


Dell Precision 3550

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.

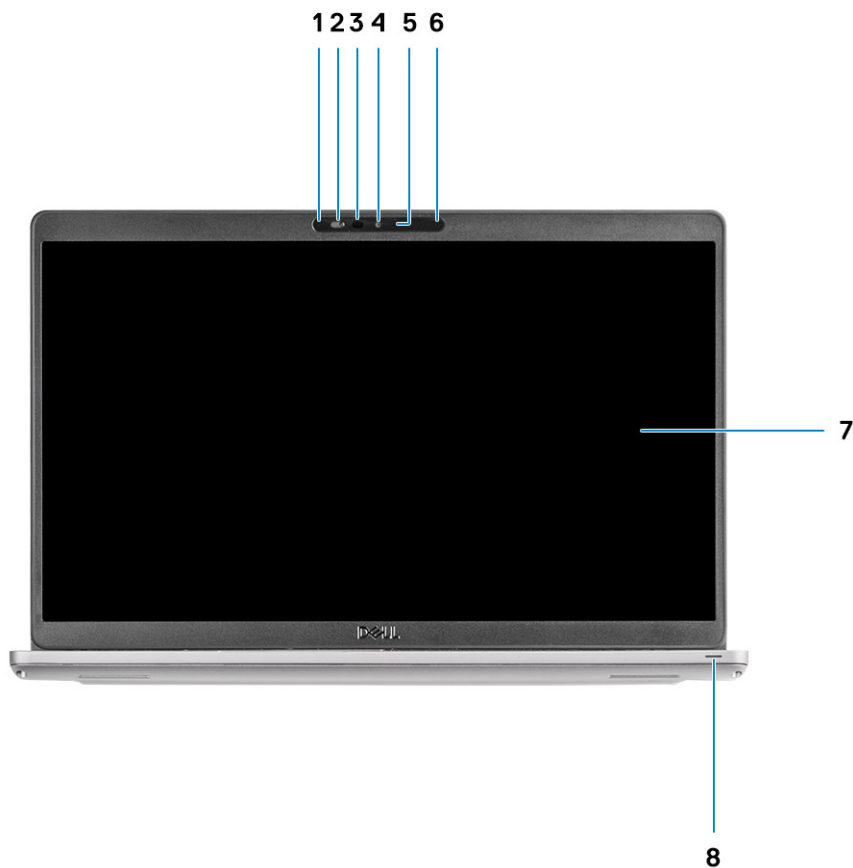
 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

Chapter 1: Chassis overview.....	5
Display view.....	5
Left view.....	5
Right view.....	6
Palmrest view.....	6
Bottom view.....	6
Keyboard shortcuts.....	7
Chapter 2: Specifications of Precision 3550.....	8
Processors.....	8
Chipset.....	8
Operating system.....	8
Memory.....	9
Storage.....	9
Ports and connectors.....	9
Audio.....	10
Video.....	10
Camera.....	11
Communications.....	12
Media-card reader.....	12
Power adapter.....	12
Battery.....	13
Dimensions and weight.....	15
Touchpad.....	15
Display.....	16
Fingerprint reader in Power Button.....	17
Fingerprint reader on Palmrest.....	17
Sensor and control specifications.....	17
Security.....	18
Security options—Contacted smartcard reader.....	18
Security options—Contactless smartcard reader.....	19
Security Software.....	20
Computer environment.....	21
Chapter 3: Engineering specifications.....	22
Graphics options.....	22
Intel UHD Graphics.....	22
Nvidia Quadro P520.....	22
Supported hard drives.....	23
128 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid-State Drive	23
256 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid-State Drive.....	23
512 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid State Drive.....	24
512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive.....	24
256 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Opal 2.0 SED Solid State Drive.....	25

512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Opal 2.0 SED Solid State Drive.....	25
1TB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive.....	26
2TB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive.....	27
256 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive.....	27
2.5-inch 500 GB 7200 RPM SED FIPS SATA Hard Drive	28
2.5-inch 500 GB 7200 RPM SATA Hard-Disk Drive.....	28
2.5-inch 1 TB 7200 RPM SATA Hard Drive.....	29
2.5-inch 2 TB 5400 RPM SATA Hard Drive.....	29
Communications.....	30
Communications - Integrated.....	30
Wireless LAN options.....	31
Chapter 4: Getting help.....	33
Contacting Dell.....	33

Chassis overview

Display view



1. Microphone
2. Camera shutter
3. IR camera (optional)
4. Camera
5. Camera status light
6. Microphone
7. LCD panel
8. LED activity light

