

Dell Latitude 7400

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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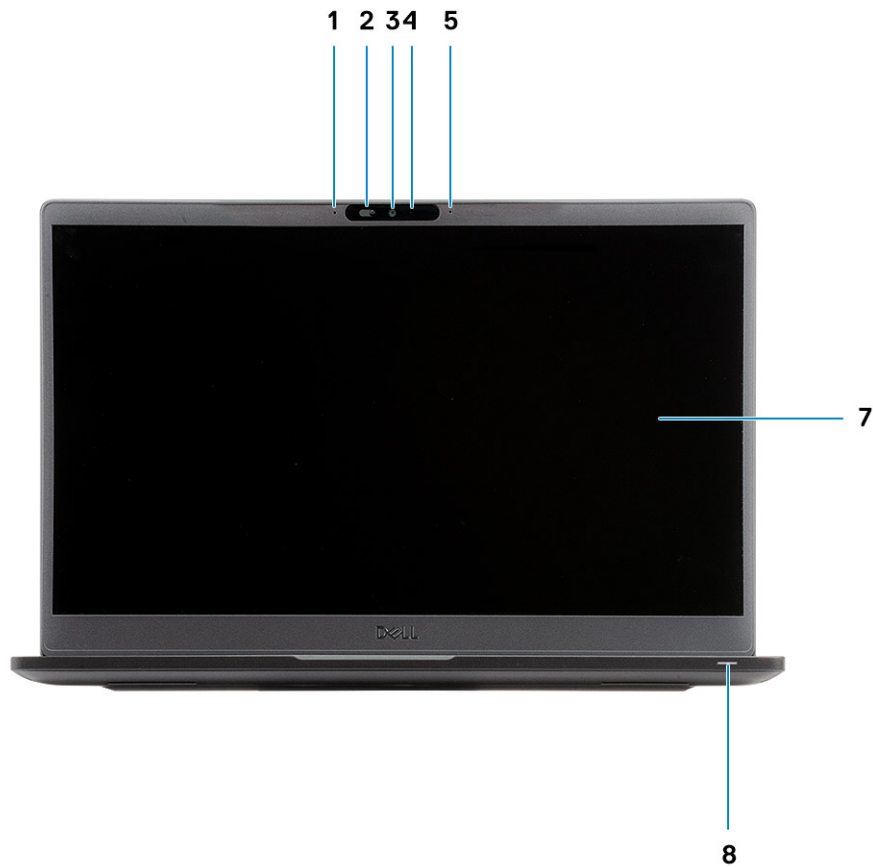
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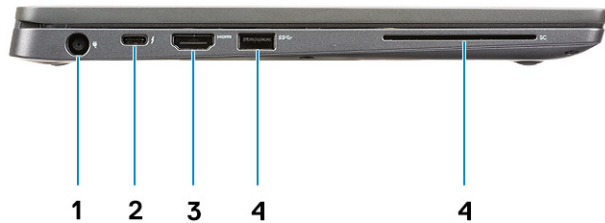
Chassis overview

Front view



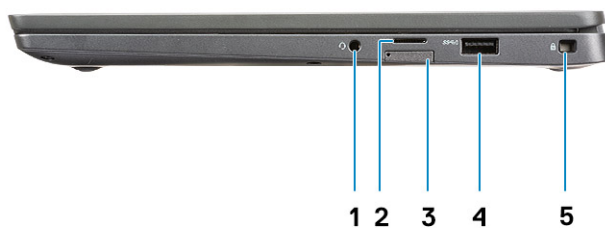
- 1 Microphone array
- 2 SafeView switch
- 3 Camera
- 4 Camera status LED
- 5 Microphone
- 6 Display panel
- 7 Battery status LED

Left view



- 1 Power adapter port
- 2 USB Type-C 3.1 Gen 2 port (Thunderbolt)
- 3 HDMI 1.4a port
- 4 USB Type-A 3.1 Gen 1 port
- 5 Smart card slot

