Dell Latitude 5300

Technical Guidebook

Regulatory Model: P97G
Regulatory Type: P97G001

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

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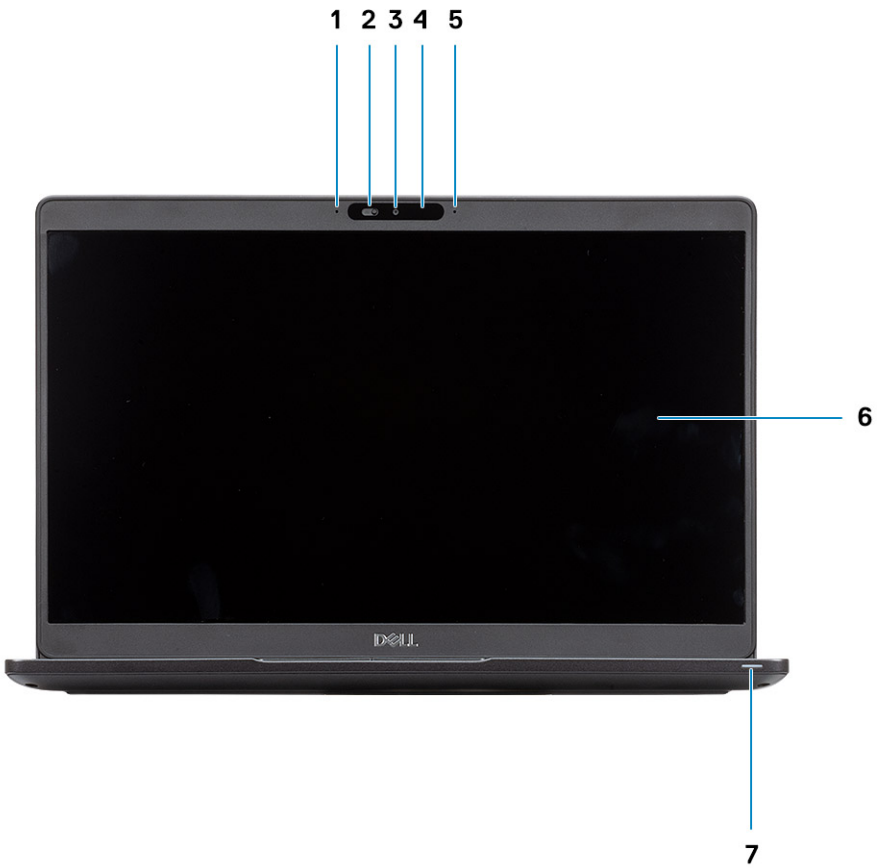
Chassis overview

Topics:

Display view



1	Array microphone	2	Camera shutter
3	Camera	4	Camera status light
5	Array microphone	6	LCD panel
7	LED activity light		

Left view

1 Power connector port

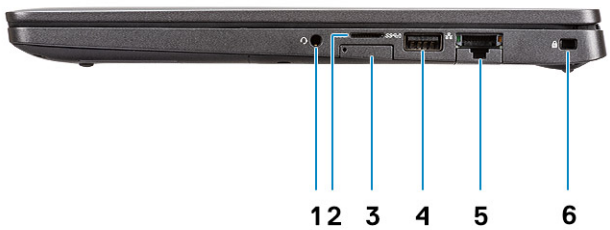
2 USB 3.1 Gen 2 (USB Type-C) port with DisplayPort/ Thunderbolt (optional)

