Precision 7960 Rack

Technical Guidebook

Regulatory Model: E82S
Regulatory Type: E82S001
September 2024
Rev. A03

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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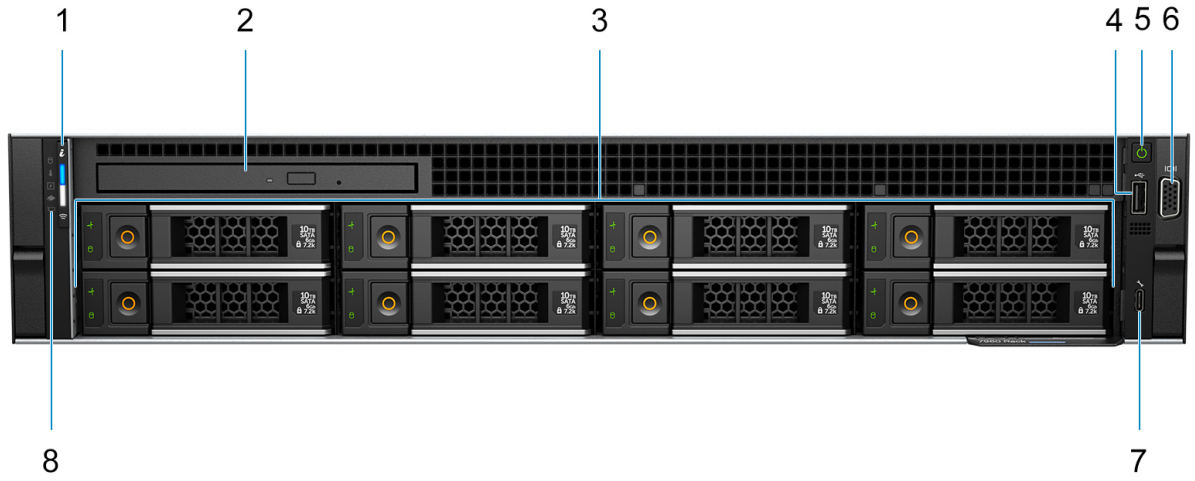
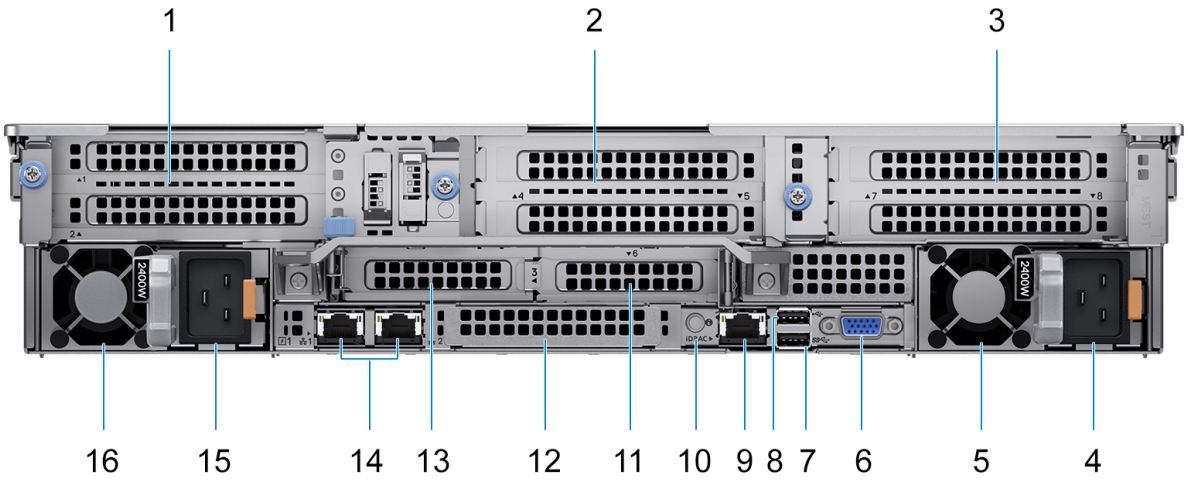
Views of Precision 7960 Rack

Front



1. System health and system ID indicator
2. 8x DVD-ROM 9.5 mm optical drive
3. Eight Storage bays for 3.5-inch or 2.5-inch HDD
4. USB 2.0 port
5. Power button
6. VGA port
7. iDRAC Direct port (1x Micro USB)
8. Status LED - Drive indicator, Temperature indicator, Electrical indicator, Memory indicator, and PCIe indicator

Back



1. PCIe expansion card riser 1 (slot 1 and slot 2,)
2. PCIe expansion card riser 3 (slot 4 and slot 5, available when CPU2 install)
3. PCIe expansion card riser 4 (slot 7, available when CPU2 install)
4. Power supply unit (PSU2)
5. PSU2 fan
6. VGA port - to view POST screen*

   NOTE: *For Linux OS, VGA is disabled by default

7. USB 3.0 port
8. USB 2.0 port
9. iDRAC9 Enterprise Dedicated Network connector
10. System ID button
11. PCIe expansion card riser 2 (Low Profile slot 6, available when CPU2 install)
12. OCP3 NIC card (optional)
13. PCIe expansion card riser 2 (Low Profile slot 3)
14. Two RJ45 Ethernet ports
15. Power supply unit (PSU1)
16. PSU1 fan

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Specifications of Precision 7960 Rack

Dimensions and weight

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

Table 1. Dimensions and weight

Description	Values
Width:	
Front width	482.00 mm (18.98 in.)
Rear width	434.00 mm (17.08 in.)
Height	86.80 mm (3.42 in.)
Depth with bezel	772.13 mm (30.40 in.)
Weight **NOTE:** The weight of your computer depends on the configuration ordered and manufacturing variability.	• Minimum: 20.98 kg (46.25 lb) • Maximum: 29.64 kg (65.36 lb)

Processors

The following table lists the details of the processors supported by your Precision 7960 Rack

Table 2. Processors

Processor type	Processor wattage	Processor core count	Processor thread count	Processor speed	Processor cache
Intel Xeon Silver 4410Y	150 W	12	24	2.0 GHz to 3.9 GHz Turbo	30 MB
Intel Xeon Silver 4416+	165 W	20	40	2.0 GHz to 3.9 GHz Turbo	37.5 MB
Intel Xeon Silver 4509Y	125 W	8	16	2.6 GHz to 4.1 GHz Turbo	22.5 MB
Intel Xeon Silver 4510	150 W	12	24	2.4 GHz to 4.1 GHz Turbo	30 MB
Intel Xeon Silver 4514Y	150 W	16	32	2.0 GHz to 3.4 GHz Turbo	30 MB
Intel Xeon Gold 5415+	150 W	8	16	2.9 GHz to 4.1 GHz Turbo	22.5 MB
Intel Xeon Gold 5418Y	185 W	24	48	2.0 GHz to 3.8 GHz Turbo	45 MB
Intel Xeon Gold 5420+	205 W	28	56	2.0 GHz to 4.1 GHz Turbo	52.5 MB
Intel Xeon Gold 6426Y	225 W	16	32	2.6 GHz to 4.0 GHz Turbo	37.5 MB
Intel Xeon Gold 6430	270 W	32	64	2.1 GHz to 3.4 GHz Turbo	60 MB
Intel Xeon Gold 6434	195 W	8	16	3.7 GHz to 4.1 GHz Turbo	22.5 MB

Table 2. Processors (continued)

Processor type	Processor wattage	Processor core count	Processor thread count	Processor speed	Processor cache
Intel Xeon Gold 6442Y	225 W	24	48	2.6 GHz to 4.0 GHz Turbo	60 MB
Intel Xeon Gold 6444Y	270 W	16	32	3.6 GHz to 4.0 GHz Turbo	45 MB
Intel Xeon Gold 6448Y	225 W	32	64	2.1 GHz to 4.1 GHz Turbo	60 MB
Intel Xeon Gold 6526Y	195 W	16	32	2.8 GHz to 3.9 GHz Turbo	37.5 MB
Intel Xeon Gold 6534	195 W	8	16	3.9 GHz to 4.2 GHz Turbo	22.5 MB
Intel Xeon Gold 6542Y	250 W	24	48	2.9 GHz to 4.1 GHz Turbo	60 MB
Intel Xeon Gold 6548Y+	250 W	32	64	2.5 GHz to 4.1 GHz Turbo	60 MB
Intel Xeon Platinum 8452Y	300 W	36	72	2.0 GHz to 3.2 GHz Turbo	67.5 MB
Intel Xeon Platinum 8460Y+	300 W	40	80	2.0 GHz to 3.7 GHz Turbo	105 MB
Intel Xeon Platinum 8462Y+	300 W	32	64	2.8 GHz to 4.1 GHz Turbo	60 MB
Intel Xeon Platinum 8468	300 W	48	96	2.1 GHz to 3.8 GHz Turbo	105 MB
Intel Xeon Platinum 8470	350 W	52	104	2.0 GHz to 3.8 GHz Turbo	105 MB
Intel Xeon Platinum 8480+	350 W	56	112	2.0 GHz to 3.8 GHz Turbo	105 MB
Intel Xeon Platinum 8562Y+	300 W	32	64	2.8 GHz to 4.1 GHz Turbo	60 MB
Intel Xeon Platinum 8568Y+	350 W	48	96	2.3 GHz to 4.0 GHz Turbo	300 MB
Intel Xeon Platinum 8580	350 W	60	112	2.1 GHz to 4.0 GHz Turbo	300 MB
Intel Xeon Platinum 8592+	350 W	64	128	1.9 GHz to 3.9 GHz Turbo	320 MB

Chipset

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

Table 3. Chipset

Description	Values
Chipset	Intel C741
Processor	Intel
DRAM bus width	64-bit

Table 3. Chipset (continued)

Description	Values
Flash EPROM	32 MB + 16 MB
PCIe bus	Up to Gen 3.0
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 Rack 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

Memory

The following table lists the memory specifications that are supported by your Precision 7960 Rack.

