-3433 processors support memory speed up to 4400 MT/s on all configurations.

Memory matrix

The following table lists the memory configurations supported on your Precision 7960 Tower.

NOTE: Ensure that you install the memory module starting from DIMM 1 slot.

Table 7. Memory matrix

Configurations	DIMM 8	DIMM 16	DIMM 2	DIMM 10	DIMM 6	DIMM 14	DIMM 4	DIMM 12	DIMM 9	DIMM 1	DIMM 15	DIMM 7	DIMM 11	DIMM 3	DIMM 13	DIMM 5
16 GB DDR5	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-
32 GB DDR5	-	-	-	-	-	-	-	-	-	32	-	-	-	-	-	
32 GB DDR5	-	-	16	-	-	-	-	-	-	16	-	-	-	-	-	-
64 GB DDR5	-	-	-	-	-	-	-	-	-	64	-	-	-	-	-	-
64 GB DDR5	-	-	32	-	-	-	-	-	-	32	-	-	-	-	-	-
64 GB DDR5	-	-	16	-	-	-	16	-	-	16	-	-	-	16	-	-
96 GB DDR5	-	-	16	-	16	-	16	-	-	16	-	-	-	16	-	16
128 GB DDR5	16	-	16	-	16	-	16	-	-	16	-	16	-	16	-	16
128 GB DDR5	-	-	32	-	-	-	32	-	-	32	-	-	-	32	-	-
128 GB DDR5	-	-	64	-	-	-	-	-	-	64	-	-	-	-	-	-
192 GB DDR5	16	-	16	16	16	-	16	16	16	16	-	16	16	16	-	16
192 GB DDR5	-	-	32	-	32	-	32	-	-	32	-	-	-	32	-	32
256 GB DDR5	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
256 GB DDR5	-	-	64	-	-	-	64	-	-	64	-	-	-	64	-	-
384 GB DDR5	32	-	32	32	32	-	32	32	32	32	-	32	32	32	-	32
384 GB DDR5	-	-	64	-	64	-	64	-	-	64	-	-	-	64	-	64
512 GB DDR5	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
512 GB DDR5	64	-	64	-	64	-	64	-	-	64	-	64	-	64	-	64

Table 7. Memory matrix (continued)

Configurations	DIMM 8	DIMM 16	DIMM 2	DIMM 10	DIMM 6	DIMM 14	DIMM 4	DIMM 12	DIMM 9	DIMM 1	DIMM 15	DIMM 7	DIMM 11	DIMM 3	DIMM 13	DIMM 5
768 GB DDR5	64	-	64	64	64	-	64	64	64	64	-	64	64	64	-	64
1 TB DDR5	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
1 TB DDR5	128	-	128	-	128	-	128	-	-	128	-	128	-	128	-	128
1 TB DDR5	-	-	256	-	-	-	256	-	-	256	-	-	-	256	-	-
1.5 TB DDR5	128	-	128	128	128	-	128	128	128	128	-	128	128	128	-	128
1.5 TB DDR5	-	-	256	-	256	-	256	-	-	256	-	-	-	256	-	256
2 TB DDR5	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
2 TB DDR5	256	-	256	-	256	-	256	-	-	256	-	256	-	256	-	256
3 TB DDR5	256	-	256	256	256	-	256	256	256	256	-	256	256	256	-	256
4 TB DDR5	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256

External ports and slots

The following table lists the external ports and slots of your Precision 7960 Tower.

Table 8. External ports and slots

Description	Values
Network port	• One RJ45 Ethernet port, 1 GbE • One RJ45 Ethernet port, 10 GbE
USB ports	**Front**: • Two USB 3.2 Gen 1 ports • One USB 3.2 Gen 2x2 Type-C port with PowerShare • One USB 3.2 Gen 2 Type-C port **Rear**: • Three USB 3.2 Gen 2 Type-C ports • Two USB 3.2 Gen 1 ports • One USB 3.2 Gen 1 port with Smart Power On
Audio port	• One universal audio jack • One Line-out port
Video port(s)	Not supported
Media-card reader	Not supported
Power-adapter port	Not supported
Security-cable slot	• One kensington security-cable slot • One padlock ring

Internal slots

The following table lists the internal slots of your Precision 7960 Tower.

Table 9. Internal slots

Description	Values
Expansion	• Two full-height Gen5 PCIe x16 slots • Two full-height Gen4 PCIe x16 slots • Two full-height Gen4 PCIe x8 slots • Two full-height, half-length Gen4 PCIe x8 slots wired as x4 electrically
mSATA	NA
SATA/SAS/NVMe	• Eight externally facing (four front and four rear) storage flexbays with optical drive configuration • Ten externally facing (six front and four rear) storage flexbays without optical drive configuration • Up to 8 M.2 NVMe drives (four front and four rear)
M.2	NA

Slot capabilities of Precision 7690 Tower

The following table provides the slot capabilities of your Precision 7960 Tower.

Table 10. Slot capabilities of Precision 7690 Tower

Slot number	Precision 7690 Tower	Note
Slot1	PCIe G5 x16 (Processor)	PCIe x16 Slot G5
Slot2	PCIe Gen4 x4 (PCH)	PCIe x8 Slot Gen4 (wired x4--open ended)
Slot3	PCIe Gen4 x4 (PCH)	PCIe x8 Slot Gen4 (wired x4--open ended)
Slot4	PCIe Gen4 x16 (Processor)	PCIe x16 Slot G4
Slot5	PCIe G5 x16 (Processor)	PCIe x16 Slot G5
Slot6	PCIe Gen4 x8 (Processor)	PCIe x8 Slot Gen4 (wired x8--open ended)
Slot7	PCIe Gen4 x8 (Processor)	PCIe x8 Slot Gen4 (wired x8--open ended)
Slot8	PCIe Gen4 x16 (Processor)	PCIe x16 Slot G4

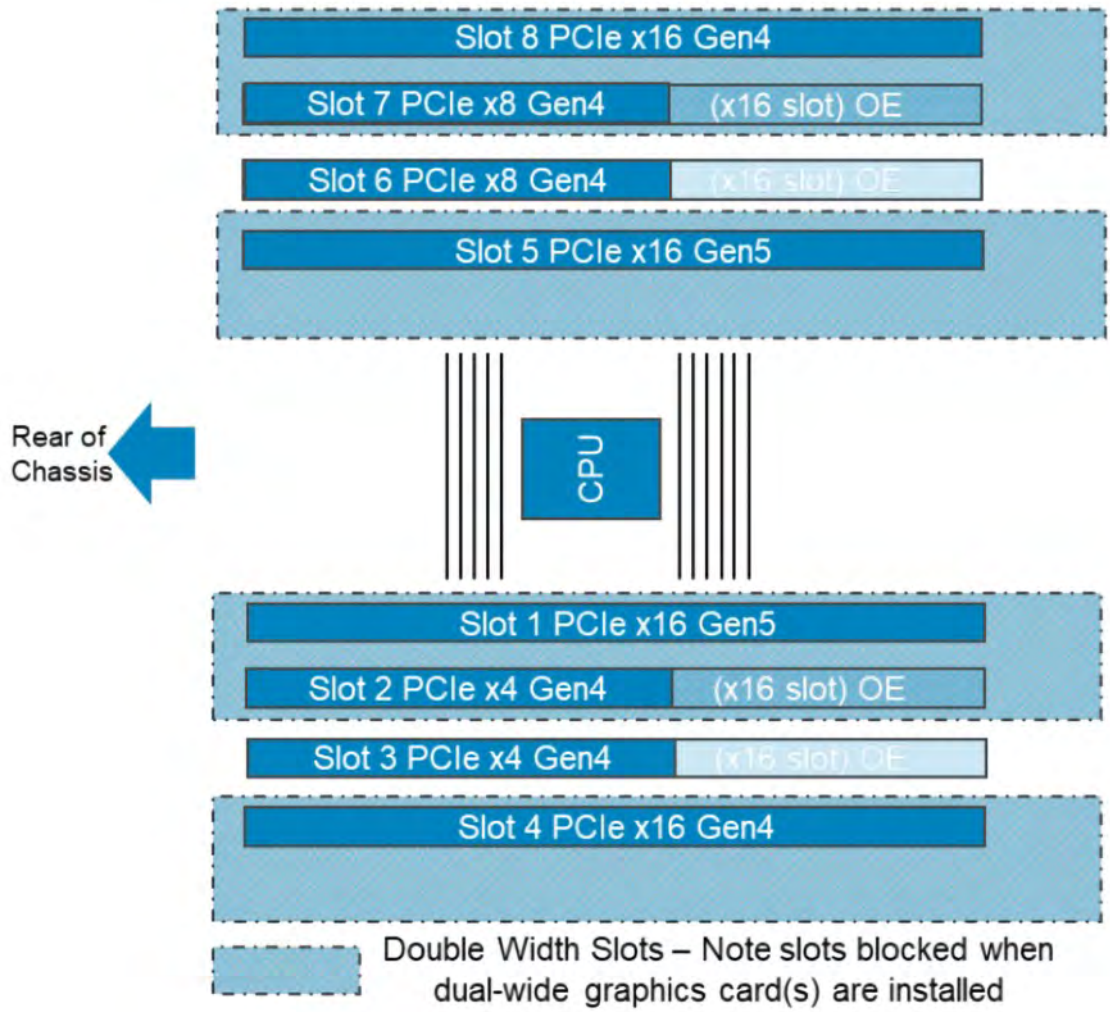


Figure 1. Precision 7690 Tower—PCIe slot layout

Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your Precision 7960 Tower.

Table 11. Ethernet specifications

Description	Option 1	Option 2
Model number	Intel i219-LM	Marvell AQC113
Transfer rate	10/100/1000 Mbps	10/100/1000/10000 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Precision 7960 Tower.