3 HDMI port

4 USB 3.1 Gen 1

5 Smart card reader (optional)

Right view



1 Headset/ Microphone port

2 microSD card reader

3 micro-SIM card slot

4 USB 3.1 Gen 1 port with PowerShare

5 Network port

6 Wedge-shaped lock slot

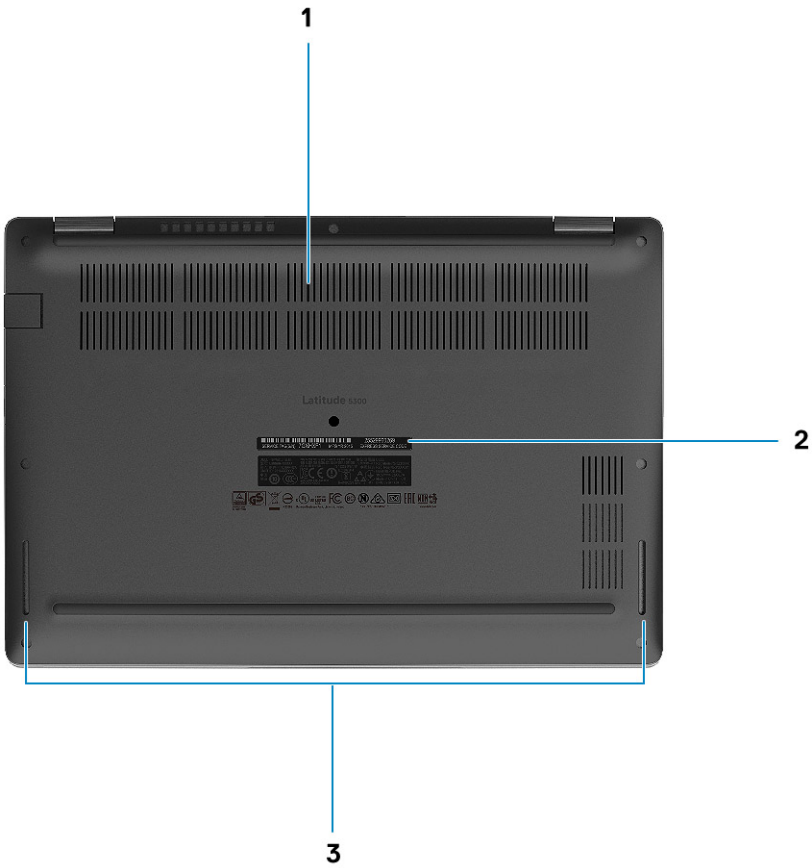
Palmrest view

1 Power button with optional fingerprint

2 Keyboard

3 Touchpad

Bottom view



1 Thermal vent

2 Service tag label

3 Speakers

2

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	Integrated in the processor
DRAM bus width	64-bit
FLASH EPROM	16/32 MB
PCIe bus	Up to Gen3
External bus frequency	Up to 8 GT/s

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 Gen Intel Core i7-8665U processor (8 MB cache, 4 core count/ 8 threads, 1.9 GHz to 4.8 GHz, 15 W TDP) (vPro)	Intel UHD Graphics 620
8th Gen Intel Core i5-8365U Processor (6 MB cache, 4 core count/ 8 threads, 1.6 GHz to 4.1 GHz) (vPro)	Intel UHD Graphics 620
8th Gen Intel Core i5-8265U processor (6 MB cache, 4 core count/ 8 threads, 1.6 GHz to 3.9 GHz, 15 W TDP)	Intel UHD Graphics 620
8th Gen Intel Core i3-8145U processor (4 MB cache, 2 core count/ 4 threads, 2.1 GHz to 3.9 GHz, 15 W TDP)	Intel UHD Graphics 620

Memory

Table 3. Memory specifications

Feature	Specifications
Minimum memory configuration	4 GB
Maximum memory configuration	32 GB
Number of slots	2 x SoDIMM slots
Maximum memory supported per slot	16 GB
Memory options	• 4 GB (1 x 4 GB) • 8 GB (2 x 4 GB) • 8 GB (1 x 8 GB) • 16 GB (2 x 8 GB) • 16 GB (1 x 16 GB) • 32 GB (2 x 16 GB)
Type	Dual-channel DDR4
Speed	2666 MHz Non-ECC SDRAM operates at 2400 MHz with Intel 8th Gen processors

Storage

Table 4. Storage specifications

Type	Form factor	Interface	Capacity
SATA Solid-State Drive Class 20	M.2 2280 SSD	SATA	Upto 512 GB
PCIe Solid-State Drive Class 35	M.2 2230 SSD	PCIe Gen 3x2 NVMe, up to 32 Gbps	Upto 512 GB
PCIe Solid-State Drive Class 40	M.2 2280 SSD	PCIe Gen 3x4 NVMe, up to 32 Gbps	Upto 1 TB
SED Solid-State Drive Class 40 (Opal 2.0)	M.2 2280 SSD	PCIe NVme Opal 2.0 SED PCIe	Upto 512 GB