Table 4. Memory specifications

Description	Values
Memory slots	• Single processor - has 8 memory channels with 16 DIMM slots. • Dual processors - have 8 memory channels per processor with total of 32 DIMM slots.
Memory type	DDR5
Memory speed	5600 MT/s **NOTE:** This computer operates at 5600 MT/s.
Maximum memory configuration	2 TB
Minimum memory configuration	16 GB
Memory size per slot	16 GB, 32 GB, 64 GB
Memory configurations supported	• 16 GB, 1 x 16 GB, DDR5, 5600 MT/s • 32 GB, 1 x 32 GB, DDR5, 5600 MT/s • 32 GB, 2 x 16 GB, DDR5, 5600 MT/s • 64 GB, 1 x 64 GB, DDR5, 5600 MT/s • 64 GB, 2 x 32 GB, DDR5, 5600 MT/s

Table 4. Memory specifications (continued)

Description	Values
	• 64 GB, 4 x 16 GB, DDR5, 5600 MT/s • 96 GB, 6 x 16 GB, DDR5, 5600 MT/s • 128 GB, 1 x 128 GB, DDR5, 5600 MT/s • 128 GB, 2 x 64 GB, DDR5, 5600 MT/s • 128 GB, 4 x 32 GB, DDR5, 5600 MT/s • 128 GB, 8 x 16 GB, DDR5, 5600 MT/s • 192 GB, 6 x 32 GB, DDR5, 5600 MT/s • 192 GB, 12 x 16 GB, DDR5, 5600 MT/s • 256 GB, 1 x 256 GB, DDR5, 5600 MT/s • 256 GB, 2 x 128 GB, DDR5, 5600 MT/s • 256 GB, 4 x 64 GB, DDR5, 5600 MT/s • 256 GB, 8 x 32 GB, DDR5, 5600 MT/s • 256 GB, 16 x 16 GB, DDR5, 5600 MT/s • 384 GB, 6 x 64 GB, DDR5, 5600 MT/s • 384 GB, 12 x 32 GB, DDR5, 5600 MT/s • 384 GB, 24 x 16 GB, DDR5, 5600 MT/s • 512 GB, 2 x 256 GB, DDR5, 5600 MT/s • 512 GB, 4 x 128 GB, DDR5, 5600 MT/s • 512 GB, 8 x 64 GB, DDR5, 5600 MT/s • 512 GB, 32 x 16 GB, DDR5, 5600 MT/s • 768 GB, 6 x 128 GB, DDR5, 5600 MT/s • 768 GB, 12 x 64 GB, DDR5, 5600 MT/s • 768 GB, 24 x 32 GB, DDR5, 5600 MT/s • 1 TB, 4 x 256 GB, DDR5, 5600 MT/s • 1 TB, 8 x 128 GB, DDR5, 5600 MT/s • 1 TB, 16 x 64 GB, DDR5, 5600 MT/s • 1 TB, 32 x 32 GB, DDR5, 5600 MT/s • 1.5 TB, 6 x 256 GB, DDR5, 5600 MT/s • 1.5 TB, 12 x 128 GB, DDR5, 5600 MT/s • 1.5 TB, 24 x 64 GB, DDR5, 5600 MT/s • 2 TB, 8 x 256 GB, DDR5, 5600 MT/s • 2 TB, 16 x 128 GB, DDR5, 5600 MT/s • 2 TB, 32 x 64 GB, DDR5, 5600 MT/s • 3 TB, 12 x 256 GB, DDR5, 5600 MT/s • 3 TB, 24 x 128 GB, DDR5, 5600 MT/s • 3 TB, 32 x 64 GB, DDR5, 5600 MT/s • 4 TB, 16 x 256 GB, DDR5, 5600 MT/s • 4 TB, 32 x 128 GB, DDR5, 5600 MT/s • 6 TB, 24 x 256 GB, DDR5, 5600 MT/s • 8 TB, 32 x 256 GB, DDR5, 5600 MT/s **NOTE:** • When 12 or 16 memory DIMM slots are populated in a single processor system, 5600 MT/s memory will clock down to 4400 MHz. When 24 or 32 memory DIMM slots are populated in a dual processor system, 5600 MT/s memory will clock down to 4400 MHz. • Memory speed that is supported will vary according to the processor selected. • 128 GB and 256 GB RDIMMs will require limiting the environment temperature up to 30°C to gain the best system thermal and acoustic performance.

Memory matrix

The following table lists the memory configurations that are supported on your Precision 7960 Rack.

The Precision 7960 Rack memory matrix outlines an order by Channel or DIMM-number in which DIMMs are populated in the memory slots.

16 GB configuration

Main Memory				CPU2																CPU1													
				CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D		CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D	
Total (GB)	DPC	Memory physical Frequency	System running Frequency	B8	B16	B2	B10	B6	B14	B4	B12	B9	B1	B15	B7	B11	B3	B13	B5	A8	A16	A2	A10	A6	A14	A4	A12	A9	A1	A15	A7	A11	A3	A13	A5
R-DIMM																																	
16	1DPC	4800	4800																								16						
32	1DPC	4800	4800																			16					16						
64	1DPC	4800	4800																			16				16		16					
96	1DPC	4800	4800																			16		16		16		16				16	
128	1DPC	4800	4800																	16		16		16		16		16		16		16	
192	2DPC	4800	4400																	16		16	16	16		16	16	16		16	16	16	
256	2DPC	4800	4400																	16	16	16	16	16	16	16	16	16	16	16	16	16	16
32	1DPC	4800	4800									16															16						
64	1DPC	4800	4800			16						16										16					16						
128	1DPC	4800	4800			16				16		16				16						16				16		16				16	
192	1DPC	4800	4800			16		16		16		16				16		16				16		16		16		16				16	
256	1DPC	4800	4800	16		16		16		16		16		16		16		16		16		16		16		16		16		16		16	
384	2DPC	4800	4400	16		16	16	16		16	16	16		16	16	16		16		16		16	16	16		16	16	16		16	16	16	
512	2DPC	4800	4400	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16

32 GB configuration

Main Memory				CPU2																CPU1													
				CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D		CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D	
Total (GB)	DPC	Memory physical Frequency	System running Frequency	B8	B16	B2	B10	B6	B14	B4	B12	B9	B1	B15	B7	B11	B3	B13	B5	A8	A16	A2	A10	A6	A14	A4	A12	A9	A1	A15	A7	A11	A3	A13	A5
R-DIMM																																	
32	1DPC	4800	4800																								32						
64	1DPC	4800	4800																			32					32						
128	1DPC	4800	4800																			32				32		32				32	
192	1DPC	4800	4800																			32		32		32		32				32	
256	1DPC	4800	4800																	32		32		32		32		32		32		32	
384	2DPC	4800	4400																	32		32	32	32		32	32	32		32	32	32	
512	2DPC	4800	4400																	32	32	32	32	32	32	32	32	32	32	32	32	32	32
64	1DPC	4800	4800									32															32						
128	1DPC	4800	4800			32						32										32					32						
256	1DPC	4800	4800			32				32		32				32						32				32		32				32	
384	1DPC	4800	4800			32		32		32		32				32		32				32		32		32		32				32	
512	1DPC	4800	4800	32		32		32		32		32		32		32		32		32		32		32		32		32		32		32	
768	2DPC	4800	4400	32		32	32	32		32	32	32	32		32	32	32		32	32		32	32	32		32	32	32		32	32	32	
1024	2DPC	4800	4400	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32

