Precision 7780

Technical Guidebook

D&LL Technologies

Notes, cautions, and warnings

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

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

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

Contents

Views of Precision 7780

Right

1. **SD-card slot**

   Reads from and writes to the SD card. The computer supports the following card types:

   - Secure Digital (SD)
   - Secure Digital High Capacity (SDHC)
   - Secure Digital Extended Capacity (SDXC)

2. **Universal audio jack**

   Connect headphones or a headset (headphone and microphone combo).

3. **USB 3.2 Gen 2 Type-C port with DisplayPort alt mode**

   Connect devices such as external storage devices, printers, and external displays. Provides data transfer rate of up to 10 Gbps.

   Supports DisplayPort 1.4 and also enables you to connect an external display using a display adapter.

   ⓘ **NOTE:** A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

4. **USB 3.2 Gen 1 port with PowerShare**

   Connect devices such as external storage devices and printers.

   Provides data transfer speeds up to 5 Gbps. PowerShare enables you to charge your USB devices even when your computer is turned off.

   ⓘ **NOTE:** If your computer is turned off or in a hibernate state, you must connect the power adapter to charge your devices using the PowerShare port. You must enable this feature in the BIOS setup program.

   ⓘ **NOTE:** Certain USB devices may not charge when the computer is turned off or in a sleep state. In such cases, turn on the computer to charge the device.

5. **Security-cable slot**

   Connect a security cable to prevent unauthorized movement of your computer.

Left

1. **Power-adapter port - 7.4 mm**

   Connect a power adapter to provide power to your computer and charge the battery.

2. **Network port**

   Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access, with a transfer rate of 10/100/1000 Mbps.

3. **HDMI 2.0a port (integrated graphics)/HDMI 2.1 port (discrete graphics)**

   Connect to a TV, external display, or another HDMI-in enabled device. Provides video and audio output.

4. **USB 3.2 Gen 1 port**

   Connect devices such as external storage devices and printers. Provides data transfer speeds up to 5 Gbps.

5. **Thunderbolt 4 ports with USB Type-C**

   Supports USB4, DisplayPort 1.4, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

   (i) **NOTE:** You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at Dell Support Site.

   (i) **NOTE:** A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

   (i) **NOTE:** USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

   (i) **NOTE:** Thunderbolt 4 supports two 4K displays or one 8K display.

6. **Smart card reader**

Top

(i) **NOTE:** Supports optional NFC/Contactless smart card reader that provides contactless access to cards in corporate networks.

1. **Camera-cover latch**

   The latch covers your computer camera lens. Slide the latch to the right-side of your computer to cover the camera lens.

2. **Power button with optional finger print reader**

   Press to turn on the computer if it is turned off, in sleep state, or in hibernate state.

   Press to put the computer in a sleep state if it is turned on.

   Press and hold for four seconds to force shut-down the computer.

   Press and hold for 25 seconds to force Real Time Clock (RTC) battery reset.

3. **Keyboard**

4. **Fingerprint reader (optional)**

   Press your finger on the fingerprint reader to log in to your computer. The fingerprint reader enables your computer to recognize your fingerprints as a password.

   (i) **NOTE:** Configure the fingerprint reader to register your fingerprint and enable access.

5. **Precision touchpad with optional NFC/contactless smart-card reader**

   Move your finger on the touchpad to move the mouse pointer. Tap to left-click and two fingers tap to right-click.

1. **Touchpad**

   Move your finger on the touchpad to move the mouse pointer. Tap to left-click and two fingers tap to right-click.

2. **Left-click area**

Press to left-click.

3. **Right-click area**

   Press to right-click.

4. **Power button**

   Press to turn on the computer if it is turned off, in sleep state, or in hibernate state.

   When the computer is turned on, press the power button to put the computer into sleep state; press and hold the power button for 10 seconds to force shut-down the computer.

   (i) **NOTE:** You can customize the power-button behavior in Windows. For more information, see *Me and My Dell* at Dell Support Mannuals.

Display
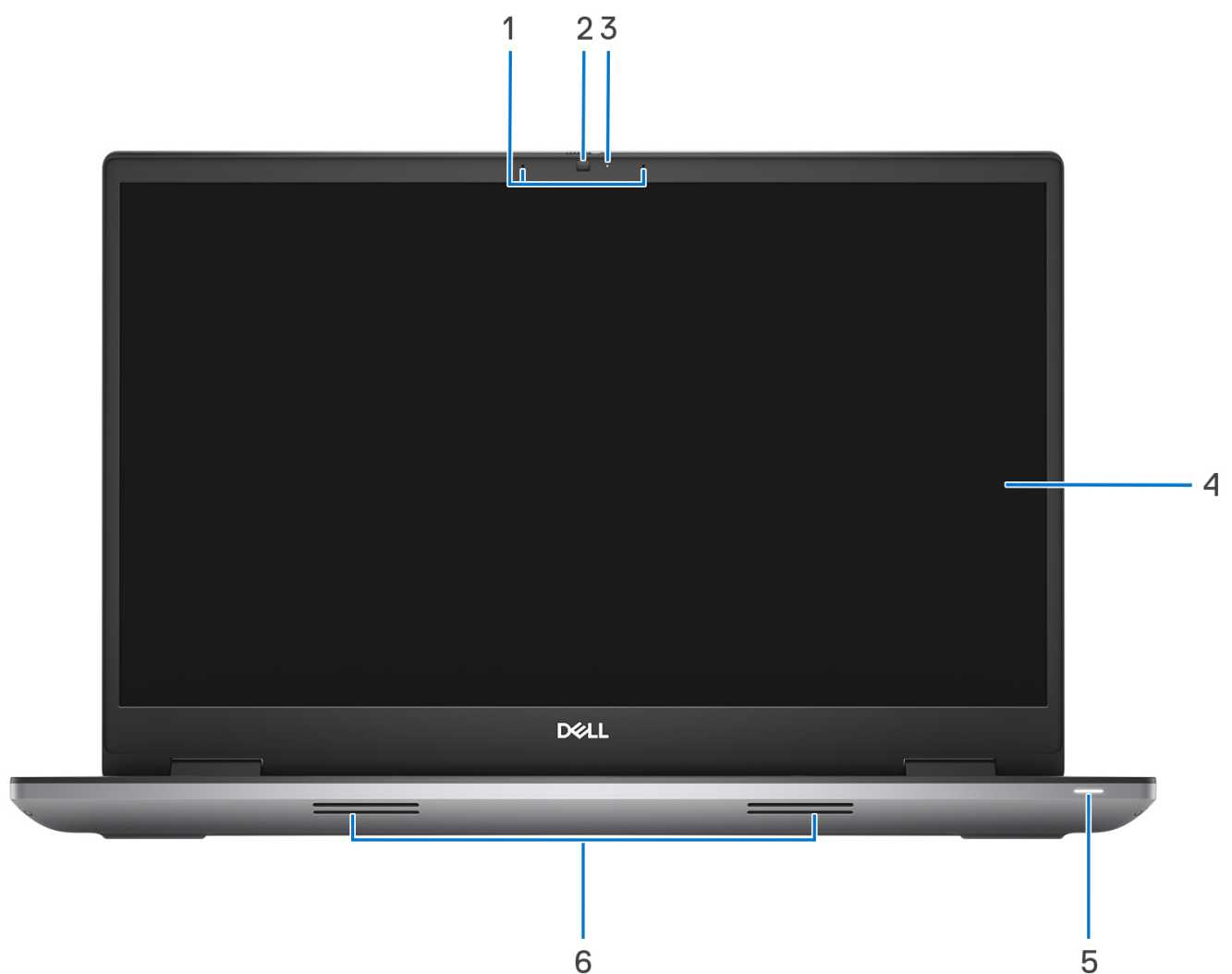
1. **Microphones**

   Provides digital sound input for audio recording, voice calls, and so on.

2. **RGB-infrared camera**

   This combined camera supports both infrared Windows Hello facial recognition and standard RGB imaging for photos and videos.

3. **Camera-status light**

Turns on when the camera is in use.

4. **LCD panel**

   Provides visual output to the user.

5. **Power-status light/Diagnostic-status light**

   Indicates the power state of the computer.

   White light—Power adapter is connected and the battery is charging.

6. **Speakers**

   Provide audio output.