System board connectors

Table 5. System board connectors

Feature	Specifications
M.2 Connectors	• One M.2 2230 hybrid Key-E connector • One M.2 2280 Key-M connector • One M.2 3042 Key-B connector

Media card-reader

Table 6. Media-card reader specifications

Feature	Specifications
Type	MicroSD-card slot Smart card reader slot (optional)
Supported cards	• Smart card reader (optional) • MicroSD

Audio

Table 7. Audio specifications

Feature	Specifications
Controller	Realtek ALC3254 with Waves MaxxAudio Pro
Stereo conversion	24-bit DAC (Digital-to-Analog) and ADC (Analog-to-Digital)
Type	HD Audio
Speakers	Two
Interface	Internal: • Intel HDA (high-definition audio) External: • 7.1 channel output via HDMI • Digital microphone input on camera module • Headset combo jack (stereo headphones/microphone-in)
Internal speaker amplifier	Integrated in ALC3254 (Class-D 2 W)
External volume controls	Media-control shortcut keys
Speaker output:	Average: 2 W Peak: 2.5 W
Microphone	Digital-array microphones

Video card

Table 8. Video card specifications

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 620	UMA	• Intel Core i7-8665U CPU (vPro) • Intel Core i5-8265U CPU • Intel Core i5-8365U CPU • Intel Core i3-8145U CPU	Integrated	Shared system memory	HDMI 1.4b port	1920 x 1200@60 Hz

Camera

Table 9. Camera specifications

Feature	Specifications
Camera Type	RGB, HD fixed focus
IR Camera	6 mm IR camera (optional)
Resolution	Still image: HD resolution (1280 x 720)
	Video: HD resolution (1280 x 720) at 30 fps
Diagonal viewing angle	IR: 87 degree
	RGB: 78.6 degree
Sensor type	CMOS sensor technology

NOTE: The RBG + IR camera is for Windows Hello application only and other applications cannot use it.

Communication

Table 10. Communication specifications

Feature	Specifications
Network adapter	Integrated Connection I219-LM/I219-V 10/100/1000 Mb/s Ethernet (RJ-45)

Mobile Broadband

Table 11. Mobile Broadband

Specifications
Intel XMM 7360 Global LTE-Advanced

Wireless

Table 12. Wireless specifications

Specifications
Intel Dual Band Wireless AC 9560 (802.11ac) 2x2 + Bluetooth 5.0
Qualcomm QCA61x4A 802.11ac Dual Band (2x2) Wireless Adapter + Bluetooth 4.2
Intel Wi-Fi 6 AX200 2x2 .11ax 160 MHz + Bluetooth 5.0 (Optional)

Ports and connectors

Table 13. Ports and connectors

Feature	Specifications
Memory card reader	• One MicroSD card reader
SIM card reader	One micro SIM card slot
USB	• One USB 3.1 Gen 1 (Type-A) ports • One USB 3.1 Gen 1 with PowerShare • One USB Type-C 3.1 Gen 2 port with DisplayPort/Thunderbolt 3(optional)
Security	Noble wedge lock slot
Audio	One headset (headphone and microphone combo) port
Video	One HDMI 1.4b port (supports up to 4k @30 Hz)
Network adapter	RJ-45, 10/100/1000, No LED indicator

Display

Table 14. Display specifications

Feature	Specifications
Type	• 13.3 in. antiglare, HD (1366 x 768), WLED, 16:9 • 13.3 in. antiglare, FHD (1920 x 1080), WLED, 16:9 (optional)