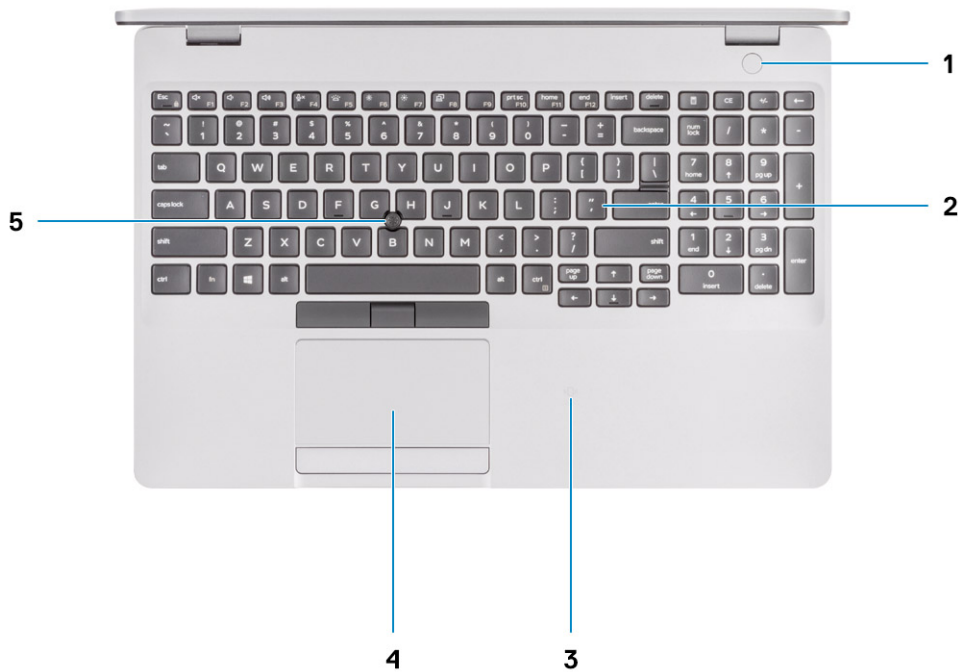
Left view

1. Power connector port
2. USB Type-C 3.2 Gen 2 port with DisplayPort 1.2 port/Power Delivery/Thunderbolt (Optional)
3. USB 3.2 Gen 1
4. Fan vents
5. Smart card reader (optional)

Right view

1. microSD card reader
2. Headset/Microphone port
3. USB 3.2 Gen 1 port
4. USB 3.2 Gen 1 port with PowerShare
5. HDMI port
6. Network port
7. Wedge-shaped lock slot

Palmrest view



1. Power button with optional fingerprint reader (FPR)
2. Keyboard
3. NFC/Contactless smart card reader (optional)
4. Touchpad
5. Pointstick

Bottom view

1. Fan vents
2. Service tag label
3. Speakers

Keyboard shortcuts

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.

Table 1. List of keyboard shortcuts

Keys	Primary behavior	Secondary behavior (Fn + Key)
Fn + Esc	Escape	Toggle Fn-key lock
Fn + F1	Mute audio	F1 behavior
Fn + F2	Decrease volume	F2 behavior
Fn + F3	Increase volume	F3 behavior
Fn + F4	Mute microphone	F4 behavior
Fn + F5	Turn on/off keyboard backlight	F5 behavior
Fn + F6	Decrease brightness	F6 behavior
Fn + F7	Increase brightness	F7 behavior
Fn + F8	Switch to external display	F8 behavior
Fn + F10	Print screen	F10 behavior
Fn + F11	Home	F11 behavior
Fn + 12	End	F12 behavior
Fn + Ctrl	Open application menu	--

Specifications of Precision 3550

Processors

Table 2. Processors

Description	Values				
Processors	10th Generation Intel Core i5-10210U	10th Generation Intel Core i5-10310U	10th Generation Intel Core i7-10510U	10th Generation Intel Core i7-10610U	10th Generation Intel Core i7-10810U
Wattage	15 W	15 W	15 W	15 W	15 W
Core count	4	4	4	4	6
Thread count	8	8	8	8	12
Speed	1.6 GHz to 4.2 GHz	1.7 GHz to 4.4 GHz	1.8 GHz to 4.9 GHz	1.8 GHz to 4.9 GHz	1.1 GHz to 4.9 GHz
Cache	6 MB	6 MB	8 MB	8 MB	12 MB
Integrated graphics	Intel UHD Graphics	Intel UHD Graphics	Intel UHD Graphics	Intel UHD Graphics	Intel UHD Graphics

Chipset

Table 3. Chipset

Description	Values
Chipset	Intel
Processor	10th Generation Intel Core i5/i7
DRAM bus width	Two channels, 64-bit
Flash EPROM	<ul style="list-style-type: none"> 32 MB for vPRO configuration 24 MB for Non-vPRO configuration
PCIe bus	Up to Gen 3.0

Operating system

Your Precision 3550 supports the following operating systems:

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)
- Ubuntu 18.04 LTS (64-bit)
- NeoKylin 7.0