Right view



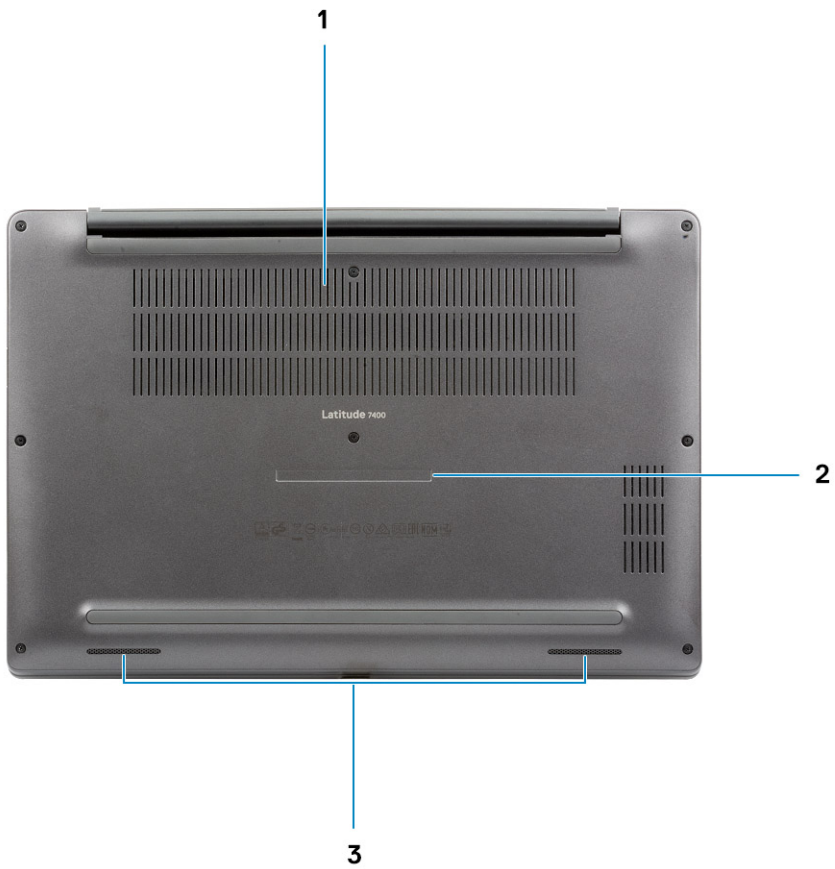
- 1 Universal audio port (Headset Jack + microphone-in + line-in support)
- 2 micro-SD 4.0 memory card reader
- 3 SIM card slot
- 4 USB Type-A 3.1 Gen 1 ports (PowerShare capable)
- 5 Noble wedge lock slot

Palmrest view



- 1 Power button (with optional finger print reader - no LED)
- 2 Keyboard
- 3 Touchpad

Bottom view



- 1 Thermal vent
- 2 Service tag label
- 3 Speakers

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.

System information

Table 1. System information

Feature	Specifications
Chipset	Intel Chipset
DRAM bus width	64-bit
FLASH EPROM	24 MB / 32 MB
PCIe bus	100 Mhz

Processor

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

Table 2. Processor specifications

Type	UMA Graphics
8th Generation Intel core i5-8265U Processor (Quad Core (QC), 6M SmartCache, base frequency 1.6 GHz, up to 3.9 GHz)	
8th Generation Intel core i7-8665U Processor (QC, 8M SmartCache, base frequency 1.9 GHz, up to 4.8 GHz)	Intel UHD Graphics 620 (8th Generation Intel Core)
8th Generation Intel core i5-8365U Processor (QC, 6M SmartCache, base frequency 1.6 GHz, up to 4.1 GHz)	

Memory

Table 3. Memory specifications

Feature	Specifications
Minimum memory configuration	4 GB
Maximum memory configuration	32 GB
Number of slots	Two SoDIMM

Feature	Specifications
Memory options	<ul style="list-style-type: none"> • 4 GB - 1 x 4 GB • 8 GB - 1 x 8 GB • 8 GB - 2 x 4 GB • 16 GB - 1 x 16 GB • 16 GB - 2 x 8 GB • 32 GB - 2 x 16 GB
Type	DDR4
Speed	2400 MHz

Storage

Table 4. Storage specifications

Type	Form factor	Interface	Capacity
Solid-state drive	M.2 2280	PCIe / SATA	Up to 1 TB
Solid-state drive	M.2 2230 (With bracket)	PCIe	128 GB
Self Encrypting Drive (SED) / Opal SED	M.2 2280	PCIe NVMe	256 GB

Media card-reader

Table 5. Media card-reader specifications

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

Audio

Table 6. Audio specifications

Feature	Specifications
Controller	Realtek ALC3254 with Waves MaxxAudio Pro
Type	Two-channel high-definition audio
Speakers	Two (Directional speakers)
Interface	Intel HDA bus
Internal speaker amplifier	2 W (RMS) per channel

Video card

Table 7. Video card specifications

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 620	UMA	<ul style="list-style-type: none">8th Gen Intel Core i5 processor8th Gen Intel Core i7 processor	Integrated	Shared system memory	HDMI 1.4a	4096 x 2304

Camera

Table 8. Camera specifications

Feature	Specifications
Resolution	<ul style="list-style-type: none">Still image: 0.92 megapixelsVideo: 1280 x 720 at 30 fps
Diagonal viewing angle	<ul style="list-style-type: none">Diagonal $>/ 86.7^\circ$ (tolerance +/- 3%)Vertical $>/ 47^\circ$
Camera Options	<ul style="list-style-type: none">No Camera6.0 mm RGB HD6.0 mm RGB IR3.0 mm RGB IR2.7 mm RGB HD <p>Ambient Light Sensor is only available with the 3mm IR camera option</p>
Video Max resolution	1280 x 720 (HD) at 30 FPS
Still image max resolution	0.92 megapixel (1280 x 720)

Ports and connectors

Table 9. Ports and connectors

Features	Specifications
Memory card reader	micro-SD 4.0 memory card reader (optional)
USB	<ul style="list-style-type: none">One USB Type-C 3.1 Gen 2 port (Thunderbolt)Two USB Type-A 3.1 Gen 1 ports (one PowerShare capable)
Security	<ul style="list-style-type: none">Noble Wedge lock slotSmart card reader (optional)