64 GB configuration

Main Memory				CPU2																CPU1													
				CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D		CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D	
Total (GB)	DPC	Memory physical Frequency	System running Frequency	B8	B16	B2	B10	B6	B14	B4	B12	B9	B1	B15	B7	B11	B3	B13	B5	A8	A16	A2	A10	A6	A14	A4	A12	A9	A1	A15	A7	A11	A3	A13	A5
R-DIMM																																	
64	1DPC	4800	4800																								64						
128	1DPC	4800	4800																			64					64						
256	1DPC	4800	4800																			64				64		64				64	
384	1DPC	4800	4800																			64				64		64				64	
512	1DPC	4800	4800																	64		64		64		64		64		64		64	
768	2DPC	4800	4400																	64		64	64	64		64	64	64		64	64	64	
1024	2DPC	4800	4400																	64	64	64	64	64	64	64	64	64	64	64	64	64	64
128	1DPC	4800	4800									64															64						
256	1DPC	4800	4800			64						64										64					64						
512	1DPC	4800	4800			64				64		64				64						64				64		64				64	
768	1DPC	4800	4800			64		64		64		64				64		64				64		64		64		64				64	
1024	1DPC	4800	4800	64		64		64		64		64		64		64		64		64		64		64		64		64		64		64	
1536	2DPC	4800	4400	64		64	64	64		64	64	64	64		64	64	64		64	64		64	64	64		64	64	64		64	64	64	
2048	2DPC	4800	4400	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64

128 GB configuration

Main Memory				CPU2																CPU1															
				CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D		CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D	
Total (GB)	DPC	Memory physical Frequency	System running Frequency	B8	B16	B2	B10	B6	B14	B4	B12	B9	B1	B15	B7	B11	B3	B13	B5	A8	A16	A2	A10	A6	A14	A4	A12	A9	A1	A15	A7	A11	A3	A13	A5
R-DIMM																																			
128	1DPC	4800	4800																								128						
256	1DPC	4800	4800																			128					128						
512	1DPC	4800	4800																			128				128		128					
768	1DPC	4800	4800																			128		128		128		128				128	
1024	1DPC	4800	4800																	128		128		128		128		128		128		128	
1536	2DPC	4800	4400																	128		128	128	128		128	128	128	128		128	128		128	
2048	2DPC	4800	4400																	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
256	1DPC	4800	4800									128																	128					
512	1DPC	4800	4800			128						128										128							128					
1024	1DPC	4800	4800			128				128		128				128						128				128			128			128		
1536	1DPC	4800	4800			128		128		128		128				128		128				128		128		128			128			128		128
2048	1DPC	4800	4800	128		128		128		128		128		128		128		128		128		128		128		128			128		128			128
3072	2DPC	4800	4400	128		128	128	128		128	128	128	128		128	128	128		128	128		128	128	128		128	128	128		128	128	128		128	128
4096	2DPC	4800	4400	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128

256 GB configuration

Main Memory				CPU2																CPU1															
				CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D		CH_H		CH_G		CH_F		CH_E		CH_A		CH_B		CH_C		CH_D	
Total (GB)	DPC	Memory physical Frequency	System running Frequency	B8	B16	B2	B10	B6	B14	B4	B12	B9	B1	B15	B7	B11	B3	B13	B5	A8	A16	A2	A10	A6	A14	A4	A12	A9	A1	A15	A7	A11	A3	A13	A5
R-DIMM																																			
256	1DPC	4800	4800																								256						
512	1DPC	4800	4800																			256					256						
1024	1DPC	4800	4800																			256				256			256			256		
1536	1DPC	4800	4800																			256		256		256			256			256		256
2048	1DPC	4800	4800																	256		256		256		256			256		256	256		256	
3072	2DPC	4800	4400																	256		256	256	256		256	256	256	256		256	256	256		256	
4096	2DPC	4800	4400																	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256
512	1DPC	4800	4800									256																	256						
1024	1DPC	4800	4800			256						256										256							256						
2048	1DPC	4800	4800			256				256		256				256						256				256			256			256		
3072	1DPC	4800	4800			256		256		256		256				256		256				256		256		256			256			256		256
4096	1DPC	4800	4800	256		256		256		256		256		256		256		256		256		256		256		256			256		256	256		256	
6144	2DPC	4800	4400	256		256	256	256		256	256	256	256		256	256	256		256	256		256	256	256		256	256	256		256	256	256		256	
8192	2DPC	4800	4400	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	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 of your Precision 7960 Rack.

Table 5. External ports and slots

Description	Values
Network port	• One iDRAC9 Enterprise Dedicated Network connector (rear) • 2 RJ45 Ethernet ports, 1 GbE (LOM card option) • 4 RJ45 Ethernet ports, 1 GbE (OCP3 card option) • 4 RJ45 Ethernet ports, 10 GbE (OCP3 card option) • 4 SFP28 Ethernet ports, 25 GbE (OCP3 card option)
USB ports	• One iDRAC Direct port (front) • One USB 2.0 port (front) • One USB 2.0 port (rear) • One USB 3.0 Gen 1 port (rear)
Audio port	N/A
Video port(s)	• One VGA port (front) • One VGA port (rear) • via Discrete GPU

Table 5. External ports and slots (continued)

Description	Values
Media-card reader	N/A
Power-adapter port	Not supported
Security-cable slot	Chassis lock support - Coin locker

Storage bays

The following table lists the storage bays of your Precision 7960 Rack.

Table 6. Storage bays

Description	Values
SATA/SAS	• Eight storage bays for 3.5-inch or 2.5-inch HDD • Drive bays support SATA and SAS drives with VROC or optional PERC RAID controller.

Ethernet

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

Table 7. Ethernet specifications

Description	Values
Model number	Broadcom BCM5720 (optional)
Transfer rate	1 GbE x2

Storage

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

Your system supports one or more of the following storage drives:

- Eight storage bays for 3.5-inch or 2.5-inch hard drive
- Drive bays support SATA and SAS drives with optional PERC RAID controller.

Table 8. Storage specifications

Storage type	Interface type	Capacity
2.5-inch, 15k RPM, Enterprise hard-disk drive	SAS	600 GB
2.5-inch, 10k RPM, Enterprise hard-disk drive	SAS	Up to 2.4 TB
3.5-inch, 7200 RPM, Enterprise hard-disk drive	SATA	Up to 12 TB
2.5-inch, MU, SSD	SATA	1.92 TB
M.2 2280, SSD, Class 40	PCIe NVMe Gen4 x4	Up to 4 TB

Storage Matrix

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

C4 configuration

Precision 7960 Rack	Config ID	SATA / SAS	Device Type	Boot Drive (OS Location)	1st HDD	2nd HDD	3rd HDD	4th HDD	5th HDD	6th HDD	7th HDD	8th HDD	ODD(Slimline)	# of Zoom2 Cards Allowed	# of Zoom4 Cards allowed	HDD Controller options	Note
C4	21	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y								OK	1	Up to 2	Integrated	FI
	22	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y							OK	1	Up to 2	Integrated	FI
	23	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y	Y						OK	1	Up to 2	Integrated	FI
	24	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y	Y	Y					OK	1	Up to 2	Integrated	FI
	25	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y	Y	Y	Y				OK	1	Up to 2	Integrated	FI
	26	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y	Y	Y	Y	Y			OK	1	Up to 2	Integrated	FI
	27	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y	Y	Y	Y	Y	Y		OK	1	Up to 2	Integrated	FI
	28	Zoom Boot	Zoom Boot + SATA JBOD	Zoom	Y	Y	Y	Y	Y	Y	Y	Y	OK	1	Up to 2	Integrated	FI
	29	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0							OK	1	Up to 2	Integrated	FI
	30	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0						OK	1	Up to 2	Integrated	FI
	31	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0					OK	1	Up to 2	Integrated	FI
	32	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 1	RAID 1							OK	1	Up to 2	Integrated	FI
	33	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5						OK	1	Up to 2	Integrated	FI
	34	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5					OK	1	Up to 2	Integrated	FI
	35	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 10	RAID 10	RAID 10	RAID 10					OK	1	Up to 2	Integrated	FI

C10 configuration

Precision 7960 Rack	Config ID	SATA / SAS	Device Type	Boot Drive (OS Location)	1st HDD	2nd HDD	3rd HDD	4th HDD	5th HDD	6th HDD	7th HDD	8th HDD	ODD(Slimline)	# of Zoom2 Cards Allowed	# of Zoom4 Cards allowed	HDD Controller options	Note
	102	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0							OK	1	Up to 2	PERC	FI
	103	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0						OK	1	Up to 2	PERC	FI
	104	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0					OK	1	Up to 2	PERC	FI
	105	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0				OK	1	Up to 2	PERC	FI
	106	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0			OK	1	Up to 2	PERC	FI
	107	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0		OK	1	Up to 2	PERC	FI
	108	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	OK	1	Up to 2	PERC	FI
	109	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 1	RAID 1							OK	1	Up to 2	PERC	FI
	110	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5						OK	1	Up to 2	PERC	FI
	111	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5					OK	1	Up to 2	PERC	FI
	112	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5				OK	1	Up to 2	PERC	FI
	113	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5			OK	1	Up to 2	PERC	FI
	114	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5		OK	1	Up to 2	PERC	FI
	115	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	OK	1	Up to 2	PERC	FI
	116	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 10	RAID 10	RAID 10	RAID 10					OK	1	Up to 2	PERC	FI
	117	Zoom Boot	Zoom Boot + SATA RAID	Zoom	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	OK	1	Up to 2	PERC	FI