Memory

Table 4. Memory specifications

Description	Values
Slots	Two-SODIMM slots
Type	Dual-channel DDR4
Speed	2667 MHz
Maximum memory	32 GB
Minimum memory	4 GB
Configurations supported	<ul style="list-style-type: none">• 4 GB DDR4 at 2667 MHz (1 x 4 GB)• 8 GB DDR4 at 2667 MHz (2 x 4 GB)• 8 GB DDR4 at 2667 MHz (1 x 8 GB)• 16 GB DDR4 at 2667 MHz (2 x 8 GB)• 16 GB DDR4 at 2667 MHz (1 x 16 GB)• 32 GB DDR4 at 2667 MHz (2 x 16 GB)

Storage

Your computer supports one of the following configurations:

- One 2.5-inch hard drive
- One M.2 2230/2280 solid state drive

The primary drive of your computer varies with the storage configuration. For computers:

- with a M.2 drive, the M.2 drive is the primary drive
- without a M.2 drive, the 2.5-inch hard drive is the primary drive

Table 5. Storage specifications

Form factor	Interface type	Capacity
One 2.5-inch hard disk drive	SATA AHCI, up to 6 Gbps	2 TB
One M.2 2230/2280 solid state drive	PCIe Gen3.0x4 NVMe, up to 32 Gbps	2 TB

Ports and connectors

Table 6. External ports and connectors

Description	Values
External:	
Network	One RJ-45 port
USB	<ul style="list-style-type: none">• Two USB 3.2 Gen 1 (Type-A) port• One USB 3.2 Gen 1 (Type-A) port with PowerShare• One USB 3.2 Gen 2 (Type-C) port with DisplayPort/Thunderbolt (Optional)
Audio	One Universal Audio Jack

Table 6. External ports and connectors (continued)

Description	Values
Video	<ul style="list-style-type: none"> One HDMI 1.4b port One DisplayPort 1.2 over USB Type-C
Power adapter port	<ul style="list-style-type: none"> One 7.4 mm Power connector port One PD 3.0 port over USB Type-C
Security	Wedge-shaped lock slot
Card slot	Micro SD card slot

Table 7. Internal ports and connectors

Description	Values
Internal:	
One M.2 Key-M (2280 or 2230) for solid-state drive One M.2 2230 Key-E for WLAN	<ul style="list-style-type: none"> One M.2 2230 slot for solid-state drive 128 GB/256 GB/512 GB One M.2 2280 slot for solid-state drive 256 GB/512 Gb/1 TB/2 TB One M.2 2280 slot for Self-Encrypting solid-state drive 256 GB/512 GB <p>NOTE: To learn more about the features of different types of M.2 cards, see the knowledge base article SLN301626.</p>

Audio

Table 8. Audio specifications

Description	Values
Controller	ALC3204
Stereo conversion	Supported
Internal interface	High-definition audio
External interface	Universal audio jack
Speakers	2
Speaker Output Average	2 W
Speaker Output Peak	2.5 W

Video

Table 9. Discrete graphics specifications

Discrete graphics			
Controller	External display support	Memory size	Memory type
NVIDIA Quadro P520	NA	2 GB	GDDR5

Table 10. Integrated graphics specifications

Integrated graphics			
Controller	External display support	Memory size	Processor
Intel UHD Graphics	HDMI 1.4b port/ USB Type-C with DisplayPort 1.2 port	Shared system memory	10th Generation Intel core i5/i7

Camera

The following table lists the camera specifications of your Precision 3550.

Table 11. HD RGB Infrared camera specifications

Description		Values
Number of cameras		One
Camera type		HD RGB infrared
Camera location		Front camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	0.92 megapixel
	Video	1280 x 720 (HD) at 30 fps
Infrared camera resolution:		
	Still image	0.23 megapixel
	Video	640 x 360 at 30 fps
Diagonal viewing angle:		
	Camera	87.0 degrees
	Infrared camera	87.0 degrees

Table 12. HD RGB camera specifications

Description		Values
Number of cameras		One
Camera type		HD RGB
Camera location		Front camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	0.92 megapixel
	Video	1280 x 720 (HD) at 30 fps
Diagonal viewing angle		78.6 degrees

Communications

Ethernet

Table 13. Ethernet specifications

Description	Values
Model number	Intel 1219-V/Intel 1219-LM Gigabit Ethernet controller
Transfer rate	10/100/1000 Mbps

Wireless module

Table 14. Wireless module specifications

Description	Values	
Model number	Qualcomm QCA61x4A (DW1820)	Intel AX201
Transfer rate	Up to 867 Mbps	Up to 2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 GHz
Wireless standards	<ul style="list-style-type: none"> • WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) 	<ul style="list-style-type: none"> • WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6 (WiFi 802.11ax)
Encryption	<ul style="list-style-type: none"> • 64-bit/128-bit WEP • AES-CCMP • TKIP 	<ul style="list-style-type: none"> • 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth	Bluetooth 5.0	Bluetooth 5.1