Features	Specifications
Docking port	Dell USB 3.0 Dock (UNO)
Audio	Universal audio jack (Headset Jack + microphone-in + line-in support)
Video	HDMI 1.4a

Wireless

Wireless LAN card specifications

Table 10. Wireless LAN card specifications

Wireless card options

Qualcomm QCA61x4A 802.11ac Dual Band (2x2) Wireless Adapter + Bluetooth 4.2 (non vPro)

Intel Dual-Band Wireless-AC 9560 Wi-Fi + Bluetooth 5.0 Wireless Card (2x2)(vPro)(Bluetooth Optional)

Intel Wi-Fi 6 AX200 2x2 .11ax 160MHz + Bluetooth 5.0

WWAN card specifications

Table 11. Wireless WAN card specifications

Wireless card option

Mobile Broadband Qualcomm Snapdragon X20 Global Gigabit LTE (Optional)

Display

Table 12. Display specifications

Feature	Specifications
Type	<ul style="list-style-type: none"> 14-in. HD AG (WXGA 1366x768), 220 nits, non-touch display 14-in. FHD AG (1920 x 1080), 300 nits, non-touch display 14-in. FHD AG (1920 x 1080), 300 nits, non-touch display with Dynamic Privacy Dell SafeScreen 14-in. FHD AG (1920 x 1080), 300 nits, touch display
Height (Active area)	173.89 mm (6.85 in.)
Width (Active area)	309.14 mm (12.18 in.)
Diagonal	355.6 mm (14.0 in.)
Luminance/Brightness (typical)	HD: 220 nits (Super Low Power) / FHD: 300 nits

Feature	Specifications
Refresh rate	60 Hz

Keyboard

Table 13. Keyboard specifications

Feature	Specifications
Number of keys	<ul style="list-style-type: none"> • 81 (U.S) • 82 (UK) • 82 (Brazil) • 85 (Japan)
Size	Full sized <ul style="list-style-type: none"> • X= 19.05 mm key pitch • Y= 19.05 mm key pitch
Backlit keyboard	Optional
Layout	QWERTY / AZERTY / Kanji

Touchpad

Table 14. Touchpad specifications

Feature	Specifications
Resolution	1048 x 984
Dimensions	<ul style="list-style-type: none"> • Width: 3.91 inch (99.5 mm) • Height: 2.08 inch (53 mm)
Multi-touch	Configurable single finger and multi-finger gestures

Touchpad gestures

For more information about touchpad gestures for Windows 10, see the Microsoft knowledge base article [4027871](https://support.microsoft.com/4027871) at support.microsoft.com.

Operating system

Table 15. Operating system

Feature	Specifications
Operating systems supported	<ul style="list-style-type: none"> • Windows 10 Home (64 bit) • Windows 10 Pro (64 bit) • Ubuntu

Battery

Table 16. Battery specifications

Type	<ul style="list-style-type: none">• Polymer 3-cell 42 WHr• Polymer 4-cell 60 WHr• Polymer 4-cell 60 WHr (LCL)
Dimension	<p>Polymer 3-cell 42 WHr</p> <ul style="list-style-type: none">• Width: 95.9 mm (3.78 in)• Length: 200.5 mm (7.89 in)• Height: 5.7 mm (0.22 in) <p>Polymer 4-cell 60 WHr and LCL</p> <ul style="list-style-type: none">• Width: 95.9 mm (3.78 in)• Length: 238 mm (9.37 in)• Height: 5.7 mm (0.22 in)
Weight (maximum)	<ul style="list-style-type: none">• Polymer 3-cell 42 WHr: 192.5 g (0.42 lb)• Polymer 4-cell and LCL: 270 g (0.60 lb)
Voltage	11.4 VDC
Life span	<ul style="list-style-type: none">• Polymer 3-cell 42 WHr and 4-cell 60 WHr (Standard Pack): 300 discharge / charge cycles• Polymer 4-cell 60 WHr (LCL): 1000 discharge / charge cycles
Charging time when the computer is off (approximate)	<ul style="list-style-type: none">• Standard Charge: 0°C to 50°C : 4 hours• Express Charge†:<ul style="list-style-type: none">– 0°C to 15°C : 4 hours– 16°C to 45°C : 2 hours– 46°C to 50°C : 3 hours
Operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions
Temperature range: Operating	<ul style="list-style-type: none">• Charging: 0°C to 50°C (32°F to 122°F)• Discharging : 0°C to 70°C (32°F to 158°F)
Temperature range: Storage	-20°C to 60°C (-4°F to 140°F)
Coin-cell battery	CR 2032

NOTE: †For batteries with the ExpressCharge feature, the battery will typically have at least an 80% charge after about an hour of charging with the system off, and fully charged in about 2 hours with the system off.

Enabling ExpressCharge requires that both the computer and the battery used be ExpressCharge capable. If these requirements are not met, ExpressCharge will not be enabled.

