

# Precision 3660 Tower

## Technical Guidebook



## 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.

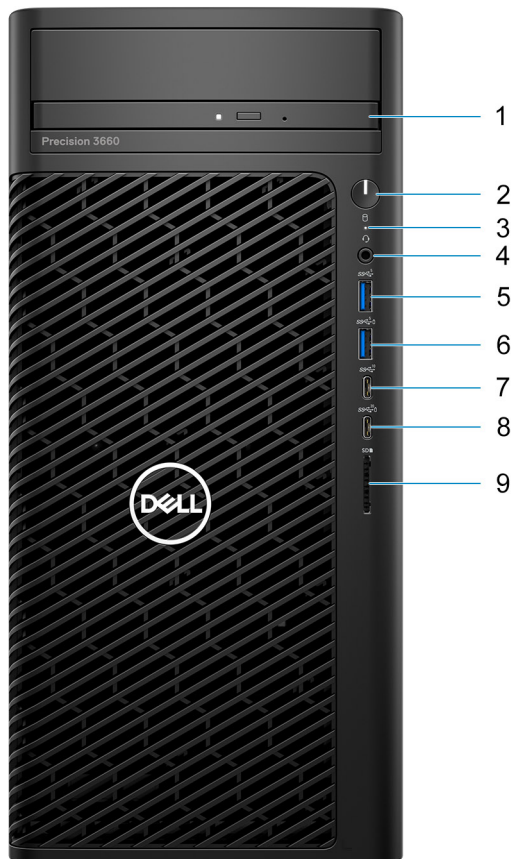
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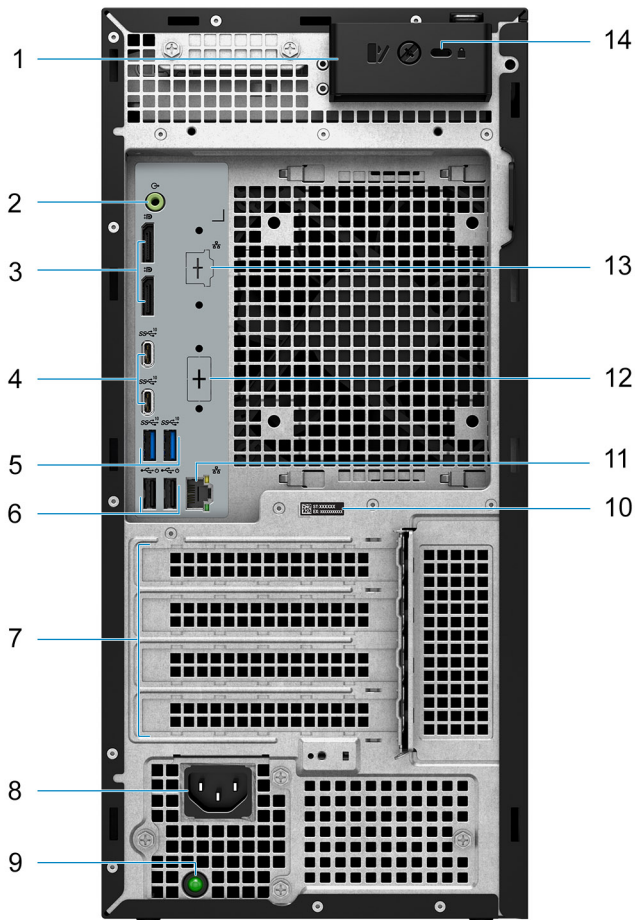
# Views of Precision 3660 Tower

## Front



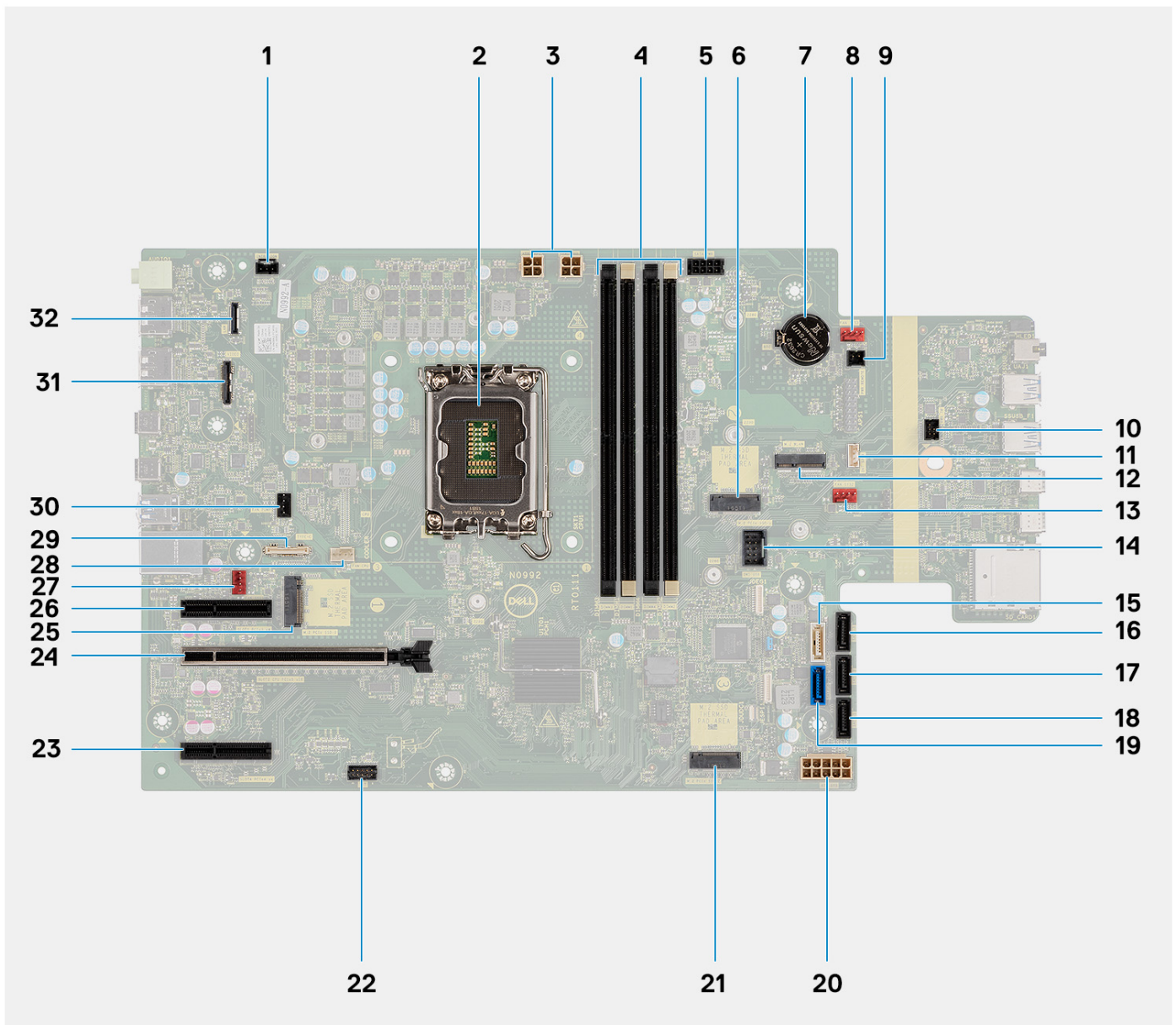
1. Optical disk-drive
2. Power button with diagnostic LED
3. Hard-disk drive activity light
4. Universal audio jack
5. USB 3.2 Gen 1 (5 Gbps) port
6. USB 3.2 Gen 1 (5 Gbps) port with PowerShare
7. USB 3.2 Type-C Gen 2 (10 Gbps) port
8. USB 3.2 Type-C Gen 2x2 (20 Gbps) port with PowerShare
9. SD 4.0 card reader

# Back



1. Side cover release latch
2. Line-out audio port
3. Two DisplayPort 1.4 ports
4. Two USB 3.2 Type-C Gen 2 (10 Gbps) ports
5. Two USB 3.2 Gen 2 (10 Gbps) ports
6. Two USB 2.0 (480 Mbps) ports with SmartPower
7. Expansion card slots
8. Power cord connector port
9. Power supply diagnostic light
10. Service tag label
11. RJ45 port 10/100/1000 Mbps
12. HDMI 2.0/ DisplayPort 1.4/ VGA/ USB Type-C with DisplayPort Alt mode (optional)
13. 2.5 GbE RJ-45 port (optional)
14. Kensington security-cable slot

# Inside view of your computer



- 1. Chassis Intrusion Detection connector
- 2. Processor socket
- 3. ATX power connector
- 4. Memory module slots
- 5. SATA power connector
- 6. M.2 PCIe SSD connector (SSD 1)
- 7. Coin cell battery
- 8. System fan connector (FAN\_SYS 3)
- 9. Remote power connector
- 10. Power button connector
- 11. Speaker connector
- 13. System fan connector (FAN\_SYS 2)
- 15. SATA 6 Gbps drive connector (SATA 4)
- 17. SATA 6 Gbps drive connector (SATA 2)
- 19. SATA 6 Gbps drive connector (SATA 0)
- 21. M.2 PCIe SSD connector (SSD 2)
- 23. PCI-Express x4 slot (slot 4)
- 25. M.2 PCIe SSD connector (SSD 0)
- 27. System fan connector (FAN\_SYS 1)
- 29. Option card connector (option 2)

- 2. Processor socket
- 4. Memory module slots
- 6. M.2 PCIe SSD connector (SSD 1)
- 8. System fan connector (FAN\_SYS 3)
- 10. Power button connector
- 12. Wireless-card slot (M.2 WLAN)
- 14. Internal USB connector
- 16. SATA 6 Gbps drive connector (SATA 3)
- 18. SATA 6 Gbps drive connector (SATA 1)
- 20. Power supply connector
- 22. Thunderbolt header
- 24. PCI-Express x16 slot (slot 2)
- 26. PCI-Express x4 slot (slot 1)
- 28. Processor air fan connector
- 30. Processor pump fan connector



31. Option card connector (option 1)




32. Option card connector (option 3 LAN)

# Specifications of Precision 3660 Tower

## Dimensions and weight


The following table lists the height, width, depth, and weight of your Precision 3660 Tower.

**Table 1. Dimensions and weight**

Description	Values
Height	369.30 mm (14.52 in.)
Width	173.00 mm (6.81 in.)
Depth	420.20 mm (16.53 in.)
Weight  <b>NOTE:</b> The weight of your computer depends on the configuration ordered and manufacturing variability.	<ul style="list-style-type: none"> <li>• Minimum - 8.50 kg (18.73 lb)</li> <li>• Maximum - 15.80 kg (34.83 lb)</li> </ul>

## Processor

The following table lists the details of the processors that are supported by your Precision 3660 Tower .

 **NOTE:** When upgrading to i5-12600K/ i7-12700/ i7-12700K/ i9-12900/ i9-12900K processors a VR Heatsink is required to be installed.

**Table 2. Processor**

Description	Option one	Option two	Option three	Option four	Option five	Option six	Option seven	Option eight
Processor type	12 <sup>th</sup> Generation Intel Core i3-12100	12 <sup>th</sup> Generation Intel Core i5-12500, vPro	12 <sup>th</sup> Generation Intel Core i5-12600, vPro	12 <sup>th</sup> Generation Intel Core i5-12600K, vPro	12 <sup>th</sup> Generation Intel Core i7-12700, vPro	12 <sup>th</sup> Generation Intel Core i7-12700K, vPro	12 <sup>th</sup> Generation Intel Core i9-12900, vPro	12 <sup>th</sup> Generation Intel Core i9-12900K, vPro
Processor wattage	60 W	65 W	65 W	125 W	65 W	125 W	65 W	125 W
Processor core count	4	6	6	10	12	12	16	16
Processor thread count	8	12	12	16	20	20	24	24
Processor speed	3.30 GHz to 4.30 GHz	3.00 GHz to 4.60 GHz	3.30 GHz to 4.80 GHz	3.70 GHz to 4.90 GHz	2.10 GHz to 4.90 GHz	3.60 GHz to 5.00 GHz	2.40 GHz to 5.10 GHz	3.20 GHz to 5.20 GHz
Processor cache	12 MB	18 MB	18 MB	20 MB	25 MB	25 MB	30 MB	30 MB

**Table 2. Processor (continued)**

Description	Option one	Option two	Option three	Option four	Option five	Option six	Option seven	Option eight
Integrated graphics	Intel UHD Graphics 730	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770	Intel UHD Graphics 770

## Chipset


The following table lists the details of the chipset supported by your Precision 3660 Tower.