Bottom
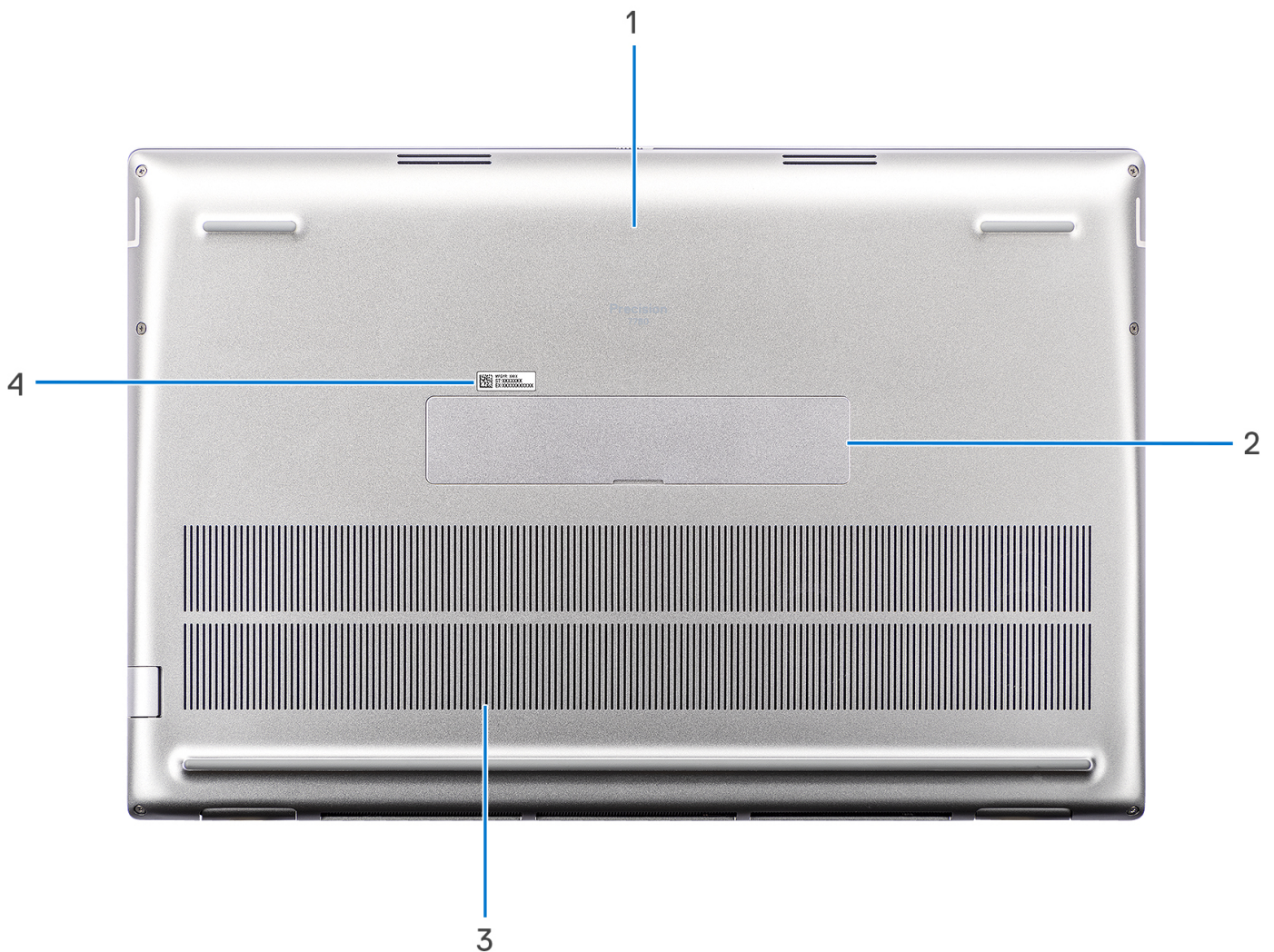
1. **Base cover**
2. **Solid state drive door (optional)**

   SSD door is a removable flap on the base cover of the laptop. Removing this part allows the user to access the solid state drive without removing the entire base cover.

   (i) **NOTE:** This feature is optional and is available based on the configuration of the computer.

3. **Air vents**

Air is blown out by the internal fans through the air vents.

ⓘ **NOTE:** To prevent the computer from overheating, ensure that the air vents are not blocked when the computer is running.

4. **Service Tag and regulatory labels**

The Service Tag is a unique alphanumeric identifier that enables Dell service technicians to identify the hardware components in your computer and access warranty information. The regulatory label contains regulatory information of your computer.

Service Tag

The service tag is a unique alphanumeric identifier that allows Dell service technicians to identify the hardware components in your computer and access warranty information.
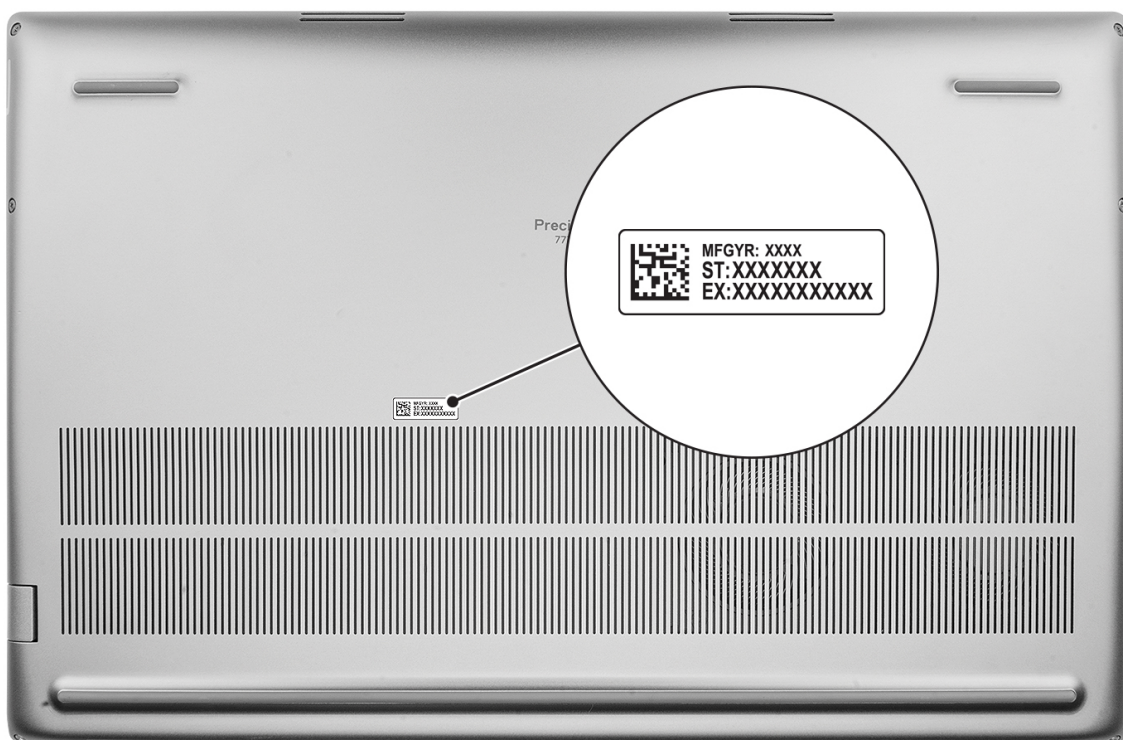
Battery charge and status light

The following table lists the battery charge and status light behavior of your Precision 7780.

Table 1. Battery charge and status light behavior

Power Source	LED Behavior	System Power State	Battery Charge Level
AC Adapter	Off	S0 - S5	Fully Charged
AC Adapter	Solid White	S0 - S5	< Fully Charged
Battery	Off	S4 - S5	11-100%
Battery	Solid Amber (590+/-3 nm)	S0 - S5	< 10%

● S0 (ON) - System is turned on.

- S4 (Hibernate) - The system consumes the least power compared to all other sleep states. The system is almost at an OFF state, expect for a trickle power. The context data is written to hard drive.
- S5 (OFF) - The system is in a shutdown state.

Specifications of Precision 7780

Dimensions and weight

The following table lists the height, width, depth, and weight of your Precision 7780.

Table 2. Dimensions and weight

Description	Values
Height:	
Front height	1.03 in. (25.95 mm)
Rear height	1.06 in. (26.70 mm)
Width	15.67 in. (398.00 mm)
Depth	10.44 in. (265.02 mm)
Weight ⓘ **NOTE:** The weight of your computer depends on the configuration that is offered.	6.66 lb (3.02 kg)

Processor

The following table lists the details of the processors that are supported in your Precision 7780.