Power adapter

Table 17. Power adapter specifications

Feature	Specifications
Type	<ul style="list-style-type: none"> • E5 65 W 7.4 mm Barrel Adapter • E5 65 W BFR/PVC Halogen Free adapter, 7.4 mm barrel • E5 65 W Rugged Adapter 7.4 mm barrel (India only) • E5 90 W 7.4 mm Barrel Adapter • 65 W adapter, Type-C • 90 W adapter, Type-C
Input Voltage	100 VAC - 240 VAC
Input current (maximum)	<ul style="list-style-type: none"> • 1.7 A for 65 W • 2.5 A for 90 W
Input frequency	50 Hz to 60 Hz
Output current	<ul style="list-style-type: none"> • 3.34 A for 65 W • 4.62 A for 90 W
Rated output voltage	19.5 VDC
Temperature range (Operating)	0°C to 40° C (32°F to 104°F)
Temperature range (Non-Operating)	40°C to 70°C (-40°F to 158°F)

Dimensions and weight

Table 18. Dimensions and weight

Feature	Specifications	
	Aluminum (Al)	Carbon fibre (CF)
Height	Front - 16.75 mm(0.66 inch)	Front - 17.82 mm(0.70 inch)
	Rear - 18.20 mm(0.72 inch)	Rear - 18.96 mm(0.75 inch)
Width	321.35 mm(12.65 inch)	
Depth	214.08 mm (8.42 inch)	
Weight	1.4 kg(3.11 lb)	1.36 kg(2.99 lb)

Computer environment

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

Table 19. Computer environment

	Operating	Storage
Temperature range	0°C to 40°C (32°F to 104°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing) i NOTE: Maximum dew point temperature = 26°C	0% to 95% (non-condensing) i NOTE: Maximum dew point temperature = 33°C
Vibration (maximum)	0.66 GRMS	1.30 GRMS
Shock (maximum)	140 G †	160 G ‡
Altitude (maximum)	0 m to 3048 m (0 ft to 10,000 ft)	0 m to 10,668 m (0 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.

Engineering specifications

Graphics options

Intel HD Graphics Integrated

Intel UHD Graphics 620

Table 20. Intel UHD Graphics 620 (8th Generation Intel Core) specification

Integrated Graphics Controller	Intel UHD Graphics 620 (8th Generation Intel Core)
Bus Type	Internal PCIe
Memory Interface	N/A (unified memory architecture)
Graphics Level	GT2, Intel UHD 620
Estimated Maximum Power Consumption (TDP)	15 W (included in the CPU power)
Display Support	On System: <ul style="list-style-type: none"> • HDMI 1.4 • Display over USB Type-C
Maximum Vertical Refresh Rate	Up to 85 Hz depending on resolution
Operating Systems Graphics/ Video API Support	DirectX 11 (Windows 7/8.1), DirectX 12 (Windows 10), OpenGL 4.5
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	System ports: <ul style="list-style-type: none"> • Max Digital: (HDMI 1.4) 4096x2304@24 Hz • Analog: (VGA) system (14 inches/15 inches) or docking 2048x1152 @60 Hz Docked: <ul style="list-style-type: none"> • Max Digital: (DisplayPort 1.2) 3860 x2160 @60 Hz • Max Digital: (SL-DVI) 1920x1080 @60 Hz • Analog: (VGA) system (14 inches/15 inches) 2048x1152 @60 Hz For 3 displays: <ul style="list-style-type: none"> • (native or docked) up to 1920x1200 max resolution each
Numbers of Displays Supported	<ul style="list-style-type: none"> • System Ports - 3 displays max with LCD plus 1 display max on each output (HDMI, VGA (14 inches/15 inches) • Docked - 3 displays max (combination of LCD, VGA / DP / HDMI)

Display

Table 21. Display specifications

Type		<ul style="list-style-type: none"> 14-inch HD AG (WXGA 1366x768), 220 nits, non-touch display 14-inch FHD AG (1920 x 1080), 300 nits, non-touch display 14-inch FHD AG (1920 x 1080), 300 nits, non-touch display with Dynamic Privacy Dell SafeScreen 14-inch FHD AG (1920 x 1080), 300 nits, touch display
Screen size	Height (Active area)	173.95 mm (6.84 in)
	Width (Active area)	309.4 mm (12.18 in)
	Diagonal	355.6 mm (14.0 in)
LCD Panel technology		FHD / HD
Display		Non Touch / Touch
Native Resolution		1920x1080 / 1366x768
High Definition		Yes
Luminance		220 nits (Super Low Power) / 300 nits
Megapixels		2.07
Pixels Per Inch (PPI)		157
Pixel pitch		0.161 mm
Color depth		262K
Contrast ratio (typical)		1700
Response time(max)		35 ms
Refresh rate		60 Hz
Horizontal viewing angle		HD : 40°(Left), 40°(Right)
		FHD : 80°(Left) , 80° (Right)
Vertical viewing angle		HD : 10°(Up) , 30°(down)
		FHD : 80°(Up) , 80°(down)
Stylus support		No

Storage options

Table 22. 128 GB M.2 2230 PCIe SSD (Class 35)