Precision 7960 Rack	Config ID	SATA / SAS	Device Type	Boot Drive (OS Location)	1st HDD	2nd HDD	3rd HDD	4th HDD	5th HDD	6th HDD	7th HDD	8th HDD	ODD(Slimline)	# of Zoom2 Cards Allowed	# of Zoom4 Cards allowed	HDD Controller options	Note
	118	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y								OK	1	Up to 2	PERC	FI
	119	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y							OK	1	Up to 2	PERC	FI
	120	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y	Y						OK	1	Up to 2	PERC	FI
	121	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y	Y	Y					OK	1	Up to 2	PERC	FI
	122	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y	Y	Y	Y				OK	1	Up to 2	PERC	FI
	123	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y	Y	Y	Y	Y			OK	1	Up to 2	PERC	FI
	124	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y	Y	Y	Y	Y	Y		OK	1	Up to 2	PERC	FI
	125	Zoom Boot	Zoom Boot + SAS JBOD	Zoom	Y	Y	Y	Y	Y	Y	Y	Y	OK	1	Up to 2	PERC	FI

Precision 7960 Rack	Config ID	SATA / SAS	Device Type	Boot Drive (OS Location)	1st HDD	2nd HDD	3rd HDD	4th HDD	5th HDD	6th HDD	7th HDD	8th HDD	ODD(Slimline)	# of Zoom2 Cards Allowed	# of Zoom4 Cards allowed	HDD Controller options	Note
	126	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0							OK	1	Up to 2	PERC	FI
	127	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0	RAID 0						OK	1	Up to 2	PERC	FI
	128	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0					OK	1	Up to 2	PERC	FI
	129	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0				OK	1	Up to 2	PERC	FI
	130	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0			OK	1	Up to 2	PERC	FI
	131	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0		OK	1	Up to 2	PERC	FI
	132	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	OK	1	Up to 2	PERC	FI
	133	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 1	RAID 1							OK	1	Up to 2	PERC	FI
	134	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 5	RAID 5	RAID 5						OK	1	Up to 2	PERC	FI
	135	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5					OK	1	Up to 2	PERC	FI
	136	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5				OK	1	Up to 2	PERC	FI
	137	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5			OK	1	Up to 2	PERC	FI
	138	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5		OK	1	Up to 2	PERC	FI
	139	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	OK	1	Up to 2	PERC	FI
	140	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 10	RAID 10	RAID 10	RAID 10					OK	1	Up to 2	PERC	FI
	141	Zoom Boot	Zoom Boot + SAS RAID	Zoom	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	RAID 10	OK	1	Up to 2	PERC	FI

C11 configuration

Precision 7960 Rack	Config ID	SATA / SAS	Device Type	Boot Drive (OS Location)	1st HDD	2nd HDD	3rd HDD	4th HDD	5th HDD	6th HDD	7th HDD	8th HDD	ODD(Slimline)	# of Zoom2 Cards Allowed	# of Zoom4 Cards allowed	HDD Controller options	Note
C11	142	Zoom Only	Zoom Boot single	Zoom Boot									OK	1	Up to 2	Integrated	FI

C1Z - Dell Ultra Speed Duo card configuration

				1st Zoom4				2nd Zoom4										
C-Config	Config Type	Device Type	Boot Drive (OS Location) HDD C4, C10 & C11 only	1st M.2 SSD	2nd M.2 SSD	3rd M.2 SSD	4th M.2 SSD	5th M.2 SSD	6th M.2 SSD	7th M.2 SSD	8th M.2 SSD	# of Zoom2 Cards	# of Zoom4 Cards	Total Number of M.2 Devices (No mixing Zoom2 + Zoom4)	Dual CPU Required	VROC Standard Key Required Y/N	VROC Premium key Required Y/N	ODD(Slimline)
C1Z	Zoom2	Zoom2 JBOD	Zoom2 1st SSD Boot	Y								1	0	1	No	N	N	OK
	Zoom2	Zoom2 JBOD	Zoom2 1st SSD Boot	Y	Y							1	0	2	No	N	N	OK

C2Z - Dell Ultra Speed Duo card configuration

				1st Zoom4				2nd Zoom4										
C-Config	Config Type	Device Type	Boot Drive (OS Location) HDD C4, C10 & C11 only	1st M.2 SSD	2nd M.2 SSD	3rd M.2 SSD	4th M.2 SSD	5th M.2 SSD	6th M.2 SSD	7th M.2 SSD	8th M.2 SSD	# of Zoom2 Cards	# of Zoom4 Cards	Total Number of M.2 Devices (No mixing Zoom2 + Zoom4)	Dual CPU Required	VROC Standard Key Required Y/N	VROC Premium key Required Y/N	ODD(Slimline)
C2Z	Zoom2	Zoom2 RAID 0	Zoom2 RAID Volume	RAID 0	RAID 0							1	0	2	No	Y	Y	OK
	Zoom2	Zoom2 RAID 1	Zoom2 RAID Volume	RAID 1	RAID 1							1	0	2	No	Y	Y	OK

C3Z - Dell Ultra Speed Quad card configuration

				1st Zoom4				2nd Zoom4										
C-Config	Config Type	Device Type	Boot Drive (OS Location) HDD C4, C10 & C11 only	1st M.2 SSD	2nd M.2 SSD	3rd M.2 SSD	4th M.2 SSD	5th M.2 SSD	6th M.2 SSD	7th M.2 SSD	8th M.2 SSD	# of Zoom2 Cards	# of Zoom4 Cards	Total Number of M.2 Devices (No mixing Zoom2 + Zoom4)	Dual CPU Required	VROC Standard Key Required Y/N	VROC Premium key Required Y/N	ODD(Slimline)
C3Z	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y								0	1	1	No	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y							0	1	2	No	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y	Y						0	1	3	No	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y	Y	Y					0	1	4	No	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y	Y	Y	Y				0	2	5	Yes	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y	Y	Y	Y	Y			0	2	6	Yes	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y	Y	Y	Y	Y	Y		0	2	7	Yes	N	N	OK
	Zoom4	Zoom4 JBOD	Zoom4 1st SSD Boot	Y	Y	Y	Y	Y	Y	Y	Y	0	2	8	Yes	N	N	OK

C4Z - Dell Ultra Speed Quad card configuration

				1st Zoom4				2nd Zoom4										
C-Config	Config Type	Device Type	Boot Drive (OS Location) HDD C4, C10 & C11 only	1st M.2 SSD	2nd M.2 SSD	3rd M.2 SSD	4th M.2 SSD	5th M.2 SSD	6th M.2 SSD	7th M.2 SSD	8th M.2 SSD	# of Zoom2 Cards	# of Zoom4 Cards	Total Number of M.2 Devices (No mixing Zoom2 + Zoom4)	Dual CPU Required	VROC Standard Key Required Y/N	VROC Premium key Required Y/N	ODD(Slimline)
C4Z	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0							0	1	2	No	Y	Y	OK
	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0	RAID 0						0	1	3	No	Y	Y	OK
	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0	RAID 0	RAID 0					0	1	4	No	Y	Y	OK
	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0				0	2	5	Yes	Y	Y	OK
	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0			0	2	6	Yes	Y	Y	OK
	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0		0	2	7	Yes	Y	Y	OK
	Zoom4	Zoom4 RAID 0	Zoom4 RAID Volume	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	0	2	8	Yes	Y	Y	OK
	Zoom4	Zoom4 RAID 1	Zoom4 RAID Volume	RAID 1	RAID 1							0	1	2	No	Y	Y	OK
	Zoom4	Zoom4 RAID 10	Zoom4 RAID Volume	RAID 10	RAID 10	RAID 10	RAID 10					0	1	4	No	Y	Y	OK
	Zoom4	Zoom4 RAID 5	Zoom4 RAID Volume	RAID 5	RAID 5	RAID 5						0	1	3	No	N	Y	OK
	Zoom4	Zoom4 RAID 5	Zoom4 RAID Volume	RAID 5	RAID 5	RAID 5	RAID 5					0	1	4	No	N	Y	OK
	Zoom4	Zoom4 RAID 5	Zoom4 RAID Volume	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5				0	2	5	Yes	N	Y	OK
	Zoom4	Zoom4 RAID 5	Zoom4 RAID Volume	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5			0	2	6	Yes	N	Y	OK
	Zoom4	Zoom4 RAID 5	Zoom4 RAID Volume	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5		0	2	7	Yes	N	Y	OK
	Zoom4	Zoom4 RAID 5	Zoom4 RAID Volume	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	0	2	8	Yes	N	Y	OK