Table 3. Processor

Description	Option one	Option two	Option three
Processor type	13th Generation Intel Core i5-13600HX	13th Generation Intel Core i7-13850HX	13th Generation Intel Core i9-13950HX
Processor wattage	55 W	55 W	55 W
Processor core count	14 cores (6 P cores and 8 E cores)	20 cores (8 P cores and 12 E cores)	24 cores (8 P cores and 16 E cores)
Processor thread count	20	28	32
Processor speed	P cores 2.60 GHz to 4.80 GHz, E cores 1.90 GHz to 3.60 GHz	P cores 2.20 GHz to 5.30 GHz, E cores 1.50 GHz to 3.80 GHz	P cores 2.20 GHz to 5.50 GHz, E cores 1.60 GHz to 4.00 GHz
Processor cache	24 MB	30 MB	36 MB
Integrated graphics	Intel UHD Graphics	Intel UHD Graphics	Intel UHD Graphics

Chipset

The following table lists the details of the chipset that is supported in your Precision 7780.

Table 4. Chipset

Description	Values
Chipset	Intel WM790
Processor	Intel 13th Generation Intel Core i5/i7/i9
DRAM bus width	64-bit
Flash EPROM	64 MB
PCIe bus	Up to Gen4

Operating system

Your Precision 7780 supports the following operating systems:

- Windows 11 Pro, 64-bit with DGR
- Windows 11 Pro National Education, 64-bit
- Windows 11 Home, 64-bit
- Windows 10 Home, 64-bit (factory installed downgrade with a Windows 11 Professional License)
- Windows 10 Pro, 64-bit (factory installed downgrade with a Windows 11 Professional License)
- Windows 10 Enterprise, 64-bit (factory installed downgrade with a Windows 11 Professional License)
- Windows 10 Pro Education, 64-bit (factory installed downgrade with a Windows 11 Professional License)
- Windows 10 Pro China, 64-bit (factory installed downgrade with a Windows 11 Professional License)
- RedHat Enterprise Linux 9.2
- Ubuntu 22.04 LTS, 64-bit

Memory

The following table lists the memory specifications that are supported by your Precision 7780.

Table 5. Memory specifications

Description	Values
Memory slots	- CAMM interface - SODIMM (i) **NOTE:** The SODIMM slots are not on the system board. They are on a SODIMM interface board. This is an optional item and not a standard feature of the system board.
Memory type	DDR5
Memory speed	3600 MHz 4800 MHz 5200/5600 MHz
Maximum memory configuration	128 GB - CAMM module 64 GB - SODIMM
Minimum memory configuration	16 GB - CAMM module

Table 5. Memory specifications (continued)

Description	Values
	• 8 GB - SODIMM
Memory size per slot	8 GB, 16 GB, 32 GB, 64 GB, 128 GB
Memory configurations supported	• 16 GB, 1 x 16 GB, DDR5, 4800 MHz, non-ECC, CAMM module • 32 GB, 1 x 32 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5600 MHz for 13th Generation Intel Core i7/i9 processors, non-ECC, CAMM module • 64 GB, 1 x 64 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5200 MHz for 13th Generation Intel Core i7/i9 processors, non-ECC, CAMM module • 128 GB, 1 x 128 GB, DDR5, 3600 MHz, non-ECC, CAMM module • 8 GB, 1 x 8 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5600 MHz for 13th Generation Intel Core i7/i9 processors, non-ECC, SODIMM • 16 GB, 1 x 16 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5600 MHz for 13th Generation Intel Core i7/i9 processors, non-ECC, SODIMM • 32 GB, 2 x 16 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5600 MHz for 13th Generation Intel Core i7/i9 processors, non-ECC, SODIMM, dual-channel • 64 GB, 2 x 32 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5200 MHz for 13th Generation Intel Core i7/i9 processors, non-ECC, SODIMM, dual-channel • 16 GB, 1 x 16 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5600 MHz for 13th Generation Intel Core i7/i9 processors, ECC, SODIMM • 32 GB, 1 x 32 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5200 MHz for 13th Generation Intel Core i7/i9 processors, ECC, SODIMM • 64 GB, 2 x 32 GB, DDR5, 4800 MHz for 13th Generation Intel Core i5 processors, 5200 MHz for 13th Generation Intel Core i7/i9 processors, ECC, SODIMM, dual-channel

External ports and slots

The following table lists the external ports and slots of your Precision 7780.

Table 6. External ports and slots

Description	Values
Network port	One RJ45 Ethernet port
USB ports	• Two Thunderbolt 4 ports (USB Type-C) • One USB 3.2 Gen 2 Type-C port with DisplayPort alt mode • One USB 3.2 Gen 1 port with PowerShare • One USB 3.2 Gen 1 port
Audio port	One universal audio jack
Video port(s)	• Two Thunderbolt 4 ports (USB Type-C)

Table 6. External ports and slots (continued)

Description	Values
	• One HDMI 2.0a port (UMA) • One HDMI 2.1 port (DGPU)
Media-card reader	One SD-card slot
Power-adapter port	• 180 W AC adapter, 7.40 mm barrel • 240 W AC adapter, 7.40 mm barrel
Security-cable slot	One wedge-shaped security slot

Input and output power of external ports

The following table lists the input and output power of external ports on the Precision 7780 .

Table 7. Input and output power of external ports

Port type	Connector type	Input power (Independent Mode*)	Input power (Combined Mode**)	Output power (Independent mode)	Output power (Combined mode)
Power-adapter port	7.40 mm barrel, DC-IN connector	240 W	Not applicable	Not applicable	Not applicable
USB Type-C port	Two Thunderbolt 4 ports with USB Type-C	130 W	210 W (105 W support for each port)	15 W (5 V/3 A)	22.5 W (5 V/3A + 5 V/1.5 A)
	One USB 3.2 Gen 2 Type-C port with DisplayPort alt mode	Not applicable	Not applicable	15 W (5 V/3 A)	Not applicable
USB Type-A port	One USB 3.2 Gen 1 port with PowerShare	Not applicable	Not applicable	7.5 W (5 V/1.5 A)	Not applicable
	One USB 3.2 Gen 1 port without PowerShare	Not applicable	Not applicable	4.5 W (5 V/0.9 A)	Not applicable

* Independent mode is a configuration where there is a single power source for either input or output. This power source can be a barrel adapter or a USB Type-C adapter, and it is used with a single Type-C device.

**Combined mode involves dual-input power sources for the Type-C adapter, and the output power is distributed to two or more Type-C devices.

Internal slots

The following table lists the internal slots of your Precision 7780.

Table 8. Internal slots

Description	Values
M.2	- One WWAN - One WLAN - Four M.2 solid state drive ⓘ **NOTE:** To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at Dell Support Site.

Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your Precision 7780.

Table 9. Ethernet specifications

Description	Values
Model	Intel i219LM
Transfer rate	10/100/1000 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Precision 7780.

Table 10. Wireless module specifications

Description	Values
Model number	Intel AX211
Transfer rate	Up to 2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz ⓘ **NOTE:** The 6 GHz frequency is supported on computers that are installed with Windows 11 operating system only.
Wireless standards	- WiFi 802.11a/b/g - Wi-Fi 4 (Wi-Fi 802.11n) - Wi-Fi 5 (WiFi 802.11ac) - Wi-Fi 6E (WiFi 802.11ax) ⓘ **NOTE:** 160 MHz channel use, MU-MIMO, new 6 GHz band
Encryption	64-bit and 128-bit WEP - AES-CCMP - TKIP
Bluetooth wireless card	Bluetooth 5.3

WWAN module

The following table lists the Wireless Wide Area Network (WWAN) modules that are supported on your Precision 7780.

Table 11. WWAN module specifications

Description	Option one
Model number	DW5930e, Qualcomm Snapdragon SDX55 5G
Transfer rate	Up to 3 Gbps DL/250 Mbps UL (3GPP Release 15 NR/LTE CAT20)
Frequency bands supported	- NR: (1, 2, 3, 5, 7, 8, 12, 20, 28, 38, 41, 66, 77, 78, 79) - LTE: (1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 29, 30, 32, 34, 38, 39, 40, 41, 42, 46, 48, 66) - HSPA+: (1, 2, 4, 5, 6, 8, 9, 19)
Wireless standards	- NR FR1(Sub 6) FDD/TDD - LTE FDD/TDD - WCDMA/HSPA+ - GPS/GLONASS/Beidou/Galileo
Encryption	Not supported
Global Navigation Satellite System (GNSS)	Supports GPS, and GLONASS

ⓘ **NOTE:** For instructions on how to find your computer's IMEI (International Mobile Station Equipment Identity) number, see the knowledge base article 000143678 at Dell Support Site.

Audio

The following table lists the audio specifications of your Precision 7780.