Media-card reader

Table 15. Media-card reader specifications

Description	Values
Type	Micro SD-card slot
Cards supported	<ul style="list-style-type: none"> • Micro Secure Digital (mSD) • Micro Secure Digital High Capacity (mSDHC) • Micro Secure Digital Extended Capacity (mSDXC)

Power adapter

Table 16. Power adapter specifications

Description	Values			
Type	65 W	90 W	65 W Type-C	90 W Type-C

Table 16. Power adapter specifications (continued)

Description	Values			
	Dimensions	22 x 66 x 106 mm	22 x 66 x 130 mm	22 x 66 x 99 mm
Weight	0.23 kg (0.51 lb)	0.32 kg (0.70 lb)	0.21 kg (0.47 lb)	0.29 kg (0.64 lb)
Input voltage	100 VAC x 240 VAC	100 VAC x 240 VAC	100 VAC x 240 VAC	100 VAC x 240 VAC
Input frequency	50 Hz x 60 Hz	50 Hz x 60 Hz	50 Hz x 60 Hz	50 Hz x 60 Hz
Input current (maximum)	1.50 A	1.60 A	1.70 A	1.50 A
Output current (continuous)	3.34 A	4.62 A	<ul style="list-style-type: none"> • 20V/3.25A (Continuous) • 15V/3A (Continuous) • 9.0V/3A (Continuous) • 5.0V/3A (Continuous) 	<ul style="list-style-type: none"> • 20V/4.5A (Continuous) • 15V/3A (Continuous) • 9.0V/3A (Continuous) • 5.0V/3A (Continuous)
Rated output voltage	19.50 VDC	19.50 VDC	<ul style="list-style-type: none"> • 20 VDC • 15 VDC • 9 VDC • 5 VDC 	<ul style="list-style-type: none"> • 20 VDC • 15 VDC • 9 VDC • 5 VDC
Temperature range:				
Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	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)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

Battery

Table 17. Battery specifications

Description	Values			
	Type	42 Whr	51 Whr	68 Whr
Voltage	11.40 VDC	11.40 VDC	15.20 VDC	15.20 VDC
Weight (maximum)	0.20 kg (0.44 lb)	0.25 kg (0.55 lb)	0.34 kg (0.75 lb)	0.34 kg (0.75 lb)
Dimensions:				
Height	95.90 mm (3.78 in.)	95.90 mm (3.78 in.)	95.90 mm (3.78 in.)	95.90 mm (3.78 in.)
Width	181 mm (7.13 in.)	181 mm (7.13 in.)	233 mm (9.17 in.)	233 mm (9.17 in.)
Depth	7.05 mm (0.28 in.)	7.05 mm (0.28 in.)	7.05 mm (0.28 in.)	7.05 mm (0.28 in.)
Temperature range:				

Table 17. Battery specifications (continued)


Description		Values			
	Operating	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)
	Storage	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)
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.
Charging time (approximate)		<p>4Hrs hours (when the computer is off)</p> <p>i 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, <i>Me and My Dell</i> on www.dell.com/</p> <p>i 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 <i>Me and My Dell</i> on www.dell.com/</p>	<p>4Hrs hours (when the computer is off)</p> <p>i 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, <i>Me and My Dell</i> on www.dell.com/</p> <p>i 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 <i>Me and My Dell</i> on www.dell.com/</p>	<p>4 Hrs hours (when the computer is off)</p> <p>i 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, <i>Me and My Dell</i> on www.dell.com/</p> <p>i 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 <i>Me and My Dell</i> on www.dell.com/</p>	<p>4 Hrs hours (when the computer is off)</p> <p>i 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, <i>Me and My Dell</i> on www.dell.com/</p> <p>i 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, <i>Me and My Dell</i> on www.dell.com/</p>

Table 17. Battery specifications (continued)

Description	Values			
				Manager, see Me and My Dell on www.dell.com/
Life span (approximate)	300 discharge/charge cycles	300 discharge/charge cycles	300 discharge/charge cycles	1000 discharge/charge cycles
Coin-cell battery	CR2032	CR2032	CR2032	CR2032
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.

Dimensions and weight

Table 18. Dimensions and weight

Description	Values		
Height:			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; border: none;"></td> <td style="border: none;">Front</td> </tr> </table>		Front	11.81 mm (0.46 in.)
	Front		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; border: none;"></td> <td style="border: none;">Rear</td> </tr> </table>		Rear	14.99 mm (0.59 in.)
	Rear		
Width	359.1 mm (14.14 in.)		
Depth	236.25 mm (9.30 in.)		
Weight	1.86 kg (4.09 lb)  NOTE: The weight of your system depends on the configuration ordered and the manufacturing variability.		