C5Z - Dell Ultra Speed Quad card configuration

				1st Zoom4				2nd Zoom4										
C-Config	Config Type	Device Type	Boot Drive (OS Location) HDD C4, C10 & C11 only	1st M.2 SSD	2nd M.2 SSD	3rd M.2 SSD	4th M.2 SSD	5th M.2 SSD	6th M.2 SSD	7th M.2 SSD	8th M.2 SSD	# of Zoom2 Cards	# of Zoom4 Cards	Total Number of M.2 Devices (No mixing Zoom2 + Zoom4)	Dual CPU Required	VROC Standard Key Required Y/N	VROC Premium key Required Y/N	ODD(Slimline)
C5Z	Zoom4	Zoom4 SSD Boot + RAID 0	Zoom4 1st SSD Boot	Boot	RAID 0	RAID 0						0	1	3	No	Y	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 0	Zoom4 1st SSD Boot	Boot	RAID 0	RAID 0	RAID 0					0	1	4	No	Y	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 5	Zoom4 1st SSD Boot	Boot	RAID 5	RAID 5	RAID 5					0	1	4	No	N	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 0	Zoom4 1st SSD Boot	Boot	RAID 0	RAID 0	RAID 0	RAID 0				0	1	5	Yes	Y	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 0	Zoom4 1st SSD Boot	Boot	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0			0	2	6	Yes	Y	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 0	Zoom4 1st SSD Boot	Boot	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0		0	2	7	Yes	Y	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 0	Zoom4 1st SSD Boot	Boot	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	RAID 0	0	2	8	Yes	Y	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 5	Zoom4 1st SSD Boot	Boot	RAID 5	RAID 5	RAID 5	RAID 5				0	1	5	Yes	N	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 5	Zoom4 1st SSD Boot	Boot	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5			0	2	6	Yes	N	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 5	Zoom4 1st SSD Boot	Boot	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5		0	2	7	Yes	N	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 5	Zoom4 1st SSD Boot	Boot	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	RAID 5	0	2	8	Yes	N	Y	OK
	Zoom4	Zoom4 SSD Boot + RAID 1	Zoom4 1st SSD Boot	Boot	RAID 1	RAID 1						0	1	3	No	Y	Y	OK

RAID (Redundant Array of Independent Disks)

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

The Dell Technologies PowerEdge RAID Controller (PERC) H755 is a RAID disk array controller made by Dell for the Precision 7960 Rack. It has the following characteristics:

- Provides reliability, high performance, and fault-tolerant disk subsystem management.
- Offers RAID control capabilities including support for RAID levels 0, 1, 5, 10.
- Complies with Serial Attached SCSI (SAS) 3.0 providing up to 12 Gb/sec throughput.
- Supports Dell-qualified Serial Attached SCSI (SAS), SATA hard drives, and solid state drives (SSDs).

NOTE: Mixing disks of different speeds (7,200 RPM, 10,000 RPM, or 15,000 RPM) and bandwidth (3 Gbps, 6 Gbps, or 12 Gbps) while maintaining the same drive type (SAS or SATA) and technology (hard drive or SSD) is supported.

NOTE: Mixing SAS and SATA is not supported. Also, mixing hard drives and SSDs in a virtual disk is not supported.

NOTE: For the safety, regulatory, and ergonomic information that is associated with these devices, and for more information about the Integrated Dell Remote Access Controller (iDRAC) or Lifecycle Controller (LC) remote management, see your platform documentation.

The Precision 7960 Rack system supports Intel VROC RAID Controller. It has the following characteristics:

- NVMe drives can be directly connected to the CPU PCIe slots using the Dell Ultra-Speed Quad or Dell Ultra- Speed Duo add-in cards.
- Intel VMD is the storage controller used by drives directly attached to the CPU.
- Intel VROC is the software stack that manages drives attached to Intel VMD.

- The integrated Intel VROC pass-through allows for NVMe SSDs to be installed onto CPU PCIe connections in JBOD mode only. The Intel VROC Standard upgrade allows drives connected to Intel VMD to be configured into RAID 0, RAID1, or RAID10 arrays, The Intel VROC Premium upgrade allows drives connected to Intel VMD to be configured into RAID 0, RAID1, RAID10 and RAID5 arrays.
- Boot is supported for RAID arrays attached to Intel® VMD controllers this generation. RAID arrays can be spanned across Intel® VMD controllers, but boot is not supported on those arrays. It is not recommended to span RAID arrays across the Intel® VMD controllers on different CPUs.
- Intel VROC will provide support for Disk Coercion. When a RAID volume is created, this feature will analyze the physical disks and will automatically adjust (round down) the capacity of the disks to 95% of the smallest physical disk. This allows for the variances in the physical disk capacities from different vendors. The VROC UI (either Windows VROC Application GUI or CLI tool for manufacturing) will provide an option to manually override this to be able to use all available disk space.

Table 9. RAID configurations

Type	Supported
RAID 0	Yes
RAID 1	Yes
RAID 5	Yes
RAID 10	Yes

MegaRAID 9660-16i card

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

Table 10. 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
Operating system supported	• Windows • VMware vSphere/ESXi • Red Hat Enterprise Linux • SuSE Linux

Table 10. MegaRAID 9660-16i specifications (continued)

Description	Values
	• Ubuntu Linux • Citrix XenServer • CentOS Linux • Debian Linux • Oracle Enterprise Linux • Fedora • FreeBSD

Power ratings

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

Table 11. Power ratings

Type	800 W Platinum	1100 W Titanium		2400 W Platinum	
		1050W	1100W	1400W	2400W
Input voltage					
Minimum	90 VAC	90 VAC	180 VAC	90 VAC	180 VAC
Maximum	264 VAC	132 VAC	264 VAC	132 VAC	264 VAC
Input frequency					
Minimum	47 Hz	47 Hz	47 Hz	47 Hz	47 Hz
Maximum	63 Hz	63 Hz	63 Hz	63 Hz	63 Hz
Maximum input current	10.4 A	13.5 A	7 A	18 A	14.9 A
Input voltage					
Minimum	192 VDC	N/A	192 VDC	N/A	192 VDC
Maximum	288 VDC	N/A	288 VDC	N/A	288 VDC
Maximum input current	4.9 A	N/A	6.7 A	N/A	14.3 A
Output current, continuous	+12 V/65.57 A STBY/2 A	+12 V/86.07 A STBY/2 A	+12 V/90.16 A STBY/2 A	+12 V/114.75 A STBY/2 A	+12 V/196.72 A STBY/2 A
Rated Output Voltage	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V
Minimum operating temperature	0°C	0°C	0°C	0°C	0°C
Maximum operating temperature	55°C	55°C	55°C	55°C	55°C
Minimum storage temperature	-40°C	-40°C	-40°C	-40°C	-40°C
Maximum storage temperature	70°C	70°C	70°C	70°C	70°C

Power cord

This section lists the power-cord plug types for 2400 W PSU on your Precision 7960 Rack based on the countries shipped.

Table 12. Power-cord plug types

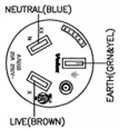
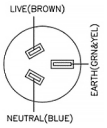
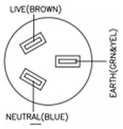
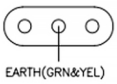
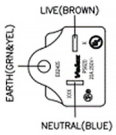
Power-cord style	Plug type	Affected countries
Argentina		Argentina
Australia		• Australia • Christmas Island • Cook Islands • Fiji • Kiribati • Nauru • New Zealand • Papua New Guinea • Pitcairn • Tonga • Tuvalu • Uruguay
Brazil		Brazil
China		China
Italy		• Chile • Holy See • Italy • Uruguay
Japan—250 V		Japan
North America—250 V		• Anguilla • American Samoa • Aruba • Bahamas • Barbados • Belize • Bermuda • British Virgin Islands • Canada • Cayman Islands • Colombia • Costa Rica • Dominican Republic

Table 12. Power-cord plug types (continued)

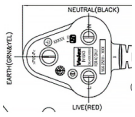
Power-cord style	Plug type	Affected countries
		• Ecuador • El Salvador • Guam • Guatemala • Haiti • Honduras • Jamaica • North Marianas • Marshall Island • Mexico • Nicaragua • Palau • Panama • Philippines • Puerto Rico • Samoa • St. Maarten • Trinidad and Tobago • Turks and Caicos • United States • US Virgin Islands • Venezuela • Vietnam
Switzerland		• Liechtenstein • Switzerland
India		India
UK	Only support jump power cord.	• Antigua and Barbuda • Bahrain • Bangladesh • Botswana • British Indian Ocean Territory • Brunei Darussalam • Curacao • Cyprus • Falkland Islands • Gambia • Gibraltar • Ghana • Grenada • Guyana • Hong Kong • Iraq • Ireland • Jordan • Kenya • Kuwait

Table 12. Power-cord plug types (continued)

Power-cord style	Plug type	Affected countries
		• Lebanon • Macau • Malawi • Malaysia • Malta • Mauritius • Montserrat • Myanmar • Nigeria • Oman • Pakistan • Qatar • Saudi Arabia • Seychelles • Sierra Leone • Singapore • Sri Lanka • St. Kitts and Nevis • St. Lucia • St. Vincent and Grenadines • Tanzania • Uganda • United Arab Emirates • United Kingdom • Vanuatu • Yemen • Zambia and Zimbabwe
Denmark	Only support jump power cord.	Denmark and Greenland