Specifications

Capacity (GB)	128 GB
Dimensions in mm (width x depth x height)	22 x 30 x 2.38 (mm)
Interface type and maximum speed	PCIe Gen 3 8 Gbps (up to 2 lanes)
MTBF	1.4 Mil hours
Logical blocks	250, 069, 680
Power consumption (reference only)	Idle 0.05 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)	1,500 G

Environmental Non-Operating Conditions (Non-Condensing)

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

Table 23. 256 GB M.2 2280 PCIe NVME Solid-State Drive(Class 40)

Capacity (GB)	256 GB
Dimensions in mm (width x depth x height)	22 x 80 x 2.38
Interface type and maximum speed	Up to 32 Gbps (PCIe Gen 3 x4)
MTBF	1.4 M 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%
Operating shock (@0.5 ms)	1,500 G

Environmental non-operating conditions (non-condensing):

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

Table 24. 512 GB M.2 2280 PCIe NVMe SATA Solid-State Drive(Class 40)

Capacity	512 GB
Dimensions in mm (width x depth x height)	22 x 80 x 2.38
Interface type and maximum speed	Up to 32 Gbps (PCIe Gen 3 x4)
MTBF	1.4 M 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%
Operating shock (@0.5 ms)	1,500 G

Environmental non-operating conditions (non-condensing):

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

Table 25. 1024 GB M.2 2280 PCIe NVMe Solid-State Drive(Class 40)

Capacity	1024 GB
Dimensions in mm (width x depth x height)	22 x 80 x 3.73
Interface type and maximum speed	Up to 32 Gbps (PCIe Gen 3 x4)
MTBF	1.4 M 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%
Operating shock (@0.5 ms)	1,500 G

Environmental non-operating conditions (non-condensing):

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

Table 26. 256 GB M.2 2280 PCIe NVMe self-encrypting Solid-State Drive (Opal-certified)

Capacity	256 GB
Dimensions in mm (width x depth x height)	22 x 80 x 2.38

Interface type and maximum speed	Up to 32 Gbps (PCIe Gen 3 x4)
MTBF	1.4 M 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%
Operating shock (@0.5 ms)	1,500 G
Environmental non-operating conditions (non-condensing):	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

Active Steering Antennas

Table 27. Active Steering Antennas

Attribute	Specification
Feature	In 5 GHz WiFi operations Active Steering Antennas (ASA) enables multiple unique antenna patterns for each antenna and selects the most optimal to improve RF signal strength resulting higher data rates and an enhanced wireless experience.
Operating Frequency Band	5 GHz (5180 MHz - 5825 MHz)
Number of Antennas	2 (2x2 MIMO) / 4 (4x4 MIMO)
Supported Wireless Technologies	WiFi 802.11 a/n/ac
Enhanced performance	Up to 40% improved data transmission when compared to non-ASA enabled mode. Varies depending on network, environment, signal conditions, traffic loading and type.
Operating Systems	Windows 10 64-bit and Linux

ePrivacy Panel

Module

The TFT (Thin Film Transistor) panel module is an AMLCD (Active Matrix Liquid Crystal Display) with attached backlight and control system. The module uses TFTs as switching devices. It is composed of

- TFT LCD panel
- Driver Circuitry for the Rows and Columns
- an ASIC Display Timing Controller
- Backlight System
- Interface Connector

Features

- Diagonal Size: 14.0"
- Resolution: 1920 x 1080 FHD
- IPS LCD display
- 16:9 Aspect Ratio
- Module Style: Bent Type
- Interface type : 2 Lane eDP1.3
- AG Polarizer
- Wide view angle: 80/80/80/80 for U/D/L/R (min)
- Color Depth: 16,777,216 Colors (6+2bit FRC)
- Color Gamut: NTSC 72%
- Backlight Source: WLED Backlight
- Privacy mode display can be enabled by pin 21 of eDP connector (pulled high to 3.3V at panel side)
- Sulfide free of reflector sheet
- Program capability through AUX channel

Mechanical Details

Panel Diagonal : 14.0"

Panel Dimension (X,Y,Z) : 315.90 tpy, 186.09 tpy +1.6 max for FPC, 5.75 max(mm)

Active Area Width (X, Y): 309.4 ± 0.3, 173.95± 0.3 (mm)

Panel Weight : ≤ 452 grms

General panel details

Table 28. Panel specifications

Panel Design	14.0" WLED Bent type
Surface Treatment (Polarizer type and hardness)	AG 3H
Number of Pixels	1920 x RGB x 1080
Pixel Pitch	0.161 x 0.161 mm
Display Mode	Normally Black (IPS LCD)
Native Color	6+2 bits FRC
Number of Colors	16,777,216

Table 29. Luminance

Backlight	Symbol	Condition	Min.	Type	Max	Units
100%	L	Vin = 12v ± .5v	255	300	N/A	cd/m ²
PWM		$\Phi = 0^\circ$		150		5-pts Avg
Duty Cycle		$\theta = 0^\circ$				
		Ambient Temp : 22 - 25°C				