**Table 3. Chipset**

Description	Values
Chipset	W680
Processor	<ul style="list-style-type: none"> <li>12<sup>th</sup> Generation Intel Core i3/i5/i7/i9</li> </ul>
DRAM bus width	32-bit per DIMM
Flash EPROM	16 MB + 32 MB
PCIe bus	Up to Gen5

## Operating system


Your Precision 3660 Tower supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Pro, 64-bit
- Windows 10 Home, 64-bit
- Windows 10 Pro, 64-bit
- Windows 10 IoT 2021 LTSC (OEM only)
-  **NOTE:** Available through Custom Factory Installation only
- Windows 10 CMIT Government Edition, 64-bit (China only)
- Kylin Linux version 10 SP1 (China only)
- Ubuntu Linux 20.04 LTS, 64-bit
- RHEL 8.6

## Memory

The following table lists the memory specifications of your Precision 3660 Tower.

**Table 4. Memory specifications**

Description	Values
Memory slots	Four-DIMM slots  <b>NOTE:</b> Up to 128 GB or up to 4400 MHz ECC and Non-ECC DDR5
Memory type	DDR5
Memory speed	Maximum speed: 4400 MHz

**Table 4. Memory specifications (continued)**

Description	Values
	<p><b>i</b> <b>NOTE:</b> Maximum memory speed varies by the following configuration on each channel. If the 2 DIMM configuration is not symmetrical, the maximum speed may drop.</p> <ul style="list-style-type: none"> <li>● 4400 MHz : 1 DIMM-1R/2R</li> <li>● 4000 MHz : 2 DIMM-1R</li> <li>● 3600 MHz : 2 DIMM-2R</li> </ul>
Maximum memory configuration	128 GB
Minimum memory configuration	8 GB
Memory size per slot	8 GB, 16 GB, and 32 GB
Memory configurations supported	<ul style="list-style-type: none"> <li>● 8 GB, 1 x 8 GB, DDR5, 4400 MHz, non-ECC</li> <li>● 16 GB, 2 x 8 GB, DDR5, 4400 MHz, non-ECC, dual-channel</li> <li>● 32 GB, 2 x 16 GB, DDR5, 4400 MHz, non-ECC, dual-channel</li> <li>● 64 GB, 2 x 32 GB, DDR5, 4400 MHz, non-ECC, dual-channel</li> <li>● 32 GB, 4 x 8 GB, DDR5, 4000 MHz, non-ECC, dual-channel</li> <li>● 64 GB, 4 x 16 GB, DDR5, 4000 MHz, non-ECC, dual-channel</li> <li>● 128 GB, 4 x 32 GB, DDR5, 3600 MHz, non-ECC, dual-channel</li> <li>● 16 GB, 1 x 16 GB, DDR5, 4400 MHz, ECC</li> <li>● 32 GB, 2 x 16 GB, DDR5, 4400 MHz, ECC, dual-channel</li> <li>● 64 GB, 2 x 32 GB, DDR5, 4400 MHz, ECC, dual-channel</li> <li>● 64 GB 4 x 16 GB, DDR5, 4000 MHz, ECC, dual-channel</li> <li>● 128 GB 4 x 32 GB, DDR5, 3600 MHz, ECC, dual-channel</li> </ul> <p><b>i</b> <b>NOTE:</b> ECC memory is not supported on Intel Core i3-12100 processor.</p>

## Memory matrix

The following table lists the memory configurations supported for your Precision 3660 Tower.

**Table 5. Memory matrix**

Configuration	Slot			
	DIMM1	DIMM2	DIMM3	DIMM4
8 GB DDR5	8 GB	NA	NA	NA
16 GB DDR5	16 GB	NA	NA	NA
16 GB DDR5	8 GB	8 GB	NA	NA
32 GB DDR5	16 GB	16 GB	NA	NA
64 GB DDR5	32 GB	32 GB	NA	NA
32 GB DDR5	8 GB	8 GB	8 GB	8 GB
64 GB DDR5	16 GB	16 GB	16 GB	16 GB

**Table 5. Memory matrix (continued)**

128 GB DDR5	32 GB	32 GB	32 GB	32 GB
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## External ports

The following table lists the external ports of your Precision 3660 Tower.

**Table 6. External ports**

Description	Values
Network port	<ul style="list-style-type: none"> <li>One RJ45 Ethernet port, 1 GbE</li> <li>One RJ45 Ethernet port, 2.5 GbE (optional)</li> </ul>
USB ports	<p>Front:</p> <ul style="list-style-type: none"> <li>One USB 3.2 Gen 1 (5 Gbps) port with PowerShare</li> <li>One USB 3.2 Gen 1 (5 Gbps) port</li> <li>One USB 3.2 Type-C Gen 2 (10 Gbps) port</li> <li>One USB 3.2 Type-C Gen 2x2 (20 Gbps) port with PowerShare</li> </ul> <p>Rear:</p> <ul style="list-style-type: none"> <li>Two USB 2.0 (480 Mbps) ports with Smart Power On</li> <li>Two USB 3.2 Gen 2 (10 Gbps) ports</li> <li>Two USB 3.2 Type-C Gen 2 (10 Gbps) ports</li> </ul>
Audio port	<ul style="list-style-type: none"> <li>Front: Universal audio jack</li> <li>Rear: Line-out audio port</li> </ul>
Video port	<ul style="list-style-type: none"> <li>Two DisplayPort 1.4 (HBR2) ports</li> <li>One Optional video port (HDMI 2.0/ DisplayPort 1.4(HBR3)/ VGA/ USB Type-C with DisplayPort Alt mode)</li> </ul>
Media-card reader	One SD-card slot
Power-adaptor port	NA
Security-cable slot	One Kensington security-cable slot




## Internal slots

The following table lists the internal slots of your Precision 3660 Tower.

**Table 7. Internal slots**

Description	Values
M.2	<ul style="list-style-type: none"> <li>One M.2 2230 slot for WiFi and Bluetooth card</li> <li>Two M.2 2230/2280 slots (SSD1 and SSD2) for solid-state drives</li> <li>One M.2 2280 slot (SSD3) for solid-state drive</li> </ul> <p><b>NOTE:</b> SSD1 slot natively supports M.2 2280 SSDs. M.2 2230 SSDs can be installed on this slot by using an extender part only.</p>

**Table 7. Internal slots (continued)**

Description	Values
	<p> <b>NOTE:</b> SSD2 slot natively supports M.2 2230 and M.2 2280 SSDs.</p> <p> <b>NOTE:</b> SSD3 slot natively supports only M.2 2280 SSDs.</p> <p> <b>NOTE:</b> To learn more about the features of different types of M.2 cards, see the knowledge base article 000144170 at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>
SATA	<ul style="list-style-type: none"> <li>Five SATA 3 slots</li> </ul>
PCIe	<ul style="list-style-type: none"> <li>One PCIe x16 Gen5 (discrete graphics card only)</li> <li>One PCIe x4 Gen4</li> <li>One PCIe x4 Gen3</li> </ul>

## Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your Precision 3660 Tower.



**Table 8. Ethernet specifications**

Description	Option one	Option two
Model number	Intel I219-LM	Intel I225 (optional)
Transfer rate	10/100/1000 Mbps	10/ 100/ 1000/ 2500 Mbps

## Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules supported on your Precision 3660 Tower.

**Table 9. Wireless module specifications**

Description	Option one	Option two
Model number	Intel AX211	Qualcomm WCN6856-DBS
Transfer rate	2400 Mbps	Up to 3571 Mbps
Frequency bands supported	2.40 GHz/5 GHz/6 GHz  <b>NOTE:</b> The 6 GHz frequency is supported on computers installed with Windows 11 operating system only.	2.4 GHz/5 GHz/6 GHz  <b>NOTE:</b> The 6 GHz frequency is supported on computers installed with Windows 11 operating system only.
Wireless standards	<ul style="list-style-type: none"> <li>WiFi 802.11a/b/g</li> <li>Wi-Fi 4 (WiFi 802.11n)</li> <li>Wi-Fi 5 (WiFi 802.11ac)</li> <li>Wi-Fi 6E (WiFi 802.11ax)</li> </ul>	<ul style="list-style-type: none"> <li>WiFi 802.11a/b/g</li> <li>Wi-Fi 4 (WiFi 802.11n)</li> <li>Wi-Fi 5 (WiFi 802.11ac)</li> <li>Wi-Fi 6E (WiFi 802.11ax)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>64-bit/128-bit WEP</li> <li>AES-CCMP</li> <li>TKIP</li> </ul>	<ul style="list-style-type: none"> <li>64-bit and 128-bit WEP</li> <li>AES-CCMP</li> <li>TKIP</li> </ul>
Bluetooth	5.2	5.2

# Audio

The following table lists the audio specifications of your Precision 3660 Tower.

**Table 10. Audio specifications**

Description		Values
Audio type		4 Channel High Definition Audio Codec
Audio controller		Realtek ALC3246-CG
Stereo conversion		24-bit DAC (Digital-to-Analog) and ADC (Analog-to-Digital)
Internal audio interface		Intel HDA (high-definition audio)
External audio interface		<ul style="list-style-type: none"> <li>• One universal audio jack (front)</li> <li>• One line-out audio port (rear)</li> </ul>
Number of speakers		One (optional)
Internal-speaker amplifier		Integrated in ALC3246-CG (Class-D 2 W)
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average speaker output	2 W
	Peak speaker output	2.2 W
Subwoofer output		Not supported
Microphone		Not supported

# Storage

This section lists the storage options on your Precision 3660 Tower.

- M.2 SSD Boot + Optional M.2 SSDs – This configuration enables boot on M.2 NVMe SSD with up to three additional NVMe SSDs. No SATA HDDs are configured in this option.
- 2.5" SATA HDD Boot + Optional 2.5" SATA HDDs – This configuration enables boot on 2.5" SATA HDD with up to three additional 2.5" SATA HDDs.
- 3.5" HDD Boot + Optional 3.5" HDDs – This configuration enables boot on 3.5" HDD with up to one additional 3.5" HDD.
- M.2 SSD Boot + Optional M.2 SSDs + 2.5" SATA HDD + Optional 2.5" SATA HDDs – This configuration enables boot on M.2 NVMe SSD with up to three additional NVMe SSDs, one 2.5" SATA HDD and up to three additional 2.5" SATA HDDs.
- M.2 SSD Boot + Optional M.2 SSD + 3.5" SATA HDD + Optional 3.5" SATA HDDs – This configuration enables boot on M.2 NVMe SSD with up to three additional NVMe SSDs, one 3.5" SATA HDD and one additional 3.5" SATA HDD.
- M.2 SSD Boot + Optional SSDs + Front-accessible 2.5" SATA HDD + Optional 2.5" SATA HDDs - This configuration enabled boot on M.2 NVMe SSD with up to three additional NVMe SSDs, one front-accessible 2.5" SATA HDD and two additional 2.5" SATA HDDs
- M.2 SSD Boot + Optional SSDs + Front-accessible 3.5" SATA HDD + Optional 3.5" SATA HDDs - This configuration enabled boot on M.2 NVMe SSD with up to three additional NVMe SSDs, one front-accessible 3.5" SATA HDD and up to two additional 3.5" SATA HDDs

**NOTE:** M.2 NVMe SSD cannot build RAID disk with any SATA drive.

**NOTE:** Precision 3660 motherboard can support up to two M.2 2230 NVMe SSDs or up to three M.2 2280 NVMe SSDs.



**Table 11. Storage specifications**

Storage type	Interface type	Capacity
2.5-inch, 7200 RPM, hard-disk drive	SATA 3.0	Up to 1 TB
2.5-inch, 7200 RPM, FIPS Self Encrypting Opal 2.0, hard-disk drive	SATA 3.0	500 GB
3.5-inch, 5400 RPM, hard-disk drive	SATA 3.0	4 TB
3.5-inch, 7200 RPM, hard-disk drive	SATA 3.0	2 TB
M.2 2230 solid-state drive	PCIe NVMe Gen3 x4, Class 35	256 GB
M.2 2280 solid-state drive	PCIe NVMe Gen4 x4, Class 40	Up to 4 TB
M.2 2280 Opal Self-Encrypting solid-state drive	PCIe NVMe Gen3 x4, Class 40	Up to 1 TB

## Media-card reader

The following table lists the media cards supported by your Precision 3660 Tower.

