

# Latitude 7650

## 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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# Views of Latitude 7650

## Right



Figure 1. Right view

1. **NanoSIM slot (optional)**

Insert a nano-SIM card to connect to a mobile broadband network.

**NOTE:** Availability of the nano-SIM card slot depends on the region and configuration ordered.

2. **Universal audio port**

Connect headphones or a headset (headphone and microphone combo).

3. **USB 3.2 Gen 1 port**

Connect devices such as external storage devices and printers.

4. **USB 3.2 Gen 1 port with PowerShare**

Connect devices such as external storage devices and printers. Provides data transfer speeds up to 480 Mbps.

5. **Wedge-shaped lock slot**

Connect a security cable to prevent unauthorized movement of your computer.

# Left



Figure 2. Left view

## 1. HDMI 2.1 port

Connect to a TV, external display or another HDMI-in enabled device. Provides video and audio output.

## 2. Thunderbolt 4.0 with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery

Supports USB4, DisplayPort 2.1, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

**NOTE:** You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [www.dell.com/support](http://www.dell.com/support).

**NOTE:** A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

**NOTE:** USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

**NOTE:** Thunderbolt 4 supports two 4K displays or one 8K display.

## 3. Thunderbolt 4.0 with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery

Supports USB4, DisplayPort 2.1, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

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**NOTE:** A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

**NOTE:** USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

**NOTE:** Thunderbolt 4 supports two 4K displays or one 8K display.

## 4. Battery-status light

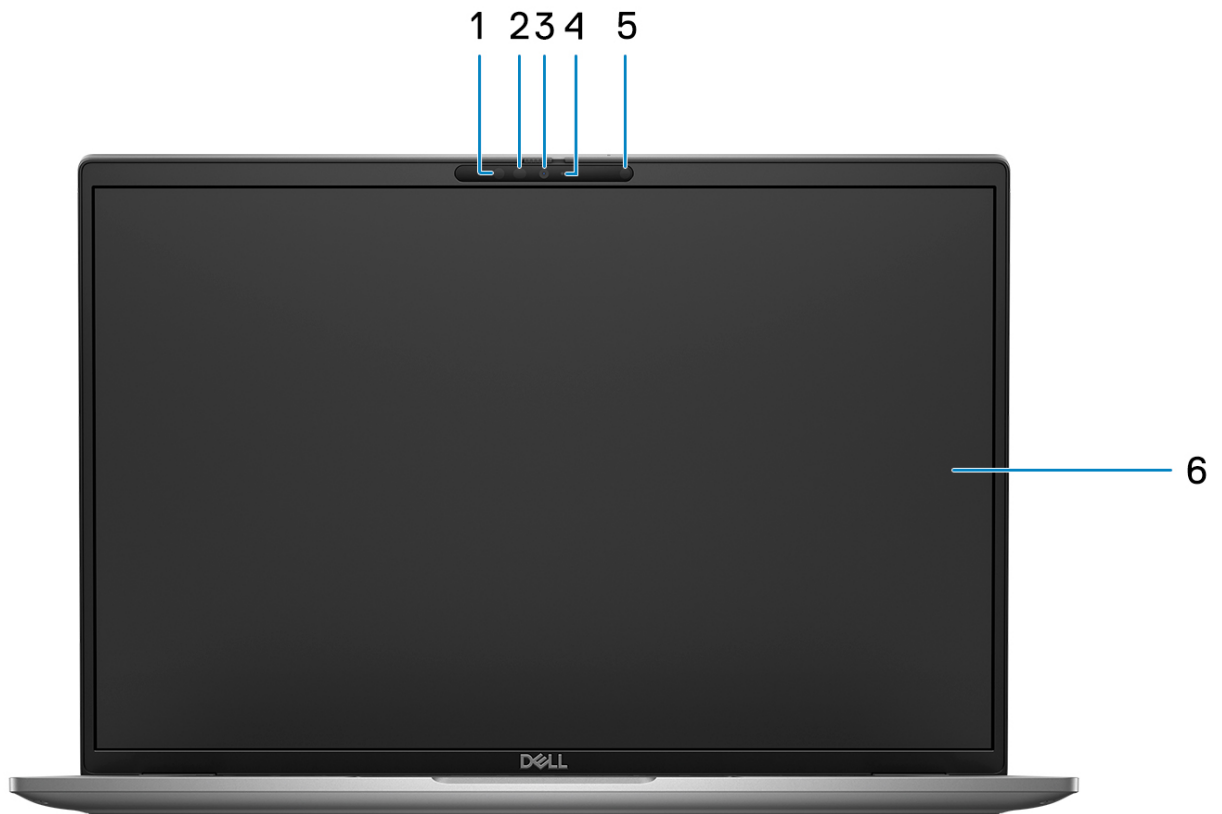
Indicates the battery-charge status.