Power supply connector

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

Table 13. Power supply connector

PSU type	PSU connector
800 W Platinum	Golden finger design without cable
1050 W/1100 W Titanium	Golden finger design without cable
1400 W/2400 W Platinum	Golden finger design without cable

GPU—Discrete

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

Table 14. GPU—Discrete

Controller	Memory size	Memory type
NVIDIA T400 LP/FH	4 GB	GDDR6
NVIDIA T1000 LP/FH	8 GB	GDDR6
NVIDIA RTX A2000	12 GB	GDDR6
NVIDIA RTX A4000	16 GB	GDDR6
NVIDIA RTX A4500	20 GB	GDDR6
NVIDIA RTX A5500	24 GB	GDDR6
NVIDIA RTX A6000	48 GB	GDDR6
NVIDIA RTX 4000 Ada Generation	20 GB	GDDR6
NVIDIA RTX 4500 Ada Generation	24 GB	GDDR6
NVIDIA RTX 5000 Ada Generation	32 GB	GDDR6
NVIDIA RTX 6000 Ada Generation	48 GB	GDDR6
NVIDIA A800	40 GB	HBM2
AMD Radeon W6400 LP/FH	4 GB	GDDR6
AMD Radeon W6600	8 GB	GDDR6

Video port resolution

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

Table 15. Video port resolution

Graphics card	Video ports	Maximum supported resolution
NVIDIA T400 LP/FH	Three mini-DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA T1000 LP/FH	Four mini-DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires three DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
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 **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready

Table 15. Video port resolution (continued)

Graphics card	Video ports	Maximum supported resolution
NVIDIA RTX A4000	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX A4500	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX A5500	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX A6000	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 4000 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 4500 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 5000 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA RTX 6000 Ada Generation	Four DP 1.4 ports	7680 x 4320 @24 bpp at 120 Hz **NOTE:** Requires two DPs 1.4a and DSC **NOTE:** DisplayPort 1.2 Certified, DisplayPort 1.3 and 1.4 ready
NVIDIA A800	N/A	N/A
AMD Radeon Pro W6400 LP/FH	Two DP 1.4 ports	7680 x 4320 @60 Hz
AMD Radeon Pro W6600	Four DP 1.4 ports	4096 x 2304 @60 Hz

Hardware security

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

Table 16. Hardware security

Hardware security
Chassis lock support - Coin locker
Chassis intrusion switch
Lockable bezel for externally-facing storage flexbay (included with M.2 NVMe drives, optional with SATA drives)
TPM 2.0 Discrete Hardware

Environmental

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

Table 17. Environmental

Feature	Values
Recyclable packaging	Yes
BFR/PVC—free chassis	No
Vertical orientation packaging support	No
Multi-Pack packaging	No
Energy-Efficient Power Supply	Standard
ENV0425 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 Rack.

Table 18. Regulatory compliance

Regulatory compliance
US CEC MEPS compliant configurations available
WEEE
Japan Energy Law
EU RoHS
China RoHS

Operating and storage environment

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

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

Table 19. Computer environment

Description	Operating	Storage
Temperature range	10°C – 35°C (50°F – 95°F)	-40°C-65°C (-40°F-149°F)
Relative humidity (maximum)	20% to 80% (non-condensing, Max dew point temperature = 26°C)	5% to 95% (non-condensing, Max dew point temperature = 33°C)
Vibration (maximum)*	0.21 G_{rms} at 5 Hz to 500 Hz for 10 minutes (all operation orientations)	1.88 G_{rms} at 10 Hz to 500 Hz for 15 minutes (all six sides tested)
Shock (maximum)	Six consecutively executed shock pulses in the positive and negative x, y, and z axis of 6 G for up to 11 millisecond	Six consecutively executed shock pulses in the positive and negative x, y, and z axis (one pulse on each side of the system) of 71 G for up to 2 millisecond
Altitude range	-15.2 m to 3050 m (-49 ft to 10,006 ft)	-15.2 m to 12,000 m (-49 ft to 39,370 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 Rack.

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

Table 20. Physical system dimensions

Feature	Values
Chassis volume	27.00 L
Chassis Weight	29.64 kg (65.36 lb)
Chassis dimensions	
Height	86.80 mm (3.39 in.)
Width	Width (front): 482.00 mm (18.97 in.) Width (rear): 434.00 mm (17.08 in.)
Depth with bezel	772.13 mm (30.40 in.)
Shipping Weight (includes packaging materials).	46.03 kg (101.47 lb)
Packaging dimensions	
Height	667.00 mm (26.25 in.)
Width	1010.00 mm (39.37 in.)
Depth	327.00 mm (12.88 in.)

Add-in card dimensions

System Riser slot connector maximum add-in card allowable dimensions

Table 21. System Riser slot connector maximum add-in card allowable dimensions

Feature	Values
PCIe x16 connector	
Voltage	3.3 V/12 V
Height	111.28 mm (4.381 in.)
Length	312.00 mm (12.283 in.)
Maximum wattage	75 W + 225 W
PCIe x16 (x8 electrical) connector	

Table 21. System Riser slot connector maximum add-in card allowable dimensions (continued)

Feature	Values
Voltage	3.3 V/12 V
Height	111.28 mm (4.381 in.)
Length	167.65 mm (6.60 in.)
Maximum wattage	75 W
PCIe x16 (LP) connector	
Voltage	3.3 V/12 V
Height	68.90 mm (2.731 in.)
Length	167.65 mm (6.60 in.)
Maximum wattage	75 W

PCIe lane details

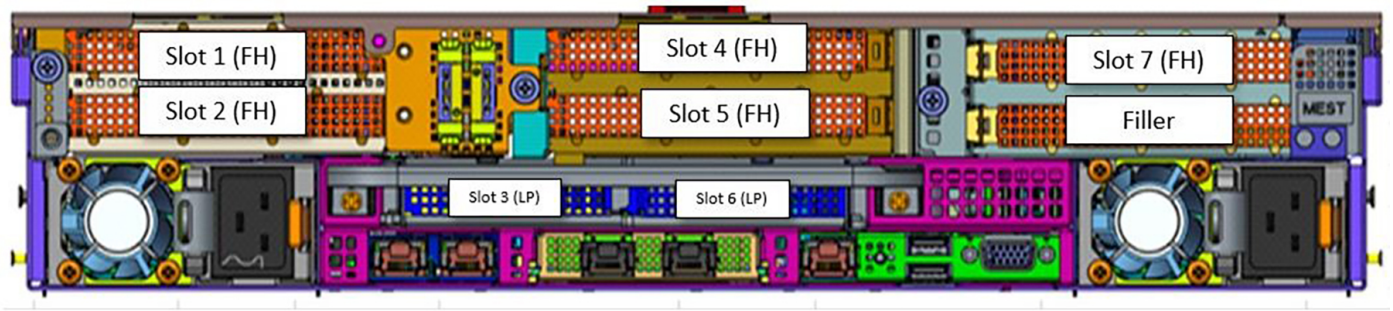


Table 22. Riser PCIe slot options by CPU

Risers	Riser1		Riser2	Riser3		Riser2	Riser4	
	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7	Slot 8
R1r FL Gen 4/5	x16 FH/FL/ SW G4	x16 FH/FL/ DW/SW G5	-	-	-	-	-	-
R2a 2x LP Gen 4	-	-	x16 LP	-	-	x16 LP	-	-
R3b HL Gen 4	-	-	-	x8 FH/HL/ SW	x8 FH/HL/ SW	-	-	-
R4p FL Gen5	-	-	-	-	-	-	x16 FH/FL/ DW/SW G5	-
CPU	CPU 1			CPU 2				

Table 23. PCIe lane details

Expansion Slot Type	Voltage	Maximum Height	Maximum Length	Maximum Wattage	Cards supported
PCIe x16 connector	3.3 V/12 V	111.28 mm (4.381 in.)	312.00 mm (12.283 in.)	70 W + 225 W	Yes

Table 23. PCIe lane details (continued)

Expansion Slot Type	Voltage	Maximum Height	Maximum Length	Maximum Wattage	Cards supported
PCIe x16 (x8 electrical) connector	3.3 V/12 V	111.28 mm (4.381 in.)	167.65 mm (6.60 in.)	75 W	Yes
PCIe x16 (LP) connector	3.3 V/12 V	68.90 mm (2.731 in.)	167.65 mm (6.60 in.)	75 W	Yes

PCIe add-in cards

Serial card

The following table lists the Serial card specifications.