**Table 12. Media-card reader specifications**

Description	Values
Media-card type	One SD-card slot  <b>NOTE:</b> The SD-card reader maybe from different manufacturers and will require specific drivers to be installed.
Media-cards supported	<ul style="list-style-type: none"> <li>Secure Digital (SD)</li> <li>Secure Digital High Capacity (SDHC)</li> <li>Secure Digital Extended Capacity (SDXC)</li> </ul>
 <b>NOTE:</b> The maximum capacity supported by the media-card reader varies depending on the standard of the media card installed in your computer.	

## Power ratings

The following table lists the power rating specifications of Precision 3660 Tower.

**Table 13. Power ratings**

Description	Values			
Type	300 W internal power supply unit, 92% Efficient PSU, 80 Plus Platinum	500 W internal power supply unit, 92% Efficient PSU, 80 Plus Platinum	750 W internal power supply unit, 92% Efficient PSU, 80 Plus Platinum	1000 W internal power supply unit, 92% Efficient PSU, 80 Plus Platinum
Input voltage	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC
Input frequency	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz
Input current (maximum)	<ul style="list-style-type: none"> <li>4.2 A</li> </ul>	<ul style="list-style-type: none"> <li>7 A</li> </ul>	<ul style="list-style-type: none"> <li>10 A</li> </ul>	<ul style="list-style-type: none"> <li>13.6 A</li> </ul>



**Table 13. Power ratings (continued)**

Description	Values			
Output current (continuous)	<ul style="list-style-type: none"> <li>12 VA/18 A</li> <li>12 VB/18 A</li> </ul> Standby mode: <ul style="list-style-type: none"> <li>12 VA/1.5 A</li> <li>12 VB/3.3 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA/18 A</li> <li>12 VB/18 A</li> <li>12 VC/18 A</li> </ul> Standby mode: <ul style="list-style-type: none"> <li>12 VA/1.5 A</li> <li>12 VB/3.3 A</li> <li>12 VC/0 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA/36 A</li> <li>12 VB/27 A</li> <li>12 VC/36 A</li> </ul> Standby mode: <ul style="list-style-type: none"> <li>12 VA/1.5 A</li> <li>12 VB/5 A</li> <li>12 VC/0 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA/36 A</li> <li>12 VB/27 A</li> <li>12 VC/36 A</li> </ul> Standby mode: <ul style="list-style-type: none"> <li>12 VA/1.5 A</li> <li>12 VB/5 A</li> <li>12 VC/0 A</li> </ul>
Rated output voltage	<ul style="list-style-type: none"> <li>12 VA</li> <li>12 VB</li> </ul>	<ul style="list-style-type: none"> <li>12 VA</li> <li>12 VB</li> <li>12 VC</li> </ul>	<ul style="list-style-type: none"> <li>12 VA</li> <li>12 VB</li> <li>12 VC</li> </ul>	<ul style="list-style-type: none"> <li>12 VA</li> <li>12 VB</li> <li>12 VC</li> </ul>
Temperature range				
Operating	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

## Power supply connector

The following table lists the Power supply connector specifications of your Precision 3660 Tower.

**Table 14. Power supply connector**

300 W (80 PLUS Platinum)	<ul style="list-style-type: none"> <li>Two 4 pin connectors for processor</li> <li>One 8 pin connector for system board</li> </ul>
500 W (80 PLUS Platinum)	<ul style="list-style-type: none"> <li>Two 4 pin connectors for processor</li> <li>One 8 pin connector for system board</li> <li>One 6 pin and one 2 + 6 pin connectors for graphic card</li> </ul>
750 W (80 PLUS Platinum)	<ul style="list-style-type: none"> <li>Two 4 pin connectors for processor</li> <li>One 8 pin connector for system board</li> <li>Two 6 pin and two 2 + 6 pin connectors for graphic card</li> </ul>
1000 W (80 PLUS Platinum)	<ul style="list-style-type: none"> <li>Two 4 pin connectors for processor</li> <li>One 8 pin connector for system board</li> <li>Two 6 pin and two 2 + 6 pin connectors for graphic card</li> </ul>

**NOTE:** This workstation uses high wattage power supply unit and has to be connected to a PDU (Power Distribution Unit) at all times for protection of equipment.

## GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Precision 3660 Tower.

**Table 15. GPU—Integrated**

Controller	External display support	Memory size	Processor
Intel UHD Graphics 730	<ul style="list-style-type: none"> <li>Two DisplayPort 1.4 port</li> </ul>	Shared system memory	12 <sup>th</sup> Generation Intel Core i3

**Table 15. GPU—Integrated (continued)**

Controller	External display support	Memory size	Processor
	<ul style="list-style-type: none"> <li>One Optional video port (HDMI 2.0b/ DisplayPort 1.4/VGA/ USB Type-C with DisplayPort Alt mode)</li> </ul>		
Intel UHD Graphics 770	<ul style="list-style-type: none"> <li>Two DisplayPort 1.4 port</li> <li>One Optional video port (HDMI 2.0b/ DisplayPort 1.4/VGA/ USB Type-C with DisplayPort Alt mode)</li> </ul>	Shared system memory	12 <sup>th</sup> Generation Intel Core i5//i7/i9

## Multiple display support matrix

The following table lists the multiple display support matrix for your Precision 3660 Tower.

**Table 16. Multiple display support matrix**

Description	Option one	Option two
Integrated Graphics Card	Intel UHD Graphics 730	Intel UHD Graphics 770
Optional Module	HDMI 2.0/ DisplayPort 1.4/ VGA/ USB Type-C with DisplayPort Alt mode	HDMI 2.0/ DisplayPort 1.4/ VGA/ USB Type-C with DisplayPort Alt mode
Supported 4K Displays	DP1.4 HBR2, 4096 x 2304 @ 60 Hz	DP1.4 HBR2, 4096 x 2304 @ 60 Hz
Supported 5K Displays	5K tiled resolution (5120 x 2880) support on DP panels. <i>i</i> <b>NOTE:</b> Needs two DP cables driven through two separate DDIs from the source, and using DP-SST (Single Stream Transport) mechanism.	5K tiled resolution (5120 x 2880) support on DP panels. <i>i</i> <b>NOTE:</b> Needs two DP cables driven through two separate DDIs from the source, and using DP-SST (Single Stream Transport) mechanism.

## GPU — Discrete

The following table lists the specifications of the discrete graphics processing unit (GPU) supported by your Precision 3660 Tower.

**Table 17. GPU — Discrete**

Controller	External display support	Memory size	Memory type
NVIDIA RTX A5000	<ul style="list-style-type: none"> <li>Four DisplayPort 1.4 ports</li> </ul>	24 GB	GDDR6
NVIDIA RTX A4000	<ul style="list-style-type: none"> <li>Four DisplayPort 1.4 ports</li> </ul>	16 GB	GDDR6
NVIDIA A2000	<ul style="list-style-type: none"> <li>Four mini DisplayPort (mDP) ports</li> </ul>	6 GB	GDDR6
NVIDIA RTX A6000	<ul style="list-style-type: none"> <li>Four DisplayPort 1.4 ports</li> </ul>	48 GB	GDDR6
AMD Radeon Pro RX6900XT	<ul style="list-style-type: none"> <li>Two DisplayPort 1.4 ports</li> <li>One HDMI 2.1 port</li> <li>One USB Type-C port</li> </ul>	16 GB	GDDR6
NVIDIA T1000	<ul style="list-style-type: none"> <li>Four mini DisplayPort (mDP) ports</li> </ul>	4 GB	GDDR6



**Table 17. GPU — Discrete (continued)**

Controller	External display support	Memory size	Memory type
NVIDIA T600	<ul style="list-style-type: none"> <li>Four mini DisplayPort (mDP) ports</li> </ul>	4 GB	GDDR6
NVIDIA T400	<ul style="list-style-type: none"> <li>Three mini DisplayPort (mDP) ports</li> </ul>	2 GB	GDDR6
AMD Radeo Pro W5700	<ul style="list-style-type: none"> <li>Five mini DisplayPort (mDP) ports</li> <li>One USB-C port</li> </ul>	8 GB	GDDR6
AMD Radeon Pro WX3200	<ul style="list-style-type: none"> <li>Four mini DisplayPort (mDP) ports</li> </ul>	4 GB	GDDR5
AMD Radeon Pro W6600	<ul style="list-style-type: none"> <li>Four DisplayPort 1.4 ports</li> </ul>	8 GB	GDDR6
AMD Radeon Pro W6800	<ul style="list-style-type: none"> <li>Six mini DisplayPort (mDP) ports</li> </ul>	32 GB	GDDR6

## Hardware security

The following table lists the hardware security of your Precision 3660 Tower.

**Table 18. Hardware security**

Hardware security
Kensington security-cable slot
Padlock loop
Chassis lock support - Captive screw
Lockable Bezel and Key for front-accessible SATA HDD  <b>NOTE:</b> Included with front-accessible storage configurations
Chassis intrusion switch
Lockable cable covers
Supply chain tamper alerts
SafelD including Trusted Platform Module (TPM) 2.0
Smart card keyboard (FIPS)
Microsoft 10 Device Guard and Credential Guard (Enterprise SKU)
Microsoft Windows Bitlocker
Local hard drive data wipe through BIOS (Secure Erase)
Self-encrypting storage drives (Opal, FIPS)
Trusted Platform Module TPM 2.0 (FIPs 140-2 certificate)  <b>NOTE:</b> No Hardware TPM will be implemented.

**Table 18. Hardware security (continued)**

Hardware security
China TPM
Intel Secure Boot
Intel Authenticate
SafeBIOS: includes Dell Off-host BIOS Verification, BIOS Resilience, BIOS Recovery, and additional BIOS Controls

## Environmental

The following table lists the environmental specifications of your Precision 3660 Tower.

**Table 19. Environmental**

Feature	Values
Recyclable packaging	Yes
BFR/PVC—free chassis	No
Vertical orientation packaging support	Yes
Multi-Pack packaging	Yes (US only) (optional)
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 3660 Tower.

**Table 20. Regulatory compliance**


Regulatory compliance
EPEAT registered configurations available
ENERGY STAR compliant configurations available
TCO 8.0 certified configurations available
US CEC MEPS compliant configurations available
Australia and New Zealand MEPS compliant configurations available
CEL
WEEE
Japan Energy Law
South Korea E-standby
EU RoHS
China RoHS

# Operating and storage environment

This table lists the operating and storage specifications of your Precision 3660 Tower.

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

**Table 21. 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 85% (non-condensing) (non-condensing, Max dew point temperature = 26°C)	0% to 95% (non-condensing) 5% to 95% (non-condensing, Max dew point temperature = 33°C)
Vibration (maximum)*	0.52 GRMS random at 5 Hz-350 Hz	2.0 GRMS random at 5 Hz-500 Hz
Shock (maximum)	40G Bottom half-sine pulse (2.5 ms)	105G half-sine pulse (2.5 ms)
Altitude range	-15.2 m to 3048 m (4.64 ft to 10,000 ft)	-15.2 m to 10,668 m (4.64 ft to 35,000 ft)
 <b>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.</b>		

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

† Measured using a 2 ms half-sine pulse.

# Engineering specifications

## System Limitations

This section contains information about some new features and need-to-know information about this computer.