Table 30. Color

Item	Symbol	Condition	Min	Type	Max	Units
WHITE	Wx	$\Phi = 0^\circ$.283	.313	.343	CIE '31
	Wy	$\theta = 0^\circ$.299	.329	.359	
Color Gamut			N/A	72%	N/A	NTSC
Color Tolerance			ISP			
Delta-E	(E*94)		N/A	10	15	IEC Patch
			10			
Gamma			2.2 +/- 0.5			

Table 31. Viewing Cone

Item	Symbol	Condition	Min	Type	Max	Units
Shared Mode	Left Φ L	CR ≥ 10	80	89		Degree
	Right Φ R		80	89		
	Top θ u		80	89		
	Bottom θ d		80	89		
Privacy Mode	Left Φ L			20	30	Degree
	Right Φ R			20	30	
	Top θ u			15	30	
	Bottom θ d			15	30	
Privacy Mode	Left Φ L			40	45	Degree
	Right Φ R			40	45	
	Top θ u			75	80	
	Bottom θ d			75	80	

Table 32. Viewing angle

Item	Symbol	Type	Unit
Shared Mode	Left	89	Degree
	Right	89	
	Top	89	
	Bottom	89	
Privacy Mode	Left	20	
	Right	20	
	Top	15	
	Bottom	15	

Response Time: 30-35 mSec

Contrast Ratio : 1000:1 - 1500:1

Wireless communications

- Intel Dual Band Wireless-AC 9560 802.11ac 160 MHz (2x2) Wi-Fi + Bluetooth v5 M.2 Wireless Card
- Qualcomm QCA61x4A 802.11ac MU-MIMO Dual Band (2x2) Wi-Fi + Bluetooth v4.2 LE M.2 Wireless Card
- Intel Wi-Fi 6 AX200 2x2 .11ax 160MHz + Bluetooth 5.0

Table 33. Intel Dual Band Wireless-AC 9560 802.11ac 160 MHz (2x2) Wi-Fi + Bluetooth v5 M.2 Wireless Card

Attribute	Specification
Host interface	M.2 2230 form factor (CNVio)
Network standard	802.11a, 802.11b, 802.11g, 802.11n and 802.11ac DL MU-MIMO, 160 MHz 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, and Wi-Fi Direct (For Microsoft Windows* only)
Operating Frequency Bands	2.4 GHz (802.11b/g/n) and 5 GHz (802.11a/n/ac)
Power range	<ul style="list-style-type: none"> • 2.4 GHz : 13 dBm – 18 dBm • 5 GHz : 9.5 dBm – 16 dBm <p>NOTE: Optimized power modes (sleep states) reduce power consumption during periods of inactivity</p>
Dual Stream N	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 Rate	<ul style="list-style-type: none"> • 2.4 GHz 40M: Up to 300 Mbps • 5 GHz 80M: Up to 867 Mbps • 5 GHz 160M: Up to 1.73 Gbps
Receive Sensitivity	802.11ac: -59 dBm @ 400 Mbps; - 57 dBm @ 866.7 Mbps

Attribute	Specification
	802.11n/a: -67 dBm @ 300 Mbps ; -70 dBm @ 144.4 Mbps
	802.11g/a: -75 dBm @ 54 Mbps
	802.11b: -85 dBm @ 11 Mbps
Security	Open, Shared, WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA')
Authentication Protocol	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAP*v2
EAP Methods	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP
Product Safety	UL, C-UL, CB (IEC60950-1)
Client Utility	Native Wi-Fi and Bluetooth Microsoft UI support
Software Support	Microsoft WHQL certified for Windows 10
Radio On/Off	Hardware and software on/off disables transmit and receive to comply with aviation in-flight restrictions
Roaming	Seamless roaming between 802.11a, 802.11b, 802.11b/g, 802.11n and 802.11ac access points
Wake On Wireless	Supported
Miracast (WiFi Display)	Native Miracast support by Windows 8.1 and 10
Wireless PAN Standard	Dual-mode Bluetooth 4.2, BLE
Bluetooth Data rates	Up to 3 Mbps
Bluetooth Operating Frequency Bands	2.4 GHz
Transmission	FHSS (Frequency Hopping Spread Spectrum)
Bluetooth Data Encryption	128-bit encryption
Bluetooth Receive Sensitivity	-70 dBm@BER≤0.01% (EDR) -100 dBm@BER≤30.8% (LE nominal)
Temperature	Operating temperature -10°C to +65°C Storage temperature of -45°C to +70°C
Humidity	Up to 90%
Antennae	2x2
Transmit Peak Power	<ul style="list-style-type: none"> Bluetooth: 23 dBm WiFi: 20 dBm


Table 34. Qualcomm QCA61x4A 802.11ac MU-MIMO Dual Band (2x2) Wi-Fi + Bluetooth v4.2 LE M.2 Wireless Card

Attribute	Specification
Host interface	M.2 2230 (WiFi- PCIe, Bluetooth – USB)
Network standard	IEEE 802.11a/b/g/n/ac MU-MIMO RX
Wi-Fi Alliance Certifications	802.11a/b/g/n/ac, WPA, WPA2, WMM, WPS, Wi-Fi Direct
Operating Frequency Bands	2.4 GHz, 5 GHz