Table 12. Wireless module specifications

Description	Values
Model number	Qualcomm WCN6856-DBS
Transfer rate	Up to 3571 Mbps

Table 12. Wireless module specifications (continued)

Description	Values
Frequency bands supported	2.4 GHz/5 GHz/6 GHz
Wireless standards	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	Bluetooth 5.3

Audio

The following table lists the audio specifications of your Precision 7960 Tower.

Table 13. Audio specifications

Description		Values
Audio controller		Realtek ALC3246-CGT
Stereo conversion		Supported (Front panel single universal audio jack)
Internal audio interface		High definition audio interface
External audio interface		Line-out (re-taskable)
Number of speakers		One
Internal-speaker amplifier		Supported
External volume controls		No hardware volume buttons
Speaker output:		
	Average	2 W
	Peak	2.5 W
Microphone		Not applicable

Storage

This section lists the storage options on your Precision 7960 Tower.

Table 14. Storage specifications

Storage type	Interface type	Capacity
2.5-inch, 7200 RPM, HDD	SATA 3.0	500 GB
3.5-inch, 7200 RPM, HDD	SATA 3.0	1 TB

Table 14. Storage specifications (continued)

Storage type	Interface type	Capacity
M.2 2280, Class 40 SSD	PCIe NVMe Gen4 x4	Up to 4 TB
M.2 2280, Class 40 SSD, Self Encrypting Opal 2.0	PCIe NVMe Gen4 x4	512 GB/1 TB
2.5-inch, 10000 RPM, SAS, Enterprise HDD	SATA 3.0	Up to 2.4 TB
2.5-inch, 15000 RPM, SAS, Enterprise HDD	SATA 3.0	600 GB
3.5-inch, 7200 RPM, SATA, Enterprise HDD	SATA 3.0	Up to 12 TB
2.5-inch, MU, SATA, SSD	SATA	1.92 TB

Storage matrix

The following table lists the storage configurations supported on your Precision 7960 Tower.

Table 15. Storage matrix—1

Storage description	Flex 0		Flex 1		Flex 2		Flex 3		Flex 4		Zoom
	HDD0	HDD1	HDD2	HDD3	HDD4	HDD5	Rear HDD0	Rear HDD1	Rear HDD2	Rear HDD3	
Flex PCIe Non-RAID Boot (Intel)	PCIe	PCIe	PCIe	PCIe	ODD/NA		PCIe	PCIe	PCIe	PCIe	N
Flex PCIe Non-RAID Boot (Intel) + SATA (Intel) - 4 pcs PCIe	PCIe	PCIe	PCIe	PCIe	ODD/NA	SATA	SATA/ SAS	SATA/ SAS	SATA/ SAS	SATA/ SAS	N
Flex PCIe Non-RAID Boot (Intel) + SATA (Intel) - 2 pcs PCIe	SATA	SATA	PCIe	PCIe	NA		SATA/ SAS	SATA/ SAS	SATA/ SAS	SATA/ SAS	N
Flex PCIe Non-RAID Boot (Intel)	PCIe	PCIe	PCIe	PCIe	ODD/NA		NA				N
Flex PCIe RAID Boot (Intel)	PCIe	PCIe	PCIe	PCIe	ODD/NA		NA				N
Zoom Boot JBOD + SATA (Intel)	SATA	SATA	SATA	SATA	ODD/NA		SATA	SATA	SATA	SATA	Y
Zoom Boot JBOD + SATA/SAS (MegaRAID)	SATA/ SAS	SATA/ SAS	SATA/ SAS	SATA/ SAS	ODD/NA	SATA/SAS	SATA/ SAS	SATA/ SAS	SATA/ SAS	SATA/ SAS	Y

Table 16. Storage matrix—2

Zoom	SSD location			
Description	**SSD0**	**SSD1**	**SSD2**	**SSD3**
Zoom2 Non-RAID	Yes	No	No	No
Zoom2 Non-RAID	Yes	Yes	No	No
Zoom4 Non-RAID	Yes	No	No	No
Zoom4 Non-RAID	Yes	Yes	No	No
Zoom4 Non-RAID	Yes	Yes	Yes	No
Zoom4 Non-RAID	Yes	Yes	Yes	Yes

Table 17. Storage matrix—3

Zoom Boot	SSD location			
Description	**SSD0**	**SSD1**	**SSD2**	**SSD3**
Zoom2 Non-RAID Boot	Yes (Boot)	No	No	No
Zoom2 Non-RAID Boot	Yes (Boot)	Yes	No	No
Zoom4 Non-RAID Boot	Yes (Boot)	No	No	No
Zoom4 Non-RAID Boot	Yes (Boot)	Yes	No	No
Zoom4 Non-RAID Boot	Yes (Boot)	Yes	Yes	No
Zoom4 Non-RAID Boot	Yes (Boot)	Yes	Yes	Yes

RAID (Redundant Array of Independent Disks)

For optimal performance when configuring drives as a RAID volume, Dell Technologies recommends drive models that are identical.

RAID 0 (Striped, Performance) volumes benefit from higher performance when drives are matched because the data is split across multiple drives: any I/O operations with block sizes larger than the stripe size splits the I/O and become constrained by the slowest of the drives. For RAID 0 I/O operations where block sizes are smaller than the stripe size, whichever drive the I/O operation targets determine the performance, which increases variability and results in inconsistent latencies. This variability is particularly pronounced for write operations, and it can be problematic for applications that are latency sensitive. One such example of this is any application that performs thousands of random writes per second in small block sizes.

RAID 1 (Mirrored, Data Protection) volumes benefit from higher performance when drives are matched because the data is mirrored across multiple drives: all I/O operations must be performed identically to both drives, thus variations in drive performance when the models are different, results in the I/O operations completing only as fast as the slowest drive. While this does not suffer the variable latency issue in small random I/O operations as with RAID 0 across heterogeneous drives, the impact is nonetheless large because the higher performing drive becomes limited in all I/O types. One of the worst examples of constrained performance here is when using unbuffered I/O. To ensure that writes are fully committed to nonvolatile regions of the RAID volume, unbuffered I/O bypasses cache (for example by using the Force Unit Access bit in the NVMe protocol) and the I/O operation will not complete until all the drives in the RAID volume have completed the request to commit the data. This kind of I/O operation completely negates any advantage of a higher performing drive in the volume.

RAID 5 provides better performance by using data striping and protection through parity. The disadvantage of RAID 5 is that rebuilding a large RAID 5 volume requires a longer time. The following are the key features of RAID 5:

- Requires at least three drives.
- Data is available even if one of the drives present in the volume fails. The failed drive must be replaced, and the volume must be rebuilt for the data to be accessible.

- The total capacity is N-1, where N is the total capacity of the drives in the array. For example, if you use three 1 TB drives in a RAID 5 array, the total volume size is 2 TB.

RAID 10 is a stripe of mirrors that combines the features of RAID 0 and RAID 1. As the blocks are striped and mirrored, the performance and redundancy are higher. The disadvantage of RAID 10 is that it is more expensive than other RAID levels, with a higher number of drives required. The following are the key features of RAID 10:

- Requires a minimum of four drives. Only an even number of drives can be used, and an odd number of drives are not possible.
- The total volume capacity is half the sum of individual drive capacity. For example, when you use four drives of 1 TB, you get a RAID 10 volume of 2 TB.

Care must be taken to match not only the drive vendor, capacity, and class, but also the specific model. Drives from the same vendor, with the same capacity, and even within the same class, can have different performance characteristics for certain types of I/O operations. Thus, matching by model ensures that the RAID volumes are consisted of a homogeneous array of drives that deliver all the benefits of a RAID volume without incurring the additional penalties when one or more drives in the volume are lower performing.

Precision 7960 Tower supports RAID with more than one hard drive configuration.

Disk Coercion :

Intel VROC family of product provides support for Disk Coercion. When a RAID volume is created, this feature analyzes the hard drives and automatically adjusts (round down) the capacity of the disks to 95% of the smallest hard drive. This allows for the variances in the hard drive capacities from different vendors.

The VROC UI either Windows VROC Application UI or CLI tool for manufacturing provides you with an option to manually override to allow you to use all available disk space.

Media-card reader

The following table provides the specification of media cards supported by your Precision 7960 Tower.

Table 18. Media-card reader specifications

Description	Values
Media-card slot type	One SD card slot
Media-cards supported	• Secure Digital (SD) • Secure Digital High Capacity (SDHC) • Secure Digital Extended Capacity (SDXC)
NOTE: The maximum capacity that is supported by the media-card reader varies depending on the standard of the media card that is installed on your computer.	

Power ratings

The following table lists the power rating specifications of Precision 7960 Tower.

Table 19. Power ratings

Description		Option one	Option two
Type		1100 W/1400 W Gold internal power supply unit	1500 W/2200 W Platinum internal power supply unit
PSU dimension			
	Hieght	63 mm (2.48 in.)	63 mm (2.48 in.)
	Width	160 mm (6.29 in.)	160 mm (6.29 in.)
	Depth	225 mm (8.85 in.)	225 mm (8.85 in.)
Input voltage		90 Vac - 264 Vac	90 Vac - 264 Vac

Table 19. Power ratings (continued)

Description	Option one	Option two
Input frequency	47 Hz - 63 Hz	47 Hz - 63 Hz
Input current (maximum)	15 A	16 A
Output current (continuous)	90 Vac~180 Vac (1100 W) • 12 VDC/91.6 A • -12 VDC/0.5 A • 12 VSBDC/8 A 180.1 Vac~264 Vac (1400 W) • 12 V/116.7 A • -12 VDC/0.5 A • 12 VSBDC/8 A	90 Vac~114.9 Vac (1200 W) • 12 VDC/98.37 A • -12 VDC/0.5 A • 12 VSBDC/8 A 115 Vac~179.9 Vac (1500 W) • 12 V/122.96 A • -12 VDC/0.5 A • 12 VSBDC/8 A 180 Vac~264 Vac (2200 W) • 12 VDC/180.33 A • -12 VDC/0.5 A • 12 VSBDC/8 A
Rated output voltage	• 12 VDC • -12 VDC • 12 VSBDC	• 12 VDC • -12 VDC • 12 VSBDC
Temperature range		
Operating	5°C to 50°C (41°F to 122°F) Standby—40°C (104°F)	5°C to 50°C (41°F to 122°F) Standby—40°C (104°F)
Storage Minimum	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

Power cord

This section lists the power-cord plug types for 1500 W/2200 W PSU on your Precision 7960 Tower that is based on the countries shipped.