- Modern Standby Limitations
- Intel System Agent Enhanced Speed Step (SAGV) always disabled
- System board TPM settings through BIOS

### Modern Standby Limitations

- Legacy PCI cards do not support Modern Standby through TI PCI bridge.
- Enterprise Hard Drives do not support Modern Standby.
- Systems with 2.5-inch/ 3.5-inch Hard drives take longer to enter Modern Standby for the first time. System can enter Modern Standby normally from the second time onwards.
- Graphics Cards or Add-In Cards not factory installed by Dell may not be Modern Standby compliant and would not allow the system to enter Modern Standby.
- PSU LED may not turn off sporadically even after system enters Modern Standby

**Table 22. System behavior with HDDs/ AICs which do not support Modern Standby**

	Screen	dGfx fan	Hard drive LED	PWR LED	PSU LED	PSU fan	CPU fan	System fan
<b>Expected system behavior under Modern Standby</b>	Off	Off	Off	Off	Off	Off	Off	Off
Enterprise SATA hard drive	Off	Off	Off	Off	On	On	On	On
PCIe AIC not supporting ModS	Off	Off/On (Up to dGfx)	Off/On	Off/On (by S/W Drips)	On	On	On	On
Legacy PCI Card (via TI Bridge)	Off	Off/On (Up to dGfx)	Off/On	Off/On (by S/W Drips)	On	On	On	On

**i** **NOTE:** ModS = Modern Standby

**i** **NOTE:** PSU = Power Supply Unit

**i** **NOTE:** CPU = Processor

### Intel System Agent Enhanced Speed Step (SAGV) always disabled

All systems will have SAGV disabled by default. If enabled, systems will incur additional boot time when memory is added or swapped.

## System board TPM settings through BIOS

Service replacement system boards replaced in the field default to TPM enabled. This setting is generally applicable for most computers in the Rest of the World, and technicians are not required to change it.

Technicians need to select the "Enable Firmware/Integrated TPM - for Regional Restrictions" when a tech sheet is received with the service replacement system board. This permanently disables the Discrete "Hardware" TPM and this mainly applies to China region.

## Physical system dimensions

The following table provides the physical dimensions of your Precision 3660 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 23. Physical system dimensions**

Feature	Values
Chassis volume	26.80
Chassis Weight	<ul style="list-style-type: none"><li>• Minimum: 8.5 kg (18.73 lb)</li><li>• Maximum: 15.80 kg (34.83 lb)</li></ul>
<b>Chassis dimensions</b>	
Height	369.00 mm (14.52 in.)
Width	173.00 mm (6.81 in.)
Depth	420.00 mm (16.53 in.)
Shipping Weight (includes packaging materials)	11.30 kg (24.92 lb)
<b>Packaging dimensions</b>	
Height	546 mm (21.50 in.)
Width	492 mm (19.37 in.)
Depth	359 mm (14.13 in.)

## Add-in card dimensions

### System board connector maximum add-in card allowable dimensions

**Table 24. System board connector maximum add-in card allowable dimensions**

Feature	Values
<b>M.2 connector</b>	<ul style="list-style-type: none"><li>• Two M.2 2230/2280 PCIe Gen4 x4</li><li>• One M.2 2280 PCIe Gen3 x4</li></ul>
Voltage	3.3 V
Power	11.55 W
<b>PCIe x16 connector</b>	One PCIe x16 slot
Voltage	3.3 V/12 V

**Table 24. System board connector maximum add-in card allowable dimensions (continued)**

Feature	Values
Height	4.37 in. (110.99 mm)
Length	12.28 in. (311.91 mm)
Maximum wattage	<ul style="list-style-type: none"> <li>• 75 W/300 W PSU</li> <li>• 225 W/500 W PSU</li> <li>• 350 W/750 W PSU</li> <li>• 450 W/1000 W PSU</li> </ul>
<b>PCIe x4 connector</b>	<ul style="list-style-type: none"> <li>• One PCIe Gen3 x4 Closed-end</li> <li>• One PCIe Gen4 x4 Open-end</li> </ul>
Voltage	3.3 V/12 V
Height	4.38 in. (110.99 mm)
Length	6.60 in. (167.64 mm)
Maximum wattage	PCIe Gen3 x4 Closed-end <ul style="list-style-type: none"> <li>• 10 W for 300 W/500 W/750 W/1000 W PSU</li> </ul> PCIe Gen4 x4 Open-end <ul style="list-style-type: none"> <li>• 25 W/300 W PSU</li> <li>• 25 W*/500 W PSU (up to 125 W if total slots &lt;=250 W)</li> <li>• 25 W** /750 W PSU (up to 125 W if total slots &lt;=385 W)</li> <li>• 25 W***/1000 W PSU (up to 125 W if total slots &lt;=485 W)</li> </ul>

## PCIe lane details

**Table 25. PCIe lane details**

Expansion Slot Type	Voltage	Maximum Height	Maximum Length	Maximum Wattage	Cards supported
PCIe x16 connector	3.3 V/12 V	4.37 in. (110.99 mm)	10.50 in. (266.70 mm)	<ul style="list-style-type: none"> <li>• 75 W/300 W PSU</li> <li>• 225 W/500 W PSU</li> <li>• 350 W/750 W PSU</li> <li>• 450 W/1000 W PSU</li> </ul>	Yes
PCIe x4 connector	3.3 V/12 V	4.38 in. (110.99 mm)	6.60 in. (167.64 mm)	Slot 1 <ul style="list-style-type: none"> <li>• 10 W for 300 W/500 W/750 W/1000 W PSU</li> </ul> Slot 4 <ul style="list-style-type: none"> <li>• 25 W/300 W PSU</li> <li>• 25 W*/500 W PSU (up to 125 W if total slots &lt;=250 W)</li> </ul>	Yes



**Table 25. PCIe lane details (continued)**

Expansion Slot Type	Voltage	Maximum Height	Maximum Length	Maximum Wattage	Cards supported
				<ul style="list-style-type: none"> <li>• 25 W** /750 W PSU (up to 125 W if total slots &lt;=385 W)</li> <li>• 25 W*** /1000 W PSU (up to 125 W if total slots &lt;=485 W)</li> </ul>	

## PCIe add-in cards

### Dell Ultra Speed Drive (PCIe NVMe SSD on Zoom card)

**Table 26. Dell Ultra Speed Drive (PCIe NVMe SSD on Zoom card) specifications**

Feature	Values
<b>PCB</b>	
Dimension	167.65 mm x 68.90 mm
Layer	6
<b>Processor/Chipset</b>	
Micro controller	NUVOTON_MINI52FDE
Power IC_5V_DC	MPS_MPG8623GD-C783-Z
Power IC_+3P3V_PCIE	INFINEON_IR3889MTRPBF
Clock buffer	9DBL0452BKILFT
<b>Add-in slots</b>	
M.2 connector	Gen4 x 4
<b>Power consumption</b>	
ZOOM2 with NVME device	25 W

## Common access card / Personal identification verification module

**Table 27. CAC/PIV module specifications**

Feature	Values
<b>PCB</b>	
Dimension	74.50 mm x 45.70 mm
Layer	6
<b>Processor/Chipset</b>	
NFC	Broadcom Cortex-A7 BC58202
Card reader driver	NXP TDA8034HN/C2
USB 2.0 Hub	GENESYS GL850G-OHY60
PROM	WINBOND W25Q128JV 128M/bit

**Table 27. CAC/PIV module specifications (continued)**

Feature	Values
Power IC	RICHTEK RT5796AHGJ5
Power LDO (NFC VBAT)	GMT G9141T11U
<b>Add-in slots</b>	
Card reader connector	1 - 10 pin
USB 2.0 header	1 - 5 pin
NFC header	1 - 6 pin
Bracket space	1

## Serial port PCIe add-in card

**Table 28. Serial port PCIe add-in card**

Feature	Values
Interface	<ul style="list-style-type: none"> <li>• RS-232</li> <li>• IEEE1284</li> </ul>
Data rates	<ul style="list-style-type: none"> <li>• 50 bps ~115.2 Kbps (serial)</li> <li>• maximum 1.8 Mbps (parallel)</li> </ul>
<b>Controller details</b>	
Controller	SUNIX SUN2212 (16C950 UART compatible)
Controller bus architecture	<ul style="list-style-type: none"> <li>• PCI Express 2.0</li> <li>• Single-Lane (x1)</li> </ul>
Driver support	Windows 10 (64-bit)
Half-height serial add-in dongle	Optional
<b>Environment</b>	
Operating temperature	0°C to 60°C (32°F–140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 85°C (-4°F to 185°F)

## Parallel port PCIe add-in card

**Table 29. Parallel port PCIe add-in card**

Feature	Values
Interface	<ul style="list-style-type: none"> <li>• RS-232</li> <li>• IEEE1284</li> </ul>
Data rates	<ul style="list-style-type: none"> <li>• 50 bps ~115.2 Kbps (serial)</li> <li>• maximum 1.8 Mbps (parallel)</li> </ul>
<b>Controller details</b>	
Controller	SUNIX SUN2212 (16C950 UART compatible)
Controller bus architecture	<ul style="list-style-type: none"> <li>• PCI Express 2.0</li> <li>• Single-Lane (x1)</li> </ul>
Driver support	Windows 10 (64-bit)

**Table 29. Parallel port PCIe add-in card (continued)**

Feature	Values
Half-height parallel add-in dongle	Optional
<b>Environment</b>	
Operating temperature	0°C to 60°C (32°F–140°F)
Operating humidity	5% to 95% RH
Storage temperature	-20°C to 85°C (-4°F to 185°F)

## PS/2 Serial add-in bracket

The following table lists the PS/2 Serial add-in bracket specifications.

**Table 30. PS/2 Serial add-in bracketspecifications**

Feature	Values
Interface	UART
Data rates	250 kbps / 235 kbps
<b>Controller details</b>	
Controller	Microchip DEC1515
Controller bus architecture	PCIe
Driver support	N/A
Half-height serial add-in dongle	N/A
<b>Environment</b>	
Operating temperature	0°C to 70°C (32°F to 158°F) / -40°C to 85°C (-40°F to 185°F)
Operating humidity	60% RH
Storage temperature	-65°C to 150°C (-85°F to 302°F)

## Intel Ethernet server adapter I225

**Table 31. Intel Ethernet server adapter I225**

Features	Values
External connector type	RJ45 with two LED visual indicators for speed, link and activity
Data rates supported	10/100/1000/2500-BASE-T operations
<b>Controller Details</b>	
Controller bus architecture	PCIe Gen 2 V3.1x1
Low profile	Custom size for Dell Desktop system
Integrated Memory	Yes
Power consumption (D0)	2.2 W (max)
IEEE standards compliance	IEE 802.3u
Hardware certifications	FCC Class B
Boot ROM	SPI FLASH

**Table 31. Intel Ethernet server adapter I225 (continued)**

Features	Values
<b>Environmental</b>	
Temperature	<ul style="list-style-type: none"> <li>Operating— 5°C (41°F)</li> <li>Non-operating—35°C (95°F)</li> </ul>
Storage temperature	-40°C to 70°C (-40°F to 158°F)—nonoperating
Relative Humidity (RH)	<ul style="list-style-type: none"> <li>Non-operating— 35°C / 95% RH</li> <li>Operating— 32°C / 85% RH</li> </ul>
Vibration (random)	<ul style="list-style-type: none"> <li>Non-operating— 5-500 Hz , 2.0 Grms</li> <li>Operating— 5-350 Hz, 0.52 Grms</li> </ul>
Shock	<ul style="list-style-type: none"> <li>Non-operating— 40G, 19 ms</li> <li>Operating— 40G, 2.5 ms</li> </ul>
Manageability	MCTP over PCIe and over SMBus

## Thunderbolt 4 PCIe Add-In Card

The following table lists the Thunderbolt 4 PCIe Add-In Card specifications.