Feature	Specifications
	• 13.3 in. antiglare, FHD (1920 x 1080), WLED, integrated touch, 16:9 (optional)
Height (Active area)	165.24 mm (6.51 in.)
Width (Active area)	293.76 mm (11.57 in.)
Diagonal	337.04 mm (13.3 in.)
Pixels Per Inch (PPI)	• 118 • 166 (optional)
Contrast ratio	• HD - 800:1 • FHD - 1000:1 • FHD IT - 700:1
Luminance/Brightness (typical)	• HD - 220 Nits, NTSC 45% • FHD - 300 Nits (optional), sRGB 100% • FHD IT - 300nits, NTSC 72%
Refresh rate	60 Hz
Horizontal viewing angle (min)	[HD] +/- 40 degrees +/- 80 degrees (optional)
Vertical viewing angle (min)	[HD] top/bottom 10/30 degrees +/- 80 degrees (optional)
Power consumption (max)	3.5 W • HD - 2.85 W • FHD - 1.99 W • FHD IT - 4.8 W

Keyboard

Table 15. Keyboard specifications

Feature	Specifications
Number of keys	• 81 (U.S. and Canada) • 82 (UK/Brazil) • 85 (Japan)
Size	Full sized • X= 18.05 mm (0.7 in.) key pitch • Y= 18.05 mm (0.71 in.) key pitch
Backlit keyboard	Optional (backlit and Non-backlit)

Feature	Specifications
Layout	QWERTY

Keyboard shortcuts

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 16. 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	Turn on/off keyboard backlight
Fn + F6	Decrease brightness
Fn + F7	Increase brightness
Fn + F8	Switch to external display
Fn + F10	Print screen
Fn + F11	Home
Fn + 12	End
Fn + Ctrl	Open application menu

Touchpad

Table 17. Touchpad specifications

Feature	Specifications
Resolution	1221 x 661
Dimensions	• Width: 101.7 mm (4.00 in.) • Height: 55.2 mm (2.17 in.)
Multi-touch	Supports 5-finger multi-touch

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

Table 18. 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

Fingerprint reader—optional

Table 19. Fingerprint reader specifications

Feature	Specifications
Type	FPR in power button
Sensor technology	Capacitive
Sensor resolution	363 PPI
Sensor area	Diameter: 10 mm

Operating system

Table 20. Operating system

Feature	Specifications
Operating systems supported	• Windows 10 Home (64 bit) • Windows 10 Professional (64bit) • Ubuntu 18.04 LTS (64 bit)

Battery

Table 21. Battery

Feature	Specifications			
Type	3-cell lithium-ion (42 WHr) ExpressCharge		4-cell lithium-ion (60 WHr) ExpressCharge	
Dimension	Width	95.9 mm (3.78 in.)	Width	95.9 mm (3.78 in.)
	Depth	200.5 mm (7.89 in.)	Depth	238 mm (9.37 in.)
	Height	5.70 mm (0.22 in.)	Height	5.70 mm (0.22 in.)
Weight (maximum)	192.50 g (0.42 lb)		270.00 g (0.60 lb)	
Voltage	11.40 VDC		7.60 VDC	
Life span	300 discharge/charge cycles		300 discharge/charge cycles (Standard pack)	
			1000 discharge/charge cycles (LCL pack)	
Charging time when the computer is off (approximate)	Standard charge	0°C to 50°C: 4 hours	Standard charge	0°C to 50°C: 4 hours
	Express Charge	0°C to 15°C: 4 hours	Express Charge	0°C to 15°C: 4 hours
		16°C to 45°C: 2 hours		16°C to 45°C: 2 hours
		46°C to 50°C: 3 hours		46°C to 50°C: 3 hours
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.	
Temperature range: Operating	Charge: 0°C to 50°C, 32°F to 122°F		Charge: 0°C to 50°C, 32°F to 122°F	
	Discharge: 0°C to 70°C, 32°F to 158°F		Discharge: 0°C to 70°C, 32°F to 158°F	
Temperature range: Storage	-20°C to 60°C (-4°F to 140°F)		-20°C to 60°C (-4°F to 140°F)	
Coin-cell battery	CR-2032		CR-2032	

Power adapter

Table 22. Power adapter specifications

Feature	Specifications	
Type	E5 65 W	E5 90 W
Input Voltage	100 VAC - 240 VAC	100 VAC - 240 VAC
Input current (maximum)	1.5 A	1.6 A
Adapter size	Dimensions	Dimensions
	In Inches: 0.87 x 2.60 x 4.17	In Inches: 0.87 x 2.60 x 5.12