Table 24. Serial card specifications

Feature	Values
General	
Interface	RS-232
Controller	SUNIX SUN2212 (16C950 UART Compatible)
BUS	PCI Express Spec 2.0, Single-Lane (x1)
Serial Communication	
Interface	RS-232
No. of Port	1-port
FIFO	128 byte Hardware
Signal	DCD, TxD, RxD, RTS, CTS, DTR, DSR, GND, RI
Baud rate	50 bps ~ 115.2 Kbps
Stop bit	1, 1.5, 2
Parity	even, odd, none, mark, space
Flow Control	None, Xon/Xoff, RTS/CTS
Protection	±15 KV ESD protection for each signal Human Body Model (HBM)
	±15 KV IEC61000-4-2 Air Gap Discharge
	±8 KV IEC61000-4-2 Contact Discharge
PCB Connector	DB9 Male

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 25. UltraSpeed Duo M.2 PCIe card (Zoom 2 card) specifications

Feature	Values
Interface	PCIe
Data rates	PCIe Gen 4

Table 25. UltraSpeed Duo M.2 PCIe card (Zoom 2 card) specifications (continued)

Feature	Values
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 26. UltraSpeed Quad M.2 PCIe 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)

Dual display (full height and low profile) PCoIP remote workstation PCIe card

The following table lists the Dual display (full height and low profile) PCoIP remote workstation PCIe card specifications.

Table 27. Dual display (full height and low profile) PCoIP remote workstation PCIe card

Expansion Slot Type	PCIe card type	Maximum Wattage
PCIe x1 connector	Graphics	13 W

Quad display (full height) PCoIP remote workstation PCIe card

The following table lists the Quad display (full height) PCoIP remote workstation PCIe card specifications.

Table 28. Quad display (full height) PCoIP remote workstation PCIe card

Expansion Slot Type	PCIe card type	Maximum Wattage
PCIe x1 connector	Graphics	20 W

Ethernet

Intel Ethernet Network Adapter I350-T4 for OCP 3.0

The following table lists the Network Adapter I350-T4 for OCP 3.0 specifications.

Table 29. Intel Ethernet Network Adapter I350-T4 for OCP 3.0 specifications

Feature	Values
Connections	RJ45
Data Rate Supported Per Port	1000/100/10 Mbps
Form Factor	OCP NIC 3.0 Small Form Factor
Connect Speed LED Indicators	Link: green=1 Gb/s; amber=100 Mb/s, 10 Mb/s; not illuminated=no link
	Activity: blinking=activity; off=no activity
Adapter Features	
Bus Type/Bus Width	PCI Express 2.1 (5 GT/s) / PCI Express x4
Interrupt levels	INTA, INTB, INTC, INTD, MSI, MSI-X
Hardware certifications	FCC A, UL, CE, VCCI, BSMI, CTICK, KCC
Controller	Intel Ethernet Controller I350
Wake-on-Lan	Supported
Power Consumption	
Typical (1000BASE-T)	4.63 W
Maximum (1000BASE-T)	5.16 W
Environmental	
Operating temperature	Hot Aisle and Cold Aisle: 0°C to 65°C (32°F to 149°F)
Storage temperature	-40°C to 70°C (-40°F to 158°F)
Storage humidity Maximum	90% non-condensing relative humidity at 35°C
Physical Dimensions	
Dimensions	115 mm x 76 mm (OCP NIC 3.0 Small Form Factor)

Intel Ethernet Network Adapter X710-T4L-t for OCP 3.0

The following table lists the Network Adapter X710-T4L-t for OCP 3.0 specifications.

Table 30. Intel Ethernet Network Adapter X710-T4L-t for OCP 3.0 specifications

Feature	Values
Connections	RJ45 Copper
Data Rate Supported Per Port	10/5/2.5/1 Gbps and 100 Mbps
Form Factor	OCP NIC 3.0 Small Form Factor
Connect Speed LED Indicators	LINK (green = 10 Gbps; yellow = 5/2.5/1 Gbps, 100 Mbps)
	ACTIVITY (blinking green = transmitting or receiving data; off = no link)

Table 30. Intel Ethernet Network Adapter X710-T4L-t for OCP 3.0 specifications (continued)

Feature	Values
Adapter Features	
Bus Type/Bus Width	PCIe 3.0 x8
Interrupt levels	INTA, MSI, MSI-X
Hardware certifications	FCC A, cULus, CE, VCCI, BSMI, RCM, KCC, EEE
Controller	Intel Ethernet Controller X710-TM4 (Quad Port)
Wake-on-Lan	Unsupported
Power Consumption	
100 Mbps	4.9 W
1 GbE	5.6 W
2.5 GbE	6.5 W
5 GbE	7.0 W
10 GbE	8.8 W
Environmental	
Storage temperature	-40°C to 70°C (-40°F to 158°F)
Storage humidity Maximum	90% non-condensing relative humidity at 35°C
Physical Dimensions	
Dimensions	115 mm x 76 mm (OCP NIC 3.0 Small Form Factor)

Intel Ethernet Controller E810-XXVDA4 for OCP 3.0

The following table lists the Controller E810-XXVDA4 for OCP 3.0 specifications.

Table 31. Intel Ethernet Controller E810-XXVDA4 for OCP 3.0 specifications

Feature	Values
Connections	SFP28
Data Rate Supported Per Port	25/10 GbE per port
Form Factor	OCP NIC 3.0 Small Form Factor
Connect Speed LED Indicators	Activity (blinking)
	No Activity (off)
	Link Speed (green = 25 GbE; amber = less than 25 GbE; off = no link)
Adapter Features	
Bus Type/Bus Width	PCIe 4.0 x16
Hardware certifications	FCC A, UL, CE, VCCI, BSMI, CTICK, KCC
Controller	Intel Ethernet Controller E810-CAM1
Wake-on-Lan	Unsupported
Power Consumption DACs	
4x25 GbE Max	14.6 W
4x25 GbE Idle (no traffic)	14.1 W

Table 31. Intel Ethernet Controller E810-XXVDA4 for OCP 3.0 specifications (continued)

Feature	Values
Power Consumption Optics	
4x25 GbE Max	22.3 W
4x25 GbE Idle (no traffic)	20.6 W
Environmental	
Operating temperature	0°C to 65°C (32°F to 149°F)
Storage temperature	-40°C to 70°C (-40°F to 158°F)
Storage humidity Maximum	90% non-condensing relative humidity at 35°C
Physical Dimensions	
Dimensions	116.6 mm x 76 mm

GPU—Discrete

NVIDIA T400, 4 GB GDDR6

The following table lists the NVIDIA T400 specifications.

Table 32. 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
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 33. 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 34. 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

Table 34. NVIDIA RTX A2000 specifications (continued)

Feature	Values
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 35. 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
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 36. 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 A5500, 24 GB GDDR6

The following table lists the NVIDIA RTX A5500 specifications.

Table 37. 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

Table 37. NVIDIA RTX A5500 specifications (continued)

Feature	Values
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 A6000, 48 GB GDDR6

The following table lists the NVIDIA RTX A6000 specifications.

Table 38. 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 4000 Ada Generation, 20 GB, GDDR6

The following table lists the NVIDIA RTX 4000 Ada Generation specifications.

Table 39. NVIDIA RTX 4000 Ada Generation specifications

Description	Values
GPU Memory	20 GB GDDR6
Memory Interface	160-bit
Memory Bandwidth	360 GB/s
NVIDIA CUDA Cores	6144
System Interface	PCI Express 4.0 x 16
Max Power Consumption	130 W
Thermal Solution	Active
Form Factor	Height: 4.4 in./111.76 mm and Length: 9.5 in./241.3 mm, Single 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 RTX 4500 Ada Generation, 24 GB, GDDR6

The following table lists the NVIDIA RTX 4500 Ada Generation specifications.

Table 40. NVIDIA RTX 4500 Ada Generation specifications

Description	Values
GPU Memory	24 GB GDDR6
Memory Interface	192-bit
Memory Bandwidth	432 GB/s
NVIDIA CUDA Cores	7680
System Interface	PCI Express 4.0 x 16
Max Power Consumption	210 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

Table 40. NVIDIA RTX 4500 Ada Generation specifications (continued)

Description	Values
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 RTX 5000 Ada Generation, 32 GB, GDDR6

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

Table 41. 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 RTX 6000 Ada Generation, 48 GB GDDR6

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

Table 42. 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

NVIDIA A800, 40 GB HBM2

The following table lists the NVIDIA A800 specifications.

Table 43. 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 43. 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

AMD Radeon Pro W6400, 4 GB GDDR6

The following table lists the AMD Radeon Pro W6400 specifications.

Table 44. 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 45. 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

GPU and PSU matrix

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

Table 46. GPU and PSU matrix

GFx card	Card length	Weight (kg)	Power connector	I/O connector	Single/ Dual wide	PSU
NVIDIA T400, 4 GB GDDR6	6.13 in.	0.123	N/A	• 3 x mini-DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Single	• 800 W • 1100 W • 2400 W
NVIDIA T1000, 8 GB GDDR6	6.13 in.	0.132	N/A	• 4 x mini-DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Single	• 800 W • 1100 W • 2400 W
NVIDIA RTX A2000, 12 GB GDDR6	6.60 in.	0.306	N/A	• 4 x mini-DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA RTX A4000, 16 GB GDDR6	9.50 in.	0.50	One PCIe 6-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Single	• 1100 W • 2400 W

Table 46. GPU and PSU matrix (continued)

GFx card	Card length	Weight (kg)	Power connector	I/O connector	Single/ Dual wide	PSU
NVIDIA RTX A4500, 20 GB GDDR6	10.50 in.	1.05	One PCIe 8-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA RTX A5500, 24 GB GDDR6	10.50 in.	1.05	One PCIe 8-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA RTX A6000, 48 GB GDDR6	10.50 in.	1.18	One CPU 8-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA RTX 4000 Ada Generation, 20 GB GDDR6	9.50 in.	0.5707	One CEM 5 16-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Single	• 1100 W • 2400 W
NVIDIA RTX 4500 Ada Generation, 24 GB GDDR6	10.50 in.	1.072	One CEM 5 16-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA RTX 5000 Ada Generation, 32 GB GDDR6	10.50 in.	1.112	One CEM 5 16-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA RTX 6000 Ada Generation, 48 GB GDDR6	10.50 in.	1.232	One CEM 5 16-pin	• 4 x DP 1.2 Port Certified, DP 1.3 and 1.4 ready	Dual	• 1100 W • 2400 W
NVIDIA A800, 40 GB HBM2	10.50 in.	1.242	One CEM 5 16-pin	N/A	Dual	• 1100 W • 2400 W
AMD Radeon Pro W6400, 4 GB GDDR6	6.60 in.	0.162	N/A	• 2 x DP 1.4 ports	Single	• 1100 W • 2400 W
AMD Radeon Pro W6600, 8 GB GDDR6	9.50 in.	0.595	6-pin	• 4 x DP 1.4 ports	Single	• 1100 W • 2400 W

NOTE: The NVIDIA RTX A6000 8-pin power connector requires two 8-pin VGA connectors and a Precision 7960 Rack system that is equipped with A6000 specific risers.

Storage preloaded bracket matrix

The following table lists the storage preloaded bracket information of your Precision 7960 Rack.

Table 47. Storage Pre-oaded bracket matrix

Hard-disk drive preloaded bracket	Bracket	Caddy
3.5-inch hard drives	Yes	Included with order
2.5-inch hard drives	Yes	Included with order
SATA externally-facing storage flexbays	Yes	Included with order

NOTE: The storage caddies will be include in the system with the storage options configured during the ordering processes. For storage upgrades, the caddies must be purchased alongside the additional storage drives.

Storage

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

Table 48. 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
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 49. 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	

Table 49. 2.5-inch, 1.2 TB, 10000 RPM, SAS, Enterprise HDD specifications (continued)

Description	Values
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 50. 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
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 51. 3.5-inch, 2 TB, 7200 RPM, SATA, HDD specifications

Description	Values
Capacity	2 TB

Table 51. 3.5-inch, 2 TB, 7200 RPM, SATA, HDD specifications (continued)

Description	Values
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 52. 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%

Table 52. 3.5-inch, 4 TB, 7200 RPM, SATA, HDD specifications (continued)

Description	Values
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 53. 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)	
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 54. 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

Table 54. 3.5-inch, 12 TB, 7200 RPM, SATA, HDD specifications (continued)

Description	Values
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 55. 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.)
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%

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 56. 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 57. 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 57. 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 58. 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 59. 4 TB SSD specifications

Description	Values
Capacity	4 TB

Table 59. 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%

Power

NOTE: The form factor utilizes a more efficient Active Power Factor Correction (APFC) power supply. Dell recommends only Universal Power Supplies (UPS) based on Sine Wave output for APFC PSUs, not an approximation of a Sine Wave, Square Wave, or quasi-Square Wave. If you have questions, please contact the manufacturer to confirm the output type. Offering and availability may vary by region.

Table 60. Precision 7960 Rack - Power supply unit specifications

Type	800 W Platinum	1100 W Titanium		2400 W Platinum	
		1050W	1100W	1400W	2400W
Diameter	N/A	N/A		N/A	
Input voltage					
Minimum	90 VAC	90 VAC	180 VAC	90 VAC	180 VAC
Maximum	264 VAC	132 VAC	264 VAC	132 VAC	264 VAC
Input frequency					
Minimum	47 Hz	47 Hz	47 Hz	47 Hz	47 Hz
Maximum	63 Hz	63 Hz	63 Hz	63 Hz	63 Hz
Maximum input current	10.4 A	13.5 A	7 A	18 A	14.9 A
Input voltage					
Minimum	192 VDC	N/A	192 VDC	N/A	192 VDC
Maximum	288 VDC	N/A	288 VDC	N/A	288 VDC

Table 60. Precision 7960 Rack - Power supply unit specifications (continued)

Type	800 W Platinum	1100 W Titanium		2400 W Platinum	
		1050W	1100W	1400W	2400W
Maximum input current	4.9 A	N/A	6.7 A	N/A	14.3 A
Output current, continuous	+12 V/65.57 A STBY/2 A	+12 V/86.07 A STBY/2 A	+12 V/90.16 A STBY/2 A	+12 V/114.75 A STBY/2 A	+12 V/196.72 A STBY/2 A
Rated Output Voltage	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V	+12V: 12.2 V STBY: 12 V
BTUs/h (based on PSU max wattage)	3000	4100		9000	
Minimum operating temperature	0°C	0°C	0°C	0°C	0°C
Maximum operating temperature	55°C	55°C	55°C	55°C	55°C
Minimum storage temperature	-40°C	-40°C	-40°C	-40°C	-40°C
Maximum storage temperature	70°C	70°C	70°C	70°C	70°C

Thermal dissipation

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

Table 61. Thermal dissipation

Power supply unit	Frequency	Voltage	Heat dissipation
800 W Platinum	50/60 Hz	100 VAC–240 VAC, 9.2 A-4.7 A	3000 BTU/hr
1050 W/1100 W Titanium	50/60 Hz	100 VAC–240 VAC, 12.0 A-6.3 A	4100 BTU/hr
1400 W/2400 W Platinum	50/60 Hz	100 VAC–240 VAC, 16.0 A-13.5 A	9000 BTU/hr

Accessories

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

Table 62. Accessories

Accessories
3Dconnexion SpaceMouse Wireless
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 Rack.

Table 63. 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

Trusted Platform Module

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

Table 64. Trusted Platform Module (TPM)

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

Mil-SPEC

The Precision 7960 Rack meets military specifications for the following MIL-STD 810G tests:

Table 65. Tower - Military specifications

Test Category	Test Method	Test Parameters
Non-operating altitude test	Method 500.6 Procedure I	Test specification: • Altitude: 15,000 ft • Temperature: 21°C
Operating altitude test	Method 500.6 Procedure II	Test specification: • Altitude: 15,000 ft • Temperature: 21°C
Non-operating high temperature test	Method 501.7 Procedure I	Test specification: • High temperature cycles, climatic category A1 - Hot dry • Duration: 7 cycles, Non-Operating
Operating high temperature test	Method 501.7 Procedure II	Test specification: • Temperature: 60°C • Duration: 120 hours constant

Table 65. Tower - Military specifications (continued)

Test Category	Test Method	Test Parameters
Non-operating low temperature test	Method 502.7 Procedure I - Storage	Test specification: • Temperature: -51°C • Duration: 24 hours
Operating low temperature test	Method 502.7 Procedure II - Operation	Test specification: • Temperature: -29°C • Duration: 24 hours
Humidity test	Method 507.6 Procedure I	Induced B3 • Duration: Hot-humid, 15 days exposure Induced B3, Non-operating
Shock material to be packaged	Method 516.8 Procedure II	Test specification: • On-road shock - 5.1 g/11 m • Off-road shock - 15.2 g/5 m
Mechanical shock test - I Bench handling	Method 516.8 Procedure VI	Test specification: • Rise test units at one edge 100 mm (4-inch) or an angle of 45°about a solid wooden bench top.
Sand and dust Blowing dust	Method 510.7 Procedure I	Test specification: • Relative humidity: 30% • Dust concentration: (10.6±7) g/m³ • Air flow velocity: 1.5 m/s to 8.9 m/s

Acoustic noise emission information tower

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

Table 66. Acoustic noise emission information tower

Component	Test Configuration
CPU	Intel Xeon Silver 4416+
Memory	16 GB
HDD (#, capacity)	3.5-inch hard drive
ODD	N/A
Graphics Adapter	N/A

Table 67. Declared Sound Power (LWA,m)

Operating Mode	Declared mean A-weighted sound power level (LWA,m)
Idle	4.8
HDD Operating	4.8
CPU Stressed	4.8
ODD Operating	N/A

Table 68. A-Weighted Sound Pressure Level (dB)

Declared Sound Pressure (LpA)		
	Tabletop System	Floor Standing System

Table 68. A-Weighted Sound Pressure Level (dB) (continued)

Declared Sound Pressure (LpA)				
Operating Mode	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	38	N/A	N/A	N/A
CPU Stressed	38	N/A	N/A	N/A

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, for all Precision Workstations 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 a variety of 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 graphical user interface (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.

4

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 69. 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.