Table 12. Audio specifications

Description		Values
Audio controller		Realtek ALC3281
Stereo conversion		Supported
Internal audio interface		SoundWire
External audio interface		One universal audio jack
Number of speakers		Two
Internal-speaker amplifier		Integrated
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average speaker output	2 W + 2 W
Subwoofer output		Not supported
Microphone		Dual digital-array microphones

Storage

This section lists the storage options on your Precision 7780.

- M.2 2230 PCIe NVMe Gen4 x4, Class 35 SSD
- M.2 2280 PCIe NVMe Gen4 x4, Class 40 SSD
- M.2 2280 PCIe NVMe Gen4 x4, Class 40 SED (Self-Encrypting Drive)

Table 13. Storage specifications

Storage type	Interface type	Capacity
M.2 2230 Class 35 SSD	PCIe NVMe Gen4 x4	256 GB
M.2 2280 Class 40 SSD	PCIe NVMe Gen4 x4	Up to 4 TB
M.2 2280 Class 40 SED (Self-Encrypting Drive)	PCIe NVMe Gen4 x4	Up to 1 TB

RAID (Redundant Array of Independent Disks)

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

(i) **NOTE:** RAID is not supported on Intel Optane configurations.

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

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

RAID 5 as the most common and best "all-round" RAID level, RAID 5 stripes data blocks across all drives in an array (at least 3 to a maximum of 32), and also distributes parity data across all drives. In the event of a single drive failure, the system reads the parity data from the working drives to rebuild the data blocks that were lost. RAID 5 read performance is comparable to that of RAID 0, but there is a penalty for writes since the system must write both the data block and the parity data before the operation is complete. The RAID parity requires one drive capacity per RAID set, so usable capacity will always be one drive less than the total number of drives in the configuration. Not suited for applications requiring many small random data writes due to poor random data write performance.

RAID 10 (sometimes referred to as RAID 1+0) combines RAID 1 and RAID 0 to offer multiple sets of mirrors striped together. RAID 10 offers good performance with good data protection and no parity calculations. RAID 10 requires a minimum of four drives, and usable capacity is 50% of available drives. It should be noted, however, that RAID 10 can use more than four drives in multiples of two. Each mirror in RAID 10 is called a "leg" of the array. A RAID 10 array using, say, eight drives (four "legs," with four drives as capacity) will offer extreme performance in both spinning media and SSD environments as there are many more drives splitting the reads and writes into smaller chunks across each drive. Ideal for applications requiring many small random data writes due to superb random data write performance.

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

Precision 7780 supports RAID with more than one solid state drive configuration.

Media-card reader

The following table provides the specification of media cards supported by your Precision 7780.

Table 14. Media-card reader specifications

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

Keyboard

The following table lists the keyboard specifications of your Precision 7780.

Table 15. Keyboard specifications

Description	Values
Keyboard type	Backlit keyboard
Keyboard layout	QWERTY
Number of keys	- United States and Canada: 99 keys - United Kingdom: 103 keys - Japan: 106 keys
Keyboard size	X=19.05 mm (0.75 in.) key pitch Y=18.05 mm (0.71 in.) key pitch
Keyboard shortcuts	Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. To type the alternate character, press Shift and the desired key. To perform secondary functions, press Fn and the desired key. ⓘ **NOTE:** You can define the primary behavior of the function keys (F1–F12) changing **Function Key Behavior** in the BIOS setup program. ⓘ **NOTE:** If Copilot in Windows is not available on your computer, pressing the Copilot key launches Windows search. For more information about Copilot in Windows, search in the Knowledge Base Resource at the Dell Support site.

Camera

The following table lists the camera specifications of your Precision 7780.

Table 16. Camera specifications

Description	Values
Number of cameras	One
Camera type	There are two camera options: ● FHD RGB ● FHD IR
Camera location	Front camera
Camera sensor type	Proximity sensor technology
Camera resolution:	
Still image	0.92 megapixels
Video	1920 x 1080 (FHD) at 30 fps
Infrared camera resolution:	
Still image	0.30 megapixels
Video	1920 x 1080 (FHD) at 30 fps
Diagonal viewing angle:	
Camera	74.9 degrees
Infrared camera	70 degrees

Touchpad

The following table lists the touchpad specifications of your Precision 7780.

Table 17. Touchpad specifications

Description	Values
Touchpad resolution:	
Horizontal	>300 dpi
Vertical	761
Touchpad dimensions:	
Horizontal	115.00 mm (4.52 in.)
Vertical	80.00 mm (3.14 in.)
Touchpad gestures	For more information about the touchpad gestures available on Windows, see the Microsoft Knowledge Base article at Microsoft Support Site.

Power adapter

The following table lists the power adapter specifications of your Precision 7780.

Table 18. Power-adapter specifications

Description		Option one	Option two
Type		180 W AC adapter	240 W AC adapter
Connector dimensions:			
	External diameter	7.40 mm (0.29 in.)	7.40 mm
	Internal diameter	5.10 mm (0.20 in.)	5.10 mm
Power-adapter dimensions:			
	Height	22 mm (0.8 in.)	22 mm (0.8 in.)
	Width	66 mm (2.6 in.)	66 mm (2.6 in.)
	Depth	130 mm (5.1 in.)	143 mm (5.6 in.)
Input voltage		100 VAC x 240 VAC	100 VAC x 240 VAC
Input frequency		50 Hz to 60 Hz	50 Hz to 60 Hz
Input current (maximum)		2.34 A	3.50 A
Output current (continuous)		9.23 A	12.30 A
Rated output voltage		19.50 VDC	19.50 VDC
Temperature range:			
	Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
	Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

⚠ **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.**

Battery

The following table lists the battery specifications of your Precision 7780.

Table 19. Battery specifications

Description	Option one	Option two	Option three	Option four
Battery type	6-cell, 83 Wh, Lithium-ion, ExpressCharge 2.0	6-cell, 93 WHr, Lithium-ion, ExpressCharge and ExpressChargeBoost	6-cell, 83 Wh, Lithium-ion, LCL, ExpressCharge	6-cell, 93 WHr, Lithium-ion, LCL, ExpressCharge
Battery voltage	11.55 V (Nominal)	11.55 V (Nominal)	11.55 V (Nominal)	11.55 V (Nominal)
Battery weight (maximum)	0.383 kg (0.844 lb)	0.41 kg (0.90 lb)	0.383 kg (0.844 lb)	0.41 kg (0.90 lb)
Battery dimensions:				

Table 19. Battery specifications (continued)

Description		Option one	Option two	Option three	Option four
	Height	10.75 mm (0.42 in.)	13.25 mm (0.52 in.)	10.75 mm (0.42 in.)	13.25 mm (0.52 in.)
	Width	296.75 mm (11.68 in.)	272.40 mm (10.72 in.)	296.75 mm (11.68 in.)	272.40 mm (10.72 in.)
	Depth	66.68 mm (2.62 in.)	66.68 mm (2.62 in.)	66.68 mm (2.62 in.)	66.68 mm (2.62 in.)
Temperature range:					
	Operating	0°C-50°C (32°F-122°F)	0°C-50°C (32°F-122°F)	0°C-50°C (32°F-122°F)	0°C-50°C (32°F-122°F)
	Storage	−20°C-60°C (-4°F-140°F)	−20°C-60°C (4°F-140°F)	−20°C-60°C (-4°F-140°F)	−20°C-60°C (-4°F-140°F)
Battery operating time		Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Battery charging time (approximate) ⓘ **NOTE:** Control the charging time, duration, start and end time, and so on using the Dell Power Manager application. For more information on the Dell Power Manager see, *Me and My Dell* on dell support.		• ExpressCharge 2.0: From 0% up to 35% in as little as 20 minutes • Express charge: 2 hrs • Standard charge: 3 hrs	• ExpressCharge Boost: From 0% up to 35% in as little as 20 minutes • Express charge: 2 hrs • Standard charge: 3 hrs	• Express charge: 2 hrs • Standard charge: 3 hrs	• Express charge: 2 hrs • Standard charge: 3 hrs
Coin-cell battery		Supported ⓘ **NOTE:** It is recommended that you use a Dell coin-cell battery for your computer. Dell does not provide warranty coverage for problems that are caused by using accessories, parts, or components that are not supplied by Dell.	Supported ⓘ **NOTE:** It is recommended that you use a Dell coin-cell battery for your computer. Dell does not provide warranty coverage for problems that are caused by using accessories, parts, or components that are not supplied by Dell.	Supported ⓘ **NOTE:** It is recommended that you use a Dell coin-cell battery for your computer. Dell does not provide warranty coverage for problems that are caused by using accessories, parts, or components that are not supplied by Dell.	Supported ⓘ **NOTE:** It is recommended that you use a Dell coin-cell battery for your computer. Dell does not provide warranty coverage for problems that are caused by using accessories, parts, or components that are not supplied by Dell.