**Table 32. Thunderbolt 4 PCIe Add-In Card**

Features	Values
Design	LP HL PWA with PCIe 4.0 x4 Full height Bracket option
Number of ports	<ul style="list-style-type: none"> <li>2x Type-C I/O</li> <li>2x DP input</li> <li>GPIO (requires side-band cable)</li> </ul>
Feature	<ul style="list-style-type: none"> <li>40 Gb/s (2x 20) with TB4 and USB 4.0</li> <li>Auto switch/shift to Legacy TB/USB (support backwards compatibility)</li> <li>DP1.4a HBR3 Out (DP-MF and DP-alt) two streams</li> <li>DP Tunnel 32 Gb/s 2 Streams, USB3 Tunnel 10 Gb/s</li> <li>Hub Support, TB Networking, Universal Cable</li> </ul>
Power	<ul style="list-style-type: none"> <li>Upper Port - 5 V@3 A (TB + Power Delivery Icon)</li> <li>Lower Port - 5 V@1.5 A (TB Icon Only)</li> </ul>
Drivers	<ul style="list-style-type: none"> <li>Windows 10</li> <li>Red Hat Enterprise Linux</li> <li>Ubuntu</li> </ul>
Cables	<ul style="list-style-type: none"> <li>1x Sideband cable (system to TBT4 card)</li> <li>2x DP cables x24 cm Graphics loopback (DP connector from GFX card to TBT4 card)</li> </ul>
Manuals	<ul style="list-style-type: none"> <li>Product Specification Sheet and User Guide</li> <li>Online Post Drivers and Docs</li> </ul>
Certificates	<ul style="list-style-type: none"> <li>Intel Thunderbolt Validation</li> <li>WHQL</li> <li>USB 4.0 40 Gb/s</li> </ul>
Specifications	<ul style="list-style-type: none"> <li>Dell standard reliability</li> <li>Behavior</li> <li>Materials</li> </ul>

# Dust Filter

This topic illustrates the optional dust filter attachments for Dell Precision 3660 Tower

## Dust Filter

**Table 33. Dust filter specifications**

Feature	Value
Mesh count (cm/inch)	40/100
Weave	PW
Silk diameter (cm)	0.0055
Open area (%)	80
Thickness (cm)	0.01
Remark	PET

# 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
<b>Controller Details</b>	
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)
Power consumption (Standby operation)	76 mW (Max)
IEEE standards compliance	802.3
Hardware certifications	N/A
Boot ROM support	EEPROM (Located in SPI)
<b>Network Transfer Mode</b>	
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)
<b>Environmental</b>	
Operating temperature range	0°C–85°C (32°F–185°F)

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

Feature	Values
Operating humidity	20% to 80% (non condensing)
Operating system driver Support	<ul style="list-style-type: none"> <li>• Windows (x64)</li> <li>• Ubuntu</li> <li>• Neokylin</li> </ul>
Manageability	<ul style="list-style-type: none"> <li>• Wakeup On LAN</li> <li>• PXE 2.1</li> </ul>
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.

## Intel Ethernet server adapter I225

**Table 35. Intel Ethernet server adapter I225**


Features	Values
External connector type	RJ45 with two LED visual indicators for speed, link and activity
Data rates supported	10/100/1000/2500-BASE-T operations
<b>Controller Details</b>	
Controller bus architecture	PCIe Gen 2 V3.1x1
Low profile	Custom size for Dell Desktop system
Integrated Memory	Yes
Power consumption (D0)	2.2 W (max)
IEEE standards compliance	IEE 802.3u
Hardware certifications	FCC Class B
Boot ROM	SPI FLASH
<b>Environmental</b>	
Temperature	<ul style="list-style-type: none"> <li>• Operating— 5°C (41°F)</li> <li>• Non-operating—35°C (95°F)</li> </ul>
Storage temperature	-40°C to 70°C (-40°F to 158°F)—nonoperating
Relative Humidity (RH)	<ul style="list-style-type: none"> <li>• Non-operating— 35°C / 95% RH</li> <li>• Operating— 32°C / 85% RH</li> </ul>
Vibration (random)	<ul style="list-style-type: none"> <li>• Non-operating— 5-500 Hz , 2.0 Grms</li> <li>• Operating— 5-350 Hz, 0.52 Grms</li> </ul>
Shock	<ul style="list-style-type: none"> <li>• Non-operating— 40G, 19 ms</li> <li>• Operating— 40G, 2.5 ms</li> </ul>
Manageability	MCTP over PCIe and over SMBus

# Wireless module

## Intel AX211, 2x2 MIMO, 2400 Mbps, 2.4/5/6 GHz, Wi-Fi 6E (WiFi 802.11ax), Bluetooth 5.2

The following table lists the Intel AX211 specifications.

**Table 36. Intel AX211 specifications**

Host interface	CNVi3 (Connectivity Integration 3 <sup>rd</sup> generation)
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160MHz channel use, MU-MIMO, new 6GHz band
Wi-Fi Alliance certifications	Wi-Fi CERTIFIED 6, Wi-Fi CERTIFIED a/b/g/n/ac, WMM, WMM-Power Save, WPA2, WPA3, WPS, PMF, Wi-Fi Direct, Wi-Fi Agile Multiband   <b>NOTE:</b> Other names and brands may be claimed as the property of others.
Operating frequency bands	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5 GHz</li> <li>• 6 GHz</li> </ul>
Data rate	<ul style="list-style-type: none"> <li>• 2.4 GHz 40M: Up to 574 Mbps</li> <li>• 5/6 GHz 80M: Up to 1.2 Gbps</li> <li>• 5/6 GHz 160M: Up to 2.4 Gbps</li> </ul>
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Security methods	<ul style="list-style-type: none"> <li>• WPA2 Personal and Enterprise</li> <li>• WPA3</li> </ul>
Authentication protocols	<ul style="list-style-type: none"> <li>• 802.1X EAP-TLS</li> <li>• EAP-TTLS/MSCHAPv2</li> <li>• PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>• 64-bit and 128-bit WEP</li> <li>• TKIP</li> <li>• 128-bit AES-CCMP</li> <li>• 256-bit AES-GCMP</li> </ul>
Product safety	<ul style="list-style-type: none"> <li>• UL</li> <li>• C-UL</li> <li>• CB (IEC60950-1)</li> </ul>
Management capabilities alerting	Support for Intel AMT
Government compliance	<ul style="list-style-type: none"> <li>• FIPS 140-2</li> <li>• FISMA</li> </ul>
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

**Table 36. Intel AX211 specifications (continued)**

Wireless PAN standard	<ul style="list-style-type: none"> <li>• Dual Mode Bluetooth 5.2</li> <li>• BLE</li> </ul>
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)

## Qualcomm WCN6856, 2x2, Wi-Fi 6E DBS, Bluetooth 5.2

The following table lists the Intel Qualcomm WCN6856 specifications.

**Table 37. Qualcomm WCN6856 specifications**

Host interface	<ul style="list-style-type: none"> <li>• Wi-Fi - PCIe</li> <li>• Bluetooth - USB</li> </ul>
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160MHz channel use, MU-MIMO
Wi-Fi Alliance certifications	<ul style="list-style-type: none"> <li>• 802.11 a/b/g/n/ac R2/ax R2</li> <li>• WMM</li> <li>• WMM-PS</li> <li>• WPA3</li> <li>• WPS2</li> <li>• PMF</li> <li>• WFD</li> <li>• Miracast</li> <li>• Passpoint R2</li> <li>• Voice Personal</li> </ul>
Operating frequency bands	<ul style="list-style-type: none"> <li>• 2.4 Ghz</li> <li>• 5 Ghz</li> <li>• 6 Ghz</li> </ul>
Data rate	<ul style="list-style-type: none"> <li>• 2.4GHz 40M: Up to 691 Mbps</li> <li>• 5 GHz 160M: Up to 2.88 Gbps</li> <li>• 6 GHz 160M: Up to 2.88 Gbps</li> <li>• DBS mode</li> <li>• 2.4 GHz 40M + 5/6 GHz 160M: Up to 3.57 Gbps</li> </ul>
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Authentication	<ul style="list-style-type: none"> <li>• WPA and WPA2 Personal and Enterprise</li> <li>• WPA3 Personal and Enterprise</li> </ul>
Authentication protocols	<ul style="list-style-type: none"> <li>• 802.1X EAP-TLS</li> <li>• EAP-TTLS/MSCHAPv2</li> <li>• PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)</li> </ul>



**Table 37. Qualcomm WCN6856 specifications (continued)**

Encryption	<ul style="list-style-type: none"> <li>• 64-bit and 128-bit WEP</li> <li>• TKIP</li> <li>• 128-bit AES-CCMP</li> <li>• 256-bit AES-GCMP</li> </ul>
Product safety	<ul style="list-style-type: none"> <li>• UL</li> <li>• C-UL</li> <li>• CB (IEC60950-1)</li> </ul>
Government compliance	<ul style="list-style-type: none"> <li>• FIPS 140-2</li> <li>• FISMA</li> </ul>
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	<ul style="list-style-type: none"> <li>• Dual Mode Bluetooth 5.2</li> <li>• BLE</li> </ul>
Bluetooth data rates	Up to 3Mbps
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—Integrated

### Intel UHD Graphics 730

**Table 38. Intel UHD Graphics 730 specifications**

<b>Intel UHD Graphics 730</b>	
Bus Type	Integrated
Memory Type	UMA
Graphics Level	i3: GT1 (UHD)
Overlay Planes	Yes
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL (4.6)
Supports maximum resolution	<ul style="list-style-type: none"> <li>• On board integrated DP1.4 (HBR2)(4096 x 2304 @ 60 Hz)</li> </ul>

**Table 38. Intel UHD Graphics 730 specifications (continued)**

Intel UHD Graphics 730		
		<ul style="list-style-type: none"> <li>• Option card with VGA (1920 x 1200 @ 60 Hz)</li> <li>• Option card with DP1.4 (HBR3) (5120 x 3200 @ 60 Hz), (7680 x 4320 @ 60 Hz HDR with discrete graphics)</li> <li>• Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz)</li> <li>• Option card with Type-C (5120 x 3200 @ 60 Hz), (7680 x 4320 @ 60 Hz HDR with discrete graphics)</li> </ul>
Number of display supported		Up to four displays supported
Multiple Display Support	2 displays	<ul style="list-style-type: none"> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096x2304 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with Type-C (5120 x 3200 @ 60 Hz)</li> </ul>
	3 displays	<ul style="list-style-type: none"> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz)</li> <li>• On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card</li> </ul>

**Table 38. Intel UHD Graphics 730 specifications (continued)**

Intel UHD Graphics 730		
		with Type-C (5120 x 3200 @ 60 Hz)
External connectors		<ul style="list-style-type: none"> <li>Two system-board integrated DP1.4 HBR2 + One video option (VGA/DP1.4 HBR3/HDMI2.0/USB3.2 Gen2 type-C Alt-mode)</li> </ul>

## Intel UHD Graphics 770

**Table 39. Intel UHD Graphics 770 specifications**

Intel UHD Graphics 770		
Bus Type		Integrated
Memory Type		UMA
Graphics Level		i3/i5/i7/i9: GT1 (UHD)
Overlay Planes		Yes
Operating Systems Graphics/ Video API Support		DirectX 12, OpenGL (4.6)
Supports maximum resolution		<ul style="list-style-type: none"> <li>On board integrated DP1.4 (HBR2)(4096 x 2304 @ 60 Hz)</li> <li>Option card with VGA (1920 x 1200 @ 60 Hz)</li> <li>Option card with DP1.4 (HBR3) (5120 x 3200 @ 60 Hz), (7680 x 4320 @ 60 Hz HDR with discrete graphics)</li> <li>Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz)</li> <li>Option card with Type-C (5120 x 3200 @ 60 Hz), (7680 x 4320 @ 60 Hz HDR with discrete graphics)</li> </ul>
Number of display supported		Up to four displays supported
Multiple Display Support	2 displays	<ul style="list-style-type: none"> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) +</li> </ul>

**Table 39. Intel UHD Graphics 770 specifications (continued)**

Intel UHD Graphics 770		
		Option card with Type-C (5120 x 3200 @ 60 Hz)
	3 displays	<ul style="list-style-type: none"> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with VGA (1920 x 1200 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with DP1.4 (5120 x 3200 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4(4096 x 2304 @ 60 Hz) + Option card with HDMI 2.0 (4096 x 2160 @ 60 Hz)</li> <li>On board integrated DP1.4 (4096 x 2304 @ 60 Hz) + On board integrated DP1.4 (4096 x 2160 @ 30 Hz)+ Option card with Type-C (5120 x 3200 @ 60 Hz)</li> </ul>
External connectors		Two system-board integrated DP1.4 HBR2 + One video option (VGA/DP1.4 HBR3/ HDMI2.0/ USB3.2 Gen2 type-C Alt-mode)