NOTE: The 1500 W/2200 W PSUs have C20 cords and require a 20 A circuit at 115 V or a 220 V circuit. The power supply units are externally accessible, removal, and lockable.

Table 20. Power-cord plug types

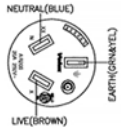
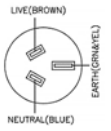
Power-cord style	Plug type	Affected countries
Argentina	 Figure 2. Argentina	Argentina
Australia	 Figure 3. Australia	• Australia • Christmas Island • Cook Islands • Fiji • Kiribati • Nauru • New Zealand • Papua New Guinea • Pitcairn

Table 20. Power-cord plug types (continued)

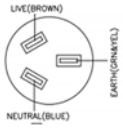
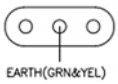
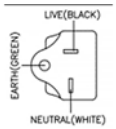
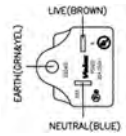
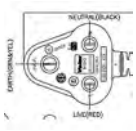
Power-cord style	Plug type	Affected countries
		• Tonga • Tuvalu • Uruguay
Brazil	 **Figure 4. Brazil**	Brazil
China	 **Figure 5. China**	China
Italy	 **Figure 6. Italy**	• Chile • Holy See • Italy • Uruguay
Japan—250 V	 **Figure 7. Japan—250 V**	Japan
North America—125 V	 **Figure 8. North America—125 V**	• Anguilla • American Samoa • Aruba • Bahamas • Barbados • Belize • Bermuda • British Virgin Islands • Canada • Cayman Islands • Colombia • Costa Rica • Dominican Republic • Ecuador • El Salvador • Guam • Guatemala • Haiti • Honduras • Jamaica • North Mariana
North America—250 V	 **Figure 9. North America—250 V**	

Table 20. Power-cord plug types (continued)

Power-cord style	Plug type	Affected countries
		• Marshall Island • Mexico • Nicaragua • Palau • Panama • Philippines • Puerto Rico • Samoa • St. Maarten • Trinidad and Tobago • Turks and Caicos • United States • US Virgin Islands • Venezuela • Vietnam
Switzerland	 **Figure 10. Switzerland**	• Liechtenstein • Switzerland
India	 **Figure 11. India**	India

Power supply connector

The following table lists the Power supply connector specifications of your Precision 7960 Tower.

Table 21. Power supply connector

Power supply unit	PSU's connection	Power Distribution Board
1100 W/1400 W Gold internal power supply unit	PCB Golden finger to conduct with power distribution board	• Four 8-pin (6+2) auxiliary connectors for expansion cards • One 20-pin power cable connection with system board • One 24-pin power cable connection with SAS/ Optical drive • One dedicated PSU connector
1500 W/2200 W Platinum internal power supply unit	PCB Golden finger to conduct with power distribution board	• Eight 8-pin (6+2) auxiliary connectors for expansion cards • One 20-pin power cable connection with system board • One 24-pin power cable connection with SAS/ Optical drive • One dedicated PSU connector

GPU—Discrete

The following table lists the specifications of the discrete Graphics Processing Unit (GPU) supported by your Precision 7960 Tower.

Table 22. GPU—Discrete

Controller	Memory size	Memory type
AMD Radeon PRO W6300	2 GB	GDDR6
AMD Radeon PRO W6400	4 GB	GDDR6
AMD Radeon PRO W6600	8 GB	GDDR6
AMD Radeon PRO W7500	8 GB	GDDR6
AMD Radeon PRO W7600	8 GB	GDDR6
AMD Radeon PRO W6800	16 GB	GDDR6
AMD Radeon PRO W7700	16 GB	GDDR6
AMD Radeon PRO W7900	48 GB	GDDR6
NVIDIA T400	4 GB	GDDR6
NVIDIA T1000	8 GB	GDDR6
NVIDIA RTX A2000	12 GB	GDDR6
NVIDIA RTX A4000	16 GB	GDDR6
NVIDIA RTX A4500	20 GB	GDDR6
NVIDIA RTX 4000 Ada	20 GB	GDDR6
NVIDIA RTX 4500 Ada	24 GB	GDDR6
NVIDIA RTX A5500	24 GB	GDDR6
NVIDIA RTX 5000 Ada	32 GB	GDDR6
NVIDIA A800	40 GB	HBM2
NVIDIA RTX A6000	48 GB	GDDR6
NVIDIA RTX 6000 Ada	48 GB	GDDR6

Video port resolution

The following table lists the video port resolution for your Precision 7960 Tower.

Table 23. Video port resolution

Graphics card	Video ports	Maximum supported resolution
AMD Radeon PRO W6300	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
AMD Radeon PRO W6400	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
AMD Radeon PRO W6600	Four DP 1.4 ports	7680 x 4320 @60 Hz
AMD Radeon PRO W7500	Four DP 1.4 ports	7680 x 4320 @60 Hz
AMD Radeon PRO W7600	Four DP 1.4 ports	7680 x 4320 @60 Hz
AMD Radeon PRO W6800	Six mini-DP 1.4 ports	7680 x 4320 @60 Hz

Table 23. Video port resolution (continued)

Graphics card	Video ports	Maximum supported resolution
AMD Radeon PRO W7700	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
AMD Radeon PRO W7900	Three DP 1.4 ports and One mini-DP port	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA T400	Three mini-DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA T1000	Four mini-DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX A2000	Four mini-DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX A4000	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX A4500	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX 4000 Ada	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX 4500 Ada	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX A5500	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX 5000 Ada	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA A800	N/A	N/A
NVIDIA RTX A6000	Four DP 1.4 ports	7680 x 4320 @ 24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC.
NVIDIA RTX 6000 Ada	Four DP 1.4 ports	7680 x 4320 @60 Hz

Hardware security

The following table lists the hardware security of your Precision 7960 Tower.

Table 24. Hardware security

Hardware security
Kensington security-cable slot
Padlock loop
Chassis lock support - Coin locker
Chassis intrusion switch
Optional lockable bezels for externally-facing front and rear storage flexbays

Table 24. Hardware security (continued)

Hardware security
TPM 2.0 Discrete Hardware

Environmental

The following table lists the environmental specifications of your Precision 7960 Tower.

Table 25. Environmental

Feature	Values
Recyclable packaging	Yes
EPEAT 2018 Gold for selected configuration	Yes
BFR/PVC—free	No
Vertical orientation packaging support	Yes
Multi-Pack packaging	No
Energy-Efficient Power Supply	Standard
ENV0424 compliant	Yes

NOTE: Wood-based fiber packaging contains a minimum of 35% recycled content by total weight of wood-based fiber. Packaging that contains without wood-based fiber can be claimed as Not Applicable. The anticipated required criteria for EPEAT 2018.

Regulatory compliance

The following table lists the regulatory compliance of your Precision 7960 Tower.

Table 26. Regulatory compliance

Regulatory compliance
Product Safety, EMC and Environmental Datasheets
Dell Regulatory Compliance Home page
Dell and the Environment

Operating and storage environment

This table lists the operating and storage specifications of your Precision 7960 Tower.

Airborne contaminant level: G1 as defined by ISA-S71.04-1985

Table 27. Computer environment

Description	Operating	Storage
Temperature range	5°C to 35°C (41°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	1.30 GRMS
Shock (maximum)	110 G†	160 G†

Table 27. Computer environment (continued)

Description	Operating	Storage
Altitude range	-15.2 m to 3048 m (-49.87 ft to 10000 ft)	-15.2 m to 10668 m (-49.87 ft to 35000 ft)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

* Measured using a random vibration spectrum that simulates the user environment.

† Measured using a 2 ms half-sine pulse.

3

Engineering specifications

Physical system dimensions

The following table provides the physical dimensions of your Precision 7960 Tower.

NOTE: System weight and shipping weight are based on a typical configuration and may vary based on your system configuration. A typical configuration includes integrated graphics, one hard drive, and one optical drive.

Table 28. Physical system dimensions

Feature	Values
Chassis volume	50.5 L
Chassis Weight	• Maximum—37.56 kg (82.82 lbs.) • Typical—23.81 kg (52.50 lbs.) • Minimum—21.04 kg (46.39 lbs.)
Chassis dimensions	
Height	• 430.70 mm (16.96 in.) • 434.20 mm (17.09 in.) with runner feet
Width	218.00 mm (8.58 in.)
Depth	• 538.30 mm (21.19 in.) • 569.15 mm (22.41 in.) with lock structure
Shipping Weight (includes packaging materials)	Typical—27.34 kg (60.28 lbs.)
Packaging dimensions	
Height	743.00 mm (29.25 in.)
Width	362.00 mm (14.25 in.)
Depth	645.00 mm (25.38 in.)

Add-in card dimensions

Slot limitations

The following table lists the system board connector maximum add-in card allowable dimensions of your Precision 7960 Tower.