Touchpad

Table 19. Touchpad specifications

Feature	Specifications
Resolution	1221 x 661
Dimensions	<ul style="list-style-type: none"> • Width: 101.7 mm (4.00 in.) • Height: 55.2 mm (2.17 in.)
Multi-touch	Supports 5-finger multi-touch

Table 19. Touchpad specifications (continued)


Feature	Specifications
	 NOTE: For more information about touchpad gestures for Windows 10, see the Microsoft knowledge base article 4027871 at support.microsoft.com .

Table 20. Supported gestures

Supported gestures	Windows 10
Cursor moving	Supported
Clicking/ tapping	Supported
Click and drag	Supported
2-finger scroll	Supported
2-finger Pinch/ Zoom	Supported
2-finger tap (Right Clicking)	Supported
3-finger tap (Invoke Cortana)	Supported
3-finger swipe up (See all open windows)	Supported
3-finger swipe down (Show the desktop)	Supported
3-finger swipe right or left (Switch between open windows)	Supported
4-finger tap (Invoke Action Center)	Supported
4-finger swipe right or left (Switch virtual desktops)	Supported

Display

Table 21. Display specifications

Description	Values			
Type	High Definition (HD)	Full High Definition (FHD)	Full High Definition (FHD)	Full high Definition (FHD)
Panel technology	Wide Viewing Angle (WVA)	Wide Viewing Angle (WVA)	Wide Viewing Angle (WVA)	Wide Viewing Angle (WVA)
Luminance (typical)	220 nits	220 nits	220 nits	300 nits
Dimensions (Active Area):				
	Height	193.60 mm (7.62 in.)	193.60 mm (7.62 in.)	193.60 mm (7.62 in.)
	Width	344.20 mm (13.55 in.)	344.20 mm (13.55 in.)	344.20 mm (13.55 in.)
	Diagonal	394.91 mm (15.55 in.)	394.91 mm (15.55 in.)	394.91 mm (15.55 in.)
Native Resolution	1366x768	1920 x 1080	1920 x 1080	1920 x 1080
Megapixels	1049088	2073600	2073600	2073600
Pixels per Inch (PPI)	100	141	141	141

Table 21. Display specifications (continued)

Description	Values			
	Color Gamut (CG)	NTSC 45%	NTSC 45%	NTSC 45%
Contrast Ratio (min)	500:1	700:1	700:1	700:1
Response Time (max)	25 ms	25 ms	35 ms	35 ms
Refresh Rate	60 Hz	60 Hz	60 Hz	60 Hz
Horizontal View Angle	40/40 +/- degrees	80/80 +/- degrees	80/80 +/- degrees	80/80 +/- degrees
Vertical View Angle	10(U)/30(D) +/- degrees	80(U)/80(D) +/- degrees	80(U)/80(D) +/- degrees	80(U)/80(D) +/- degrees
Pixel Pitch	0.252X0.252 mm	0.179X0.179 mm	0.179X0.179 mm	0.179X0.179 mm
Power Consumption (maximum)	4.20 W	4.2 W	4.2 W	4.6 W
Anti-glare vs glossy finish	Anti-glare	Anti-glare	Anti-glare	Anti-glare
Touch options	No	No	Yes	No

Fingerprint reader in Power Button

Table 22. Fingerprint reader specifications

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

Fingerprint reader on Palmrest

Table 23. Fingerprint reader specifications

Description	Values
Sensor technology	Capacitive
Sensor resolution	508 dpi
Sensor pixel size	256 x 360

Sensor and control specifications

Table 24. Sensor and control specifications

Specifications
1. Free fall sensor on motherboard

Table 24. Sensor and control specifications (continued)

Specifications
2. Hall Effect Sensor (Detects when the lid is closed)

Security

Table 25. Security specifications

Features	Specifications
Trusted Platform Module (TPM) 2.0	Integrated on system board
Fingerprint reader	Optional
Wedge-shaped lock slot	Standard

Security options—Contacted smartcard reader

Table 26. Contacted smartcard reader

Title	Description	Dell ControlVault 3 Smartcard reader
ISO 7816 -3 Class A Card Support	Reader capable of reading 5V powered smartcard	Yes
ISO 7816 -3 Class B Card Support	Reader capable of reading 3V powered smartcard	Yes
ISO 7816 -3 Class C Card support	Reader capable of reading 1.8V powered smartcard	Yes
ISO 7816-1 Compliant	Specification for the reader	Yes
ISO 7816 -2 Compliant	Specification for smartcard device physical characteristics (size, location of connection points, etc.)	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) smartcard standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smartcard 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
Windows Certified	Device certified by WHCK	Yes
FIPS 201 (PIV/HSPD-12) Compliant via GSA	Device compliant with FIPS 201/PIV/HSPD-12 requirements	Yes