⚠ **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.**

Table 19. Battery specifications (continued)

Description	Option one	Option two	Option three	Option four
⚠ **CAUTION: Dell recommends that you charge the battery regularly for optimal power consumption. If your battery charge is completely depleted, connect the power adapter, turn on your computer, and then restart your computer to reduce the power consumption.**				

Display

The following table lists the display specifications of your Precision 7780.

Table 20. Display specifications

Description		Option one	Option two
Display type		17.3-inch Full High Definition (FHD)	17.3-inch Ultra High Definition (UHD)
Touch options		No	No
Display-panel technology		Wide-viewing angle (WVA)	Wide-viewing angle (WVA), WLED
Display-panel dimensions (active area):			
	Height	214.81 mm (8.46 in.)	214.81 mm (8.46 in.)
	Width	381.89 mm (15.04 in.)	381.89 mm (15.04 in.)
	Diagonal	438.16 mm (17.30 in.)	438.16 mm (17.30 in.)
Display-panel native resolution		1920 x 1080	3840 x 2160
Luminance (typical)		500 nits	500 nits
Megapixels		2.07	8.29
Color gamut		99% DCIP3 typical	99% DCIP3 typical
Pixels Per Inch (PPI)		127	255
Contrast ratio (minimum)		• 1000:1 (typical) • 800:1 (minimum)	• 1200:1 (typical) • 1000:1 (minimum)
Response time (maximum)		35 ms	35 ms
Refresh rate		60 Hz	120 Hz
Horizontal view angle		+/- 80 degrees (minimum)	+/- 80 degrees (minimum)
Vertical view angle		+/- 80 degrees (minimum)	+/- 80 degrees (minimum)
Pixel pitch		0.198 mm x 0.198 mm	0.099 mm x 0.099 mm
Power consumption (maximum)		9 W	10.3 W
Anti-glare vs glossy finish		Anti-glare	Anti-glare

Fingerprint reader

The following table lists the fingerprint-reader specifications of your Precision 7780.

Table 21. Fingerprint reader specifications

Description	Values
Sensor technology	Capacitive
Sensor resolution	500 DPI
Sensor pixel size	108 x 88 pixel

Sensor

The following table lists the sensor of your Precision 7780.

Table 22. Sensor

Sensor support
Ambient Light Sensor
Windows Auto Brightness
Accelerometer
Adaptive Thermal Performance (Lap vs. Desk mode) requires Accelerometer (i) **NOTE:** This is for thermal only.
Hall Effect Sensor
Sensor Hub
Proximity for SAR compliance (for the WWAN module) Near Field Proximity Sensor

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Precision 7780.

Table 23. GPU—Integrated

Controller	Memory size	Processor
Intel UHD Graphics	Shared system memory	Intel 13th Generation Intel Core i5/i7/i9

Multiple display support matrix

The following table lists the multiple display support matrix for your Precision 7780.

Table 24. Multiple display support matrix

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel UHD Graphics	Integrated	3	4

GPU — Discrete

The following table lists the specifications of the discrete graphics processing unit (GPU) supported by your Precision 7780.

Table 25. GPU — Discrete

Controller	External display support	Memory size	Memory type
NVIDIA RTX A1000 laptop	One DisplayPort 1.4	6 GB	GDDR6
NVIDIA RTX 1000 Ada generation laptop	One DisplayPort 1.4	6 GB	GDDR6
NVIDIA RTX 2000 Ada generation laptop	One DisplayPort 1.4	8 GB	GDDR6
NVIDIA RTX 3500 Ada generation laptop	One DisplayPort 1.4	12 GB	GDDR6
NVIDIA RTX 4000 Ada generation laptop	One DisplayPort 1.4	12 GB	GDDR6
NVIDIA RTX 5000 Ada generation laptop	One DisplayPort 1.4	16 GB	GDDR6
NVIDIA GeForce RTX 4090 laptop	One DisplayPort 1.4	16 GB	GDDR6

Multiple display support matrix

The following table lists the multiple display support matrix for your Precision 7780.

Table 26. Multiple display support matrix

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
NVIDIA RTX A1000 laptop	• MS Hybrid • Direct Output Mode • Discrete Mode	• 4 • 4 • 3	• 4 • 4 • 3
NVIDIA RTX 1000 Ada Generation Laptop	• MS Hybrid • Direct Output Mode • Discrete Mode	• 4 • 4 • 3	• 4 • 4 • 3
NVIDIA RTX 2000 Ada Generation laptop	• MS Hybrid • Direct Output Mode • Discrete Mode	• 4 • 4 • 3	• 4 • 4 • 3
NVIDIA RTX 3500 Ada Generation laptop	• MS Hybrid • Direct Output Mode • Discrete Mode	• 4 • 4 • 3	• 4 • 4 • 3
NVIDIA RTX 4000 Ada Generation laptop	• MS Hybrid • Direct Output Mode • Discrete Mode	• 4 • 4 • 3	• 4 • 4 • 3
NVIDIA RTX 5000 Ada Generation laptop	• MS Hybrid	• 4	• 4

Table 26. Multiple display support matrix (continued)

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
	• Direct Output Mode • Discrete Mode	• 4 • 3	• 4 • 3
NVIDIA GeForce RTX 4090 laptop	• MS Hybrid • Direct Output Mode • Discrete Mode	• 4 • 4 • 3	• 4 • 4 • 3

Hardware security

The following table lists the hardware security of your Precision 7780.

Table 27. Hardware security

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
TCG Certificatication for TPM (Trusted Computing Group)
Contacted Smart Card and Control Vault 3
Contactless Smart Card, NFC, and ControlVault 3
SED SSD NVMe, SSD, and HDD (Opal and non-Opal) per SDL
Finger Print Reader in Power Button tied to Control vault 3
SED (Opal 2.0 only - PCIe Interface)
Chassis Intrusion Detection
Battery Removal Detection
RPMC SPI flash
SPI Flash Tamper Detection/Prevention Shunt Circuit

Smart-card reader

Contactless smart-card reader

This section lists the contactless smart-card reader specifications of your Precision 7780. This module is only available in computers shipped with Smart-card readers.

Table 28. Contactless smart-card reader specifications

Title	Description	Dell ControlVault 3 Contactless Smart-card reader with NFC
Felica Card Support	Reader and software capable of supporting Felica contactless cards	Yes
Prox (Proximity) (125 kHz) Card support	Reader and software capable of supporting Prox/Proximity/125 kHz contactless cards	No

Table 28. Contactless smart-card reader specifications (continued)

Title	Description	Dell ControlVault 3 Contactless Smart-card reader with NFC
ISO 14443 Type A Card Support	Reader and software capable of supporting ISO 14443 Type A contactless cards	Yes
ISO 14443 Type B Card Support	Reader and software capable of supporting ISO 14443 Type B contactless cards	Yes
ISO/IEC 21481	Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens	Yes
ISO/IEC 18092	Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens	Yes
ISO 15693 Card Support	Reader and software capable of supporting ISO15693 contactless cards	Yes
NFC Tag Support	Supports reading and processing of NFC compliant tag information	Yes
NFC Reader Mode	Support for NFC Forum Defined Reader mode	Yes
NFC Writer Mode	Support for NFC Forum Defined Writer mode	Yes
NFC Peer-to-Peer Mode	Support for NFC Forum Defined Peer to Peer mode	Yes
NFC Proximity OS Interface	Enumerates NFP (Near Field Proximity) device for OS to utilize	Yes
PC/SC OS interface	Personal Computer/Smart-Card specification for integration of hardware readers into personal computer environments	Yes
CCID driver compliance	Common driver support for Integrated Circuit Card Interface Device for OS level drivers	Yes
Dell ControlVault support	Device connects to Dell ControlVault for usage and processing	Yes

(i) **NOTE:** 125 Khz proximity cards are not supported.

Table 29. Supported cards

Manufacturer	Card	Supported
HID	jCOP readertest3 A card (14443a)	Yes
	1430 1L	
	DESFire D8H	
	iClass (Legacy)	
	iClass SEOS	
NXP/Mifare	Mifare DESFire 8K White PVC Cards	Yes
	Mifare Classic 1K White PVC Cards	
	NXP Mifare Classic S50 ISO Card	

Table 29. Supported cards (continued)

Manufacturer	Card	Supported
G&D	idOnDemand - SCE3.2 144K	Yes
	SCE6.0 FIPS 80K Dual+ 1 K Mifare	
	SCE6.0 nonFIPS 80K Dual+ 1 K Mifare	
	SCE6.0 FIPS 144K Dual + 1K Mifare	
	SCE6.0 nonFIPS 144K Dual + 1 K Mifare	
	SCE7.0 FIPS 144K	
Oberthur	idOnDemand - OCS5.2 80K	Yes
	ID-One Cosmo 64 RSA D V5.4 T=0 card	
	ID-One Cosmo 128K V5.5 card	
Gemalto	TOP DL GX4 144K card	Yes
Sony	Felica RC-S962	Yes
	Felica RC-S966	Yes
PIVKey	C910 PKI	Yes
IDENTIV	PIV programmed cards	Yes

Contacted smart-card reader

The following table lists the contacted smart-card reader specifications of your Precision 7780.