- Solid yellow-Battery charge is low.
- Blinking yellow-Battery charge is critical.

## 5. Smart card reader slot (optional)

Using smart card provides authentication in corporate networks.

# Front



**Figure 3. Image: Front view**

**1. Infrared camera (optional)**

Enhances security when paired with Windows Hello face authentication.

**2. Infrared LED (optional)**

Emits infrared light, which enables the infrared camera to sense and track motion.

**3. RGB Camera**

Enables you to video chat, capture photos, and record videos.

**4. Camera-status light**

Turns on when the camera is in use.

**5. Ambient-light sensor**

The sensor detects the ambient light and automatically adjusts the display brightness.

**6. LCD panel**

# Top

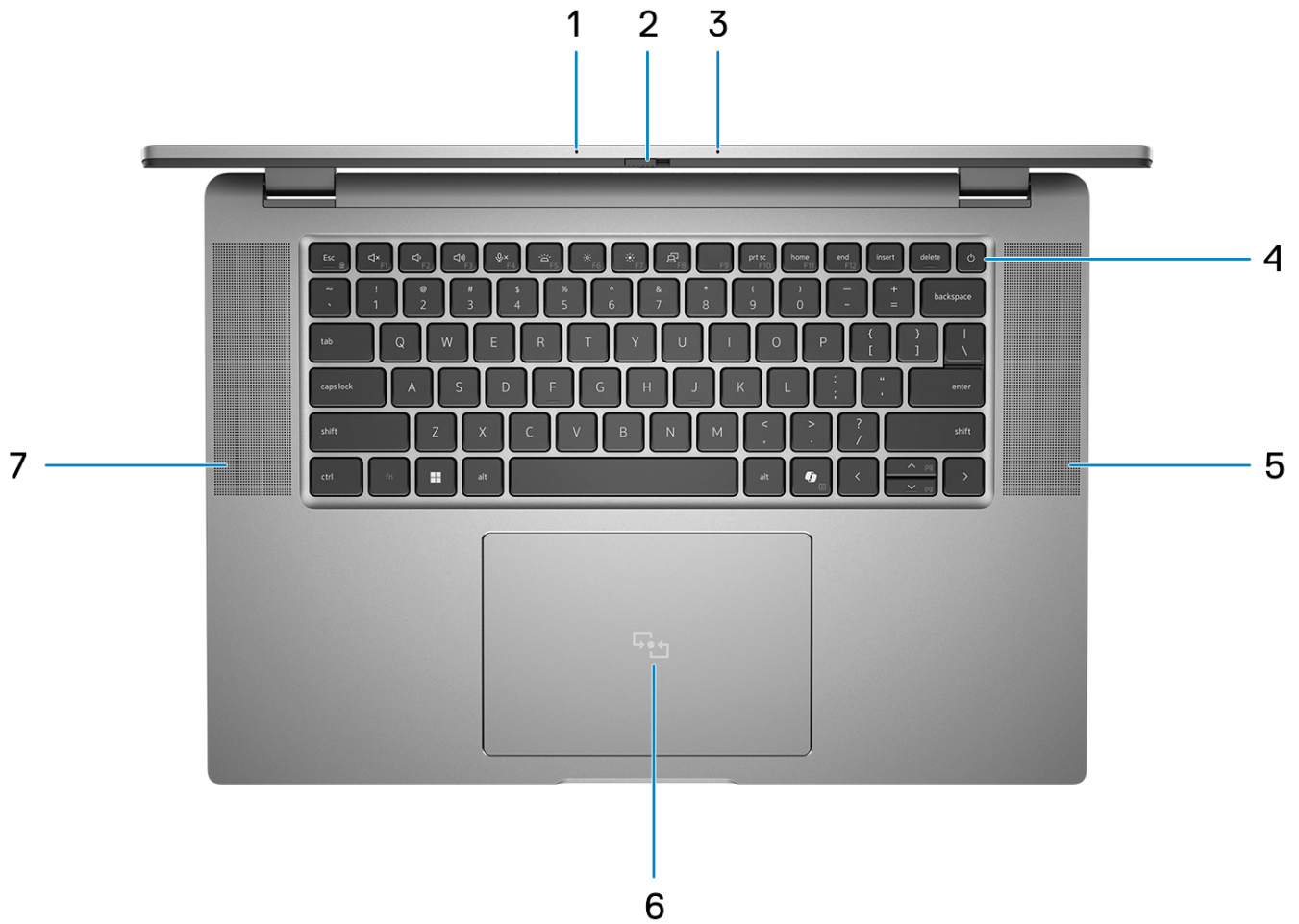


Figure 4. Image: Top view

**1. Dual-array microphone**

Provides digital sound input for audio recording and voice calls.

**2. Camera shutter**

Slide the privacy shutter to the left to access the camera lens.

**3. Power button with fingerprint reader (optional)**

Press to turn on the computer if it is turned off, in sleep state, or in hibernate state.

When the computer is turned on, press the power button to put the computer into sleep state; press and hold the power button for 10 seconds to force shut-down the computer.

If the power button has a fingerprint reader, place your finger on the power button steadily to log in.

**i NOTE:** The power-status light on the power button is available only on computers without the fingerprint reader. Computers that are shipped with the fingerprint reader that is integrated on the power button will not have the power-status light on the power button.

**i NOTE:** You can customize the power-button behavior in Windows.

**4. Keyboard**

**5. Speaker**

Provides audio output.



## 6. Clickpad with optional NFC/contactless smart-card reader

Move your finger on the touchpad to move the mouse pointer. Tap to left-click and two fingers tap to right-click.

## 7. Speaker

Provides audio output.

# Bottom

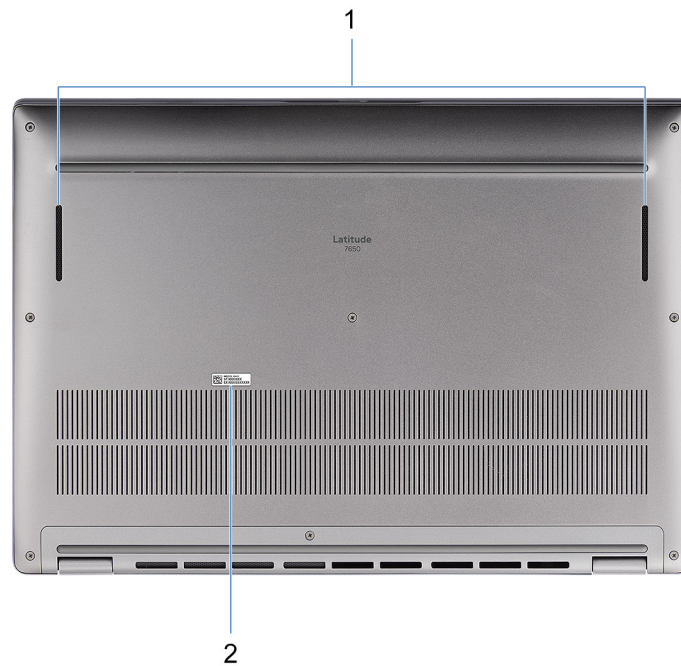


Figure 5. Image: Bottom view

### 1. Speakers

Provide audio output.

### 2. Service Tag label

The Service Tag is a unique alphanumeric identifier that enables Dell service technicians to identify the hardware components in your computer and access warranty information.

# Service Tag

The service tag is a unique alphanumeric identifier that allows Dell service technicians to identify the hardware components in your computer and access warranty information.

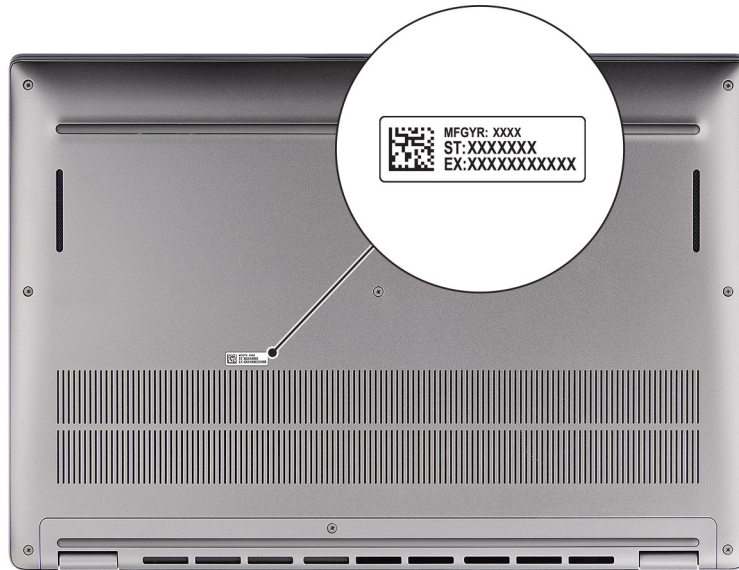


Figure 6. Image: Service Tag location

## Battery charge and status light

The following table lists the battery charge and status light behavior of your Latitude 7650.

