

**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 2. 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 3. Processor specifications

Type	UMA Graphics
8th Gen Intel Core i7-8665U processor (8 MB cache, 4 core count/ 8 threads, 1.8 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 4. 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	<ul style="list-style-type: none"><li>• 4 GB (1 x 4 GB)</li><li>• 8 GB (2 x 4 GB)</li><li>• 8 GB (1 x 8 GB)</li><li>• 16 GB (2 x 8 GB)</li><li>• 16 GB (1 x 16 GB)</li><li>• 32 GB (2 x 16 GB)</li></ul>
Type	Dual-channel DDR4
Speed	2666 MHz Non-ECC SDRAM operates at 2400 MHz with Intel 8 <sup>th</sup> Gen processors

# Storage

**Table 5. 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 6. System board connectors**

Feature	Specifications
M.2 Connectors	One M.2 2230/2280 Key-M connector

# Media card-reader

Table 7. Media-card reader specifications

Feature	Specifications
Type	MicroSD-card slot Smart card reader slot (optional)
Supported cards	<ul style="list-style-type: none"><li>Smart card reader (optional)</li><li>MicroSD</li></ul>

# Audio

Table 8. 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: <ul style="list-style-type: none"><li>Intel HDA (high-definition audio)</li></ul> External: <ul style="list-style-type: none"><li>7.1 channel output via HDMI</li><li>Digital microphone input on camera module</li><li>Headset combo jack (stereo headphones/microphone-in)</li></ul>
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 9. 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"><li>Intel Core i7-8665U CPU (vPro)</li><li>Intel Core i5-8265U CPU</li><li>Intel Core i5-8365U CPU</li><li>Intel Core i3-8145U CPU</li></ul>	Integrated	Shared system memory	HDMI 1.4b port	1920 x 1200@60 Hz

# Camera

Table 10. 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

① | **NOTE: The RBG + IR camera is for Windows Hello application only and other applications cannot use it.**

# Communication

Table 11. Communication specifications

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

# Mobile Broadband

Table 12. Mobile Broadband

## Specifications

Intel XMM 7360 Global LTE-Advanced

# Wireless

Table 13. 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 14. Ports and connectors

Feature	Specifications
Memory card reader	<ul style="list-style-type: none"><li>One MicroSD card reader</li></ul>
SIM card reader	One micro SIM card slot
USB	<ul style="list-style-type: none"><li>One USB 3.1 Gen 1 (Type-A) ports</li><li>One USB 3.1 Gen 1 with PowerShare</li><li>One USB Type-C 3.1 Gen 2 port with DisplayPort/Thunderbolt 3(optional)</li></ul>
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 15. Display specifications

Feature	Specifications
Type	<ul style="list-style-type: none"><li>13.3 in. antiglare, HD (1366 x 768), WLED, 16:9</li><li>13.3 in. antiglare, FHD (1920 x 1080), WLED, 16:9 (optional)</li></ul>

Feature	Specifications
	<ul style="list-style-type: none"> <li>13.3 in. antiglare, FHD (1920 x 1080), WLED, integrated touch, 16:9 (optional)</li> </ul>
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)	<ul style="list-style-type: none"> <li>118</li> <li>166 (optional)</li> </ul>
Contrast ratio	<ul style="list-style-type: none"> <li>HD - 800:1</li> <li>FHD - 1000:1</li> <li>FHD IT - 700:1</li> </ul>
Luminance/Brightness (typical)	<ul style="list-style-type: none"> <li>HD - 220 Nits, NTSC 45%</li> <li>FHD - 300 Nits (optional), sRGB 100%</li> <li>FHD IT - 300nits, NTSC 72%</li> </ul>
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 <ul style="list-style-type: none"> <li>HD - 2.85 W</li> <li>FHD - 1.99 W</li> <li>FHD IT - 4.8 W</li> </ul>

## Keyboard

**Table 16. Keyboard specifications**

Feature	Specifications
Number of keys	<ul style="list-style-type: none"> <li>81 (U.S. and Canada)</li> <li>82 (UK/Brazil)</li> <li>85 (Japan)</li> </ul>
Size	Full sized <ul style="list-style-type: none"> <li>X= 18.05 mm (0.7 in.) key pitch</li> <li>Y= 18.05 mm (0.71 in.) key pitch</li> </ul>
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 17. 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 + F12	End
Fn + Ctrl	Open application menu

## Touchpad

**Table 18. Touchpad specifications**

Feature	Specifications
Resolution	1221 x 661
Dimensions	<ul style="list-style-type: none"> <li>Width: 101.7 mm (4.00 in.)</li> <li>Height: 55.2 mm (2.17 in.)</li> </ul>
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](https://support.microsoft.com).

**Table 19. 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 20. 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 21. Operating system**

Feature	Specifications
Operating systems supported	<ul style="list-style-type: none"><li>Windows 10 Home (64 bit)</li><li>Windows 10 Professional (64bit)</li><li>Ubuntu 18.04 LTS (64 bit)</li></ul>



# Battery

**Table 22. Battery**

Feature	Specifications		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		Express Charge
		0°C to 15°C: 4 hours		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 23. Power adapter specifications**

Feature	Specifications		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 24. Sensor and control specifications**

### Specifications

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

## Dimensions and weight

**Table 25. 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 26. 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) <b>i</b>   <b>NOTE: Maximum dew point temperature = 26°C</b>	0% to 95% (non-condensing) <b>i</b>   <b>NOTE: Maximum dew point temperature = 33°C</b>
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 27. 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 28. 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 <a href="http://www.emvco.com">www.emvco.com</a>	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 Microsoft 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 29. 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 <a href="http://www.emvco.com">www.emvco.com</a>	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 30. Supported cards**

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

Manufacturer	Card	Supported
NXP/Mifare	iClass SEOS	
	Mifare DESFire 8K White PVC Cards	Yes
	Mifare Classic 1K White PVC Cards	
G&D	NXP Mifare Classic S50 ISO Card	
	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	
Oberthur	SCE7.0 FIPS 144K	
	idOnDemand - OCS5.2 80K	Yes
	ID-One Cosmo 64 RSA D V5.4 T=0 card	

## Security Software

**Table 31. 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