Table 30. Contacted smart-card reader specifications

Title	Description	Dell ControlVault 3 Smart-card reader
ISO 7816 -3 Class A Card Support	Reader capable of reading 5 V powered smart-card	Yes
ISO 7816 -3 Class B Card Support	Reader capable of reading 3 V powered smart-card	Yes
ISO 7816 -3 Class C Card support	Reader capable of reading 1.8 V powered smart-card	Yes
T=0 support	Cards support character level transmission	Yes
T=1 support	Cards support block level transmission	Yes
EMVCo Compliant	Compliant with EMVCo (for electronic payment standards) smart-card standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smart-card standards	Yes
PC/SC OS interface	Personal Computer/Smart-Card specification for integration of hardware readers into personal computer environments	Yes
CCID driver compliance	Common driver support for Integrated Circuit Card Interface Device for OS level drivers.	Yes

Table 30. Contacted smart-card reader specifications (continued)

Title	Description	Dell ControlVault 3 Smart-card reader
Dell ControlVault support	Device connects to Dell ControlVault for usage and processing	Yes

Operating and storage environment

This table lists the operating and storage specifications of your Precision 7780.

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

Table 31. Computer environment

Description	Operating	Storage
Temperature range	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	1.30 GRMS
Shock (maximum)	110 G†	160 G†
Altitude range	-15.2 m to 3,048 m (-49.8 ft to 10,000 ft)	-15.2 m to 10,668 m (-49.8 ft to 35,000 ft)

⚠ **CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.**

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

† Measured using a 2 ms half-sine pulse.

Engineering specifications

Ethernet

Intel Ethernet Connection i219-LM

The following table lists the i219-LM specifications.

Table 32. Intel Ethernet Connection i219-LM specifications

Feature	Values
External connector type	RJ45
Data rate	10/100/1000 Mbps
Controller Details	
Controller bus architecture	PCI Express base specification revision 1.1
Integrated memory	Yes
Data transfer mode	Yes (Bus-Master DMA)
Power consumption (Full operation per data rate connection speed)	542 mW (Max)
Power consumption (Standby operation)	76 mW (Max)
IEEE standards compliance	802.3
Hardware certifications	N/A
Boot ROM support	EEPROM (Located in SPI)
Network Transfer Mode	
Network transfer rate	10 Mb (full/half-duplex)
10BASE-T (full-duplex) 20 Mbps	100 Mb (full/half-duplex)
100BASE-TX (half-duplex) 100 Mbps	1000 Mb (full-duplex)
Environmental	
Operating temperature range	0°C–85°C (32°F–185°F)
Operating humidity	20% to 80% (non condensing)
Operating system driver Support	- Windows (x64) - Ubuntu - Neokylin
Manageability	- Wakeup On LAN - PXE 2.1
Management capabilities alerting	Optional Intel Standard Manageability (must be made at time of purchase).

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

Wireless module

Intel AX211, 2x2 MIMO, 2400 Mbps, 2.4/5/6 GHz, Wi-Fi 6E (WiFi 802.11ax), Bluetooth 5.3

The following table lists the Intel AX211 specifications.

(i) **NOTE:** Wi-Fi 6 is supported in regions where Wi-Fi 6E is unavailable.

Table 33. Intel AX211 specifications

Description	Specifications
Host interface	CNVio
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160 MHz channel use, MU-MIMO, new 6 GHz 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 (i) **NOTE:** Other names and brands may be claimed as the property of others.
Operating frequency bands	2.4 GHz 5 GHz 6 GHz
Data rate	2.4 GHz 40M: Up to 574 Mbps 5/6 GHz 80M: Up to 1.2 Gbps 5/6 GHz 160M: Up to 2.4 Gbps
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Security methods	- WPA2 Personal and Enterprise - WPA3
Authentication protocols	802.1X EAP-TLS - EAP-TTLS/MSCHAPv2 - PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)
Encryption	64-bit and 128-bit WEP - TKIP 128-bit AES-CCMP 256-bit AES-GCMP
Product safety	- UL - C-UL - CB (IEC60950-1)
Management capabilities alerting	Support for Intel AMT
Government compliance	- FIPS 140-2 - FISMA
Client utility	Intel PRO/Set wireless software v22 and later
Antenna diversity	Supported
Radio On/Off	Supported
Roaming	Support seamless roaming between access points

Table 33. Intel AX211 specifications (continued)

Description	Specifications
Wake on wireless	Supported
Wireless display	Native Miracast support by Windows
Wireless PAN standard	- Dual Mode Bluetooth 5.3 - BLE
Bluetooth data rates	Up to 3 Mbps
Bluetooth operating frequency bands	2.4 GHz
Bluetooth profiles supported	Support for Microsoft Inbox Bluetooth Wireless Card 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)

WWAN module

Qualcomm Snapdragon X55 Global 5G Modem

The following table lists the Qualcomm Snapdragon X55 Global 5G Modem specifications.

Table 34. Qualcomm Snapdragon X55 specifications

Form factor	M.2 3042 Key.B single side
Host interface	PCIe Gen3
Network standard	- NR FR1(Sub6) FDD/TDD - LTE FDD/TDD - WCDMA/HSPA+ - GPS/GLONASS/Beidou/Galileo
Transfer rate	Up to 3 Gbps DL/250 Mbps UL (3GPP Release15 NR/LTE CAT20)
Operating frequency bands	- NR (1,2,3,5,7,8,12,20,28,38,41,66,71,77,78,79) - LTE(1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 29, 30, 32, 34, 38, 39, 40, 41, 42, 46, 48, 66) - HSPA+ (1,2,4,5,6,8,9,19)
Power supply	DC 3.13 V to 3.63 V, Typical 3.3 V
SIM card	Supported through external SIM slot
eSIM with Dual SIM (DSSA)	Supported ⓘ **NOTE:** The availability of eSIM functionality embedded on the module is dependent on the region and carrier requirements.
Antenna diversity	Supported
Radio On/Off	Supported

Table 34. Qualcomm Snapdragon X55 specifications (continued)

Wake on wireless	Not supported
Normal operating temperature	-30°C to + 70°C
Extended operating temperature	-40°C to +85°C
Antenna connector	- WWAN ANT0 X 1 - WWAN ANT1 X 1 - WWAN ANT2 X 1 - WWAN ANT3 X 1

GPU—Integrated

Intel UHD Graphics

The following table lists the Intel UHD Graphics specifications.

Table 35. Intel UHD Graphics specifications

Bus type	Integrated graphics ⓘ **NOTE:** Intel UHD Graphics uses the computers memory as video memory.
Memory type	Unified Memory Architecture (UMA)
Memory interface	Not applicable
Processor graphics	i5/i7/i9
Estimated maximum power consumption (TDP)	15 W-25 W, in the CPU power
Maximum vertical refresh rate	- HDMI 2.0a: 4096 x 2160 @ 60 Hz, 24 bpp - Max Digital: 4096 x 2304 @ 60 Hz, 24 bpp
Multiple display support	Up to four displays using DisplayPort Multi-Streaming Technology (MST)

GPU—Discrete

NVIDIA RTX A1000 laptop, 6 GB, GDDR6

The following table lists the NVIDIA RTX A1000 laptop specifications.

Table 36. NVIDIA RTX A1000 laptop specifications

Feature	Values
GPU	NVIDIA RTX A1000 laptop
CUDA cores	2560
Memory bandwidth	168 GB/s
Memory type	GDDR6
Memory size	6 GB
Memory interface	96-bit

Table 36. NVIDIA RTX A1000 laptop specifications (continued)

Feature	Values
TGP	80 W
GPU base clock	1507 MHz
GPU boost clock	1822 MHz
Vram clock	7001 MHz
PCIe	Gen4 x 8
Features	Dynamic boost
Maximum Display Resolution	8K @60 Hz
Number of Display Supported	Up to four displays

NVIDIA RTX 1000 Ada generation laptop, 6 GB, GDDR6

The following table lists the NVIDIA RTX 1000 Ada generation laptop specifications.