## GPU—Discrete

### NVIDIA RTX A6000

**Table 40. NVIDIA RTX A6000 specifications**

Description	Values
GPU Memory	48 GB GDDR6
Memory Interface	384-bit
Memory Bandwidth	Up to 768 GB/s
NVIDIA CUDA Cores	10752
System Interface	PCI Express 4.0 x16
Max Power Consumption	300 W
Thermal Solution	Active
Form Factor	Height: 4.40 in./111.76 mm and Length: 10.50 in./266.70 mm, Dual Slot, full-height
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream

**Table 40. NVIDIA RTX A6000 specifications (continued)**

Description	Values
Display Resolution	<ul style="list-style-type: none"> <li>• 2x 7680x4320 @ 60 Hz</li> <li>• 4x 5120x2880 @ 60 Hz</li> <li>• 4x 4096x2160 @ 120 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>• Shader Model 5.17</li> <li>• OpenGL 4.68</li> <li>• DirectX 12.07</li> <li>• Vulkan 1.18</li> </ul>
Compute APIs	<ul style="list-style-type: none"> <li>• CUDA</li> <li>• DirectCompute</li> <li>• OpenCL</li> </ul>

## NVIDIA RTX A5000

**Table 41. NVIDIA RTX A5000 specifications**

Description	Values
GPU Memory	24 GB GDDR6
Memory Interface	384-bit
Memory Bandwidth	Up to 768 GB/s
NVIDIA CUDA Cores	8192
System Interface	PCI Express 4.0 x16
Max Power Consumption	230 W
Thermal Solution	Active
Form Factor	Height: 4.37 in./111.15 mm / Length: 10.58 in./268.60 mm, Dual Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4a Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>• 2x 7680x4320 @ 60 Hz</li> <li>• 4x 5120x2880 @ 60 Hz</li> <li>• 4x 4096x2160 @ 120 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>• Shader Model 5.17</li> <li>• OpenGL 4.68</li> <li>• DirectX 12.07</li> <li>• Vulkan 1.2</li> </ul>
Compute APIs	<ul style="list-style-type: none"> <li>• CUDA</li> <li>• DirectCompute</li> <li>• OpenCL</li> </ul>

## NVIDIA RTX A4000

**Table 42. NVIDIA RTX A4000 specifications**

Description	Values
GPU Memory	16 GB GDDR6
Memory Interface	256-bit

**Table 42. NVIDIA RTX A4000 specifications (continued)**

Description	Values
Memory Bandwidth	Up to 448 GB/s
NVIDIA CUDA Cores	6144
System Interface	PCI Express 4.0 x16
Max Power Consumption	140 W
Thermal Solution	Active
Form Factor	Height: 4.39 in./111.75 mm and Length: 9.58 in./243.15 mm, Single Slot
Display Connectors	4x DP 1.4a
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>● 2x 7680x4320 @ 60 Hz</li> <li>● 4x 5120x2880 @ 60 Hz</li> <li>● 4x 4096x2160 @ 120 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>● Shader Model 5.17</li> <li>● OpenGL 4.68</li> <li>● DirectX 12.07</li> <li>● Vulkan 1.2</li> </ul>
Compute APIs	<ul style="list-style-type: none"> <li>● CUDA</li> <li>● DirectCompute</li> <li>● OpenCL</li> </ul>

## NVIDIA RTX A2000

**Table 43. NVIDIA RTX A2000 specifications**

Description	Values
GPU Memory	6 GB GDDR6
Memory Interface	192-bit
Memory Bandwidth	Up to 288 GB/s
NVIDIA CUDA Cores	3328
System Interface	PCI Express 4.0 x16
Max Power Consumption	70 W
Thermal Solution	Active
Form Factor	Height: 2.68 in./68.09 mm and Length: 6.68 in./169.55 mm, Double Slot
Display Connectors	4x mDP 1.4a
Max Simultaneous Displays	4 direct, 4 mini-DP 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>● 4x 4096x2160 @ 120 Hz</li> <li>● 4x 5120x2880 @ 60 Hz</li> <li>● 2x 7680x4320 @ 60 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>● DirectX 12.07</li> <li>● Shader Model 5.17</li> <li>● OpenGL 4.68</li> <li>● Vulkan 1.2</li> </ul>

**Table 43. NVIDIA RTX A2000 specifications (continued)**

Description	Values
Compute APIs	<ul style="list-style-type: none"> <li>• CUDA</li> <li>• DirectCompute</li> <li>• OpenCL</li> </ul>

## NVIDIA T1000

**Table 44. NVIDIA T1000 specifications**

Description	Values
GPU Memory	4 GB GDDR6
Memory Interface	128-bit
Memory Bandwidth	Up to 160GB/s
NVIDIA CUDA Cores	896
System Interface	PCI Express 3.0 x16
Max Power Consumption	50 W
Thermal Solution	Active
Form Factor	Height: 2.71 in./68.98 mm and Length: 6.1 in./155.87 mm, Single Slot
Display Connectors	4x mDP 1.4
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>• 4x 3840x2160 @ 120 Hz</li> <li>• 4x 5120x2880 @ 60 Hz</li> <li>• 2x 7680x4320 @ 60 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>• Shader Model 5.17</li> <li>• OpenGL 4.68</li> <li>• DirectX 12.07</li> <li>• Vulkan 1.2</li> </ul>
Compute APIs	<ul style="list-style-type: none"> <li>• CUDA</li> <li>• DirectCompute</li> <li>• OpenCL</li> </ul>

## NVIDIA T600

**Table 45. NVIDIA T600 specifications**

Description	Values
GPU Memory	4 GB GDDR6
Memory Interface	128-bit
Memory Bandwidth	Up to 160 GB/s
NVIDIA CUDA Cores	640
System Interface	PCI Express 3.0 x16
Max Power Consumption	40 W
Thermal Solution	Active

**Table 45. NVIDIA T600 specifications (continued)**

<b>Description</b>	<b>Values</b>
Form Factor	Height: 2.71 in./68.98 mm and Length: 6.13 in./155.87 mm, Single Slot
Display Connectors	4x mDP 1.4
Max Simultaneous Displays	4 direct, 4 DP 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>● 2x 7680x4320 @ 60 Hz</li> <li>● 4x 5120x2880 @ 60 Hz</li> <li>● 4x 3840x2160 @ 120 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>● Shader Model 5.17</li> <li>● OpenGL 4.68</li> <li>● DirectX 12.07</li> <li>● Vulkan 1.2</li> </ul>
Compute APIs	<ul style="list-style-type: none"> <li>● CUDA</li> <li>● DirectCompute</li> <li>● OpenCL</li> </ul>

## NVIDIA T400

**Table 46. NVIDIA T400 specifications**

<b>Description</b>	<b>Values</b>
GPU Memory	2 GB GDDR6
Memory Interface	64-bit
Memory Bandwidth	Up to 80 GB/s
NVIDIA CUDA Cores	384
System Interface	PCI Express 3.0 x16
Max Power Consumption	30 W
Thermal Solution	Active
Form Factor	Height: 2.713 in./68.98 mm and Length: 5.7 in./155.87 mm, Single Slot
Display Connectors	3x mDP 1.4
Max Simultaneous Displays	3 direct, 3 mini-DP 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>● 3x 3840x2160 @ 120 Hz</li> <li>● 3x 5120x2880 @ 60 Hz</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>● Shader Model 5.17</li> <li>● OpenGL 4.68</li> <li>● DirectX 12.07</li> <li>● Vulkan 1.2</li> </ul>
Compute APIs	<ul style="list-style-type: none"> <li>● CUDA</li> <li>● DirectCompute</li> <li>● OpenCL</li> </ul>



## AMD Radeon Pro WX3200

**Table 47. Radeon Pro WX3200 Specifications**

Description	Values
GPU Memory	4 GB GDDR5
GPU Architecture	Polaris
Compute Units	10
Lithography	14nm FinFET
Peak Single Precision (FP32) Performance	1.66 TFLOPs
Peak Double Precision (FP64) Performance	104 GFLOPs
Stream Processors	640
Memory Interface	128-bit
Memory Bandwidth	96 GB/s
Form Factor	PCIe Add-in Card
Bus Type	PCIe 3.0 x16 (x8 electrical)
TBP	50W
Cooling	Active
Display Connectors	4x Mini-DisplayPort 1.4
Software API Support	<ul style="list-style-type: none"> <li>● DirectX: 12.0 (feature level 12_0)</li> <li>● OpenGL: 4.6</li> <li>● OpenCL: 2.0</li> <li>● Vulkan: 1.1</li> </ul>
Additional Features	<ul style="list-style-type: none"> <li>● AMD Remote Workstation</li> <li>● Radeon Pro Software</li> <li>● AMD Eyefinity Technology (Professionals)</li> <li>● Radeon ProRender</li> <li>● Unified Video Decoder (UVD)</li> <li>● Video Code Engine (VCE)</li> </ul>

## AMD Radeon Pro W5700

**Table 48. AMD Radeon Pro W5700 Specifications**

Description	Values
GPU Architecture	RDNA
Compute Units	36
Lithography	TSMC 7nm FinFET
Peak Single Precision (FP32) Performance	8.89 TFLOPs
Peak Double Precision (FP64) Performance	556 GFLOPs
Stream Processors	2304
Memory Size/ Type	8 GB DDR6
Memory Interface	256-bit
Memory Bandwidth	448 GB/s

**Table 48. AMD Radeon Pro W5700 Specifications (continued)**

<b>Description</b>	<b>Values</b>
Form Factor	PCIe Add-in Card
Bus Type	PCIe 4.0 x16
TBP	205 W
Cooling	Active
Board Width	Double Slot
Board Length	10.5 in. (267 mm)
Board Height	Full Height
Display Outputs	5x Mini-DisplayPort 1.4 and 1x USB Type-C
Software API Support	<ul style="list-style-type: none"> <li>● DirectX: 12.0 (feature level 12_0)</li> <li>● OpenGL:4.6</li> <li>● OpenCL: 2.0</li> <li>● Vulkan: 1.1</li> </ul>
Additional Features	<ul style="list-style-type: none"> <li>● RDNA Architecture</li> <li>● AMD Remote Workstation</li> <li>● Radeon Media Engine</li> <li>● Radeon Pro Software</li> <li>● Radeon VR Ready Creator</li> <li>● AMD Eyefinity Technology (Professionals)</li> <li>● Radeon ProRender</li> </ul>

## AMD Radeon Pro W6600

**Table 49. AMD Radeon Pro W6600 specifications**

<b>Description</b>	<b>Values</b>
GPU Memory	8 GB GDDR6
Memory Interface	128-bit
Memory Bandwidth	Up to 224 GB/s
System Interface	PCIe Gen 4 x8 (x8 electrical)
Max Power Consumption	130 W
Thermal Solution	Active
Form Factor	Full height single slot
Display Connectors	4x DisplayPort 1.4
Max Simultaneous Displays	4 DisplayPort 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"> <li>● 4x @ 5120x2880</li> <li>● 1x @ 7680x4320</li> </ul>
Graphics APIs	<ul style="list-style-type: none"> <li>● OpenGL 4.6</li> <li>● OpenCL 2.1</li> <li>● DirectX 12.0</li> </ul>

## AMD Radeon Pro W6800

Table 50. AMD Radeon Pro W6800 specifications

Description	Values
GPU Memory	32 GB DDR6
Memory Interface	256-bit
Memory Bandwidth	Up to 512 GB/s
System Interface	PCIe Gen 4 x16
Max Power Consumption	250 W
Thermal Solution	Active
Form Factor	Full height dual slot
Display Connectors	6x mDP 1.4
Max Simultaneous Displays	6 mini-DP 1.4 Multi-Stream
Display Resolution	<ul style="list-style-type: none"><li>• 6x @ 5120x2880 pixel (5K)</li><li>• 2x @ 7680x4320 pixel (8K)</li></ul>
Graphics APIs	<ul style="list-style-type: none"><li>• OpenGL 4.6</li><li>• OpenCL 2.1</li><li>• DirectX 12.0</li></ul>