Attribute	Specification
Power range	<ul style="list-style-type: none"> 2.4 GHz : 13.5 dBm – 19 dBm 5 GHz : 9 dBm – 15 dBm
Dual Stream N	Support for two transmit and receive antennas enable better wireless at the same distance when compared to older 802.11a/b/g solutions.
Data Rate	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
Power Consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP
Product Safety	UL, C-UL, CB (IEC60950-1)
Management Capabilities Alerting	Support for Intel AMT 11.8
Government Compliance	FIPS, FISMA
Client Utility	Intel PRO/Set Wireless Software v19.0 and later
Radio On/Off	Supported
Roaming	Supports seamless roaming between respective access points (802.11b, 802.11g, 802.11a/b/g, and 802.11a/b/g/n/ac)
Wake On Wireless	Supported
Wireless Display	Native Miracast support by Windows 8.1 and 10
Wireless PAN Standard	Dual Mode Bluetooth 4.2, 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	For Windows 7, includes DID, HID, PAN, HCRP, SPP, HFP, HSP DUN, OPP, FTP, BIP, BPP, SYNCH, A2DP(source/sink), AVRCP (target/controller), HOGP (LE HID) Support for Microsoft Inbox Bluetooth profiles in Windows 8.1 and future OS versions
Bluetooth Data Encryption	128-bit encryption
Bluetooth Output Power	Power class 1
Temperature	Operating temperature 0°C to +50°C (Full performance at shield temperatures up to 80°C) Storage temperature of –40°C to +70°C
Humidity	Up to 90% RH non-condensing (at temperatures of 25°C to 35°C)
Antennae	2x2

Attribute	Specification
Transmit Peak Power	<ul style="list-style-type: none"> Bluetooth: 21 dBm WiFi: 21 dBm

Table 35. Intel Wi-Fi 6 AX200 2x2 .11ax 160MHz + Bluetooth 5.0 Wireless Card

Attribute	Specification
Host interface	M.2 2230 form factor (PCIe for Wi-Fi, USB for Bluetooth)
Network standard	IEEE 802.11a/b/g/n/ac/ax, 160MHz channel use
Wi-Fi Alliance Certifications	Wi-Fi CERTIFIED a/b/g/n/ac with wave 2 features, designed to be Wi-Fi CERTIFIED ax (Wi-Fi 6), WMM, WMM-PS, WPA, WPA2, WPS2, Protected Management Frames, and Wi-Fi Direct (For Microsoft Windows only)
Operating Frequency Bands	2.4 GHz and 5 GHz
Data Rate	2.4GHz 40M: Up to 574 Mbps 5GHz 80M: Up to 1.2 Gbps 5GHz 160M: Up to 2.4 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-CHAPv2
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP
Product Safety	UL, C-UL, CB (IEC60950-1)
Power range	<ul style="list-style-type: none"> 2.4 GHz : 13 dBm – 18 dBm 5 GHz : 9.5 dBm – 16 dBm
	 NOTE: Optimized power modes (sleep states) reduce power consumption during periods of inactivity
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 support by Windows 10
Wireless PAN Standard	Dual Mode Bluetooth 5, BLE (HW ready, SW depends on OS)
Bluetooth Data rates	Up to 3Mbps
Bluetooth Operating Frequency Bands	2.4 GHz
Bluetooth Profiles Supported	Support for Microsoft Inbox Bluetooth profiles in Windows 10

Attribute	Specification
Bluetooth Data Encryption	128-bit encryption
Bluetooth Output Power	Power class 1
Temperature	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)
Antennae	2x2
Transmit Peak Power	<ul style="list-style-type: none"> Bluetooth: 21 dBm WiFi: 21 dBm

Power adapter

This sections lists all the power supported power adapters and it's specifications.

Table 36. Power adapter Specifications

Adapter Specifications	E5 65 W 7.4 mm	E5 90 W 7.4 mm	65 W USB-C Type-C	90 W USB-C Type-C
Input voltage	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC
Input current (max)	1.5 A	1.6 A	1.7 A	1.5 A
Input frequency	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
Output current	3.34 A (continuous)	4.62 A (continuous)	20 V / 3.25 A (Continuous) 15 V / 3 A (Continuous) 9.0 V / 3 A (Continuous) 5.0 V / 3 A (Continuous)	20 V / 4.5 A (Continuous) 15 V / 3 A (Continuous) 9.0 V / 3 A (Continuous) 5.0 V / 3 A (Continuous)
Rated output voltage	19.5 VDC	19.5 VDC	20 VDC / 15 VDC / 9 VDC / 5 VDC	20 VDC / 15 VDC / 9 VDC / 5 VDC
Weight (lbs)	0.51	0.70	0.476	0.641
Weight (kg)	0.23	0.32	0.216	0.291
Dimensions (inches)	0.87 x 2.60 x 4.17	0.87 x 2.60 x 5.12	0.87 x 2.6 x 3.9	0.87 x 2.6 x 5.12
Dimensions (mm)	22 x 66 x 106	22 x 66 x 130	22 x 66 x 99	22 x 66 x 130
Temperature range:	Operating	0° to 40°C 32° to 104°F	0° to 40°C 32° to 104°F	0° to 40°C 32° to 104°F