Security options—Contactless smartcard reader

Table 27. Contactless smartcard reader

Title	Description	Dell ControlVault 3 Contactless Smartcard reader with NFC
Felica Card Support	Reader and software capable of supporting Felica contactless cards	Yes
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
EMVCo Compliant	Compliant with EMVCO smartcard standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smartcard standards	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
Windows Certified	Device certified by Microsoft WHCK	Yes
Dell ControlVault support	Device connects to Dell ControlVault for usage and processing	Yes


 **NOTE:** 125 Khz proximity cards are not supported.

Table 28. 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	
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	

Security Software

Table 29. Security Software specifications

Specifications
Dell Client Command Suite
Optional Dell Data Security and Management Software
Dell Client Command Suite
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
Dell Encryption Enterprise
Dell Encryption Personal
Carbonite
VMware Workspace ONE
Absolute® Endpoint Visibility and Control
Netskope
Dell Supply Chain Defense

Computer environment

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

Table 30. 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 80% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.26 GRMS	1.37 GRMS
Shock (maximum)	105 G†	40 G†
Altitude (maximum)	0 m to 3048 m (4.64 ft to 5518.4 ft)	0 m to 10668 m (4.64 ft to 19234.4 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.

Engineering specifications

Graphics options

Intel UHD Graphics

Table 31. Intel UHD Graphics specifications

Intel UHD Graphics	
Bus Type	Integrated
Memory Type	DDR4
Graphics Level	i5/i7: GT2 UHD
Estimated Maximum Power Consumption (TDP)	15 W (included in the CPU power)
Overlay Planes	Yes
Operating Systems Graphics/ Video API Support	DirectX 12, OpenGL (4.6, 2.1)
Maximum Vertical Refresh Rate	<ul style="list-style-type: none"> HDMI 1.4b: 4096x2160 @ 60 Hz, 24bpp Max Digital: (DP 1.2 over Type-C Port) 4096x2304 @ 60Hz, 24bpp
Number of display supported	Up to three displays supported via HDMI/DisplayPort Multi-Streaming Technology (MST)
Multiple Display Support	On System: eDP (internal), HDMI 1.4b Via Optional Type-C Port: DisplayPort
External Connectors	HDMI 1.4b USB Type-C port

Nvidia Quadro P520

Table 32. Discrete Graphics Controller

Discrete Graphics Controller	Nvidia Quadro P520
Graphics Memory	2 GB
Memory type	GDDR5
Bus Type	PCIe 3.0 x 16
Memory Interface	64-bit
Estimated Maximum Power Consumption (TDP)	18 W
Operating Systems Graphics/ Video API support	DirectX 12_1 (windows 10), OpenGL 4.6, Vulkan: 1.2.131, CUDA 6.1

Supported hard drives

128 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid-State Drive

Table 33. 128 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 SSD

Features	Specifications
Capacity (GB)	128 GB
Dimensions (mm) (W x D x H)	(22 x 30 x 2.38) mm
Interface type and Maximum speed	PCIe Gen3 32 Gb/s (up to 4 lanes)
Mean Time Between Failures (MTBF)	1.4M hours
Logical Blocks	250,069,680
Power Source:	
Power Consumption (reference only)	Idle 5 mW (PS4), Active 3.5 W
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	0°C–70°C
Relative Humidity Range	10% to 90%
Non-Op Shock (@0.5 ms)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

256 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid-State Drive

Table 34. 256 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 SSD

Features	Specifications
Capacity (GB)	256 GB
Dimensions (mm) (W x D x H)	(22 x 30 x 2.38) mm
Interface type and Maximum speed	PCIe Gen3 32 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical Blocks	500,118,192
Power Source:	
Power Consumption (reference only)	Idle 5 mW (PS4), Active 3.5 W
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	0°C–70°C
Relative Humidity Range	10–90%
Non-Op Shock (@0.5 ms)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	

Table 34. 256 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 SSD (continued)

Features	Specifications
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

512 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid State Drive

Table 35. 512 GB M.2 2230 PCIe Gen3x4 NVMe Class 35 Solid State Drive

Capacity	512 GB
Dimensions	22.00 mm x 30.00 mm x 2.38 mm
Interface type and maximum speed	Gen 3 PCIe 32 Gb/s (Up to 4 lanes)
MTTF	1.4 M hours
Logical blocks	1,000,215,216
Power Source	
Power consumption (reference only)	<ul style="list-style-type: none"> Idle : 5 mW (PS4) Active : 3.5 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Non-op shock (@0.5 ms)	1500G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Table 36. 512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 SSD

Features	Specifications
Capacity (GB)	512 GB
Dimensions (mm) (W x D x H)	(22 x 80 x 2.38) mm
Interface type and Maximum speed	PCIe Gen3 32 Gb/s (up to 4 lanes)
Mean Time Between Failures (MTBF)	1.4M hours
Logical Blocks	1,000,215,216
Power Source:	
Power Consumption (reference only)	Idle 5 mW (PS4), Active 4.5 W
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	0°C to 70°C

Table 36. 512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 SSD (continued)