Table 37. NVIDIA RTX 1000 Ada generation laptop specifications

Feature	Values
GPU	NVIDIA RTX 1000 Ada generation laptop
CUDA cores	2560
Memory bandwidth	192 GB/s
Memory type	GDDR6
Memory size	6 GB
Memory interface	96-bit
TGP	115 W
GPU base clock	2355 MHz
GPU boost clock	2355 MHz
Vram clock	8001 MHz
PCIe	Gen4 x 8
Features	Dynamic boost
Maximum Display Resolution	8K @60 Hz
Number of Display Supported	Up to four displays

NVIDIA RTX 2000 ADA Generation laptop, 8 GB, GDDR6

The following table lists the NVIDIA RTX 2000 ADA Generation laptop specifications.

Table 38. NVIDIA RTX 2000 ADA Generation laptop specifications

Feature	Values
GPU	NVIDIA RTX 2000 ADA Generation laptop
CUDA cores	3072
Memory bandwidth	256 GB/s
Memory type	GDDR6

Feature	Values
Memory size	8 GB
Memory interface	128-bit
TGP	115 W
GPU base clock	2295 MHz
GPU boost clock	2355 MHz
Vram clock	8001 MHz
PCIe	Gen4 x 8
Features	● Dynamic boost ● Advanced Optimus
Maximum display resolution	8K @60 Hz
Number of displays supported	Up to four displays

NVIDIA RTX 3500 ADA Generation laptop, 12 GB, GDDR6

The following table lists the NVIDIA RTX 3500 ADA Generation laptop specifications.

Table 39. NVIDIA RTX 3500 ADA Generation laptop specifications

Feature	Values
GPU	NVIDIA RTX 3500 ADA Generation laptop
CUDA cores	5120
Memory bandwidth	432 GB/s
Memory type	GDDR6
Memory size	12 GB
Memory interface	192-bit
TGP	115 W
GPU base clock	1725 MHz
GPU boost clock	2250 MHz
Vram clock	9001 MHz
PCIe	Gen4 x 8
Features	Dynamic boost
Maximum display resolution	8K @60 Hz
Number of displays supported	Up to four displays

NVIDIA RTX 4000 ADA Generation laptop, 12 GB, GDDR6

The following table lists the NVIDIA RTX 4000 ADA Generation laptop specifications.

Table 40. NVIDIA RTX 4000 ADA Generation laptop specifications

Feature	Values
GPU	NVIDIA RTX 4000 ADA Generation laptop

Feature	Values
CUDA cores	7424
Memory bandwidth	432 GB/s
Memory type	GDDR6
Memory size	12 GB
Memory interface	192-bit
TGP	115 W
GPU base clock	1530 MHz
GPU boost clock	2115 MHz
Vram clock	9001 MHz
PCIe	Gen4 x 8
Features	Dynamic boost
Maximum display resolution	8K @60 Hz
Number of displays supported	Up to four displays

NVIDIA RTX 5000 ADA Generation laptop, 16 GB, GDDR6

The following table lists the NVIDIA RTX 5000 ADA Generation laptop specifications.

Table 41. NVIDIA RTX 5000 ADA Generation laptop specifications

Feature	Values
GPU	NVIDIA RTX 5000 ADA Generation laptop
CUDA cores	9728
Memory bandwidth	576 GB/s
Memory type	GDDR6
Memory size	16 GB
Memory interface	256-bit
TGP	115 W
GPU base clock	1425 MHz
GPU boost clock	2115 MHz
Vram clock	9001 MHz
PCIe	Gen4 x 8
Features	Dynamic boost
Maximum display resolution	8K @60 Hz
Number of displays supported	Up to four displays

NVIDIA GeForce RTX 4090 laptop

The following table provides the NVIDIA GeForce RTX 4090 laptop specifications of your Precision 7780.

Table 42. NVIDIA GeForce RTX 4090 laptop specifications

Feature	Values
GPU	NVIDIA GeForce RTX 4090 laptop
CUDA cores	9728
Memory bandwidth	576 GB/s
Memory type	GDDR6
Memory size	16 GB
Memory interface	256-bit
TGP	115 W
GPU base clock	1425 MHz
GPU boost clock	1815 MHz
Vram clock	9001 MHz
PCIe	Gen4 x 8
Features	Dynamic boost
Maximum display resolution	8K @60 Hz
Number of displays supported	Up to four displays

Video port and resolution matrix

The following table lists the Video port and resolution matrix of your Precision 7780.

Table 43. Video port and resolution matrix

Port type	DP++/HDCP 2.3 port (UMA and Discrete Graphics) DP with DSC enabled	HDMI-OUT port—HDMI 2.0 (UMA Graphics)	HDMI-OUT port—HDMI 2.1 (Discrete Graphics)
Maximum resolution—single display	7680 x 4320 @ 60 Hz	3840 x 2160 @ 60 Hz	7680 x 4320 @ 60 Hz
Maximum resolution—dual MST	4096 x 2304 @ 60 Hz + 4096 x 2304 @ 60 Hz	Not applicable	Not applicable
Maximum resolution—triple MST	4096 x 2304 @ 60 Hz + 4096 x 2304 @ 60 Hz + 4096 x 2304 @ 60 Hz	Not applicable	Not applicable

Storage

M.2 2230, 256 GB, TLC PCIe NVMe Gen 4, Class 35 SSD

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

Table 44. 256 GB SSD specifications

Description	Values
Capacity	256 GB
Height (approximate)	3.50 mm (0.13 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTTF	1.4M hours
Logical blocks	500,118,192
Power source	
Power consumption (reference only)	• Idle: 5 mW (PS4) • Active: 4W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

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

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

Table 45. 512 GB SSD specifications

Description	Values
Capacity	512 GB
Height (approximate)	2.38 mm (0.17 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	1,000,215,216
Power source	

Table 45. 512 GB SSD specifications (continued)

Description	Values
Power consumption (reference only)	● Idle: 5 mW (PS4 - L1.2) ● Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

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

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

Table 46. 1 TB SSD specifications

Description	Values
Capacity	1 TB
Height (approximate)	2.38 mm (0.17 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	● Idle: 5 mW (PS4 - L1.2) ● Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

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

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

Table 47. 2 TB SSD specifications

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

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

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

Table 48. 4 TB SSD specifications

Description	Values
Capacity	4 TB
Height (approximate)	3.73 mm (0.15 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	8,001,573,552
Power source	
Power consumption (reference only)	● Idle: 5 mW (PS4 - L1.2) ● Active: 5 W

Table 48. 4 TB SSD specifications (continued)

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

M.2 2280, 512 GB, PCIe NVMe Gen4 x4, Opal Self-Encrypting Class 40 SSD

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

Table 49. 512 GB SSD, self-encrypting drive specifications

Description	Values
Capacity	512 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	80 mm (3.15 in.)
Interface type	PCIe Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	● Idle: 5 mW (PS4 - L12) ● Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

M.2 2280, 1 TB, PCIe NVMe Gen4 x4, Class 40 SSD, self-encrypting drive

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

Table 50. 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 Gen4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	- Idle: 5 mW (PS4 - L12) - Active: 5 W
Environmental operating conditions (non-condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
Environmental non-operating conditions (non-condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

Media-card reader

The following table lists the media-card reader specifications of your Precision 7780.

Table 51. Media-card reader

Media supported (Maximum capacity supported will vary by Flash Media Types)	
Media Supported	mSDXC, mSDHC, mSD Micro Secure Digital (SD) 4.0 UHS-II Micro Secure Digital (SD) 3.0 UHS-I
Support Specification Versions	Micro Secure Digital (SD) 4.0
Power source	
Max Power Requirements	1.2 A
Supply Voltage Range	3.3 V
Power Consumption	MS 0.08 mA
Environmental operating conditions (Non-condensing)	
Operating Temperature Range	0°C to 70°C

Table 51. Media-card reader (continued)

Relative Humidity Range	N/A
Environmental non-operating conditions (Non-condensing)	
Operating Temperature Range	N/A
Relative Humidity Range	N/A

Accessories

The following table lists the supported accessories on your Precision 7780.

Table 52. Accessories

Accessories
Dell Collaboration Keyboard - KB900
Dell Collaboration Keyboard and Mouse - KM900
Dell Rechargeable Multi-Device Mouse - MS900
Dell 7-in-1 USB-C Multiport Adapter - DA310
Dell EcoLoop Pro Briefcase - CC5623
Dell Portable Monitor - C1422H
Dell UltraSharp 27 4K USB-C HUB Monitor - U2723QE
Dell UltraSharp 32 6K USB-C HUB Monitor - U3224KB
Dell UltraSharp 32 HDR PremierColor Monitor - UP3221Q
Dell UltraSharp 38 Curved USB-C HUB Monitor - U3824DW
USB-C to DisplayPort 1.4 Adapter - CDP2DP14B
3Dconnexion SpaceMouse Enterprise - 3DX-700056
3Dconnexion SpaceMouse Pro Wireless - 3DX-700075
Wacom Cintiq Pro 24 Creative Pen Display Touch - DTH-2420

Security

Software security

The following table lists the software security details of your Precision 7780.