Table 29. Slot limitations of add-in cards

Feature	Values
Gen5 PCIe x16 slots	2
Voltage	3.30 V/12 V
Height	4.612 in. (117.15 mm)
Length	12.28 in. (312 mm)

Table 29. Slot limitations of add-in cards (continued)

Feature	Values
Maximum wattage	75 W (300 W with additional power cable)
Gen4 PCIe x16 slots	2
Voltage	3.30 V/12 V
Height	4.612 in. (117.15 mm)
Length	12.28 in. (312 mm)
Maximum wattage	75 W (300 W with additional power cable)
Full-height Gen4 PCIe x8 slots	2
Voltage	3.30 V/12 V
Height	4.612 in. (117.15 mm)
Length	12.28 in. (312 mm)
Maximum wattage	25 W
Full-height, half-length Gen4 PCIe x8 slots wired as x4 electrically	2
Voltage	3.30 V/12 V
Height	4.612 in. (117.15 mm)
Length	12.28 in. (312 mm)
Maximum wattage	25 W

NOTE: The above mentioned height is the maximum height that is supported to accommodate the PCIe card in the chassis. However, ensure to check if there is an auxiliary power cable connection on the top edge of the card when determining whether a PCIe card fits in the chassis. Such cable connections require additional room and must be evaluated on an individual basis. Also, note that the cards taller than the PCIe standard height of 4.376 in. (111.15 mm) may require removal of the PCIe card retainer that is mounted inside the left side-cover.

PCIe add-in cards

Serial PCIe add-in card

Table 30. Serial PCIe add-in card

Feature	Values
Bus	• PCI Express spec 2.0 • Single-lane (x1)
Controller	SUNIX SUN2212 (16C950 UART compatible)
USB standard	No
IRQ and IO	Assigned by system
Serial Communication	
Interface	RS-232
Number of ports	One port

Table 30. Serial PCIe add-in card (continued)

Feature	Values
Connectors	DB9 Male
Baud rate	50 bps~115.2 Kbps
Protection	• +/-15KV IEC1000-4-2 Air Gap Discharge • +/-8KV IEC1000-4-2 Contact Discharge
Printed circuit board connector	DB44 Female
Power	
Power source	PCI Express Bus Power
Output power capacity	No
Over current protection	No
Power consumption	0.782 W @ idle
Operating System	
Supported operating system	• Windows 10 • Windows 11
Environment	
Operating temperature	0°C to 60°C (32°F to 140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 85°C (-4°F to 185°F)
Standards and Certifications	
EMC	CE/FCC/BSMI/VCCI
Green	RoHS

UltraSpeed Duo M.2 PCIe card

The following table lists the UltraSpeed Duo M.2 PCIe card specifications, also known as Zoom 2 card.

Table 31. UltraSpeed Duo M.2 PCIe card (Zoom 2 card) specifications

Feature	Values
Interface	PCIe
Data rates	PCIe Gen 4
Environment	
Operating temperature	0°C to 60°C (32°F to 140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 70°C (-4°F to 158°F)

UltraSpeed Quad M.2 PCIe card

The following table lists the UltraSpeed Quad M.2 PCIe card specifications, also known as Zoom 4 card.

Table 32. UltraSpeed Quad M.2 PCIe card specifications

Feature	Values
Interface	PCIe

Table 32. UltraSpeed Quad M.2 PCIe card specifications (continued)

Feature	Values
Data rates	PCIe Gen 4
Environment	
Operating temperature	0°C to 60°C (32°F to 140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 70°C (-4°F to 158°F)

Thunderbolt 4 PCIe add-in card

The following table lists the Thunderbolt 4 PCIe add-in card specifications.

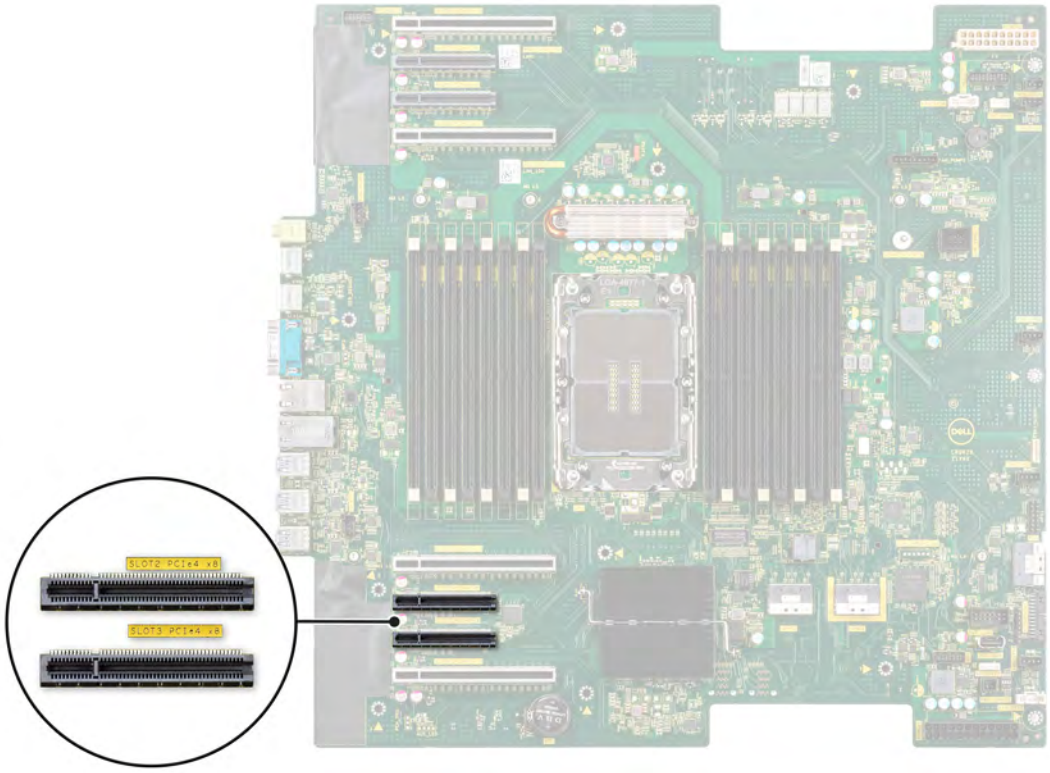
Table 33. Thunderbolt 4 PCIe add-in card

Features	Values
Design	HL PWA with PCIe 4.0 x4 Full height Bracket option
Number of ports	• 2x Type-C I/O • 2x DP input • GPIO (requires side-band cable)
Feature	• 40 Gb/s (2x 20) with TB4 and USB 4.0 • Auto switch/shift to Legacy TB/USB (support backwards compatibility) • DP1.4a HBR3 Out (DP-MF and DP-alt) two streams • DP Tunnel 32 Gb/s 2 Streams, USB3 Tunnel 10 Gb/s • Hub Support, TB Networking, Universal Cable
Power	• Upper Port - 5 V@3 A (TB + Power Delivery Icon) • Lower Port - 5 V@1.5 A (TB Icon Only)
Drivers	• Windows 10 • Windows 11
Cables	• 1x Sideband cable (system to TBT4 card) • 2x DP cables x24 cm Graphics loopback (DP connector from GFX card to TBT4 card)
Manuals	• Product Specification Sheet and User Guide • Online Post Drivers and Docs
Certificates	• Intel Thunderbolt Validation • WHQL • USB 4.0 40 Gb/s
Specifications	• Dell standard reliability • Behavior • Materials

NOTE: The Thunderbolt 4 PCIe add-in card is supported only in PCH PCIe slot, see the below illustration for the PCH PCIe location on system board.

Slot number	Precision 7960 Tower
Slot 1	CPU
Slot 2	PCH
Slot 3	PCH

Slot number	Precision 7960 Tower
Slot 4	CPU
Slot 5	CPU
Slot 6	CPU
Slot 7	CPU
Slot 8	CPU



Ethernet

Intel Ethernet Connection i219-LM

The following table lists the i219-LM specifications.

Table 34. Intel Ethernet Connection i219-LM specifications

Feature	Values
External connector type	RJ45
Data rate	10/100/1000 Mbps
Controller Details	
Controller bus architecture	PCI Express base specification revision 1.1
Integrated memory	Yes
Data transfer mode	Yes (Bus-Master DMA)
Power consumption (Full operation per data rate connection speed)	542 mW (Max)

Table 34. Intel Ethernet Connection i219-LM specifications (continued)

Feature	Values
Power consumption (Standby operation)	76 mW (Max)
IEEE standards compliance	802.3
Hardware certifications	N/A
Boot ROM support	EEPROM (Located in SPI)
Network Transfer Mode	
Network transfer rate	10 Mb (full/half-duplex)
10BASE-T (full-duplex) 20 Mbps	100 Mb (full/half-duplex)
100BASE-TX (half-duplex) 100 Mbps	1000 Mb (full-duplex)
Environmental	
Operating temperature range	0°C–85°C (32°F–185°F)
Operating humidity	20% to 80% (non condensing)
Operating system driver Support	• Windows (x64) • Ubuntu
Manageability	• Wakeup On LAN • PXE 2.1
Management capabilities alerting	Optional Intel Standard Manageability (must be made at time of purchase).

This term does not connote an actual operating speed of 1 Gb/sec. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

Marvell AQC113CS/AQC113

The following table lists the Marvell AQC113CS/AQC113 Ethernet specifications.