Feature	Specifications	
	In mm: 22 x 66 x 106	In mm: 22 x 66 x 130
Barrel	7.4 mm	7.4 mm
Weight	0.23 kg (0.51 lb)	0.32 kg (0.70 lb)
Input frequency	50 Hz to 60 Hz	50 Hz to 60 Hz
Output current	3.34 A (continuous)	4.62 A (continuous)
Rated output voltage	19.5 VDC	19.5 VDC
Temperature range (Operating)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Temperature range (Non-Operating)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

Sensor and control specifications

Table 23. Sensor and control specifications

Specifications
1. Free fall sensor on motherboard
2. Hall Effect Sensor

Dimensions and weight

Table 24. Dimensions and weight

Feature	Specifications
Height	Front: 16.9 mm (0.66 in.)
	Rear: 19.3 mm (0.76 in.)
Width	305.7 mm (12.03 in.)
Depth	207.5 mm (8.17 in.)
Weight	1.24 kg (2.73 lb)

Computer environment

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

Table 25. 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)	10% to 80% (non-condensing) **NOTE: Maximum dew point temperature = 26°C**	0% to 95% (non-condensing) **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 26. Security

Feature	Specifications
Trusted Platform Module (TPM) 2.0	Integrated on the system board
Firmware TPM	Optional
Windows Hello Support	Yes, optional fingerprint on power button Optional IR camera
Cable lock	Noble lock
Dell Smartcard Keyboard	Optional
FIPS 140-2 certification for TPM	Yes
ControlVault 3 Advanced Authentication with FIPS 140-2 Level 3 Certification	Yes, for FPR, SC and CSC/NFC
Fingerprint Reader Only	Touch Fingerprint reader in power button tied to ControlVault 3
Contacted Smart Card and ControlVault 3	FIPS 201 Smart card reader certification/SIPR

Security options—Contacted smartcard reader

Table 27. 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 Micrsoft 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 28. 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
Prox (Proximity) (125kHz) Card support	Reader and software capable of supporting Prox/Proximity/125kHz contactless cards	No
ISO 14443 Type A Card Support	Reader and software capable of supporting ISO 14443 Type A contactless cards	Yes

Title	Description	Dell ControlVault 3 Contactless Smartcard reader with NFC
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 29. Supported cards

Manufacturer	Card	Supported
HID	jCOP readertest3 A card (14443a)	Yes
	1430 1L	
	DESFire D8H	
	iClass (Legacy)	

Manufacturer	Card	Supported
	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 30. Security Software specifications

Specifications
Dell Client Command Suite
Optional Dell Data Security and Management Software • Dell Endpoint Security Suite Enterprise • Dell Data Guardian • Dell Encryption Enterprise • Dell Encryption Personal • Dell Threat Defense • MozyPro or MozyEnterprise • RSA NetWitness Endpoint • RSA SecurID Access • VMware Workspace ONE • Absolute Endpoint Visibility and Control

3

Engineering specifications

Topics:

- Graphics options
- Supported hard drives
- Communications

Graphics options

Intel UHD Graphics 620

Table 31. Intel UHD Graphics 620 specifications

Intel UHD Graphics 620	
Bus Type	Integrated
Memory Type	DDR4
Graphics Level	i3/i5/i7: G T2 (UHD 620)
Estimated Maximum Power Consumption (TDP)	15 W (included in the CPU power)
Overlay Planes	Yes
Operating Systems Graphics/ Video API Support	DirectX 12 (Windows 10), OpenGL 4.3
Maximum Vertical Refresh Rate	Up to 85 Hz depending on resolution
Multiple Display Support	On System: eDP (internal), HDMI
	Via Optional USB Type-C Port: VGA, DisplayPort
External Connectors	HDMI 1.4b
	USB Type–C port

Supported hard drives

256 GB M.2 2280 SATA Class 20 Solid State Drive

Table 32. 256 GB M.2 2280 SATA Class 20 SSD

Capacity (GB)	256 GB
Dimensions (mm) (W x D x H)	22 x 80 x 2.38

Interface type and Maximum speed	Up to 6 Gb/s (SATA 3.0)
MTBF	1.4M hours
Logical Blocks	500,118,192
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, Active 2.5 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)	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 SATA Class 20 Solid State Drive