Table 53. Software security

Security options
Dell Client Command Suite
Optional Dell Data Security and Management Software
Dell BIOS Verification
Optional Dell Endpoint Security and Management Software
VMware Carbon Black Endpoint Standard
VMware Carbon Black Endpoint Standard + Secureworks Threat Detection and Response

Table 53. Software security (continued)

Security options
Dell Encryption Enterprise
Dell Encryption Personal
Carbonite
VMware Workspace ONE
Absolute Endpoint Visibility and Control
Netskope
Dell Supply Chain Defense

Fingerprint reader

The following table lists the fingerprint reader specifications of your Precision 7780.

Table 54. Fingerprint reader specifications

Category	Goodix—GF5288WNC
Sensor technology	Capacitive sensing
Sensor resolution	500 dpi
Sensor size	5.48 mm x 4.47 mm
Sensor pixel size	108 x 88 pixels
Dell ControlVault support	No
Dell ControlVault 3.0 support	No
Anti-spoofing	Yes
Template storage	In-sensor storage
Match on chip	Yes
FIPS 201 certified	No

Dell ControlVault 3.0

The following table lists the Dell ControlVault 3.0 specifications of your Precision 7780.

Table 55. Dell ControlVault 3.0 specifications

Title	Description	Dell ControlVault 3.0
CPU technology	N/A	1 GHz ARM Cortex A7
RAM	N/A	1 MB
ROM	N/A	16 MB
TPM included	TPM enumeration included within ControlVault	No
Host Interface	N/A	USB 2.0
Fingerprint processing	Fingerprint processing occurs within secure boundary of ControlVault	Yes
Windows WBF support	Support for Windows biometric framework when Fingerprint reader is attached	No

Table 55. Dell ControlVault 3.0 specifications (continued)

Title	Description	Dell ControlVault 3.0
FIPS 140-2 level 3 complaint	Device complaint with FIPS 140-2 level 3 requirements	Yes
FIPS 140-2 level 3 certified	Device certified with FIPS 140-2 level 3 requirements	Yes

Trusted Platform Module

The following table lists the Trusted Platform Module (TPM) of your Precision 7780.

Table 56. Trusted Platform Module (TPM)

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

System management features

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

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

Dell Client Command Suite for in-band systems management

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

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

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

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

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

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

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

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

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

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

Out-of-band systems management

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

Color, material, and finish

This section details the color, material, and finishes (CMF) specifications of your Precision 7780.
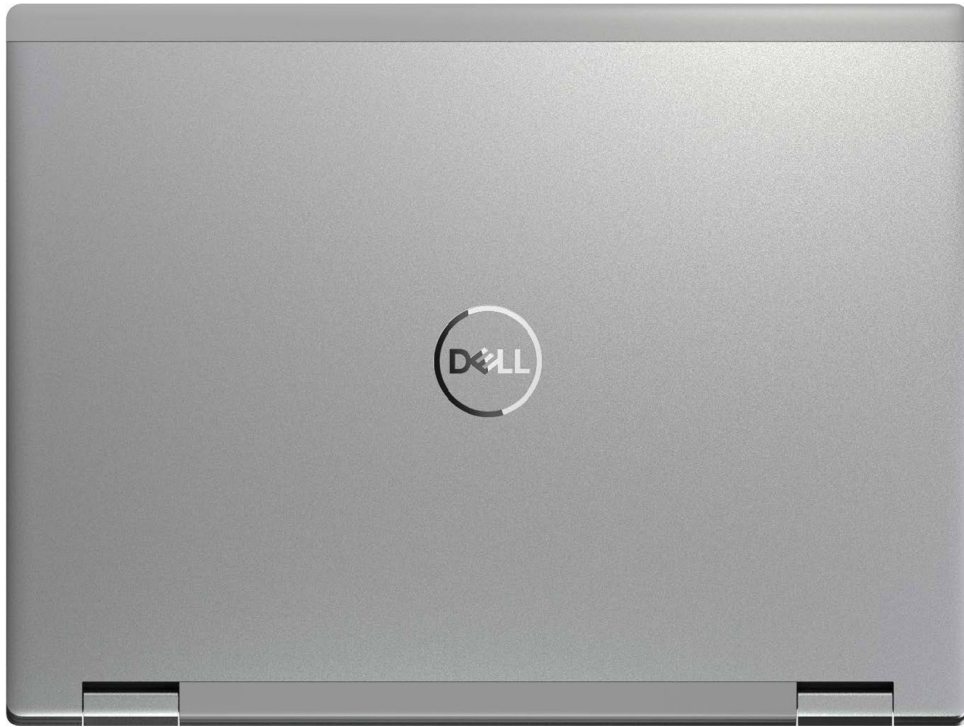

Figure 1. Non-WWAN

Figure 2. WWAN

Table 57. CMF specifications

A Cover (Top)	- Material: Aluminum - Color: Anodized Titan Gray, beadblast - Finish: 11+/-3 GU
B Cover (Touch)	- Material: Plastic - Color: Apollo Dull WUVM - Finish: 5.5+/-1.5 GU
B Cover (Non-Touch)	- Material: Plastic - Color: Apollo Dull WUVM - Finish: 10+/-2 GU
C Cover (Palmrest)	- Material: Plastic (Dell standard black, Resin) - Color: Apollo velvet WPUST - Finish: 5+/-1.5 GU
D Cover (Bottom)	- Material: Aluminum - Color: Anodized Titan Gray, beadblast - Finish: MT11005 5+/-1 GU
D Cover (with SSD door)	- Material: Aluminum - Color: Anodized Titan Gray, beadblast - Finish: 11+/-3 GU

Keyboard shortcuts of Precision 7780

(i) **NOTE:** Keyboard characters may differ depending on the keyboard language configuration. Keys that are used for shortcuts remain the same across all language configurations.

Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. The symbol that is shown on the lower part of the key refers to the character that is typed out when the key is pressed. If you press shift and the key, the symbol that is shown on the upper part of the key is typed out. For example, if you press **2**, **2** is typed out; if you press **Shift** + **2**, @ is typed out.

The keys F1-F12 at the top row of the keyboard are function keys for multi-media control, as indicated by the icon at the bottom of the key. Press the function key to invoke the task represented by the icon. For example, pressing F1 mutes the audio (refer to the table below).

However, if the function keys F1-F12 are needed for specific software applications, multi-media functionality can be disabled by pressing **Fn** + **Esc**. Subsequently, multi-media control can be invoked by pressing **Fn** and the respective function key. For example, mute audio by pressing **Fn** + **F1**.

(i) **NOTE:** You can also define the primary behavior of the function keys (F1–F12) by changing **Function Key Behavior** in BIOS setup program.

Table 58. List of keyboard shortcuts

Function key	Primary behavior
F1	Mute audio
F2	Decrease volume
F3	Increase volume
F4	Microphone mute
F5	Click keyboard backlight. (i) **NOTE:** Toggle to cycle the keyboard backlight status through off, low-backlight, and high-backlight
F6	Decrease brightness
F7	Increase brightness
F8	Switch to external display Search
F10	Print screen
F11	Home
F12	End

The **Fn** key is also used with selected keys on the keyboard to invoke other secondary functions.

Table 59. Secondary behavior

Function key	Secondary behavior
Fn + F1	Operating system and application specific F1 behavior
Fn + F2	Operating system and application specific F2 behavior
Fn + F3	Operating system and application specific F3 behavior
Fn + F4	Operating system and application specific F4 behavior
Fn + F5	Operating system and application specific F5 behavior
Fn + F6	Operating system and application specific F6 behavior

Table 59. Secondary behavior (continued)

Function key	Secondary behavior
Fn + F7	Operating system and application specific F7 behavior
Fn + F8	Operating system and application specific F8 behavior
Fn + F9	Operating system and application specific F9 behavior
Fn + F10	Operating system and application specific F10 behavior
Fn + F11	Operating system and application specific F11 behavior
Fn + F12	Operating system and application specific F12 behavior
Fn + Right Ctrl	Open application menu
Fn + Esc	Toggle Fn-key lock
Fn + PgUp (Cursor up)	Page up
Fn + PgDn (Cursor down)	Page down

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 60. Self-help resources

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

Contacting Dell

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

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

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