Table 35. Marvell AQC113CS/AQC113 Ethernet specifications

Feature	Values
External connector type	RJ45
Data rate	10 Gbps
LED indicators	• Link - Solid • Activity - Blinking
LED color	• Yellow - 10 Gbps • LED off - 100 Mbps or 10 Mbps
Adapter Features	
Bus Type/Bus Width	• PCI Express 3.0 x2 (AQC113CS) • PCI Express 2.0 x4 (AQC113)
Interrupt levels	INTA, MSI, MSI-X
Hardware certifications	FCC B, UL, CE, VCCI, BSMI, CTICK, KCC, EEE
Controller	Marvel AQC113CS/AQC113
Power Consumption	
Link Speed / Traffic	Typical power
10 Mbps	.5 W

Table 35. Marvell AQC113CS/AQC113 Ethernet specifications (continued)

Feature	Values
100 Mbps	.6 W
1 Gbe	1 W
2.5 Gbe	1.9 W
Environmental	
Operating temperature range	0°C–55°C (32°F–131°F)
Storage temperature range	-40°C–70°C (-40°F–158°F)
Storage humidity	Maximum 90% non-condensing relative humidity at 35°C

NOTE: The iPXE feature is not supported by AQC113CS chipset, Dell recommends you to connect to i219-LM 1G on-board LAN for iPXE or PXE usage.

Wireless module

Qualcomm WCN6856, 2x2, Wi-Fi 6E DBS, Bluetooth 5.3

The following table lists the Intel Qualcomm WCN6856 specifications.

Table 36. Qualcomm WCN6856 specifications

Description	Specifications
Host interface	• Wi-Fi - PCIe • Bluetooth - USB
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160MHz channel use, MU-MIMO
Wi-Fi Alliance certifications	• 802.11 a/b/g/n/ac R2/ax R2 • WMM • WMM-PS • WPA3 • WPS2 • PMF • WFD • Miracast • Passpoint R2 • Voice Personal
Operating frequency bands	• 2.4 GHz • 5 GHz • 6 GHz
Data rate	• 2.4 GHz 40M: Up to 691 Mbps • 5 GHz 160M: Up to 2.88 Gbps • 6 GHz 160M: Up to 2.88 Gbps • DBS mode • 2.4 GHz 40M + 5/6 GHz 160M: Up to 3.57 Gbps
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Authentication	• WPA and WPA2 Personal and Enterprise • WPA3 Personal and Enterprise

Table 36. Qualcomm WCN6856 specifications (continued)

Description	Specifications
Authentication protocols	• 802.1X EAP-TLS • EAP-TTLS/MSCHAPv2 • PEAPv0-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)
Encryption	• 64-bit and 128-bit WEP • TKIP • 128-bit AES-CCMP • 256-bit AES-GCMP
Product safety	• UL • C-UL • CB (IEC60950-1)
Government compliance	• FIPS 140-2 • FISMA
Client utility	Intel PRO/Set wireless software v22 and later
Antenna diversity	Supported
Radio On/Off	Supported
Roaming	Support seamless roaming between access points
Wake on wireless	Supported
Wireless display	Native Miracast support by Windows
Wireless PAN standard	• Dual Mode Bluetooth 5.3 • BLE
Bluetooth data rates	Up to 3 Mbps
Bluetooth operating frequency bands	2.4 GHz
Bluetooth profiles supported	Support for Microsoft Inbox Bluetooth profiles in Windows
Bluetooth data encryption	128-bit encryption
Bluetooth output power	Power Class 1
Operating temperature	0°C to + 50°C (Full performance at shield temperatures up to 80°C)
Storage temperature	-40°C to +70°C
Humidity	Up to 90% RH non-condensing (at temperatures of 25° C to 35° C)

GPU—Discrete

AMD Radeon Pro W6300, 2 GB GDDR6

The following table lists the AMD Radeon Pro W6300 specifications.

Table 37. AMD Radeon Pro W6300 specifications

Feature	Values
GPU frequency	1096 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.1

Table 37. AMD Radeon Pro W6300 specifications (continued)

Open CL	2.2
Open GL	4.6
GPU memory interface	32-bit
PCIe bus	Gen 4 (x4 lanes)
Display support	x2 DP 1.4
Graphics memory configuration	2 GB DDR6
Graphics memory clock speed	16 Gbps
Active fan sink	Fan Controller Embedded (4 pin)
Slot number	Single slot
PCB form factor	Full Height, Half Length
PCB layer	6
PCB solder mask	Red
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @60 Hz
Power consumption	35 W

AMD Radeon Pro W6400, 4 GB GDDR6

The following table lists the AMD Radeon Pro W6400 specifications.

Table 38. AMD Radeon Pro W6400 specifications

Feature	Values
GPU frequency	1923 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.6
Open CL	2.2
Open GL	4.6
GPU memory interface	64-bit
PCIe bus	Gen 4 (x4 lanes)
Display support	x2 DP 1.4
Graphics memory configuration	4 GB DDR6
Graphics memory clock speed	14 Gbps
Active fan sink	Fan Controller Embedded(4 pin)
Slot number	Single slot
PCB form factor	Full Height, Full length
PCB layer	6
PCB solder mask	Black
Bracket form factor	Full Height
Maximum resolution	7680x4320 @60 Hz
Power consumption	50 W

AMD Radeon Pro W6600, 8 GB GDDR6

The following table lists the AMD Radeon Pro W6600 specifications.

Table 39. AMD Radeon Pro W6600 specifications

Feature	Values
GPU frequency	1526 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.5
Open CL	2.1
Open GL	4.6
GPU memory interface	128-bit
PCIe bus	Gen 4 (x8 lanes)
Display support	x4 DP 1.4
Graphics memory configuration	8 GB DDR6
Graphics memory clock speed	2000 MHz
Active fan sink	Fan Controller Embedded (four pin)
Slot number	Single slot
PCB form factor	Full Height, Full length
PCB layer	8
PCB solder mask	Black
Bracket form factor	Full Height
Maximum resolution	4096 x 2304 @ 60 Hz
Power consumption	130 W

AMD Radeon Pro W6800, 32 GB GDDR6

The following table lists the AMD Radeon Pro W6800 specifications.

Table 40. AMD Radeon Pro W6800 specifications

Feature	Values
GPU frequency	1575 MHz (base clock)
DirectX 12	12.0 Ultimate
Shader model	6.5
Open CL	2.1
Open GL	4.6
GPU memory interface	256 bit
PCIe bus	Gen 4 (x16 lanes)
Display support	x6 mDP 1.4
Graphics memory configuration	32 GB DDR6
Graphics memory clock speed	2000 MHz
Active fan sink	Fan Controller Embedded(4 pin)

Table 40. AMD Radeon Pro W6800 specifications (continued)

Feature	Values
Slot number	Dual slots
PCB form factor	Full Height, Full Length
PCB layer	14
PCB solder mask	Black
Bracket form factor	Full Height
Maximum resolution	4096 x 2304 @60 Hz
Power consumption	250 W

AMD Radeon Pro W7700, 16 GB GDDR6

The following table lists the AMD Radeon Pro W7700 specifications.

Table 41. AMD Radeon Pro W7700 specifications

Feature	Values
GPU frequency	966 MHz (base clock)
GPU variant	Navi32 XL-W
GPU compute units	48 CU
GPU stream processors	3072
GPU Clock (GFXCLK) maximum frequency	2600 MHz
GPU memory interface	256-bit
Memory clock maximum frequency	2250 MHz @ 18 Gbps
PCIe bus	PCIe Gen4 x16 (x8 electrical) Lane and polarity reversal supported
Display support	x2 DP 1.4
Graphics memory configuration	16 GB DDR6
Graphics memory clock speed	16 Gbps
Cooling Solution	2-slot, blower heat-sink
Slot number	Dual slot
PCB form factor	Full Height, 9.5 in. Length
PCB layer	14
PCB solder mask	Matte Black
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 24 bpp at 120 Hz
Power consumption	191 W

AMD Radeon Pro W7900, 48 GB GDDR6

The following table lists the AMD Radeon Pro W7900 specifications.

Table 42. AMD Radeon Pro W7900 specifications

Feature	Values
GPU frequency	1315 MHz (base clock)
GPU variant	Navi31 XT-W
GPU compute units	96 CU
GPU stream processors	6144
GPU Clock (GFXCLK) maximum frequency	2940 MHz
GPU memory interface	256-bit
Memory clock maximum frequency	2250 MHz @ 18 Gbps
PCIe bus	PCIe Gen4 x16 Lane and polarity reversal supported
Display support	Three DP 1.4 ports and One mini-DP port
Graphics memory configuration	48 GB GDDR6
Graphics memory clock speed	18 Gbps
Cooling Solution	2.5-slot, blower heat-sink
Slot number	Dual slot
PCB form factor	Full-Height, 2.5-slot
PCB layer	14
PCB solder mask	Black
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 24 bpp at 120 Hz
Power consumption	295 W

NVIDIA T400, 4 GB GDDR6

The following table lists the NVIDIA T400 specifications.

Table 43. NVIDIA T400 specifications

Feature	**Values**
GPU frequency	420 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	64 bits
PCIe bus	PCIe 3.0 x16
Display support	Three mini-DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	4 GB, GDDR6

Table 43. NVIDIA T400 specifications (continued)

Feature	Values
Graphics memory clock speed	5001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Single Slot
PCB form factor	Half Height
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Low Profile
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	30 W

NVIDIA T1000, 8 GB GDDR6

The following table lists the NVIDIA T1000 specifications.

Table 44. NVIDIA T1000 specifications

Feature	Values
GPU frequency	1065 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	128 bits
PCIe bus	PCIe 3.0 x16
Display support	Four mini-DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	8 GB, GDDR6
Graphics memory clock speed	5001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Single Slot
PCB form factor	Half Height
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Low Profile or Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	50 W

NVIDIA RTX A2000, 12 GB GDDR6

The following table lists the NVIDIA RTX A2000 specifications.

Table 45. NVIDIA RTX A2000 specifications

Feature	Values
GPU frequency	562 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	192 bits
PCIe bus	PCIe 4.0 x16
Display support	Four mini-DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	12 GB, GDDR6
Graphics memory clock speed	6001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Dual Slots
PCB form factor	Half Height, Half Length
PCB layer	NA
PCB solder mask	NA
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a & DSC)
Power consumption	70 W

NVIDIA RTX A4000, 16 GB GDDR6

The following table lists the NVIDIA RTX A4000 specifications.