Features	Specifications
Relative Humidity Range	10% to 90%
Non-Op Shock (@0.5 ms)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

256 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Opal 2.0 SED Solid State Drive

Table 37. 256 GB M.2 2280 PCIe NVMe Class 40 Opal 2.0 SED SSD

Features	Specifications
Capacity (GB)	256 GB
Dimensions (mm) (W x D x H)	(22 x 80 x 2.38) mm
Interface type and Maximum speed	PCIe Gen3 32 Gb/s (up to 4 lanes)
Mean Time Between Failures (MTBF)	1.4M hours
Logical Blocks	500,118,192
Power Source:	
Power Consumption (reference only)	Idle 5 mW (PS4), Active 4.5 W
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	0°C to 70°C
Relative Humidity Range	10 to 90%
Non-Op Shock (@2 ms)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Opal 2.0 SED Solid State Drive

Table 38. 512 GB M.2 2280 PCIe NVMe Class 40 Opal 2.0 SED SSD

Features	Specifications
Capacity (GB)	512 GB
Dimensions (mm) (W x D x H)	(22 x 80 x 2.38) mm
Interface type and Maximum speed	PCIe Gen3 32 Gb/s (up to 4 lanes)

Table 38. 512 GB M.2 2280 PCIe NVMe Class 40 Opal 2.0 SED SSD (continued)

Features	Specifications
Mean Time Between Failures (MTBF)	1.4M hours
Logical Blocks	1,000,215,216
Power Source:	
Power Consumption (reference only)	Idle 5 mW (PS4), Active 4.5 W
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	0°C to 70°C
Relative Humidity Range	10 to 90%
Non-Op Shock (@2 ms)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

1TB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Table 39. 1TB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Capacity (GB)	1 TB
Dimensions (W x D x H)	Approximately (22.00 in. x 80.00 in. x 2.38 in.)
Interface type and maximum speed	PCIe Gen3 32 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, 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)	1500 G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

2TB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Table 40. 2TB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Capacity (GB)	2 TB
Dimensions (W x D x H)	Approximately (22.00 in. x 80.00 in. x 2.38 in.)
Interface type and maximum speed	PCIe Gen3 32 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), 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)	1500G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

256 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Table 41. 256 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive

Capacity (GB)	256 GB
Dimensions (W x D x H)	Approximately (22.00 in. x 80.00 in. x 2.38 in.)
Interface type and maximum speed	PCIe Gen3 32 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	500,118,192
Power source	
Power consumption (reference only)	Idle 5 mW, 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)	1500 G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 70°C

Table 41. 256 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 Solid State Drive (continued)

Relative humidity range	5% to 95%
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2.5-inch 500 GB 7200 RPM SED FIPS SATA Hard Drive

Table 42. 2.5-inch 500 GB 7200 RPM SED FIPS SATA Hard Drive

Capacity (GB)	500 GB HDD 7200 RPM
Dimensions (W x D x H)	Approximately (2.76 in. x 3.94 in. x 0.28 in.)
Interface type and maximum speed	Up to 6 Gb/s (SATA 3.0)
MTBF	550,000 hours
Logical blocks	976,773,168
Power source	
Power consumption (reference only)	Idle 0.7 W, Active 3.25 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock (@ 2ms)	350 G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

2.5-inch 500 GB 7200 RPM SATA Hard-Disk Drive

Table 43. 2.5-inch 500 GB 7200 RPM SATA Hard-Disk Drive

Features	Specifications
Capacity (GB)	500 GB HDD 7200 RPM
Dimensions (W x D x H)	2.75 in. x 3.955 in. x 0.276 in.
Interface type and Maximum speed	Up to 6 Gb/s (SATA 3.0)
MTBF	550,000 hours
Logical Blocks	976,773,168
Power Source	
Power Consumption (reference only)	Idle 0.7 W, Active 3.25 W
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	5°C to 60°C
Relative Humidity Range	5 to 90%
Op Shock (@2 ms)	350G
Environmental Non-Operating Conditions (Non-Condensing):	

Table 43. 2.5-inch 500 GB 7200 RPM SATA Hard-Disk Drive (continued)

Features	Specifications
Temperature Range	-40°C to 65°C
Relative Humidity Range	5 to 95%

2.5-inch 1 TB 7200 RPM SATA Hard Drive

Table 44. 2.5-inch 1 TB 7200 RPM SATA Hard Drive

Capacity (GB)	1 TB HDD 7200 RPM
Dimensions (W x D x H)	Approximately (2.76 in. x 3.959 in. x 0.276 in.)
Interface type and maximum speed	Up to 6 Gb/s (SATA 3.0)
MTBF	550,000 hours
Logical blocks	1,953,525,168
Power source	
Power consumption (reference only)	Idle 0.7 W, Active 3.25 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	5°C to 60°C
Relative humidity range	5% to 90%
Op shock (@ 2ms)	350 G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