Table 33. 512 GB M.2 2280 SATA Class 20 SSD

Capacity (GB)	512 GB
Dimensions (mm) (W x D x H)	22 x 80 x 2.38
Interface type and Maximum speed	Up to 6 Gb/s (SATA 3.0)
MTBF	1.4M hours
Logical Blocks	1,000,215,216
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, Active 2.5 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)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

128 GB M.2 2230 PCIe Gen3x2 NVMe Class 35 Solid State Drive

Table 34. 128 GB M.2 2230 PCIe Gen3x2 NVMe Class 35 SSD

Capacity (GB)	128 GB
Dimensions (mm) (W x D x H)	22 x 30 x 2.38
Interface type and Maximum speed	PCIe Gen3 8 GT/s (up to 2 lanes)
MTBF	1.4M hours
Logical Blocks	500,118,192
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, Active 2.5 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)	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 Gen3x2 NVMe Class 35 Solid State Drive

Table 35. 256 GB M.2 2230 PCIe Gen3x2 NVMe Class 35 SSD

Capacity (GB)	256 GB
Dimensions (mm) (W x D x H)	22 x 30 x 2.38
Interface type and Maximum speed	PCIe Gen3 8 GT/s (up to 2 lanes)
MTBF	1.4M hours
Logical Blocks	500,118,192
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, Active 2.5 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)	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 2230 PCIe Gen3x2 NVMe Class 35 Solid State Drive

Table 36. 512 GB M.2 2230 PCIe Gen3x2 NVMe Class 35 SSD

Capacity (GB)	512
Dimensions mm (W x D x H)	22 x 30 x 2.38
Interface type and Maximum speed	Up to 8 Gb/s (SATA 3.0)
MTBF	1.4M hours
Logical Blocks	1,000,215,216
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, 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 (@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 Solid State Drive Class 40

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

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 8 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	500,118,192

Power source	
Power consumption (reference only)	Idle 0.5 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)	1000 G
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 38. 512 GB M.2 2280 PCIe Gen3x4 NVMe Class 40 SSD

Capacity (GB)	512
Dimensions mm (W x D x H)	22 x 80 x 2.38
Interface type and Maximum speed	PCIe Gen3 8 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical Blocks	1,000,215,216
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, 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 (@0.5 ms)	1,500G
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40°C to 70°C
Relative Humidity Range	5% to 95%

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

Table 39. 1 TB M.2 2280 NVMe PCIe SSD Class 40

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 8 Gb/s (Up to 4 lanes)
MTBF	1.4M hours
Logical blocks	2,000,409,264
Power source	
Power consumption (reference only)	Idle 0.5 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)	1000 G
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 40. 256 GB M.2 2280 PCIe NVMe Class 40 Opal 2.0 SED SSD

Capacity (GB)	256 GB
Dimensions (mm) (W x D x H)	22 x 80 x 2.38
Interface type and Maximum speed	PCIe Gen3 8 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical Blocks	500,118,192
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, 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 41. 512 GB M.2 2280 PCIe NVMe Class 40 Opal 2.0 SED SSD

Capacity (GB)	512 GB
Dimensions (mm) (W x D x H)	22 x 80 x 2.38
Interface type and Maximum speed	PCIe Gen3 8 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical Blocks	1,000,215,216
Power Source:	
Power Consumption (reference only)	Idle 0.5 W, 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%

Communications

Communications - Integrated

Integrated Connection I219-LM/I219-V

Table 42. Integrated Connection I219-LM/I219-V

External Connector Type	RJ45
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
Management Capabilities Alerting	Intel vPro support with appropriate Intel chipset components

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.