Table 46. NVIDIA RTX A4000 specifications

Feature	Values
GPU frequency	735 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	256 bits
PCIe bus	PCIe 4.0 x16
Display support	Four DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	16 GB, GDDR6
Graphics memory clock speed	7000 MHz

Table 46. NVIDIA RTX A4000 specifications (continued)

Feature	Values
Active fan sink	4-pin embedded fan controller
Slot number	Single Slot
PCB form factor	Full Height, Full length
PCB layer	NA
PCB solder mask	NA
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a & DSC)
Power consumption	140 W

NVIDIA RTX A4500, 20 GB GDDR6

The following table lists the NVIDIA RTX A4500 specifications.

Table 47. NVIDIA RTX A4500 specifications

Feature	Values
GPU frequency	1065 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	320 bits
PCIe bus	PCIe 4.0 x16
Display support	Four DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	20 GB, GDDR6
Graphics memory clock speed	8001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Dual Slots
PCB form factor	Full Height, Full length
PCB layer	NA
PCB solder mask	NA
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a & DSC)
Power consumption	200 W

NVIDIA RTX 4000 Ada, 20 GB GDDR6

The following table lists the NVIDIA RTX 4000 Ada specifications.

Table 48. NVIDIA RTX 4000 Ada specifications

Feature	Values
GPU frequency	1500 MHz
Peak memory bandwidth	Up to 360 GB/s
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	160 bits
PCIe bus	PCI Express 4.0 x16 Lane and polarity reversal supported
Display support	Four DP 1.4 ports
Graphics memory configuration	20 GB, GDDR6
Graphics memory clock speed	9000 MHz
Active fan sink	Active cooled
Slot number	Single slot
PCB form factor	Full-height, full-length (FHFL) 9.5 in.
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	130 W

NVIDIA RTX 4500 Ada, 24 GB GDDR6

The following table lists the NVIDIA RTX 4500 Ada specifications.

Table 49. NVIDIA RTX 4500 Ada specifications

Feature	Values
GPU frequency	2580 MHz
Peak memory bandwidth	Up to 432 GB/s
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	192 bits
PCIe bus	PCI Express 4.0 x16 Lane and polarity reversal supported
Display support	Four DP 1.4 ports

Table 49. NVIDIA RTX 4500 Ada specifications (continued)

Feature	Values
Graphics memory configuration	24 GB, GDDR6
Graphics memory clock speed	2070 MHz
Active fan sink	Active cooled
Slot number	Single slot
PCB form factor	Full-height, full-length (FHFL) 10.5 in.
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 @ 24 bpp at 120 Hz (Requires two DPs 1.4a and DSC)
Power consumption	210 W

NVIDIA RTX A5500, 24 GB GDDR6

The following table lists the NVIDIA RTX A5500 specifications.

Table 50. NVIDIA RTX A5500 specifications

Feature	Values
GPU frequency	1080 MHz
DirectX 12	12
Shader model	6.6
Open CL	3
Open GL	4.6
GPU memory interface	384 bits
PCIe bus	PCIe 4.0 x16
Display support	Four DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	24 GB, GDDR6
Graphics memory clock speed	8001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Dual Slots
PCB form factor	Full Height, Full length
PCB layer	NA
PCB solder mask	NA
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a & DSC)
Power consumption	230 W

NVIDIA RTX 5000 Ada Generation, 32 GB, GDDR6

The following table lists the NVIDIA RTX 5000 Ada Generation specifications.

Table 51. NVIDIA RTX 5000 Ada Generation specifications

Description	Values
GPU Memory	32 GB GDDR6
Memory Interface	256-bit
Memory Bandwidth	576 GB/s
NVIDIA CUDA Cores	12800
System Interface	PCI Express 4.0 x 16
Max Power Consumption	250 W
Thermal Solution	Active
Form Factor	Height: 4.4 in./111.76 mm and Length: 10.5 in./266.7 mm, Dual Slot
Display Connectors	4x DisplayPort 1.4a
Max Simultaneous Displays	4 direct, 4 DisplayPort 1.4 Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.7 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3
Compute APIs	• CUDA 12.2 • DirectCompute • OpenCL 3.0

NVIDIA A800, 40 GB HBM2

The following table lists the NVIDIA A800 specifications.

Table 52. NVIDIA A800 specifications

Feature	Values
GPU frequency	2100 MHz
Thermal solution	Active cooled
Peak memory bandwidth	Up to 1555 GB/s
CUDA cores	6912
Tensor cores	432
GPU memory interface	5120 bits
PCIe bus	PCIe 4.0 x16
Display support	N/A
Graphics memory configuration	40 GB, HBM2
Graphics memory clock speed	1215 MHz

Table 52. NVIDIA A800 specifications (continued)

Feature	Values
Power connector	1 x CEM5 16-pin
Slot number	Two slots
PCB form factor	Full-height, full-length (FHFL) 10.5-inch, dual slot
PCB layer	N/A
PCB solder mask	N/A
Bracket form factor	Full height
Maximum resolution	N/A
Power consumption	240 W

NVIDIA RTX A6000, 48 GB GDDR6

The following table lists the NVIDIA RTX A6000 specifications.

Table 53. NVIDIA RTX A6000 specifications

Feature	Values
GPU frequency	1410 MHz
DirectX 12	12
Shader model	5.17
Open CL	3
Open GL	4.6
GPU memory interface	384 bits
PCIe bus	PCIe 4.0 x16
Display support	Four DP 1.2 Certified, 1.3/1,4 Ready
Graphics memory configuration	48 GB, GDDR6
Graphics memory clock speed	8001 MHz
Active fan sink	4-pin embedded fan controller
Slot number	Dual Slots
PCB form factor	Full Height, Full length
PCB layer	NA
PCB solder mask	NA
Bracket form factor	Full Height
Maximum resolution	7680 x 4320 x 24 bpp at 120 Hz (Requires two DPs 1.4a & DSC)
Power consumption	300 W

NVIDIA RTX 6000 Ada Generation, 48 GB GDDR6

The following table lists the NVIDIA RTX 6000 Ada Generation specifications.

Table 54. NVIDIA RTX 6000 Ada Generation specifications

Description	Values
GPU Memory	48 GB GDDR6
Memory Interface	384-bit
Memory Bandwidth	960 GB/s
NVIDIA CUDA Cores	18176
System Interface	PCI Express 4.0 x 16
Max Power Consumption	300 W
Thermal Solution	Active
Form Factor	Height: 4.4 in./111.76 mm and Length: 10.5 in./266.7 mm, Dual Slot , Full height
Display Connectors	4x DisplayPort 1.4a
Max Simultaneous Displays	4 direct, 4 DisplayPort 1.4 Multi-Stream
Display Resolution	• 2x 7680 x 4320 @ 60 Hz • 4x 5120 x 2880 @ 60 Hz • 4x 4096 x 2160 @ 120 Hz
Graphics APIs	• Shader Model 6.6 • OpenGL 4.6 • DirectX 12 • Vulkan 1.3
Compute APIs	• CUDA 11.6 • DirectCompute • OpenCL 3.0

GPU and PSU matrix

The following table provides the GPU and PSU matrix of your Precision 7960 Tower.

Table 55. GPU and PSU matrix

GFx card	Card length	Weight (kg)	Power connector	I/O connector	Width	PSU
AMD Radeon PRO W6300, 2 GB GDDR6	6.07 in.	0.13	N/A	• 4 x DP 1.4 ports	Single	1400 W/2200 W
AMD Radeon PRO W6400, 4 GB GDDR6	6.60 in.	0.16	N/A	• 4 x DP 1.4 ports	Single	1400 W/2200 W
AMD Radeon Pro W6600, 8 GB GDDR6	9.50 in.	0.595	6-pin	• 4 x DP 1.4 ports	Single	1400 W/2200 W
AMD Radeon PRO W7500, 8 GB GDDR6	10.68 in.	0.34	N/A	• 4 x DP 1.4 ports	Single	1400 W/2200 W
AMD Radeon PRO W7600, 8 GB GDDR6	9.57 in.	0.63	6-pin	• 4 x DP 1.4 ports	Single	1400 W/2200 W
AMD Radeon Pro W6800, 16 GB GDDR6	10.50 in.	0.85	6+8 pin	• 6 x mini-DP 1.2 ports	Dual	1400 W/2200 W

Table 55. GPU and PSU matrix (continued)

GFx card	Card length	Weight (kg)	Power connector	I/O connector	Width	PSU
AMD Radeon PRO W7700, 16 GB GDDR6	9.50 in.	0.91	8-pin	• 4 x DP 1.4 ports	Dual	1400 W/2200 W
AMD Radeon PRO W7900, 48 GB GDDR6	11 in.	1.43	8+8pin	• Three DP 1.4 ports • One mini-DP	• Bracket —Triple • Board —2.5	1400 W/2200 W
NVIDIA T400, 4 GB GDDR6	6.13 in.	0.123	N/A	• 3 x mini-DP 1.2 ports	Single	1400 W/2200 W
NVIDIA T1000, 8 GB GDDR6	6.13 in.	0.132	N/A	• 4 x mini-DP 1.2 ports	Single	1400 W/2200 W
NVIDIA RTX A2000, 12 GB GDDR6	6.60 in.	0.306	N/A	• 4 x mini-DP 1.2 ports	Dual	1400 W/2200 W
NVIDIA RTX A4000, 16 GB GDDR6	9.50 in.	0.50	6-pin	• 4 x DP 1.2 ports	Single	1400 W/2200 W
NVIDIA RTX A4500, 20 GB GDDR6	10.50 in.	1.05	8-pin	• 4 x DP 1.2 ports	Dual	1400 W/2200 W
NVIDIA RTX 4000 Ada, 20 GB GDDR6	9.50 in.	0.57	12+4 pin	• 4 x DP 1.4 ports	Single	1400 W/2200 W
NVIDIA RTX 4500 Ada, 24 GB GDDR6	10.57 in.	1.22	12+4 pin	• 4 x DP 1.4 ports	Dual	1400 W/2200 W
NVIDIA RTX A5500, 24 GB GDDR6	10.50 in.	1.05	8-pin	• 4 x DP 1.2 ports	Dual	1400 W/2200 W
NVIDIA RTX 5000 Ada, 32 GB GDDR6	10.57 in.	1.10	12+4 pin	• 4 x DP 1.4 ports	Dual	1400 W/2200 W
NVIDIA A800, 40 GB HBM2	10.50 in.	1.24	12+4 pin	N/A	Dual	1400 W/2200 W
NVIDIA RTX A6000, 48 GB GDDR6	10.50 in.	1.18	8-pin	• 4 x DP 1.2 ports	Dual	1400 W/2200 W
NVIDIA RTX 6000 Ada, 48 GB GDDR6	10.57 in.	1.07	12+4 pin	• 4 x DP 1.4 ports	Dual	1400 W/2200 W

NOTE: The NVIDIA RTX A6000 8-pin power connector requires two 8-pin VGA connectors.