2.5-inch 2 TB 5400 RPM SATA Hard Drive

Table 45. 2.5-inch 2 TB 5400 RPM SATA Hard Drive

Capacity (GB)	2 TB HDD 5400 RPM
Dimensions (W x D x H)	Approximately (2.75 in. x 3.937 in. x 0.276 in.)
Interface type and maximum speed	Up to 6 Gb/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 3.10 W
Environmental Operating Conditions (Non-Condensing)	
Temperature range	5°C to 60°C

Table 45. 2.5-inch 2 TB 5400 RPM SATA Hard Drive (continued)

Relative humidity range	5% to 90%
Op shock (@ 2ms)	350 G
Environmental Non-Operating Conditions (Non-Condensing)	
Temperature range	-40°C to 65°C
Relative humidity range	5% to 95%

Communications

Communications - Integrated

Integrated Connection I219-LM/I219-V

Table 46. Integrated Connection I219-LM/I219-V

Data Rates supported	10/100/1000 Mbps
Controller Details	
Controller Bus Architecture	PCIe-based interface for S0 state, SMBus for Sx low power state
Wake On LAN	Wake-on-LAN and remote wake-up support (Magic Packet and Pattern Match)
Integrated Memory	N/A
Interface/BUS	PCIe x1
Data Transfer Mode (example: Bus-Master DMA)	N/A
Power Consumption (full operation per data rate connection speed)	542 mW (Max.)
Power Consumption (standby operation)	1000Mb/S Idle 439mW
IEEE Standards Compliance	802.3
Hardware Certifications	N/A
Boot ROM Support	EEPROM (located in SPI)
Network Transfer Mode	
10BASE-T (half-duplex)	10 Mb (full/half-duplex)
100BASE-TX (half-duplex)	100 Mb (full/half-duplex)
1000BASE-T (full-duplex)	1000 Mb (full-duplex)
Environmental	
Operating Temperature	0° C to 85° C (32° F to 185° F)
Operating Humidity	20% to 80% (non-condensing)
Operating System Driver Support	Win7 32/64 bit, Win 8.1/10 64 bit, Linux
Manageability	WOL, PXE

Table 46. Integrated Connection I219-LM/I219-V (continued)

Management Capabilities Alerting	Intel vPro support with appropriate Intel chipset components
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This term does not connote an actual operating speed of 1 Gb per sec. For high speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

Wireless LAN options

Dell Qualcomm QCA61x4A, DW1820 802.11ac

Table 47. Dell Qualcomm QCA61x4A, DW1820 802.11ac

Features	Specifications
Host interface	Qualcomm QCA61x4A (DW1820)
Transfer rate	Up to 867 Mbps
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 Microsoft Windows* only)
Operating Frequency Bands	Dual band 2.4 GHz/5 GHz
Data Rate	2.4 GHz 40M: Up to 300 Mbps 5 GHz 80M: Up to 867 Mbps 5 GHz 160M: Up to 1.73 Gbps
Power consumption	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA')
Authentication	Open, Shared, WPA, WPA-PSK, WPA2, WPA2-PSK
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAP*v2
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP
Government Compliance	FIPS, FISMA
Client Utility	Intel PRO/Set Wireless Software v20 and later
Antenna Diversity	Supported
Radio On/Off	Supported
Wake On Wireless	Supported
Wireless Display	Native Miracast support by Windows 10
Bluetooth	Bluetooth 5.0
Wireless PAN Standard	WiFi 802.11ac WiFi 802.11b/g/n
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	64/128-bit encryption
Bluetooth Output Power	Power class 1

Table 47. Dell Qualcomm GCA61x4A, DW1820 802.11ac (continued)

Features	Specifications
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)

Intel AX201 160 MHz + Bluetooth


Table 48. Intel AX201 160 MHz + Bluetooth

Feature	Specifications
Model Number	Intel AX201
Data rate	2.4 GHz 40M: Up to 574 Mbps 5 GHz 80M: Up to 1.2 Gbps 5 GHz 160M: Up to 2.4 Gbps
Frequency bands supported:	
Frequency band1 (GHz)	2.4
Frequency band2 (GHz)	5
Network standards:	IEEE 802.11a/b/g/n/ac/ax, 160 MHz channel use, MU-MIMO
Wireless standards:	
Wireless standards option1	WiFi certified a/b/g/n/ac with wave 2 features
Wireless standards option2	WMM, WMM-PS,
Wireless standards option3	WPA, WPA2
Wireless standards option4	Wi-Fi 6 (WiFi 802.11ax)
Encryption:	
Encryption option1	64-bit and 128-bit WEP
Encryption option2	128-bit AES-CCMP
Encryption option3	TKIP
Encryption option4	256-bit AES-GCMP
Bluetooth	5.2

Getting help

Contacting Dell

Prerequisites

 **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.

About this task

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:

Steps

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.