Adapter Specifications	E5 65 W 7.4 mm	E5 90 W 7.4 mm	65 W USB-C Type-C	90 W USB-C Type-C
	32° to 104°F			
Storage	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C
	-40° to 158°F	-40° to 158°F	-40° to 158°F	-40° to 158°F
Cable length	1.8 m	1.8 m	1.8 m	1.8 m

Mobile Broadband - LTE-A WWAN

- Qualcomm Snapdragon X20 Global Gigabit LTE (Gobi 4G/LTE - FMC)
- Qualcomm Snapdragon X20 Global Gigabit LTE (Gobi 4G/LTE)

Table 37. Qualcomm Snapdragon X20 Global Gigabit LTE for AT&T, Verizon and Sprint, US (DAO), South Korea, Taiwan, Indonesia and (EMEA/APJ/ROW)

Carrier	Verizon	AT&T	Sprint	GCF Generic
Network	LTE CAT16	LTE CAT16	LTE CAT16	LTE CAT16
Speed (Downlink)	< 1 Gbps	< 1 Gbps	< 1 Gbps	< 1 Gbps
Speed (Uplink)	< 150 Mbps	< 150 Mbps	< 150 Mbps	< 150 Mbps
Fallback Network	NA	HSPA+	NA	HSPA+
Fallback Speed	NA	HSPA+ 42 Mbps	NA	HSPA+ 42 Mbps
(Downlink)				
Frequency Bands	LTE: 2/ 4/ 5/ 13	LTE: 2/ 4/ 5/ 12/ 14/ 29/ 30/ 66 WCDMA: 2/5	LTE: 25/ 26/ 30/ 41	LTE: 1/2/3/4/5/7/8/12/13/14 / 17/18/19/20/25/26/28/2 9/30/32/38/39/40/41/4 2/43/46/48/66 WCDMA: 1/2/4/5/6/8/9/19
SIM	Yes	Yes	Yes	Yes
LTE/WWAN Antenna	Main (Tx/Rx) + Aux (Rx/ GNSS)+ MIMO	Main (Tx/Rx) + Aux (Rx/ GNSS) + MIMO	Main (Tx/Rx) + Aux (Rx/ GNSS)+ MIMO	Main (Tx/Rx) + Aux (Rx/ GNSS) + MIMO
Operating System Support	Windows 7, 32/64 bits Windows 10, 64 bits	Windows 7, 32/64 bits Windows 10, 64 bits	Windows 7, 32/64 bits Windows 10, 64 bits	Windows 7, 32/64 bits Windows 10, 64 bits
Host Interface	Supported both USB 3.0/2.0	Supported both USB 3.0/2.0	Supported both USB 3.0/2.0	Supported both USB 3.0/2.0
Transmit power range	22 dBm to 24.5 dBm	22 dBm to 24.5 dBm	22 dBm to 24.5 dBm	22 dBm to 24.5 dBm

Security options

Table 38. Security options

Trusted Platform Module (TPM) 2.0	Trusted Platform Module (TPM) 2.0 (integrated on system board), FIPS 140-2 Certified, TCG Certified
Facial recognition	IR Camera
Fingerprint reader (100%-attached to power button)	Yes, Optional Touch Fingerprint Reader in Power Button with Control Vault 3.0 Advanced Authentication with FIPS 140-2 Level 3 Certification, Windows Hello Compliant.
Smart card reader	Optional Contacted Smart Card, FIPS 201 with Control Vault 3.0 Advanced Authentication with FIPS 140-2 Level 3 Certification Optional Contactless Smart Card plus NFC with Control Vault 3.0 Advanced Authentication with FIPS 140-2 Level 3 Certification
Computer lock	Noble lock
Optional Dell Data Security and Management Software:	<ul style="list-style-type: none">• Dell Endpoint Security Suite Enterprise• Dell Data Guardian• Dell Encryption (Enterprise or Personal)• Dell Threat Defense• Dell Protected Workspace• MozyPro, or MozyEnterprise• RSA NetWitness Endpoint• RSA SecurID Access• VMware Airwatch• Absolute Data & Device Security

Keyboard shortcuts

NOTE: Keyboard characters may differ depending on the keyboard language configuration. Keys used for shortcuts remain the same across all language configurations.

Table 39. List of keyboard shortcuts

Keys	Description
Fn + Esc	Toggle Fn-key lock
Fn + F1	Mute audio
Fn + F2	Decrease volume
Fn + F3	Increase volume
Fn + F4	Mute microphone
Fn + F5	Keyboard backlight
	NOTE: Not applicable for non-backlight keyboard.
Fn + F6	Decrease brightness
Fn + F7	Increase brightness
Fn + F8	Switch to external display
Fn + F10	Print Screen
Fn + F11	Home
Fn + F12	End
Fn + insert	Num Lock

Getting help

Contacting Dell

① **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.