Storage

2.5-inch, 500 GB, 7200 RPM, SATA, HDD

Table 56. 2.5-inch, 500 GB, 7200 RPM, SATA, HDD specifications

Specification	Values
Capacity	500 GB
Speed	7200 RPM
Height (approximate)	7.11 mm (0.28 in.)
Width (approximate)	69.85 mm (2.75 in.)
Depth (approximate)	100.58 mm (3.96 in.)

Table 56. 2.5-inch, 500 GB, 7200 RPM, SATA, HDD specifications (continued)

Specification	Values
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	976,773,168
Power source	
Power consumption (reference only)	• Idle: 0.7 W • Active: 3.25 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 1 TB, 7200 RPM, SATA, HDD

Table 57. 3.5-inch, 1 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	1 TB
Speed	7200 RPM
Height (approximate)	26.10 mm (1.02 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	1,953,525,168
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

M.2 2280, 512 GB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 512 GB SSD specifications.

Table 58. 512 GB SSD specifications

Description	Values
Capacity	512 GB
Height (approximate)	2.38 mm (0.17 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 1 TB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 1 TB SSD specifications.

Table 59. 1 TB SSD specifications

Description	Values
Capacity	1 TB
Height (approximate)	2.38 mm (0.17 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W

Table 59. 1 TB SSD specifications (continued)

Description	Values
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 2 TB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 2 TB SSD specifications.

Table 60. 2 TB SSD specifications

Description	Values
Capacity	2 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	4,000,797,360
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 4 TB, PCIe NVMe Gen4 x4, Class 40 SSD

The following table lists the M.2 2280, 4 TB SSD specifications.

Table 61. 4 TB SSD specifications

Description	Values
Capacity	4 TB

Table 61. 4 TB SSD specifications (continued)

Description	Values
Height (approximate)	3.73 mm (0.15 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	8,001,573,552
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4 - L1.2) • Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

2.5-inch, 600 GB, 15000 RPM, SAS, Enterprise HDD

Table 62. 2.5-inch, 600 GB, 15000 RPM, SAS, Enterprise HDD specifications

Description	Values
Capacity	600 GB
Speed	15000 RPM
Height (approximate)	7.11 mm (0.28 in.)
Width (approximate)	69.85 mm (2.75 in.)
Depth (approximate)	100.58 mm (3.96 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	1,250,284,896
Power source	
Power consumption (reference only)	• Idle: 0.7 W • Active: 3.25 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms

Table 62. 2.5-inch, 600 GB, 15000 RPM, SAS, Enterprise HDD specifications (continued)

Description	Values
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

2.5-inch, 1.2 TB, 10000 RPM, SAS, Enterprise HDD

Table 63. 2.5-inch, 1.2 TB, 10000 RPM, SAS, Enterprise HDD specifications

Description	Values
Capacity	1.2 TB
Speed	10000 RPM
Height (approximate)	7.11 mm (0.28 in.)
Width (approximate)	69.85 mm (2.75 in.)
Depth (approximate)	100.58 mm (3.96 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	2,500,569,792
Power source	
Power consumption (reference only)	• Idle: 0.7 W • Active: 3.25 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

2.5-inch, 2.4 TB, 10000 RPM, SAS, Enterprise HDD

Table 64. 2.5-inch, 2.4 TB, 10000 RPM, SAS, Enterprise HDD specifications

Description	Values
Capacity	2.4 TB
Speed	10000 RPM
Height (approximate)	7.11 mm (0.28 in.)
Width (approximate)	69.85 mm (2.75 in.)
Depth (approximate)	100.58 mm (3.96 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps

Table 64. 2.5-inch, 2.4 TB, 10000 RPM, SAS, Enterprise HDD specifications (continued)

Description	Values
MTBF	550,000 hours
Logical blocks	5,001,139,584
Power source	
Power consumption (reference only)	• Idle: 0.7 W • Active: 3.25 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 2 TB, 7200 RPM, SATA, HDD

Table 65. 3.5-inch, 2 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	2 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	3,907,029,168
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 4 TB, 7200 RPM, SATA, HDD

Table 66. 3.5-inch, 4 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	4 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	8,001,573,552
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 8 TB, 7200 RPM, SATA, HDD

Table 67. 3.5-inch, 8 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	8 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	16,003,147,104
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	

Table 67. 3.5-inch, 8 TB, 7200 RPM, SATA, HDD specifications (continued)

Description	Values
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

3.5-inch, 12 TB, 7200 RPM, SATA, HDD

Table 68. 3.5-inch, 12 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	12 TB
Speed	7200 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)
Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	24,004,720,656
Power source	
Power consumption (reference only)	• Idle: 5 W • Active: 10 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

2.5-inch, 1.92 TB, MU, SATA, SSD

Table 69. 2.5-inch, 1.92 TB, MU, SATA, SSD specifications

Description	Values
Capacity	1.92 TB
Speed	15,000 RPM
Height (approximate)	7.11 mm (0.28 in.)
Width (approximate)	69.85 mm (2.75 in.)

Table 69. 2.5-inch, 1.92 TB, MU, SATA, SSD specifications (continued)

Description	Values
Depth (approximate)	100.58 mm (3.96 in.)
Interface	SATA
Speed (maximum)	Up to 6 Gbps
MTBF	1,000,000 hours
Logical blocks	1,250,284,896
Power source	
Power consumption (reference only)	• Idle: 0.7 W • Active: 3.25 W
Environmental operating conditions (non-condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

MegaRAID 9660-16i card

The following table lists the MegaRAID 9660-16i card specifications.

Table 70. MegaRAID 9660-16i specifications

Description	Values
Adapter type	MegaRAID
Ports	16 internal
Storage controller	SAS4116 ROC
PCIe host interface	x8, Gen 4.0
Storage interface	Gen 4.0 PCIe (NVMe), 24 Gb/s SAS, 6 Gb/s SATA
RAID levels	0, 1, 10, 5, 50, 6, 60
Max SAS/SATA PDs	240
Max NVMe PDs	32
Connectors	2 ×8 SFF-8654
Form factor	LP-MD2
Dimensions	155.52 mm (± 0.13 mm) x 68.77 mm (± 0.13 mm)
Typical power	20 W
Operating conditions	250 LFM at 55°C
Energy backup	CVPM05 (FBU345)
Security	HW Secure Boot and Attestation
Driver	Unified MPI3 Driver

Table 70. MegaRAID 9660-16i specifications (continued)

Description	Values
Operating system supported	• Windows • VMware vSphere/ESXi • Red Hat Enterprise Linux • SuSE Linux • Ubuntu Linux • Citrix XenServer • CentOS Linux • Debian Linux • Oracle Enterprise Linux • Fedora • FreeBSD

MegaRAID 9540-8i card

The following table lists the MegaRAID 9540-8i card specifications.

Table 71. MegaRAID 9540-8i specifications

Description	Values
Adapter type	MegaRAID
Ports	8 internal
Storage controller	SAS3808
PCIe host interface	x8 PCIe Gen 4.0
Storage interface	12 Gb/s SAS, 6 Gb/s SATA, Gen 4.0 PCIe (NVMe)
RAID levels	0, 00, 1, 10
Max Devices Per Controller	SAS/SATA: 63 NVMe: 4
Connectors	One x8 SFF-8654
Dimensions	155.52 mm (± 0.13 mm) x 68.77 mm (± 0.13 mm)
Typical power	6.0 W
Operating conditions	12 V ±8%; 3.3 V ±9%
Operating system supported	• Windows • VMware vSphere/ESXi • Red Hat Enterprise Linux • SuSE Linux • Ubuntu Linux • Citrix XenServer • CentOS Linux • Debian Linux • Oracle Enterprise Linux • Fedora • FreeBSD

Media-card reader

The following table lists the media-card reader specifications of your Precision 7960 Tower.

Table 72. Media-card reader (standard offering)

Media supported (Maximum capacity supported will vary by Flash Media Types)	
Media Supported	• Secure Digital (SD) • Secure Digital High Capacity (SDHC) • Secure Digital Extended Capacity (SDXC)
Support Specification Versions	Secure Digital (SD) 4.0
Power source	
Max Power Requirements	1.2 A
Supply Voltage Range	3.3 V
Power Consumption	825 mW (S0)
Environmental operating conditions (Non-condensing)	
Operating Temperature Range	0°C to 70°C
Relative Humidity Range	N/A
Environmental non-operating conditions (Non-condensing)	
Operating Temperature Range	N/A
Relative Humidity Range	N/A

Power ratings

The following table lists the power ratings specifications of your Precision 7960 Tower.