## AMD Radeon RX6900XT

Table 51. AMD Radeon RX6900XT specifications

Description	Values
GPU Memory	16 GB DDR6
Memory Interface	256-bit
Memory Bandwidth	Up to 512 GB/s
System Interface	PCIe Gen 4 x16
Max Power Consumption	300 W (TBP)
Thermal Solution	Active
Form Factor	Full height dual slot
Display Connectors	<ul style="list-style-type: none"><li>• 1 HDMI 2.1 port</li><li>• 3 DisplayPort 1.4 ports</li></ul>
Max Simultaneous Displays	4 monitors
Display Resolution	<ul style="list-style-type: none"><li>• 5120x2880 @60 Hz</li><li>• 3480x2160 @120 Hz</li></ul>
Graphics APIs	<ul style="list-style-type: none"><li>• OpenGL 4.6</li><li>• OpenCL 2.2</li><li>• DirectX 12.0</li></ul>

# Graphics card and power supply unit compatibility

Table 52. Graphics card and power supply unit compatibility matrix

Graphics Card	Single GPU TDP	Aux Power Connectors required	I/O on GPU	300 W PSU	500 W PSU	750 W PSU	1000 W PSU
NVIDIA T400	30 W	NA	<ul style="list-style-type: none"> <li>Three mini-DisplayPort</li> </ul>	S, D	S, D	S, D	S, D
NVIDIA T600	40 W	NA	<ul style="list-style-type: none"> <li>Four mini-DisplayPort</li> </ul>	S, D	S, D	S, D	S, D
NVIDIA T1000	47 W	NA	<ul style="list-style-type: none"> <li>Four mini-DisplayPort</li> </ul>	S, D	S, D	S, D	S, D
NVIDIA A2000	75 W	NA	<ul style="list-style-type: none"> <li>Four mini-DisplayPort</li> </ul>	S	S	S	S
NVIDIA RTX A4000	160 W	NA	<ul style="list-style-type: none"> <li>Three DisplayPort 1.4 ports</li> </ul>	NA	S	S	S
NVIDIA RTX A5000	265 W	NA	<ul style="list-style-type: none"> <li>Four DisplayPort 1.4 ports</li> </ul>	NA	NA	S	S
NVIDIA RTX A6000	300 W	NA	<ul style="list-style-type: none"> <li>Three DisplayPort 1.4 ports</li> </ul>	NA	NA	S	S
Radeon Pro W6800	266 W	NA	<ul style="list-style-type: none"> <li>Six mini-DisplayPort</li> </ul>	NA	NA	S	S
Radeon Pro W6600	128.9 W	NA	<ul style="list-style-type: none"> <li>Four DisplayPort 1.4 ports</li> </ul>	NA	S	S	S
Radeon Pro W5700	150 W	NA	<ul style="list-style-type: none"> <li>Five mini-DisplayPort</li> <li>One USB-C port</li> </ul>	NA	S	S	S
Radeon Pro WX3200	55 W	NA	<ul style="list-style-type: none"> <li>Four mini-</li> </ul>	S	S,D	S,D	S,D

**Table 52. Graphics card and power supply unit compatibility matrix (continued)**

Graphics Card	Single GPU TDP	Aux Power Connectors required	I/O on GPU	300 W PSU	500 W PSU	750 W PSU	1000 W PSU
			DisplayPort				
Radeon Pro RX6900XT	300 W	NA	<ul style="list-style-type: none"> <li>Two DisplayPort 1.4 ports</li> <li>One HDMI 2.1 port</li> <li>One USB Type-C port</li> </ul>	NA	NA	S	S

**NOTE:** S: Card is supported in Single configuration

**NOTE:** D: Card is supported in Dual configuration

## Video port and resolution matrix

The following table lists the Video port and resolution matrix on your Precision 3660 Tower.

**Table 53. Video port and resolution matrix**

Port type	DP++ 1.4/HDCP 2.3 port (UMA and Discrete Graphics)	HDMI-OUT port—HDMI 1.4 (UMA Graphics)	HDMI-OUT port—HDMI 2.0 (Discrete Graphics)
Maximum resolution—single display	4096 x 2304 @ 60 Hz	4096 x 2160 @ 30 Hz	4096 x 2160 @ 60 Hz
Maximum resolution—dual MST	4096 x 2304 @ 60 Hz, 1400 x 1050 @ 60 Hz or 2880 x 1800 @ 60 Hz, 2880 x 1800 @ 60 Hz	Not applicable	Not applicable
Maximum resolution—triple MST	4096 x 2304 @ 60 Hz, 1360 x 768 @ 60 Hz, 640 x 480 @ 60 Hz or 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz	Not applicable	Not applicable
Maximum resolution—quad MST	4096 x 2304 @ 60 Hz, 4096 x 2304 @ 60 Hz, 1360 x 768 @ 60 Hz, 640 x 480 @ 60 Hz or 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz, 2304 x 1440 @ 60 Hz	Not applicable	Not applicable

## HDD Preloaded bracket and cable matrix

The following table lists the hard-disk drive preloaded bracket information of your Precision 3660 Tower.

**Table 54. HDD Preloaded bracket and cable matrix**

Hard drive Preloaded bracket	Available
3.5-inch Caddy/Bracket	Yes No
2.5-inch Caddy/Bracket	No

# Storage

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

**Table 55. 2.5-inch, 500 GB, 7200 RPM, SATA, HDD specifications**

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.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	976,773,168
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 0.7 W</li> <li>• Active: 3.25 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

## 2.5-inch, 500 GB, 7200 RPM, SATA, HDD, Self-Encrypting, Opal 2.0, FIPS

**Table 56. 2.5-inch, 500 GB, 7200 RPM, SATA, HDD, Self-Encrypting, Opal 2.0, FIPS specifications**

Capacity	500 GB
Speed	7200 RPM OPAL SED FIPS
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	976,773,168
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 0.7 W</li> </ul>

**Table 56. 2.5-inch, 500 GB, 7200 RPM, SATA, HDD, Self-Encrypting, Opal 2.0, FIPS specifications (continued)**

	<ul style="list-style-type: none"> <li>Active: 3.25 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

## 2.5-inch, 1 TB, 7200 RPM, SATA, HDD

**Table 57. 2.5-inch, 1 TB, 7200 RPM, SATA, HDD specifications**

Capacity	1 TB
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.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	1,953,525,168
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>Idle: 0.7 W</li> <li>Active: 3.25 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	350G @2ms
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

## 3.5-inch, 4 TB, 5400 RPM, SATA, HDD

**Table 58. 3.5-inch, 4 TB, 5400 RPM, SATA, HDD specifications**

Capacity	4 TB
Speed	5400 RPM
Height (approximate)	25.40 mm (1.00 in.)
Width (approximate)	147.06 mm (5.79 in.)

**Table 58. 3.5-inch, 4 TB, 5400 RPM, SATA, HDD specifications (continued)**

Depth (approximate)	101.60 mm (4.00 in.)
Interface	SATA 3.0
Speed (maximum)	Up to 6 Gbps
MTBF	550,000 hours
Logical blocks	7,814,037,168
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>● Idle: 5 W</li> <li>● Active: 10 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

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

**Table 59. 3.5-inch, 1 TB, 7200 RPM, SATA, HDD specifications**

Capacity	1 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	1,953,525,168
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>● Idle: 5 W</li> <li>● Active: 10 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%



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

**Table 60. 3.5-inch, 2 TB, 7200 RPM, SATA, HDD specifications**

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
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 W</li> <li>• Active: 10 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock	65G @2ms
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

## M.2 2230, 256 GB, PCIe NVMe Gen3 x4, Class 35 SSD

The following table lists the M.2 2230, 256 GB SSD specifications.

**Table 61. 256 GB SSD specifications**

Capacity	256 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	30.00 mm (1.18 in.)
Interface type	PCIe Gen3
Speed (maximum)	32 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	500,118,192
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 mW (PS4)</li> <li>• Active: 3.50 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C

**Table 61. 256 GB SSD specifications (continued)**

Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

## M.2 2230, 256 GB, PCIe NVMe Gen4 x4, Class 35 SSD

The following table lists the M.2 2230, 256 GB SSD specifications.

**Table 62. 256 GB SSD specifications**

Capacity	256 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	30.00 mm (1.18 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	500,118,192
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 mW (PS4)</li> <li>• Active: 4 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

## M.2 2280, 512 GB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive

The following table lists the M.2 2280, 512 GB SSD, self-encrypting drive specifications

**Table 63. 512 GB SSD, self-encrypting drive specifications**

Capacity	512 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	80.00 mm (3.15 in.)
Interface type	PCIe Gen3

**Table 63. 512 GB SSD, self-encrypting drive specifications (continued)**

Speed (maximum)	32 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	1,000,215,216
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>● Idle: 5 mW ( PS4 - L1.2)</li> <li>● Active: 4.50 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

## M.2 2280, 1 TB, PCIe NVMe Gen3 x4, Class 40 SSD, self-encrypting drive

The following table lists the M.2 2280, 1 TB SSD, self-encrypting drive specifications

**Table 64. 1 TB SSD, self-encrypting drive specifications**

Capacity	1 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	80.00 mm (3.15 in.)
Interface type	PCIe Gen3
Speed (maximum)	32 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>● Idle: 5 mW ( PS4 - L1.2)</li> <li>● Active: 4.50 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°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 65. 512 GB SSD specifications**

Capacity	512 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	80.00 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
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"><li>● Idle: 5 mW ( PS4 - L1.2)</li><li>● Active: 5 W</li></ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
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 66. 1 TB SSD specifications**

Capacity	1 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	80.00 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
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"><li>● Idle: 5 mW ( PS4 - L1.2)</li><li>● Active: 5 W</li></ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C

**Table 66. 1 TB SSD specifications (continued)**

Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
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 67. 2 TB SSD specifications**

Capacity	2 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	80.00 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
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 mW ( PS4 - L1.2)</li> <li>• Active: 5 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
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 68. 4 TB SSD specifications**

Capacity	4 TB
Height (approximate)	3.73 mm (0.15 in.)
Width (approximate)	22.00 mm (0.87 in.)
Depth (approximate)	80.00 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)

**Table 68. 4 TB SSD specifications (continued)**

MTBF	1.4M hours
Logical blocks	8,001,573,552
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 mW ( PS4 - L1.2)</li> <li>• Active: 5 W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

## 8x DVD±RW, slimline

**Table 69. 8x DVD±RW, slimline specifications**

Height (without bezel)	9.50 mm (0.37 in.)
Width (without bezel)	128.00 mm (5.04 in.)
Depth (without bezel)	126.01 mm (4.97 in.)
Weight (maximum)	140 grams
Interface	SATA 1.5
Speed (maximum)	Up to 1.5 Gbps
Disc capacity	Standard
Internal buffer size	0.5 MB
Access times (typical)	Supplier dependent
<b>Maximum data transfer rates</b>	
Writes	8x DVD/ 24x CD
Reads	8x DVD/ 24x CD
<b>Power source</b>	
DC power requirements	5 V
DC current	1300 mA
<b>Environmental operating conditions (non-condensing)</b>	
Operating temperature range	5°C to 60°C
Relative humidity range	10% to 90% RH
Maximum wet bulb temperature	29°C
Altitude range	0 m to 3048 m
<b>Environmental non-operating conditions (non-condensing)</b>	
Operating temperature range	-40°C to 65°C
Relative humidity range	5% to 95% RH

**Table 69. 8x DVD±RW, slimline specifications (continued)**

Maximum wet bulb temperature	38°C
Altitude range	0 m to 10600 m

## Media-card reader

The following table lists the media-card reader specifications on your Precision 3660 Tower.

**Table 70. Media-card reader (standard offering)**

<b>Media supported (Maximum capacity that is supported will vary by Flash Media Types)</b>	
Media Supported	SDXC, SDHC, SD Secure Digital (SD) 4.0 UHS-II Secure Digital (SD) 3.0 UHS-I
Support Specification Versions	Secure Digital (SD) 4.0
<b>Power source</b>	
Max Power Requirements	1.2 A
Supply Voltage Range	3.3 V
Power Consumption	MS 0.08 mA
<b>Environmental operating conditions (Non-condensing)</b>	
Operating Temperature Range	0°C to 70°C
Relative Humidity Range	N/A
<b>Environmental non-operating conditions (Non-condensing)</b>	
Operating Temperature Range	N/A
Relative Humidity Range	N/A

**NOTE:** Systems may be shipped with media-card reader from Realtek or Genesys. If manually installing the Operating System, the appropriate driver must be installed.

## Power supply unit

**Table 71. Power supply unit specifications**

Description	Values			
	300 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	500 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	750 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	1000 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)
Type	300 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	500 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	750 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)	1000 W (internal power supply unit, 92% Efficient PSU, 80 Plus Platinum)
Input voltage	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC
Input frequency	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz
Input current (maximum)	<ul style="list-style-type: none"> <li>4.2 A @90 V AC</li> <li>2.1 A @180 V AC</li> </ul>	<ul style="list-style-type: none"> <li>7 A @90 V AC</li> <li>3.5 A @180 V AC</li> </ul>	<ul style="list-style-type: none"> <li>10 A @90 V AC</li> <li>10 A-5 A @100-240 V AC</li> </ul>	<ul style="list-style-type: none"> <li>13.6 A @90 V AC</li> <li>12 A-6 A @100-240 V AC</li> </ul>
Output current (continuous)	<ul style="list-style-type: none"> <li>12 VA1/18 A</li> <li>12 VA2/18 A</li> <li>12 VB/18 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA1/18 A</li> <li>12 VA2/18 A</li> <li>12 VB/18 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA1/18 A</li> <li>12 VA2/18 A</li> <li>12 VB/27 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA / 36 A</li> <li>12 VB / 27 A</li> <li>12 VC / 36 A</li> </ul>

**Table 71. Power supply unit specifications (continued)**

Description	Values			
			<ul style="list-style-type: none"> <li>12 VC/18 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VC1/18 A</li> <li>12 VC2/18 A</li> </ul>
Rated output voltage	<ul style="list-style-type: none"> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> </ul>	<ul style="list-style-type: none"> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> <li>12 VC</li> </ul>	<ul style="list-style-type: none"> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> <li>12 VC1</li> <li>12 VC2</li> </ul>	<ul style="list-style-type: none"> <li>12 VA</li> <li>12 VB</li> <li>12 VC</li> </ul>
BTUs/h (based on PSU max wattage)	1023 BTU/h	1705 BTU/h	2557 BTU/h	3410 BTU/h
<b>Temperature range</b>				
Operating	5°C to 50°C (41°F to 122°F)	5°C to 50°C (41°F to 122°F)	5°C to 50°C (41°F to 122°F)	5°C to 50°C (41°F to 122°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
<b>Compliance</b>				
Erp Lot6 Tier 2 requirement	Yes	Yes	Yes	Yes
80Plus compliant	Yes	Yes	Yes	Yes
Energy Star 8.0 compliant	Yes	Yes	Yes	Yes
GS mark compliant	Yes	Yes	Yes	Yes
NCTC Anti Power Surge certification	Yes	Yes	Yes	Yes
NCTC Anti Lightning Strike certification	Yes	Yes	Yes	Yes

## Thermal dissipation

The following table lists the thermal dissipation of your Precision 3660 Tower.

**Table 72. Thermal dissipation**

Power supply unit	Heat dissipation	Voltage
300 W (80 Plus Platinum)	300*3.412=818 BTU/hr	100 to 240 VAC, 47 to 63 Hz, 10.0 A/16.5 A
500 W (80 Plus Platinum)	500*3.412=1706 BTU/hr	100 to 240 VAC, 47 to 63 Hz, 16.0 A/18.0 A
750 W (80 Plus Platinum)	750*3.412=1706 BTU/hr	100 to 240 VAC, 47 to 63 Hz, 16.0 A/18.0 A
1000 W (80 Plus Gold)	1000*3.412=1706 BTU/hr	100 to 240 VAC, 47 to 63 Hz,16.0 A/18.0 A/20.0 A



# CMOS battery

The following table lists the CMOS battery specifications of your Precision 3660 Tower.

**Table 73. CMOS battery**

Brand	Type	Voltage	Composition	Battery life
SHUNWO, DOUBLE BEST, VIC-DAWN	CR2032	3.0 V	Lithium metal	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage. 20°C±2°C 940 Hrs. or Longer.910 Hrs.or Longer after 12 mo.

# Accessories

The following table lists the supported accessories on your Precision 3660 Tower.

**Table 74. Accessories**

Accessories
3Dconnexion SpaceMouse Wireless - 3DX-700066
Dell Slim Soundbar - SB521A
Dell Pro Wireless Headset - WL5022
Dell UltraSharp 27 Monitor - U2722D
Dell UltraSharp 34 Curved USB-C HUB Monitor - U3421WE
Dell Pro Wireless Keyboard and Mouse - KM5221W

# Security

## Software security

The following table lists the software security details of your Precision 3660 Tower.

**Table 75. 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
SafeGuard and Response, powered by VMware Carbon Black and Secureworks
Next Generation Antivirus (NGAV)
Endpoint Detection and Response (EDR)
Threat Detection and Response (TDR)
Managed Endpoint Detection and Response
Incident Management Retainer
Emergency Incident Response

**Table 75. Software security (continued)**

<b>Security options</b>
SafeData

**Table 76. Software security**

<b>Security options</b>
McAfee Small Business Security 30-day Free Trial
McAfee Small Business Security 12-month subscription
McAfee Small Business Security 36-month Subscription
Intel Guard Technologies & Secure Key: Software Guard (SGX), Data Guard (vPro only), Boot Guard, BIOS Guard (Core CPU's only), OS Guard (Core CPU's only) and Secure Key (i5 or greater only)
Intel Runtime BIOS Resilience (Copper Point) with attestation via Nifty Rock + Intel TXT
Support of Absolute Persistent Module BIOS agent v2
OpenXT validation required
SafeGuard and Response, powered by VMware Carbon Black and Secureworks
Next Generation Antivirus (NGAV)
Endpoint Detection and Response (EDR)
Threat Detection and Response (TDR)
Managed Endpoint Detection and Response
Incident Management Retainer
Emergency Incident Response
SafeData

## Trusted Platform Module

The following table lists the Trusted Platform Module (TPM) of your Precision 3660 Tower.

**Table 77. Trusted Platform Module (TPM)**

<b>TPM: Nuvoton NPCT750JA</b>
SPI interface
TPM 2.0
FIPs 140-2 certificate

## Mil-SPEC

The Precision 3660 Tower meets military specifications for the following MIL-STD 810G tests:

**Table 78. Tower - Military specifications**

Test Category	Test Method	Test Parameters
Non-operating altitude test	Method 500.5 Procedure I	Test specification: <ul style="list-style-type: none"> <li>Altitude: 15,000 ft</li> <li>Temperature: 21°C</li> </ul>

**Table 78. Tower - Military specifications (continued)**

<b>Test Category</b>	<b>Test Method</b>	<b>Test Parameters</b>
Operating altitude test	Method 500.5 Procedure II	Test specification: <ul style="list-style-type: none"> <li>● Altitude: 15,000 ft</li> <li>● Temperature: 21°C</li> </ul>
Non-operating high temperature test	Method 501.5 Procedure I	Test specification: <ul style="list-style-type: none"> <li>● High temperature cycles, climatic category A1 - Hot dry</li> <li>● Duration: 7 cycles, Non-Operating</li> </ul>
Operating high temperature test	Method 501.5 Procedure II	Test specification: <ul style="list-style-type: none"> <li>● Temperature: 60°C</li> <li>● Duration: 120 hours constant</li> </ul>
Non-operating low temperature test	Method 502.5 Procedure I - Storage	Test specification: <ul style="list-style-type: none"> <li>● Temperature: -51°C</li> <li>● Duration: 24 hours</li> </ul>
Operating low temperature test	Method 502.5 Procedure II - Operation	Test specification: <ul style="list-style-type: none"> <li>● Temperature: -29°C</li> <li>● Duration: 24 hours</li> </ul>
Humidity test	Method 507.5 Procedure I	Induced B3 <ul style="list-style-type: none"> <li>● Duration: Hot-humid, 15 days exposure</li> </ul> Induced B3, Non-operating
Mechanical shock test - I Bench handling	Method 516.6 Procedure VI	Test specification: <ul style="list-style-type: none"> <li>● The lifted edge of the chassis has been raised 100 mm (4 in.) above the horizontal bench top</li> </ul>
Blowing dust test	Method 510.5 Procedure I	Test specification: <ul style="list-style-type: none"> <li>● Temperature: 25°C and 60°C</li> <li>● Dust concentration: (10.6±7) g/m<sup>3</sup></li> <li>● Air flow velocity: 8.9 m/s</li> </ul>
Operating vibration test	Method 514.6 Procedure I	Refer table 514.6C-II: Category 4 - common carrier
Non-operating vibration test	Method 514.6 Procedure I	Refer table 514.7E-1: Category 24 - General minimum integrity exposure
Mechanical shock test - II operating	Requested by Client	Test specification: <ul style="list-style-type: none"> <li>● Pulse shape: Half-sine</li> <li>● Acceleration: 185 g</li> <li>● Pulse duration: 2 ms</li> <li>● Shock direction: 6 faces (±X, ±Y, ±Z axes)</li> <li>● No. of shock: 1 shock/ face (total 6 shocks)</li> </ul>
Mechanical shock test - III non-operating	Requested by Client	Test specification: <ul style="list-style-type: none"> <li>● Pulse shape: Trapezoidal</li> <li>● Acceleration: 30 g</li> <li>● Velocity change: 304 inch/second</li> <li>● Shock direction: 6 faces (±X, ±Y, ±Z axes)</li> </ul>

**Table 78. Tower - Military specifications (continued)**

Test Category	Test Method	Test Parameters
		<ul style="list-style-type: none"> <li>No. of shock: 1 shock/ face (total 6 shocks)</li> </ul>
Mechanical shock test - IV Non-operating	Requested by Client	Test specification: <ul style="list-style-type: none"> <li>Pulse shape: Half-sine</li> <li>Acceleration: 185 g</li> <li>Pulse duration: 2 ms</li> <li>Shock direction: 12 faces (<math>\pm X</math>, <math>\pm Y</math>, <math>\pm Z</math> axes)</li> <li>No. of shock: 1 shock/ face (total 12 shocks)</li> </ul>

## Acoustic noise emission information tower

The following table lists the acoustic noise emission information of your Precision 3660 Tower.

**Table 79. Acoustic noise emission information tower**

Component	Test Configuration
CPU	12 <sup>th</sup> Generation Intel Core i3-12100
Memory	8 GB
HDD (#, capacity)	2.5-inch hard drive
ODD	No
Graphics Adapter	Intel UHD Graphics 730

**Table 80. Declared Sound Power (LWAd)**

Operating Mode	Declared Sound Power(LWAd)
Idle	3.5
HDD Operating	3.6
CPU Stressed	3.8
ODD Operating	4.0

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

Declared Sound Pressure (LpA)				
Operating Mode	Tabletop System		Floor Standing System	
	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	25.3	N/A	N/A	N/A
CPU Stressed	26.6	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 10.2 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/temperature 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 5.1 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 included 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 Latitude Rugged tablets at [dell.com/support](https://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 | 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 | Configure allows you to remotely automate and configure over 150+ BIOS settings for a personalized user experience.

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

**Dell Command | 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 | Power Manager (end-user tool)** is a GUI-based factory-installed battery management tool that allows end users to choose the battery management methods that meet their personal preferences or work schedule without sacrificing IT's capability to control those settings with Group Policy.

**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 | Update eliminates the time-consuming hunting and pecking process of update installation.

**Dell Command | 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 unreachable 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 ([https://registry.dmtf.org/registry/results/field\\_initiative\\_name%3A%22DASH%201.0%22](https://registry.dmtf.org/registry/results/field_initiative_name%3A%22DASH%201.0%22)).

# 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	<a href="http://www.dell.com">www.dell.com</a>
My Dell app	
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	<a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a> <a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a>
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified by 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 <a href="http://www.dell.com/support">www.dell.com/support</a> .  For more information on how to find the Service Tag for your computer, see <a href="#">Locate the Service Tag on your computer</a> .
Dell knowledge base articles for a variety of computer concerns	<ol style="list-style-type: none"> <li>1. Go to <a href="http://www.dell.com/support">www.dell.com/support</a>.</li> <li>2. On the menu bar at the top of the Support page, select <b>Support &gt; Knowledge Base</b>.</li> <li>3. In the Search field on the Knowledge Base page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.</li> </ol>

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://www.dell.com/contactdell).

 **NOTE:** Availability varies by country/region and product, and some services may not be available in your country/region.

 **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.