Mobile broadband

Intel XMM 7360 Global LTE-advanced

Table 43. Intel XMM 7360 Global LTE-A (DW5820e)

Carrier	Verizon	AT&T	Sprint	Rogers	Telus	Generic
Network	LTE CAT9	LTE CAT9	LTE CAT9	LTE CAT9	LTE CAT9	LTE CAT9
Speed (Downlink)	< 450 Mbps	< 450 Mbps	< 450 Mbps	< 450 Mbps	< 450 Mbps	< 450 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	Operating band: 2, 4, 13	Operating band: 2, 4, 12, 17	Operating band: 25, 26, 41	Operating band: 1, 2, 3, 4, 5, 7, 8,	Operating band: 1, 2, 3, 4, 5, 7, 8,	Operating band: 1, 2, 3, 4, 5, 7, 8, 11, 12,

Carrier	Verizon	AT&T	Sprint	Rogers	Telus	Generic
	HSPA+: 0, 1	HSPA+: 2, 5	HSPA+: 10, 1	11, 12, 13, 17, 18, 19, 20, 21, 26, 28, 29, 30, 38, 39, 40, 41, 66 HSPA+: 1, 2, 4, 5, 8	11, 12, 13, 17, 18, 19, 20, 21, 26, 28, 29, 30, 38, 39, 40, 41, 66 HSPA+: 1, 2, 4, 5, 8	13, 17, 18, 19, 20, 21, 26, 28, 29, 30, 38, 39, 40, 41, 66 HSPA+: 1, 2, 4, 5, 8
SIM	Yes	Yes	Yes	Yes	Yes	Yes
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	Windows 10, 32/64 bits	Windows 10, 32/64 bits	Windows 10, 32/64 bits	Windows 10, 32/64 bits	Windows 10, 32/64 bits	Windows 10, 32/64 bits
Host Interface for Ubuntu	USB 3.0 and USB 2.0	USB 3.0 and USB 2.0	USB 3.0 and USB 2.0	USB 3.0 and USB 2.0	USB 3.0 and USB 2.0	USB 3.0 and USB 2.0

Wireless communication

Intel Dual Band Wireless-AC 9560 802.11ac 160 MHz 2x2 Wi-Fi + Bluetooth 5

Table 44. Intel Dual Band Wireless-AC 9560 802.11ac 160 MHz (2x2) Wi-Fi + Bluetooth 5

Host interface	Intel dual band wireless-9560
Transfer rate (max)	1.73 Gbps
Wi-Fi Alliance Certifications	WPA* and WPA2*, WPS2*, Protected Management Frames, Wi-Fi Miracast* as Source, and Wi-Fi Direct (For Microsoft Windows* only)I
Frequency Bands supported	2.4/ 5 GHz (160 MHz)
Wireless Standards	WiFi 802.11b/g/a/n/ac,
Bluetooth	Bluetooth 5 (HW Ready, SW depends on operating system)
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP
Government Compliance	FIPS, FISMA
Antenna Diversity	Supported
Radio On/Off	Supported
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
Temperature	Operating temperature 0°C to + 80°C Storage temperature of -40°C to +70°C
Humidity	50% 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 45. Qualcomm QCA61x4A 802.11ac

Host interface	M.2 2230 form factor (WiFi - 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	• 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	• 802.11ac: -59 dBm @ 400 Mbps; - 57dBm @ 866.7Mbps • 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	• -70dBm@BER≤0.01% (EDR) • -100dBm@BER≤30.8% (LE nominal)
Temperature	• Operating temperature 0° to + 65° C • Storage temperature of -40° to +85° C
Humidity	Up to 90%

Intel AX200 160 MHz + Bluetooth 5.0

Table 46. Intel AX200 160 MHz + Bluetooth 5.0

Feature	Specifications
Model Number	Intel AX200
Transfer rate (Up to ___ Mbps)	2400
Frequency bands supported:	
Frequency band1 (GHz)	2.4
Frequency band2 (GHz)	5
Wireless standards:	
Wireless standards option1	WiFi 802.11a/b/g
Wireless standards option2	Wi-Fi 4 (WiFi 802.11n)
Wireless standards option3	Wi-Fi 5 (WiFi 802.11ac)
Wireless standards option4	Wi-Fi 6 (WiFi 802.11ax)
Encryption:	
Encryption option1	64-bit/128-bit WEP
Encryption option2	AES-CCMP
Encryption option3	TKIP
Bluetooth	Bluetooth 5.0

4

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.