Table 73. Power ratings specifications

Description	**Option 1**	**Option 2**
Type	1400 W Gold internal power supply unit	2200 W Gold internal power supply unit
Diameter (connector)	Not supported	Not supported
Input voltage	90 Vac - 264 Vac	90 Vac - 264 Vac
Input frequency	47 Hz - 63 Hz	47 Hz - 63 Hz
Input current (maximum)	15 A	16 A
Output current (continuous)	90 Vac~180 Vac (1100 W) • 12 VDC/91.6 A • -12 VDC/0.5 A • 12 VSBDC/8 A 180.1 Vac~264 Vac (1400 W) • 12 V/116.7 A • -12 VDC/0.5 A • 12 VSBDC/8 A	90 Vac~114.9 Vac (1200 W) • 12 VDC/98.37 A • -12 VDC/0.5 A • 12 VSBDC/8 A 115 Vac~179.9 Vac (1500 W) • 12 V/122.96 A • -12 VDC/0.5 A • 12 VSBDC/8 A 180.1 Vac~264 Vac (2200 W) • 12 VDC/180.33 A • -12 VDC/0.5 A • 12 VSBDC/8 A

Table 73. Power ratings specifications (continued)

Description	Option 1	Option 2
Rated output voltage	• 12 VDC • -12 VDC • 12 VSBDC	• 12 VDC • -12 VDC • 12 VSBDC
BTUs/h (based on PSU max wattage)	888	888
Temperature range		
Operating	5°C to 50°C (41°F to 122°F) Standby—40°C (104°F)	5°C to 50°C (41°F to 122°F) Standby—40°C (104°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
Compliance		
Erp Lot3 Tier 2 requirement	Yes	Yes
80Plus compliant	Yes	Yes
Energy Star 8.0 compliant	Yes	Yes
GS mark compliant	Yes	Yes
NCTC Anti Power Surge certification	Yes	Yes
NCTC Anti Lightning Strike certification	Yes	Yes

Thermal dissipation

The following table lists the thermal dissipation of your Precision 7960 Tower.

Table 74. Thermal dissipation

Power supply unit	Heat dissipation	Voltage
1400 W Gold internal power supply unit	220 W	90 ~ 264 Vac
2200 W Gold internal power supply unit	193 W	90 Vac
	219 W	115 Vac
	294 W	80 Vac

CMOS battery

The following table lists the CMOS battery specifications of your Precision 7960 Tower.

Table 75. CMOS battery

Brand	Type	Voltage	Composition	Battery life
MITSUBISHI	CR2032	3.0 V	Lithium metal	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage. 20℃±2℃ 940 Hrs. or Longer.910 Hrs.or Longer after 12 mo.

Accessories

The following table lists the supported accessories on your Precision 7960 Tower.

Table 76. Accessories

Accessories
3Dconnexion SpaceMouse Wireless
Dell Premier Multi-Device Wireless Keyboard and Mouse - KM7321W
Dell Slim Soundbar - SB521A
Dell UltraSharp 27 Monitor - U2722D
Dell UltraSharp 32 HDR PremierColor Monitor - UP3221Q
Dell Premier Multi-Device Wireless Keyboard and Mouse - KM7321W

Security

Software security

The following table lists the software security details of your Precision 7960 Tower.

Table 77. Software security

Security options
McAfee Small Business Security 30-day free trial
McAfee Small Business Security 12-month subscription
McAfee Small Business Security 36-month subscription
Dell Encryption Personal
Dell Encryption Enterprise
Dell Encryption External Media
Dell Bitlocker Manager

Trusted Platform Module

The following table lists the Trusted Platform Module (TPM) of your Precision 7960 Tower.

Table 78. Trusted Platform Module (TPM)

TPM: ST/ST33 HTPH2X32AHD8
SPI interface
TPM 2.0
FIPs 140-2 certificate

Acoustic noise emission information tower

The following table lists the acoustic noise emission information of your Precision 7960 Tower.

Table 79. Acoustic noise emission information tower

Component	Test Configuration
CPU	Intel Xeon W9-3495X
Memory	256 GB x 16
HDD (#, capacity)	10 K SAS 2.4Tx8
ODD	DVD+/-RW, 8X, 9.5T, GU90N, HLDS
Graphics Adapter	NVIDIA RTX A6000

Table 80. Declared Sound Power (LWAd)

Operating Mode	Declared Sound Power(LWAd)
Idle	3.87
HDD Operating	4.22
CPU Stressed (50% loading)	4.38
ODD Operating	4.53

Table 81. A-Weighted Sound Pressure Level (dB)

Declared Sound Pressure (LpA)				
	Tabletop System		Floor Standing System	
Operating Mode	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	32.7	27.9	25.4	24.1
CPU Stressed (50% loading)	33.8	28.9	27.3	26.4

All tests are conducted according to ISO 7779 and declared according to ISO 9296 except CPU Stressed. This test mode is not specified in ISO 7779, but was measured using the same microphone distances and measurement techniques defined for the other reported operating modes.

Declared Sound Power rounded to nearest tenth of a bel per ISO 9296 section 4.4.2

Chassis enclosure and ventilation requirements

Enclosure ventilation

If your enclosure has doors, they need to be of a type that allows at least 30% airflow through the enclosure (front and back).

Enclosure minimum clearance

Leave a 10.20 cm (4 in.) minimum clearance on all vented sides of the computer to permit the airflow required for proper ventilation.

Recommended enclosure

Do not install your computer in an enclosure that does not allow airflow/dusty environment/temperate over 35°C. Do not put any objects to directly block air-vent. This restricts the airflow and impacts your computer's performance, possibly causing it to overheat.

Open desk minimum clearance

If your computer is installed in a corner, on a desk, or under a desk, leave at least 5.10 cm (2 in.) clearance from the back of the computer to the wall to permit the airflow required for proper ventilation.

System management features

Dell commercial systems come with a number of systems management options that are include by default for In-Band management with our Dell Client Command Suite. In-Band management meaning that the Operating System is functional and the device is connected to a network so that it can be managed. The Dell Client Command Suite of tools can be leveraged individually or with a systems management console like SCCM, LANDESK, KACE, etc.

We also offer Out-of-Band management as an option. Out-of-band management is when the system does not have a functional operating system or is turned off and you still want to be able to manage the system in that state.

Dell Client Command Suite for in-band systems management

Dell Client Command Suite is a free toolkit available for download at dell.com/support that automates and streamlines systems management tasks, saving time, money, and resources. It consists of the following modules that can be used independently, or with various systems management consoles such as SCCM.

Dell Client Command Suite's integration with VMware Workspace ONE Powered by AirWatch, now allows customers to manage their Dell client hardware from the cloud, using a single Workspace ONE console.

Dell Command | Deploy enables easy operating system (OS) deployment across all major OS deployment methodologies and provides numerous system-specific drivers that have been extracted and reduced to an OS-consumable state.

Dell Command I Configure is a UI (GUI) admin tool for configuring and deploying hardware settings in a pre-OS or post-OS environment, and it operates seamlessly with SCCM and Airwatch and can be self-integrated into LANDesk and KACE. Simply, this is all about the BIOS. Command I Configure allows you to remotely automate and configure over 150+ BIOS settings for a personalized user experience.

Dell Command I PowerShell Provider can do the same things as Command I Configure, but with a different method. PowerShell is a scripting language that allows customers to create a customized and dynamic configuration process.

Dell Command I Monitor is a Windows Management Instrumentation (WMI) agent that provides IT admins with an extensive inventory of the hardware and health-state data. Admins can also configure hardware remotely by using command line and scripting.

Dell Command | Update (end-user tool) is factory-installed and allows admins to individually manage and automatically present and install Dell updates to the BIOS, drivers, and software. Command I Update eliminates the time-consuming hunting and pecking process of update installation.

Dell Command I Update Catalog provides searchable metadata that allows the management console to retrieve the latest system-specific updates (driver, firmware or BIOS). The updates are then delivered seamlessly to end-users using the customer's systems management infrastructure that is consuming the catalog (like SCCM).

Dell Command | vPro Out of Band console extends hardware management to systems that are offline or have an un-reachable OS (Dell exclusive features).

Dell Command | Integration Suite for System Center - This suite integrates all the key components of the Client Command Suite into Microsoft System Center Configuration Manager 2012 and Current Branch versions.

Out-of-band systems management

Intel Standard Manageability option **must be configured in our factory at the time of purchase, as it is NOT field upgradable.** It offers out-of-band management and DASH compliance (Certification Registry).

4

Dell Optimizer

This section details the Dell Optimizer specifications of your Precision 7960 Tower.

On Precision 7960 Tower with Dell Optimizer, the following features are supported:

- **Express Connect**—Automatically joins the access point with the strongest signal, and directs bandwidth to conferencing applications when in use.
- **Express Sign-in**—The Intel Context Sensing Technology's proximity sensor detects your presence to instantly wake up the computer and login using the IR camera and Windows Hello feature. Windows locks when you walk away.
- **ExpressResponse**—Prioritizes the most important applications. Applications open faster and perform better.
- **AudioOptimization**—The audio feature enhances the audio functionality during your online meetings. The audio feature helps filter the background noise, stabilize volume, and prioritize preferred voice streaming during online meetings.

For more information about configuring and using these features, see Dell Optimizer User Guide.

5

Getting help and contacting Dell

Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 82. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	Windows Support Site Linux Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site. For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles	1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select **Support** > **Support Library**. 3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see Dell Support Site.

NOTE: Availability of the services may vary depending on the country or region, and product.

NOTE: If you do not have an active Internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog.