

Dell Precision 7530

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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Contents

1 Chassis overview.....	5
Front open view.....	6
Left view.....	6
Right view.....	7
Palmrest view.....	7
Back view.....	8
Bottom view.....	8
System layout.....	9
Top view.....	9
Bottom view.....	10
2 Technical specifications.....	11
Base.....	11
System information.....	12
Processor.....	12
Memory.....	12
Storage.....	13
System board connectors.....	13
Media card-reader.....	14
Audio.....	14
Video.....	14
Camera.....	15
Wireless.....	16
Ports and connectors.....	16
Contactless smart card.....	16
Display.....	17
Keyboard.....	18
Touchpad.....	18
Operating system.....	18
Battery.....	18
Power adapter.....	19
Dimensions and weight.....	20
Computer environment.....	20
Security.....	20
Security software.....	21
Miscellaneous software.....	21
3 Engineering specifications.....	22
Smart card support.....	22
Graphics options.....	23
Intel HD graphics.....	23
NVIDIA Quadro P1000.....	23
NVIDIA Quadro P2000.....	24

NVIDIA Quadro P3200.....	24
RadeonPro WX4150.....	25
Video card compatibility matrix.....	26
Hard drives.....	26
2.5" 500 GB 7200 RPM SATA Hard Drive.....	27
2.5" 500 GB 7200 RPM SATA FIPS Hard Drive.....	27
2.5" 1 TB 7200 RPM SATA Hard Drive.....	28
2.5" 2 TB 5400 RPM SATA Hard Drive.....	28
256GB M.2 NVMe PCIe SSD Class 40.....	29
512GB M.2 NVMe PCIe SSD Class 40.....	30
1TB M.2 NVMe PCIe SSD Class 40.....	30
2TB M.2 NVMe PCIe SSD Class 40.....	31
512GB M.2 NVMe PCIe SED SSD Class 40.....	31
1TB M.2 NVMe PCIe SED SSD Class 40.....	32
512GB M.2 NVMe PCIe SSD Class 50.....	33
1TB M.2 NVMe PCIe SED SSD Class 40.....	33
M.2 Intel Optane Memory 32 GB.....	34
Communications.....	34
Wireless LAN options.....	34
Optional Mobile Broadband and GPS.....	35
Intel Dual Band Wireless-AC 9260 802.11AC 2x2 Wi-Fi + BT 5 LE M.2 Wireless Card.....	35
Qualcomm QCA61x4A 802.11ac MU-MIMO Dual Band (2x2) Wi-Fi + Bluetooth 4.2 LE M.2 Wireless Card.....	36
Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5816E for APJ)	38
Dell wireless 5811E M.2 mobile broadband card.....	40
Monitors.....	41
Audio devices.....	42
Cables, Dongles, and adapters.....	42
Carrying case.....	43
Docks and port replicators.....	43
External data storage.....	43
HMD.....	43
Input devices.....	44
Security devices.....	44
Hot key definition.....	44
4 Getting help.....	46
Contacting Dell.....	46

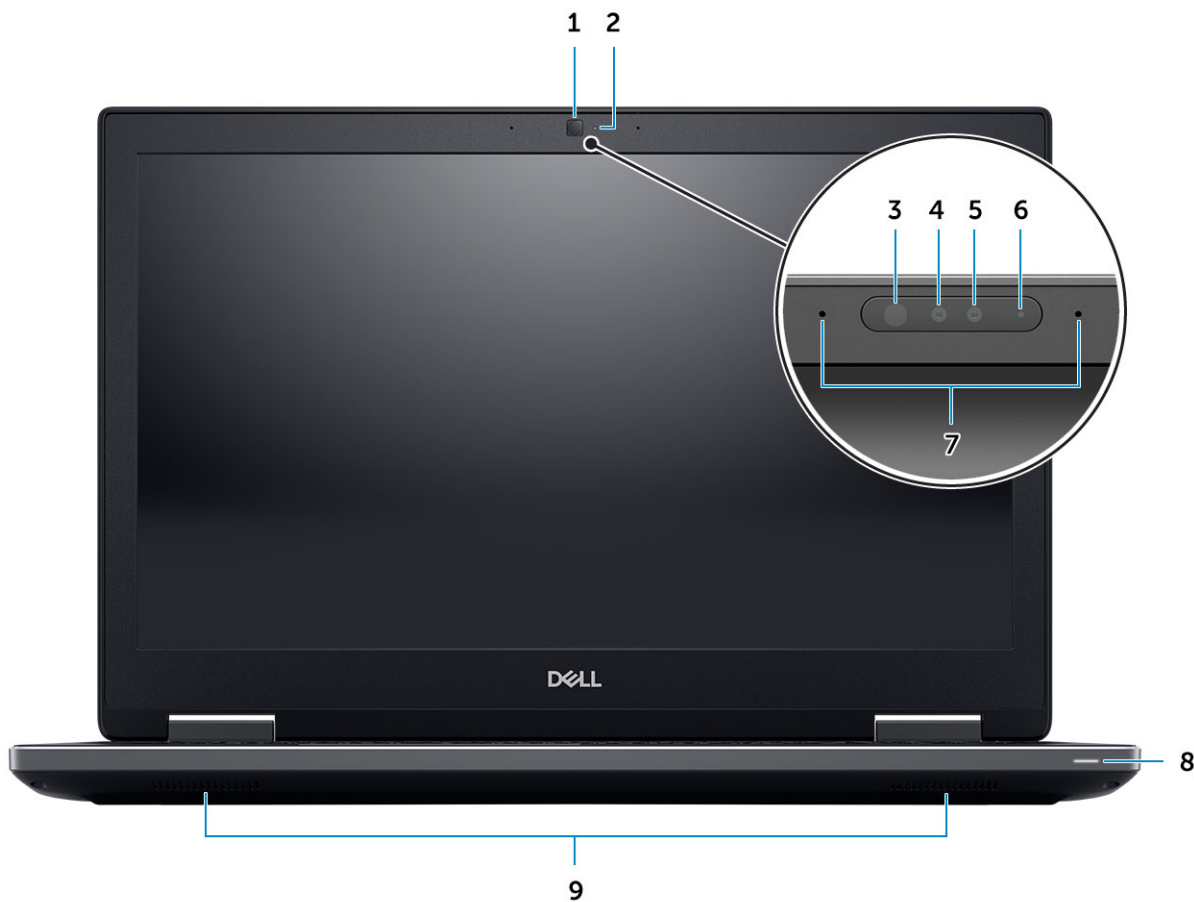
Chassis overview



Topics:

- [Front open view](#)
- [Left view](#)
- [Right view](#)
- [Palmrest view](#)
- [Back view](#)
- [Bottom view](#)
- [System layout](#)

Front open view



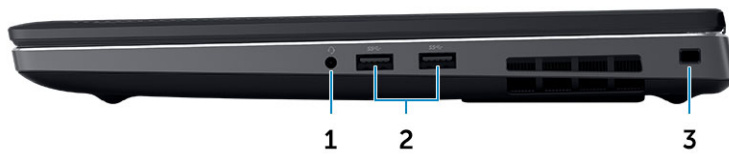
- | | | | |
|---|----------------------------------|---|---------------------------------|
| 1 | Camera (optional) | 2 | Camera-status light (optional) |
| 3 | Infrared (IR) emitter (optional) | 4 | Infrared (IR) camera (optional) |
| 5 | Camera (optional) | 6 | Camera-status light (optional) |
| 7 | Microphones (optional) | 8 | Battery status light |
| 9 | Speakers | | |

Left view



- | | | | |
|---|---------------------------|---|----------------|
| 1 | Thunderbolt 3 Type-C port | 2 | SD Card reader |
| 3 | Smartcard reader | | |

Right view



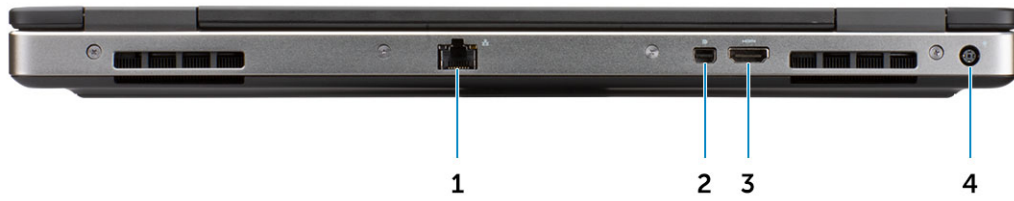
- 1 Headset port
- 2 USB 3.1 Gen 1 ports
- 3 Security cable slot

Palmrest view



- 1 Power button
- 2 Fingerprint reader (optional)
- 3 Touchpad

Back view



- 1 RJ45 Network port
- 2 Mini DisplayPort
- 3 HDMI port
- 4 Power connector port

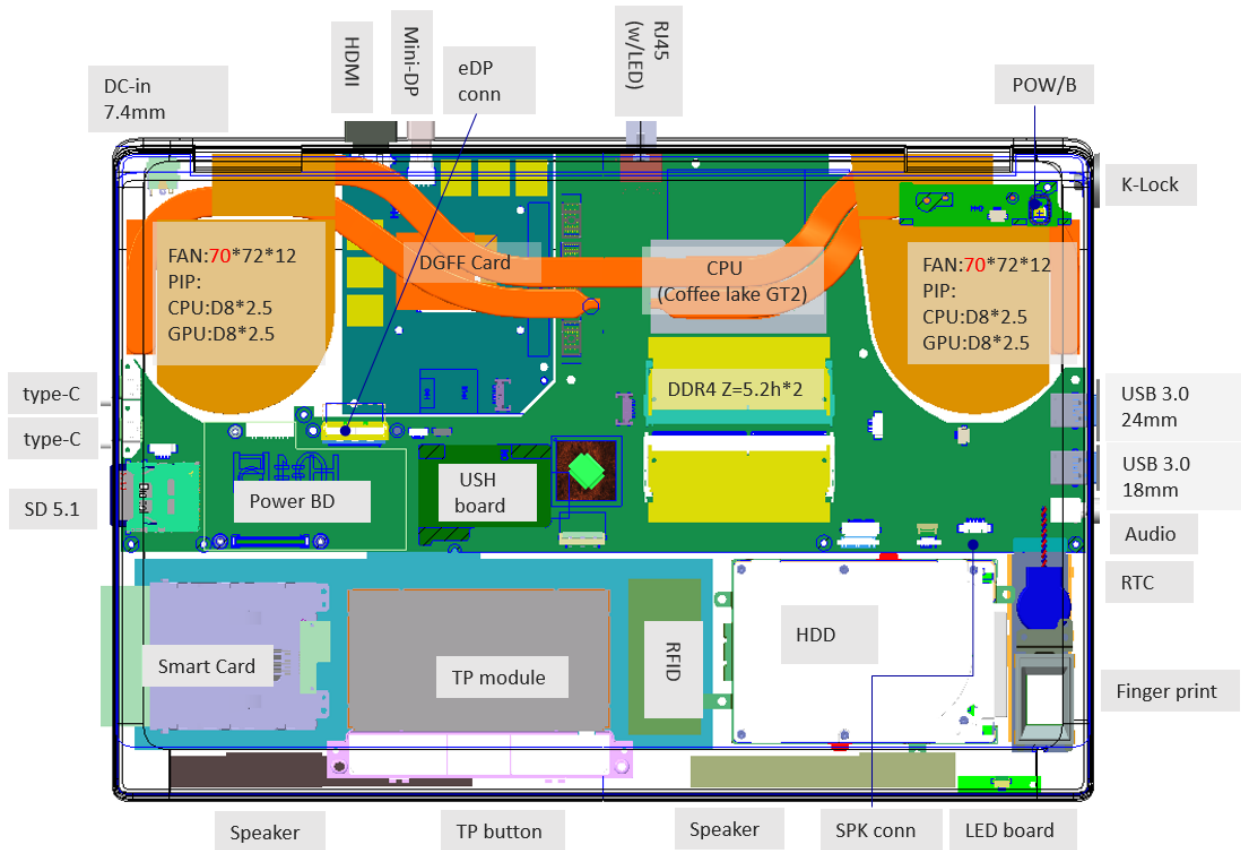
Bottom view



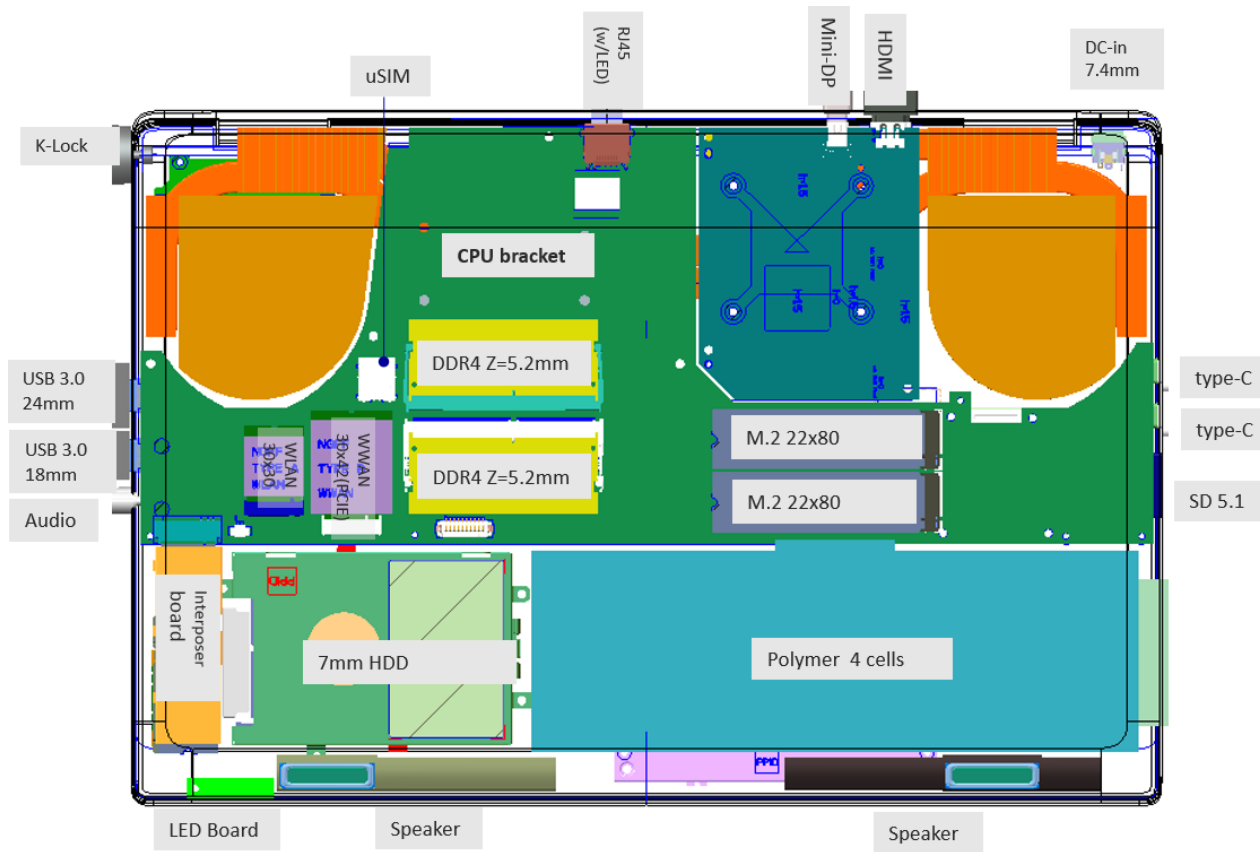
- 1 Service tag label

System layout

Top view



Bottom view



Technical specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information about the configuration of your computer, go to Help and Support in your Windows operating system and select the option to view information about your computer.

Topics:

- [Base](#)
- [System information](#)
- [Processor](#)
- [Memory](#)
- [Storage](#)
- [System board connectors](#)
- [Media card-reader](#)
- [Audio](#)
- [Video](#)
- [Camera](#)
- [Wireless](#)
- [Ports and connectors](#)
- [Contactless smart card](#)
- [Display](#)
- [Keyboard](#)
- [Touchpad](#)
- [Operating system](#)
- [Battery](#)
- [Power adapter](#)
- [Dimensions and weight](#)
- [Computer environment](#)
- [Security](#)
- [Security software](#)
- [Miscellaneous software](#)

Base

Table 1. Base

Base

Dell Precision 7530 CTO Type C SC Base

Dell Precision 7530 TAA Type C SC Base

Dell Precision 7530 BTX Type C SC Base

System information

Table 2. System information

Chipset	Intel CM246 chipset
DRAM bus width	64-bit per channel (total 128 bit)
FLASH EPROM	48 kHz
PCIe bus	8 Gbps
External bus frequency	DMI 3.0-8GT/s

Processor

NOTE: Processor numbers are not a measure of performance. Processor availability is subject to change and may vary by region/country.

Table 3. Processor specifications

Type	UMA Graphics
Intel Core Processor i5-8300H, 4 Core, 8M Cache, 2.30GHz up to 4.0GHz Turbo, 45W	Integrated Intel UHD 630
Intel Core Processor i5-8400H, 4 Core, 8M Cache, 2.50GHz up to 4.1GHz Turbo, 45W, vPro	Integrated Intel UHD 630
Intel Core Processor i7-8750H, 6 Core, 9M Cache, 2.20GHz up to 4.1GHz Turbo, 45W	Integrated Intel UHD 630
Intel Core Processor i7-8850H, 6 Core, 9M Cache, 2.60GHz up to 4.3GHz Turbo, 45W, vPro	Integrated Intel UHD 630
Intel Core Processor i9-8950HK, 6 Core, 12MB Cache, 2.90GHz up to 4.60GHz Turbo, 45W	Integrated Intel UHD 630
Intel Xeon E-2176M, 6 Core Xeon, 12M Cache, 2.70GHz up to 4.40GHz Turbo, 45W, vPro	Integrated Intel UHD P630
Intel Xeon E-2186M, 6 Core Xeon, 12M Cache, 2.90GHz up to 4.60GHz Turbo, 45W, vPro	Integrated Intel UHD P630

Memory

Table 4. Memory specifications

Minimum memory configuration	8 GB
Maximum memory configuration	128 GB
Number of slots	4 SODIMM

Maximum memory supported per slot	32 GB
Memory options	<ul style="list-style-type: none"> • 8 GB - 1 x 8 GB • 16 GB - 2 x 8 GB • 32 GB - 2 x 16 GB • 32 GB - 4 x 8 GB • 64 GB - 4 x 16 GB • 64 GB - 2 x 32 GB • 128 GB - 4 x 32 GB
Type	DDR4 SDRAM ECC and Non-ECC memory
Speed	<ul style="list-style-type: none"> • 2400 MHz • 2666 MHz • 3200 MHz

Storage

Table 5. Storage specifications

Type	Form factor	Interface	Security option	Capacity
Three Solid-State Drive (SSD)	M.2 2280	<ul style="list-style-type: none"> • SATA AHCI, Up to 6 Gbps • PCIe 3 x4 NVMe, Up to 32 Gbps 	SED	<ul style="list-style-type: none"> • Up to 512 GB • Up to 2 TB
One 2.5" Hard-Disk Drive (HDD) with 4 cell battery only	Approximately (2.760 x 3.959 x 0.374 inches)	SATA AHCI, Up to 6 Gbps	SED FIPS	Up to 2 TB

System board connectors

Table 6. System board connectors

M.2 Connectors	<ul style="list-style-type: none"> • Slot 1 3030 socket 1 key A • Slot 2 3042 socket 2 key B • Slot 3 2280 socket 3 key M • Slot 4 2280 socket 3 key M • Slot 5 2280 socket 3 key M
Serial ATA (SATA) connector	1 (with 4 cell battery only)

Media card-reader

Table 7. Media-card reader specifications

Type	One SD-card slot
Supported cards	<ul style="list-style-type: none"> • SD • SDHC • SDXC

Audio

Table 8. Audio specifications

Controller	Realtek ALC3281
Type	Four-channel high-definition audio
Speakers	Two (Directional speakers)
Interface	<ul style="list-style-type: none"> • Universal audio jack • Stereo headphone • Stereo headset • Stereo line in • Microphone in • Stereo line out
Internal speaker amplifier	2W (RMS) per channel

Video

Table 9. Video specifications

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 630	UMA	<ul style="list-style-type: none"> • Intel Core Processor i5 • Intel Core Processor i7 • Intel Core Processor i9 	Integrated	Shared system memory	HDMI/DP/eDP	4096×2304
Intel UHD Graphics P630	UMA	Intel Xeon	Integrated	Shared system memory	HDMI/DP/eDP	4096×2304
Radeon Pro WX 4150	Discrete	NA	GDDR5	4 GB	HDMI/mDP/eDP/USB-C	<ul style="list-style-type: none"> • Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz • Dual DisplayPort 1.4 - 7680 x

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
						4320 (8k) @ 60 Hz <ul style="list-style-type: none"> HDMI 2.0 - 4096 x 2160 (4K) @ 60 Hz
NVIDIA Quadro P1000	Discrete	NA	GDDR5	4 GB	eDP/mDP/HDMI/Type-C	Max Digital: <ul style="list-style-type: none"> Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/type-c to DP) Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/type-c to DP)
NVIDIA Quadro P2000	Discrete	NA	GDDR5	4 GB	eDP/mDP/HDMI/Type-C	Max Digital: <ul style="list-style-type: none"> Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/type-c to DP) Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/type-c to DP)
NVIDIA Quadro P3200	Discrete	NA	GDDR5	6 GB	eDP/mDP/HDMI/Type-C	Max Digital: <ul style="list-style-type: none"> Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/type-c to DP) Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/type-c to DP)

Camera

Table 10. Camera specifications

Resolution

Camera:

- Still image: 0.92 megapixels
- Video: 1280x720 at 30 fps

Infrared camera (optional on FHD non-touch):

- Still image: 0.30 megapixels

Diagonal viewing angle

- Video: 340x340 at 60 fps
- Camera - 86.7 degrees
- Infrared camera - 70 degrees

Wireless

Table 11. Wireless specifications

Maximum transfer rate	867 Mbps
Frequency bands	2.4 GHz/5 GHz
Encryption	64-bit/128-bit WEP

Ports and connectors

Table 12. Ports and connectors

Memory card reader	SD 4.0 memory card reader
Smart card reader	Standard
USB	Two USB 3.1 Gen 1 ports
Security	Noble wedge lock slot
Docking port	Cable dock support
Audio	<ul style="list-style-type: none">• Headset port• Noise reduction array microphones
Video	<ul style="list-style-type: none">• Mini DisplayPort 1.4• HDMI 2.0
Network adapter	One RJ-45 connector
Thunderbolt	Two thunderbolt 3 Type-C ports

Contactless smart card

Table 13. Contactless smart card

Type	FIPS 201 Smart Card
ISO certification	ISO14443A

Display

Table 14. Display specifications

Type	<ul style="list-style-type: none">• 15.6-inch FHD WVA, 1920x1080 AG, NT, 45% color gamut• 15.6-inch FHD WVA, 1920x1080 AG, NT, 72% color gamut• 15.6-inch FHD WVA, 1920x1080 TL, Touch, 72% color gamut• 15.6-inch FHD WVA, 1920x1080 AG, NT, 100% Adobe
Luminance/Brightness (typical)	<ul style="list-style-type: none">• 220 nits (FHD 45% color gamut)• 300 nits (FHD 72% color gamut)• 350 nits (UHD Adobe 100% color gamut)
Height (Active area)	<ul style="list-style-type: none">• FHD - 193.59 mm (7.62 inches)• UHD - 194.40 mm (7.65 inches)
Width (Active area)	<ul style="list-style-type: none">• FHD - 344.16 mm (13.55 inches)• UHD - 345.60 mm (13.61 inches)
Diagonal	<ul style="list-style-type: none">• FHD - 394.87 mm (15.60 inches)• UHD - 396.52 mm (15.60 inches)
Megapixels	<ul style="list-style-type: none">• FHD - 2.07• UHD - 8.29
Pixels Per Inch (PPI)	<ul style="list-style-type: none">• FHD - 141• UHD - 282
Contrast ratio	<ul style="list-style-type: none">• FHD - 700:1• UHD - 1000:1
Refresh rate	60 Hz
Horizontal viewing angle (min)	80/80 degrees
Vertical viewing angle (min)	80/80 degrees
Pixel pitch	<ul style="list-style-type: none">• FHD - 0.179 mm• UHD - 0.090 mm
Power consumption (max)	<ul style="list-style-type: none">• 4.2 W (FHD 45% color gamut)• 6.2 W (FHD 72% color gamut)• 7.01 W (UHD Adobe 100% color gamut)

Keyboard

Table 15. Keyboard specifications

Number of keys	<ul style="list-style-type: none">• 103 (U.S. and Canada)• 104 (Europe)• 106 (Brazil)• 107 (Japan)
Size	Full sized <ul style="list-style-type: none">• X= 19.00 mm key pitch• Y= 19.00 mm key pitch
Backlit keyboard	Optional
Layout	QWERTY/AZERTY/Kanji

Touchpad

Table 16. Touchpad specifications

Resolution	<ul style="list-style-type: none">• Horizontal: 1048• Vertical: 984
Dimensions	<ul style="list-style-type: none">• Width: 3.92 inches (99.50 mm)• Height: 2.09 inches (53 mm)
Multi-touch	Configurable single finger and multi-finger gestures

Operating system

Table 17. Operating system

Operating systems supported	<ul style="list-style-type: none">• Windows 10 Home (64 bit)• Windows 10 Professional (64 bit)• Windows 10 Pro for Workstations (64 bit)• Ubuntu 16.04 LTS (64bit)• Red Hat Linux Enterprise 7.5
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Battery

Table 18. Battery

Type	<ul style="list-style-type: none">• 64 WHr Lithium ion 4 cell battery with ExpressCharge• 97 WHr Lithium ion 6 cell battery with ExpressCharge
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Dimension	<ul style="list-style-type: none"> • 97 WHr Lithium ion 6 cell battery with three year warranty <ol style="list-style-type: none"> 1 64 WHr "smart" lithium-ion <ul style="list-style-type: none"> • Length - 222.40 mm (8.76 in) • Width - 73.80 mm (2.90 in) • Height - 11.15 mm (0.44 in) • Weight - 298.00 g 2 97 WHr "smart" lithium-ion <ul style="list-style-type: none"> • Length - 332.00 mm (13.07 in) • Width - 73.80 mm (2.90 in) • Height - 11.15 mm (0.439 in) • Weight - 445.00 g
Weight (maximum)	<ul style="list-style-type: none"> • 64 WHr - 2.98 kg (0.66 lb) • 97 WHr - 4.45 kg (0.98 lb)
Voltage	<ul style="list-style-type: none"> • 64 WHr - 7.8 VDC • 97 WHr - 11.4 VDC
Life span	300 discharge/recharge cycles
Charging time when the computer is off (approximate)	4 hours
Operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions
Temperature range: Operating	0°C to 35°C (32°F to 95°F)
Temperature range: Storage	-40°C to 65°C (-40°F to 149°F)
Coin-cell battery	ML1220

Power adapter

Table 19. Power adapter specifications

Type	180 W adapter
Input Voltage	100 to 240 VAC
Input current (maximum)	180 W - 2.34 A
Input frequency	50 Hz to 60 Hz
Output current	180 W - 9.23 A (continuous)
Rated output voltage	19.5 VDC
Temperature range (Operating)	0° to 40° C (32° to 104° F)
Temperature range (Non-Operating)	40° to 70° C (-40° to 158° F)

Dimensions and weight

Table 20. Dimensions and weight

Height	Front height (Touch) - 1.02 inches (25.9 mm)
	Rear height (Touch) - 1.21 inches (30.85 mm)
	Front height (Non-touch) - 0.98 inches (25.0 mm)
	Rear height (Non-touch) - 1.80 inches (29.95 mm)
Width	14.87 inches (377.60 mm)
Depth	9.89 inches (251.30 mm)
Weight	Starting 5.57 lbs (2.52 kg)

Computer environment

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

Table 21. Computer environment

	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)	20% to 80% (non-condensing)	20% to 95% (non-condensing)
	NOTE: Maximum dew point temperature = 26°C	NOTE: Maximum dew point temperature = 33°C
Vibration (maximum)	0.26 GRMS	1.37 GRMS
Shock (maximum)	105 G †	40 G ‡
Altitude (maximum)	-15.2 m to 3048 m (-50 ft to 10,000 ft)	-15.2 m to 10,668 m (-50 ft to 35,000 ft)

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

† Measured using a 2 ms half-sine pulse when the hard drive is in use.

‡ Measured using a 2 ms half-sine pulse when the hard-drive head is in parked position.

Security

Table 22. Security

Trusted Platform Module (TPM) 2.0	Integrated on system board
Smartcard	Yes

Security software

Table 23. Security software

Dell Data Protection Security Tools (DDP ST)	Standard
Dell Data Protection Encryption (DDPE)	Optional

Miscellaneous software

Table 24. Miscellaneous software

Dell Precision Optimizer V3.0	Standard
Teradici PCoIP Workstation Access Software	Optional

Engineering specifications

Smart card support

Table 25. Smart card support

Type	ISO14443A	14443B	ISO15693	Functionality	Remarks
SeOS	Yes	No	No	CCID	
PIV-II	Yes	No	No	CCID	
<ul style="list-style-type: none"> · NIST PIV1 · NIST PIV1 					
DesFire	Yes	No	No	NFC or CCID*	<p>*</p> <p>The routing is configurable or dynamic based on presence of NDEF information (this applies to all 14443A/B cards supporting ISO-DEP protocol)</p>
SmartMX	Yes	Yes	No	Any	The use of SmartMX on a card is transparent to the USH solution and does not dictate how the card will be used.
JCOP(Java card)	Yes	Yes	No	Any	The use of SmartMX on a card is transparent to the USH solution and does not dictate how the card will be used.
Passport cards/National cards				Depends on the card implementation	The type of card used varies. Though typically 14443A or B cards are used.
EMVCo cards (PayPass, PayWave, ExpressPay)	Yes	Yes	No	Payment, CCID	These cards are not really applicable to the Dell USH solution (though they will be routed to the CCID stack)
Mifare Plus (SL1)	Yes	No	No	CCID	
Mifare Ultralight	Yes	No	No	CCID	

Type	ISO14443A	14443B	ISO15693	Functionality	Remarks
Felica	No	No	No	NFC or CCID*	*The routing is configurable.

Functionality

- A – HID Secure application can be used for pre-boot authentication, HID secure application area Read and Read/Write of all other application (post boo), Anti-collision to support multiple card in the field.
- B – CHUID (can be used for pre-boot authentication), ISO/IEC 1443 Part 4 communication via PC/SC 2.01 (post boot) Anti-collision to support multiple card in the field.
- C – UID Read (for pre boot authentication), ISO/IEC 1443 Part 4 communication via PC/SC 2.01 (post boot) Anti-collision to support multiple card in the field.
- D – UIS Read (for pre boot authentication and post boot authentication) Anti-collision to support multiple card in the field.
- E – configurable for UID Read (for pre boot authentication and post boot authentication) Anti-collision to support multiple card in the field.

Graphics options

Intel HD graphics

Table 26. Intel HD graphics 630

Bus type	Internal PCIe
Memory interface	N/A (UMA)
Display support	Up to three displays
Maximum color depth	24 bits
Maximum vertical refresh rate	60 Hz

NVIDIA Quadro P1000

Table 27. NVIDIA Quadro P1000 specifications

Graphics memory	4 GB GDDR5
Bus type	PCIe x16 Gen3
Memory Interface	128-bit
Clock Speeds	1088 MHz graphics core (min. at P0) 2430 MHz memory
GPU base clock	3504 MHz (min. at P0)
Estimated Maximum Power	47 W
Display Support	eDP/mDP/HDMI/Type-C
Maximum Color Depth	Up to 10bit/color

Maximum Vertical Refresh Rate	Up to 395Hz at 1920x1080 Up to 118Hz at 3840x2160
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL 4.5
Supported Resolutions and Max Refresh Rates (Hz)	<ul style="list-style-type: none"> • Max Digital : Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/type-c to DP) • Max Digital : Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/type-c to DP)
Numbers of Display Support	Up to four displays

NVIDIA Quadro P2000

Table 28. NVIDIA Quadro P2000 specifications

Graphics memory	5 GB GDDR5
Bus type	PCIe x16 Gen3
Memory Interface	160-bit
Clock Speeds	1088 MHz graphics core (min. at P0) 2430 MHz memory
GPU base clock	3504 MHz (min. at P0)
Estimated Maximum Power	75 W
Display Support	eDP/mDP/HDMI/Type-C
Maximum Color Depth	Up to 10bit/color
Maximum Vertical Refresh Rate	Up to 395Hz at 1920x1080 Up to 118Hz at 3840x2160
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL 4.5
Supported Resolutions and Max Refresh Rates (Hz)	<ul style="list-style-type: none"> • Max Digital : Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/type-c to DP) • Max Digital : Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/type-c to DP)
Numbers of Display Support	Up to four displays

NVIDIA Quadro P3200

Table 29. NVIDIA Quadro P3200 specifications

Graphics memory	6GB GDDR5
Bus type	PCIe x16 Gen3

Memory Interface	192 bit
Clock Speeds	1088 MHz graphics core (min. at P0) 2430 MHz memory
GPU base clock	3504 MHz (min. at P0)
Estimated Maximum Power	75 W
Display Support	eDP/mDP/HDMI/Type-C
Maximum Color Depth	Up to 10bit/color
Maximum Vertical Refresh Rate	Up to 395Hz at 1920x1080 Up to 118Hz at 3840x2160
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL 4.5
Supported Resolutions and Max Refresh Rates (Hz)	<ul style="list-style-type: none"> • Max Digital : Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/type-c to DP) • Max Digital : Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/type-c to DP)
Numbers of Display Support	Up to four displays

RadeonPro WX4150

Table 30. AMD RadeonPro WX4150

Graphics memory	4 GB GDDR5
Bus type	PCIe x16 Gen3
Memory Interface	128-bit
Clock Speeds	1053 MHz graphics core, 1500 MHz memory
Estimated Maximum Power	50W TGP (GPU + frame buffer)
Display Support	HDMI/mDP/eDP/USB-C
Maximum Color Depth	Maximum 4:4:4 Color Depth:12 (bits per pixel)
Maximum Vertical Refresh Rate	Up to 85Hz depending on resolution
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL 4.5
Supported Resolutions and Max Refresh Rates (Hz)	<ul style="list-style-type: none"> • Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz • Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz • HDMI 2.0 - 4096 x2160 (4K) @ 60 Hz
Numbers of Display Support	Up to five displays

Video card compatibility matrix

Video card	Battery allowed	Maximum storage allowed
Intel UMA GFX	4 cell and 6 cell	3xM.2 or 2xM.2 + 1x2.5"
Radeon Pro WX 4150 w/4GB GDDR5	4 cell and 6 cell	3xM.2 or 2xM.2 + 1x2.5"
NVIDIA Quadro P1000 w/4GB GDDR5	4 cell and 6 cell	3xM.2 or 2xM.2 + 1x2.5"
NVIDIA Quadro P2000 w/4GB GDDR5	4 cell and 6 cell	3xM.2 or 2xM.2 + 1x2.5"
NVIDIA Quadro P3200 w/6GB GDDR5	6 cell only	3xM.2

Hard drives

Table 31. Supported hard drives

2.5" 7mm 500GB 7200RPM SATA Hard Drive

2.5" 7mm 500GB 7200RPM SATA FIPS Hard Drive

2.5" 7mm 1TB 7200RPM SATA Hard Drive

2.5" 7mm 2TB 5400RPM SATA Hard Drive

256GB M.2 NVMe PCIe SSD Class 40

512GB M.2 NVMe PCIe SSD Class 40

1TB M.2 NVMe PCIe SSD Class 40

2TB M.2 NVMe PCIe SSD Class 40

512GB M.2 NVMe PCIe SED SSD Class 40

1TB M.2 NVMe PCIe SED SSD Class 40

512GB M.2 NVMe PCIe SSD Class 50

1TB M.2 NVMe PCIe SSD Class 50

Intel Optane 32GB

2.5" 500 GB 7200 RPM SATA Hard Drive

Table 32. 2.5" 500GB 7200RPM SATA Hard Drive

Capacity (GB)	500 GB HDD 7200 RPM
Dimensions (W x D x H)	Approximately (2.76 x 3.959 x 0.276 inches)
Interface type and maximum speed	Up to 6Gb/s (SATA 3.0)
MTBF	550,000 hours
Logical blocks	976,773,168
Power source	
Power consumption (reference only)	Idle 0.7 W, Active 3.10 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock (@ 2ms)	350G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 90%

2.5" 500 GB 7200 RPM SATA FIPS Hard Drive

Table 33. 2.5" 7mm 500GB 7200RPM SATA FIPS Hard Drive

Capacity (GB)	500 GB HDD 7200 RPM OPAL SED FIPS
Dimensions (W x D x H)	Approximately (2.75 x 3.937 x 0.276 inches)
Interface type and maximum speed	Up to 6Gb/s (SATA 3.0)
MTBF	550,000 hours
Logical blocks	976,773,168
Power source	
Power consumption (reference only)	Idle 0.7 W, Active 3.60 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	5°C to 60°C

Relative humidity range	5% to 90%
Op shock (@ 2ms)	350G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 90%

2.5" 1 TB 7200 RPM SATA Hard Drive

Table 34. 2.5" 1 TB 7200 RPM SATA Hard Drive

Capacity (GB)	1 TB HDD 7200 RPM
Dimensions (W x D x H)	Approximately (2.76 x 3.959 x 0.374 inches)
Interface type and maximum speed	Up to 6Gb/s (SATA 3.0)
MTBF	550,000 hours
Logical blocks	976,773,168

Power source

Power consumption (reference only)	Idle 0.7 W, Active 3.10 W
------------------------------------	---------------------------

Environmental Operating Conditions (Non-Condensing)

Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock (@ 2ms)	350G

Environmental Non-Operating Conditions (Non-Condensing)

Temperature range	-40°C to 65°C
Relative humidity range	5% to 90%

2.5" 2 TB 5400 RPM SATA Hard Drive

Table 35. 2.5" 2 TB 5400 RPM SATA Hard Drive

Capacity (GB)	2 TB HDD 5400 RPM
Dimensions (W x D x H)	Approximately (2.75 x 3.937 x 0.276 inches)
Interface type and maximum speed	Up to 6Gb/s (SATA 3.0)
MTBF	550,000 hours

Logical blocks	3,907,029,168
Power source	
Power consumption (reference only)	Idle 0.7 W, Active 3.60 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock (@ 2ms)	350G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 90%

256GB M.2 NVMe PCIe SSD Class 40

Table 36. 256GB M.2 NVMe PCIe SSD Class 40

Capacity (GB)	256 GB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	800K hours
Logical blocks	500,118,192
Power source	
Power consumption (reference only)	Idle 1.7 W, Active 4.5 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock (@ 2ms)	1000G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

512GB M.2 NVMe PCIe SSD Class 40

Table 37. 512GB M.2 NVMe PCIe SSD Class 40

Capacity (GB)	512 GB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	800K hours
Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	Idle 1.7 W, Active 4.5 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock (@ 2ms)	1000G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

1TB M.2 NVMe PCIe SSD Class 40

Table 38. 1TB M.2 NVMe PCIe SSD Class 40

Capacity (GB)	1 TB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	800K hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	Idle 1.7 W, Active 4.5 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C

Relative humidity range	10% to 90%
Op shock (@ 2ms)	1000G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

2TB M.2 NVMe PCIe SSD Class 40

Table 39. 2TB M.2 NVMe PCIe SSD Class 40

Capacity (GB)	2 TB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	800K hours
Logical blocks	

Power source

Power consumption (reference only)	Idle 1.7 W, Active 4.5 W
------------------------------------	--------------------------

Environmental Operating Conditions (Non-Condensing)

Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock (@ 2ms)	1000G

Environmental Non-Operating Conditions (Non-Condensing)

Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

512GB M.2 NVMe PCIe SED SSD Class 40

Table 40. 512GB M.2 NVMe PCIe SED SSD Class 40

Capacity (GB)	512 GB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	1.5 Million Hours

Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	Idle 600 mW, Active 5 mW
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	5% to 95%
Op shock (@ 2ms)	1500G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 85°C
Relative humidity range	5% to 95%

1TB M.2 NVMe PCIe SED SSD Class 40

Table 41. 1TB M.2 NVMe PCIe SED SSD Class 40

Capacity (GB)	1 TB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	1.5 Million Hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	Idle 600 mW, Active 5 mW
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	5% to 95%
Op shock (@ 2ms)	1500G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 85°C
Relative humidity range	5% to 95%

512GB M.2 NVMe PCIe SSD Class 50

Table 42. 512GB M.2 NVMe PCIe SSD Class 50

Capacity (GB)	512 GB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	1.5 Million Hours
Logical blocks	1,000,215,216
Power source	
Power consumption (reference only)	Idle 600 mW, Active 5 mW
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	5% to 95%
Op shock (@ 2ms)	1500G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 85°C
Relative humidity range	5% to 95%

1TB M.2 NVMe PCIe SED SSD Class 40

Table 43. 1TB M.2 NVMe PCIe SED SSD Class 40

Capacity (GB)	1 TB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	1.5 Million Hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	Idle 600 mW, Active 5 mW
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C

Relative humidity range	5% to 95%
Op shock (@ 2ms)	1500G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 85°C
Relative humidity range	5% to 95%

M.2 Intel Optane Memory 32 GB

Table 44. M.2 Intel Optane Memory 32 GB

Capacity (GB)	32 GB
Dimensions (W x D x H)	Approximately (22 x 80 x 2.38 inches)
Interface type and maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)
MTBF	1.6 M hours
Logical blocks	57,149,440
Power source	
Power consumption (reference only)	Deep Sleep/L1.2: 8mW , Active 3.5 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	5% to 95%
Op shock (@ 2ms)	1000G / 0.5 ms
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-10°C to 85°C
Relative humidity range	5 to 95%

Communications

Wireless LAN options

Table 45. Wireless LAN

Intel Dual Band Wireless-AC 9260 802.11AC 2x2 Wi-Fi + BT 5 LE M.2 Wireless Card
Qualcomm QCA61x4A 802.11ac MU-MIMO Dual Band (2x2) Wi-Fi + Bluetooth 4.2 LE M.2 Wireless Card

Optional Mobile Broadband and GPS

Table 46. Mobile Broadband and GPS

Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5816e for APJ)

Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5811e for EMEA/APJ/ROW)

Dell Wireless Qualcomm Snapdragon X7 HSPA+ (DW5811e for China/Indonesia)

Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5811e for DAO)

Intel Dual Band Wireless-AC 9260 802.11AC 2x2 Wi-Fi + BT 5 LE M.2 Wireless Card

Table 47. Intel Dual Band Wireless-AC 9260 802.11AC

Host interface	M.2 2230 (Key-AE) form factor (Wi-Fi - PCIe , Bluetooth - USB)
Network standard	IEEE 802.11a/b/g/n/ac, DL MU-MIMO, 160MHz channel use
Wi-Fi Alliance certifications	Wi-Fi certified a/b/g/n/ac with wave 2 features, WMM, WMM-PS, WPA, WPA2, WPS2, protected management frames, Wi-Fi Miracast as Source, and Wi-Fi Direct (For Windows only)
Operating frequency bands	2.4 GHz and 5 GHz
Data rates	<ul style="list-style-type: none"> • 2.4GHz 40M: Up to 300 Mbps • 5GHz 80M: Up to 867 Mbps • 5GHz 160M: Up to 1.73 Gbps
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA)
Authentication protocols	PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAP v2
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP
Product safety	UL, C-UL, CB (IEC60950-1)
Management capabilities alerting	Support for Intel AMT
Government compliance	FIPS, FISMA
Client utility	Intel PRO/Set wireless software v20 and later
Antenna diversity	Supported

Radio on/off	Supported
Roaming	Supports seamless roaming between access points
Wake on wireless	Supported
Wireless display	Native Miracast supported by Windows 10
Wireless PAN standard	Dual mode Bluetooth 5, BLE (HW ready, SW depends on OS, Windows 10 supports up to 4.1)
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 10
Bluetooth data encryption	128-bit encryption
Bluetooth output power	Power class 1
Temperature	<ul style="list-style-type: none"> Operating temperature 0° to + 50° C (Full performance at shield temperatures up to 80° C) Storage temperature of -40° to +70° C
Humidity	Up to 90% RH non-condensing (at temperatures of 25° C to 35° C)

Qualcomm QCA61x4A 802.11ac MU-MIMO Dual Band (2x2) Wi-Fi + Bluetooth 4.2 LE M.2 Wireless Card

Table 48. Qualcomm QCA61x4A 802.11ac

Host interface	M.2 2230 form factor (Wi-Fi - PCIe , Bluetooth - USB)
Network standard	802.11a, 802.11b, 802.11g, 802.11n and 802.11ac
11ac Wave2 feature	MU-MIMO RX
Wi-Fi Alliance certifications	802.11a, 802.11b, 802.11g, WPA, WPA2 , WMM, 11ac, Wifi -Direct, WMM-Power Save, Wifi Protected Setup, Voice-Personal
Operating frequency bands	2.4 GHz (802.11b/g/n) and 5 GHz (802.11a/n/ac)
Dual diversity antenna switching (For systems designed with main and auxiliary antennas)	2x2 MIMO operation when in 802.11n mode with 2x2 or greater access point
Data rates	<ul style="list-style-type: none"> 802.11ac - Up to 867 Mbps ; 802.11n - Up to 450 Mbps 802.11a/g - Up to 54 Mbps 802.11b - Up to 11 Mbps
Receive sensitivity	<ul style="list-style-type: none"> 802.11ac: -59 dBm @ 400 Mbps; - 57dBm @ 866.7Mbps

	<ul style="list-style-type: none"> • 802.11n/a: -67 dBm @ 300 Mbps ; -70 dBm @ 144.4Mbps • 802.11g/a: -75 dBm @ 54 Mbps • 802.11b: -85 dBm @ 11 Mbps
Security Authentication	Open, Shared, WPA, WPA-PSK, WPA2, WPA2-PSK
EAP methods	EAP-TLS, EAP-TTLS (MSCHAPv2), PEAPv0(EAP-MS-CHAPv2)
Client utility	Native Wi-Fi and Bluetooth Microsoft UI support
Software support	Microsoft WHQL certified for Windows 7/8.1 and Windows 10; Linux
Radio On/Off	Hardware and software on/off disables transmit and receive to comply with aviation in-flight restrictions
LED output	Wireless enable
Roaming	Seamless roaming between 802.11a, 802.11b, 802.11b/g, 802.11n and 802.11ac access points
Wake On wireless	Supported when using Magic Packet over the Air
Miracast (WiFi Display)	Supports Miracast (WiFi Display) on Win8.1/10
Country restrictions	All (except Tunisia)
Wireless PAN Standard	Dual-mode Bluetooth 4.2, BLE (HW ready, SW depends on OS)
Bluetooth data rates	Up to 3Mbps
Bluetooth operating frequency bands	2.4 GHz
Transmission	FHSS (Frequency Hopping Spread Spectrum)
Bluetooth data encryption	128-bit encryption
Bluetooth receive sensitivity	<ul style="list-style-type: none"> • -70dBm@BER≤0.01% (EDR) • -100dBm@BER≤30.8% (LE nominal)
Temperature	<ul style="list-style-type: none"> • Operating temperature 0° to + 65° C • Storage temperature of -40° to +85° C
Humidity	Up to 90%

Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5816E for APJ)

Table 49. Dell Wireless Qualcomm Snapdragon X7 LTE-A

	Docomo	KDDI	Softbank	Telstra	Generic
Network	LTE CAT 6	LTE CAT 6	LTE CAT 6	LTE CAT 6	LTE CAT 6
Speed (Downlink)	< 300 Mbps	< 300 Mbps	< 300 Mbps	< 300 Mbps	< 300 Mbps
Speed (Uplink)	< 50 Mbps	< 50 Mbps	< 50 Mbps	< 50 Mbps	< 50 Mbps
Fallback network	HSPA+	NA	HSPA+	HSPA+	HSPA+
Fallback speed (Downlink)	HSPA+ 42 Mbps	NA	HSPA+ 42 Mbps	HSPA+ 42 Mbps	HSPA+ 42 Mbps
Frequency bands	<ul style="list-style-type: none"> • LTE Band 1,3,19,21,28 • UMTS Band 1, 9, 19 	LTE Band 1,18,28,41	<ul style="list-style-type: none"> • LTE Band 1,8,41 • UMTS Band 1, 8 	<ul style="list-style-type: none"> • LTE Band 1,3,7,8,28 • UMTS Band 1, 5 	<ul style="list-style-type: none"> • LTE Band 1,3,5,7,8, 18,19,21,28,38,39, 40,41 • UMTS Band 1,5,6,8,9,19 • TD-SCDMA Band 39
LTE/WWAN antenna	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)
Operating system support	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Windows 10, 32/64 bits 	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Windows 10, 32/64 bits 	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Windows 10, 32/64 bits 	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Windows 10, 32/64 bits 	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Windows 10, 32/64 bits
Host interface	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0

Table 50. Specifications

Host interface	USB 3.0 and USB 2.0
Telecommunications standard	Compliance with LTE 3GPP Release 11, UMTS 3GPP Release 9
Industry certification	GCF, CE, NCC, JRF/JPA
Carrier approval	Docomo , KDDI, Softbank, Telstra, Generic FW (GCF certified)
Supported Frequency Bands	<ul style="list-style-type: none"> • LTE Band 1, 3, 5, 7, 8, 18,19, 21, 28, 38, 39, 40, 41 • UMTS Band 1, 5, 6, 8, 9, 19 • TD-SCDMA Band 39

LTE/WWAN Antenna	<ul style="list-style-type: none"> • Main antenna is for WWAN/LTE Transmittal and Receiving (Tx /Rx) function • Aux antenna is for WWAN/LTE Receiving and GNSS Receiving function
Data rate	<ul style="list-style-type: none"> • LTE Speed Cat 6 (Downlink) up to 300 Mbps (FDD) • LTE Speed Cat 6 (Uplink) up to 50 Mbps (FDD)
Conductive sensitivity	<ul style="list-style-type: none"> • LTE band2 : -98.8dBm (typical) • LTE band4 : -99.4dBm (typical) • LTE band5 : -97.6dBm (typical) • LTE band13 : -94.0dBm (typical) • LTE band17 : -96.6dBm (typical) • LTE band25 : -98.7dBm (typical)
Power consumption	<ul style="list-style-type: none"> • LTE : 900mA at 20dBm Tx power • UMTS : 400mA at 20dBm Tx power • TD-SCDMA : 150mA at 23dBm Tx power <p>i NOTE: Peak current of 2A for all RF bands.</p>
Software support	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Microsoft WHQL certified for Windows 10, 32/64 bits
Client utility	<ul style="list-style-type: none"> • Windows 7, 32/64 bits • Windows 8.1, 32/64 bits • Microsoft WHQL certified for Windows 10, 32/64 bits
Radio On/Off	Supported Hardware and software on/off disables transmit and receive to comply with aviation in-flight restrictions
LED output	Supported Wireless LED on when WWAN/LTE radio enabled
SIM card format	Format: Micro-SIM (3FF), Support voltage type: 1.8V and 3V
Roaming	Roaming to supported bands comply with 3GPP standards
GNSS	Supported both autonomous GNSS (GPS, GLONASS, BeiDou , Galileo) and assisted GNSS (A-GNSS) on frequency band L1
Humidity	Up to 85% relative humidity for 48 hours, non-condensing
Temperature	<ul style="list-style-type: none"> • Operational : -30°C to +70°C Class A - 3GPP compliant • Non-operational : -40°C to +85°C for 96 hours (from MIL-STD 202 method 108)
Wake On Wireless	Supported WWAN/LTE module wake on wireless feature when system platform implements control pins for waking the host side

Dell wireless 5811E M.2 mobile broadband card

Table 51. Wireless connectivity options

Connectivity option	Region	Carriers
Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5811e for EMEA/APJ/ROW)	APJ/EMEA/ROW (except China and Indonesia)	<ul style="list-style-type: none"> EMEA : Generic (no SIM) APJ : Generic (no SIM)
Dell Wireless Qualcomm Snapdragon X7 HSPA+ (DW5811e for China/Indonesia)	China and Indonesia	Generic (no SIM)
Dell Wireless Qualcomm Snapdragon X7 LTE-A (DW5811e for DAO)	US and Canada	<ul style="list-style-type: none"> US : AT&T, Verizon, Sprint Canada : Generic (no SIM)

NOTE:

- WWAN and HCA (Hardware Crypto Accelerator) cannot coexist
- SIM slot is not 100% tied, but tied to hinge up with WWAN antenna
- WWAN antenna must be selected at POS
- There as no WWAN and WLAN Customer Kits

	Verizon	AT&T	Sprint	Rogers	Telus	Generic
Network	LTE CAT6	LTE CAT6	LTE CAT6	LTE CAT6	LTE CAT6	LTE CAT6
Speed (Downlink)	< 300 Mbps	< 300 Mbps	< 300 Mbps	< 300 Mbps	< 300 Mbps	< 300 Mbps
Speed (Uplink)	< 50 Mbps	< 50 Mbps	< 50 Mbps	< 50 Mbps	< 50 Mbps	< 50 Mbps
Fallback network	NA	HSPA+	NA	HSPA+	HSPA+	HSPA+
Fallback speed (Downlink)	NA	HSPA+ 42 Mbps	NA	HSPA+ 42 Mbps	HSPA+ 42 Mbps	HSPA+ 42 Mbps
Frequency bands	Band 4 and 13 LTE	<ul style="list-style-type: none"> Band 13 LTE Band 2, 4, 5, 17, and 7 	Band 25, 26, and 41 LTE	<ul style="list-style-type: none"> Band 13 LTE Band 2, 4, 5, 17, and 7 	<ul style="list-style-type: none"> Band 13 LTE Band 2, 4, 5, 17, and 7 	Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 20, 25, 26, 29, 30, and 41 LTE
LTE/WWAN antenna	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)	Main (Tx /Rx) + Aux (Rx/GNSS)
Operating system support	<ul style="list-style-type: none"> Windows 7, 32/64 bits Windows 8.1, 32/64 bits Windows 10, 32/64 bits 	<ul style="list-style-type: none"> Windows 7, 32/64 bits Windows 8.1, 32/64 bits Windows 10, 32/64 bits 	<ul style="list-style-type: none"> Windows 7, 32/64 bits Windows 8.1, 32/64 bits Windows 10, 32/64 bits 	<ul style="list-style-type: none"> Windows 7, 32/64 bits Windows 8.1, 32/64 bits Windows 10, 32/64 bits 	<ul style="list-style-type: none"> Windows 7, 32/64 bits Windows 8.1, 32/64 bits Windows 10, 32/64 bits 	<ul style="list-style-type: none"> Windows 7, 32/64 bits Windows 8.1, 32/64 bits Windows 10, 32/64 bits
Host interface	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0	USB 2.0 and USB 3.0

Monitors

Table 52. Supported monitors

Dell UltraSharp 38 Monitor - U3818DW
Dell UltraSharp 27 Monitor - UP2718Q
Dell UltraSharp 25 Monitor - U2518D
Dell UltraSharp 27 Monitor - U2718Q
Dell 24 Monitor - P2418D
Dell UltraSharp 27 Ultrathin Monitor - U2719D
Dell 22 Monitor - P2217
Dell 24 Monitor - P2416D
Dell 23 Monitor - P2317H
Dell 24 Monitor - P2417H
Dell 24 Touch Monitor - P2418HT
Dell 27 Monitor - P2717H
Dell 43 Multi-Client Monitor - P4317Q
Dell UltraSharp 24 Monitor - U2415
Dell UltraSharp 24 Monitor - U2417H
Dell UltraSharp 24 Monitor - U2417HA
Dell UltraSharp 24 Monitor - U2417HWi
Dell UltraSharp 24 Ultrathin Monitor - U2419H
Dell 25" Display - U2518DR (China Only)
Dell UltraSharp 29 Monitor - U2917W
Dell 24 Monitor - P2415Q
Dell 22 Monitor - P2217H
Dell UltraSharp 27 Monitor - U2717DA
Dell UltraSharp 27 Monitor - UP2716D
Dell UltraSharp 24 Monitor - U2417HJ
Dell UltraSharp 32 Monitor - UP3216Q
Dell UltraSharp 32 Monitor - UP3218K
Dell UltraSharp 27 Monitor - U2717D
Dell UltraSharp 34 Monitor - U3417W
Dell UltraSharp 25 Monitor - UP2516D
Dell UltraSharp 30 Monitor - UP3017
Dell 24 Monitor - P2418HZ
Dell 22 Monitor - P2219H
Dell 27 Monitor - P2719HC

Dell 23 Monitor - P2319H
Dell 27 Monitor - P2719H
Dell 24 Monitor - P2419H
Dell 22 Monitor - P2219HC
Dell 24 Monitor - P2419HC

Audio devices

Table 53. Supported audio devices

Jabra Evolve 75
Bose QuietComfort 35 Headphones
Dell Professional Sound Bar - AE515
Dell Pro Stereo Headset - UC350
Dell 2.1 Speaker System - AE415
Dell 2.0 Speaker System - AE215

Cables, Dongles, and adapters

Table 54. Supported cables, dongles, and adapters

Startech TBT3 to Dual DP Adapter
Dell USB-C Mobile Adapter
Dell Adapter - USB-C to HDMI/VGA/Ethernet/USB 3.0
Dell Adapter - USB 3.0 to HDMI/VGA/Ethernet/USB 2.0
Dell Adapter - HDMI to DVI
Dell Adapter - HDMI to VGA
Dell Adapter - Mini DisplayPort to DisplayPort
Dell Adapter - Mini DisplayPort to DVI Single-Link
Dell Adapter - Mini DisplayPort to HDMI
Dell Adapter - Mini DisplayPort to VGA
Dell Adapter - USB 3.0 to Ethernet PXE Boot
Dell Adapter - USB-C to DisplayPort
Dell Adapter - USB-C to HDMI
Dell Adapter - USB-C to Ethernet (PXE Boot)
Dell Adapter - USB-C to USB-A 3.0
Dell Adapter - USB-C to VGA
Dell Legacy Adapter

Carrying case

Table 55. Carrying cases

Dell Professional Briefcase 15
Timbuk2 - Authority for Dell - 15"
Dell Premier Backpack (M)
Dell Premier Briefcase (M)
Opin Maker Backpack 15" - Carbon Black
Dell Venture Backpack 15
Dell Urban Briefcase 15

Docks and port replicators

Table 56. Supported docks and port replicators

Precision Thunderbolt Dock - TB18DC
Sonnet eGFX Breakaway Box 550
Dell Thunderbolt Dock - TB16
Dell Dock

External data storage

Table 57. Supported external data storage

Promise Pegasus3 PC Edition R4
Dell Portable Thunderbolt 3 SSD, 500GB
Dell USB Slim DVD +/- RW Drive - DW316
Dell 32GB Micro SDHC Card with Adapter
Dell Portable Thunderbolt 3 SSD, 1TB
Dell Portable SSD, USB-C 250GB

HMD

Table 58. Supported HMD

HTC Vive HMD
Dell Visor
Dell Visor Controllers

Input devices

Table 59. Supported input devices

Dell Canvas
Dell Premier Wireless Keyboard and Mouse - KM717
3Dconnexion CAD Mouse
3Dconnexion SpaceMouse Pro Wireless
X-Rite Colorimeter i1Display Pro
Wacom Intuos Pro - Medium
3Dconnexion SpaceMouse Wireless
Dell Bluetooth Mouse - WM615
Dell Premier Wireless Mouse - WM527
Dell Wireless Mouse - WM326
3Dconnexion SpaceNavigator
3Dconnexion SpaceNavigator for Notebooks
Dual mode wireless mouse
Dell Wireless Keyboard and Mouse - KM636

Security devices

Table 60. Supported security devices

Kensington N17 Keyed Laptop Lock for Dell Devices
Noble Wedge lock
Dell Privacy Filter - 15.6"
Noble NG Dual Head Lock -System Security Kit

Hot key definition

Table 61. Keyboard shortcuts

Hot keys	Function
Fn+ESC - Fn Lock	Allows the user to toggle between locked and unlocked Fn keys.
Fn+F1 - Audio Volume Mute	Temporarily mutes/unmutes the audio. The audio level before muting is returned after unmuting.
Fn+F2 – Audio Volume Down/Decrease	Decreases the audio volume until minimum/off is reached.
Fn+F3 – Audio Volume Up/Increase	Increases the audio volume until maximum is reached.
Fn+F4 – Microphone Mute	Silences the on-board microphone so it cannot record audio. There is an LED on the F4 function key that notifies the user of the state of this feature: <ul style="list-style-type: none">• LED off = microphone capable of recording audio

Hot keys**Function**

	<ul style="list-style-type: none">· LED on = microphone muted and unable to record audio
Fn+F6—Scroll lock	Used as Scroll Lock key.
Fn+F8 – LCD and Projector display	Determines video output to LCD and external Video devices when attached and displays present.
Fn+F9 – Search	Mimics the Windows key + F keystroke to open Windows Search dialog box.
Fn+F10 – KB Illumination/ Backlight	Determines the Keyboard Illumination/Backlight brightness level. The hot key cycles through the following brightness states when pressed: Disabled, Dim, Bright. For more detail, see Keyboard Illumination/Backlight section.
Fn+F11 – Brightness Decrease	Decreases the stepping of LCD brightness for each press until minimum is reached. For details, see the LCD Brightness section.
Fn+F12 – Brightness Increase	Increases the stepping of LCD brightness for each press until maximum is reached. For details, see the LCD Brightness section.
Fn+PrintScreen – Radio On/Off	Toggles all the radios on and off. For example, WLAN, WWAN, and Bluetooth.
Fn+Insert – Sleep	Puts the system into the ACPI S3 State and does not wake the system.
Fn+RightCtrl – Context Menu	It is used as Context Menu key. (a.k.a. Right-Click menu)
Fn+Left Cursor—Home	It is used as Home key.
Fn+Right Cursor – End	It is used as End key.
Fn+B – Pause/Break	It is used as Pause/Break key. Specifically, Fn+B = Pause and Fn+Ctrl+B = Break.

Getting help

Contacting Dell

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

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

- 1 Go to **Dell.com/support**.
- 2 Select your support category.
- 3 Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
- 4 Select the appropriate service or support link based on your need.