Table 1. Battery charge and status light behavior

Power Source	LED Behavior	System Power State	Battery Charge Level
AC Adapter	Off	S0 - S5	Fully Charged
AC Adapter	Solid White	S0 - S5	< Fully Charged
Battery	Off	S0 - S5	11-100%
Battery	Solid Amber (590+/-3 nm)	S0 - S5	< 10%


- S0 (ON) - System is turned on.
- S4 (Hibernate) - The system consumes the least power compared to all other sleep states. The system is almost at an OFF state, except for a trickle power. The context data is written to a hard drive.
- S5 (OFF) - The system is in a shutdown state.

# Specifications of Latitude 7650

## Dimensions and weight

The following table lists the height, width, depth, and weight of your Latitude 7650.

**Table 2. Dimensions and weight**

Description	Values
Height:	
Front height	18.40 mm (0.72 in.)
Rear height	19.50 mm (0.77 in.)
Width	358.00 mm (14.09 in.)
Depth	250.42 mm (9.86 in.)
Weight  <b>NOTE:</b> The weight of your computer depends on the configuration that is ordered and manufacturing variability.	1.835 kg (4.05 lb)

## Processor

The following table lists the details of the processors that are supported for your Latitude 7650.

**Table 3. Processor**

Description	Option one	Option two	Option three	Option four	Option five	Option six
Processor type	Intel Core Ultra 5 135H	Intel Core Ultra 5 125U	Intel Core Ultra 5 135U	Intel Core Ultra 7 155U	Intel Core Ultra 7 165H	Intel Core Ultra 7 165U
Intel vPro Enterprise support	YES	NO	YES	NO	YES	YES
Processor wattage	28 W	15 W	15 W	15 W	28 W	15 W
Processor core count	14	12	12	12	16	12
Processor thread count	18	14	14	14	22	14
Processor speed	Up to 4.6 GHz	Up to 4.3 GHz	Up to 4.4 GHz	Up to 4.8 GHz	Up to 5.0 GHz	Up to 4.9 GHz
P-Core base frequency	1.7 GHz	1.3 GHz	1.6 GHz	1.7 GHz	1.4 GHz	1.7 GHz

**Table 3. Processor (continued)**

Description	Option one	Option two	Option three	Option four	Option five	Option six
P-Core Maximum turbo frequency	4.6 GHz	4.3 GHz	4.4 GHz	4.8 GHz	5.0 GHz	4.9 GHz
E-Core base frequency	1.2 GHz	0.8 GHz	1.1 GHz	1.2 GHz	0.9 GHz	1.2 GHz
E-Core Maximum turbo frequency	3.6 GHz	3.6 GHz	3.6 GHz	3.8 GHz	3.8 GHz	3.8 GHz
Processor cache	18 MB	12 MB	12 MB	12 MB	24 MB	12 MB
Integrated graphics	Intel Arc Graphics	Intel Graphics	Intel Graphics	Intel Graphics	Intel Arc Graphics	Intel Graphics

## Chipset

The following table lists the details of the chipset that is supported for your Latitude 7650.

**Table 4. Chipset**

Description	Option one	Option two
Processors	Intel Core Ultra 5	Intel Core Ultra 7
Chipset	Integrated in the processor	Integrated in the processor
DRAM bus width	Dual-channel, 64-bit	Dual-channel, 64-bit
Flash EPROM	64 MB	64 MB
PCIe bus	Gen 4	Gen 4

## Operating system


Your Latitude 7650 supports the following operating systems:

- Windows 11 22H2
- Windows 11 23H2
- Ubuntu Linux 22.04 LTS

## Memory

The following table lists the memory specifications of your Latitude 7650.

**Table 5. Memory specifications**

Description	Values
Memory slots	Onboard memory  <b>NOTE:</b> The memory is not upgradable
Memory type	Dual-channel, LPDDR5x

**Table 5. Memory specifications (continued)**

Description	Values
Memory speed	6400 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	16 GB
Memory configurations supported	<ul style="list-style-type: none"> <li>16 GB: LPDDR5x, 6400 MT/s, dual-channel</li> <li>32 GB: LPDDR5x, 6400 MT/s, dual-channel</li> <li>64 GB: LPDDR5x, 6400 MT/s, dual-channel</li> </ul>

## External ports

The following table lists the external ports on your Latitude 7650.


**Table 6. External ports**

Description	Values
USB ports	<ul style="list-style-type: none"> <li>Two Thunderbolt™ 4 with DisplayPort™ Alt Mode/USB Type-C/USB4/Power Delivery</li> <li>Two USB 3.2 Gen 1 ports</li> </ul>
Audio port	One Universal audio port
Video port/ports	One HDMI 2.1 port
Media-card reader	Not supported
Power-adaptor port	60W/65W/100W adapter USB Type-C, 2-pin, 3-pin
Security-cable slot	One Wedge-shaped lock slot
Smart Card Reader	Contacted and Contactless + NFC (optional)
SIM slot	NanoSIM slot (optional)

## Internal slots

The following table lists the internal slots of your Latitude 7650.


**Table 7. Internal slots**

Description	Values
M.2	<ul style="list-style-type: none"> <li>One M.2 2230 slot for solid-state drive</li> <li>One M.2 3042 slot for WWAN Card (optional)</li> </ul> <p> <b>NOTE:</b> To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>

# Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Latitude 7650.

**Table 8. Wireless module specifications**

Description	Values
Model number	Intel BE200 (integrated on system board)
Transfer rate	5760 Mbps
Frequency bands supported	2.40 GHz/5 GHz/6 GHz
Wireless standards	<ul style="list-style-type: none"> <li>• WiFi 802.11a/b/g</li> <li>• Wi-Fi 4 (WiFi 802.11n)</li> <li>• Wi-Fi 5 (WiFi 802.11ac)</li> <li>• Wi-Fi 6E (WiFi 802.11ax)</li> <li>• Wi-Fi 7 (WiFi 802.11be)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>• 64-bit/128-bit WEP</li> <li>• AES-CCMP</li> <li>• TKIP</li> </ul>
Bluetooth wireless card	Bluetooth 5.4 wireless card
	 <b>NOTE:</b> The version of the Bluetooth wireless card may vary depending on the operating system that is installed on your computer.


# WWAN module

The following table lists the Wireless Wide Area Network (WWAN) module supported on your Latitude 7650.

**Table 9. WWAN module specifications**

Description	Option one	Option two
Model number	DW5825e (FM101R-GL), Qualcomm Snapdragon X12 global LTE-Advanced, CAT12	DW5932e, 5G, Qualcomm Snapdragon X62 Global 5G Modem
Form Factor	M.2 3042 Key-B	M.2 3042 Key
Host Interface	PCIe Gen2	PCIe Gen3
Network Standard	LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/BDS/Galileo	LTE FDD/TDD, WCDMA/HSPA+, GNSS/Beidou NR FR1 (Sub6) FDD/TDD, LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Galileo/BDS/QZSS
Transfer data rate	<ul style="list-style-type: none"> <li>• Up to 1 Gbps DL (Cat 12)</li> <li>• Up to 150 Mbps UL</li> </ul>	<ul style="list-style-type: none"> <li>• SA: DL 4.67 Gbps/UL 1.25 Gbps</li> <li>• NSA: DL 3.74 Gbps/UL 700 Mbps</li> <li>• LTE: DL 1.6 Gbps (CAT19)/UL 150 Mbps</li> <li>• UMTS: DL 384 kbps/UL 384 kbps DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)</li> </ul>

**Table 9. WWAN module specifications (continued)**

Description	Option one	Option two
Operating Frequency Bands	<ul style="list-style-type: none"> <li>LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41(HPUE), B42, B43, B46(receiver only), B48, B66, B71)</li> <li>WCDMA/HSPA+ (1, 2, 4, 5, 8)</li> </ul>	<ul style="list-style-type: none"> <li>NR (n1, n2, n3, n5, n7, n8, n20, n25, n28, n30, n38, n40, n41, n48, n66, n71, n77, n78, n79)</li> <li>LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71)</li> <li>WCDMA/HSPA+ (1, 2, 4, 5, 8)</li> </ul>
Power supply	DC 3.135 V to 4.4 V, Typical 3.3 V	DC 3.135 V to 4.40 V, Typical 3.30 V
SIM card	Supported through external SIM slot	Supported through external SIM slot
eSIM with Dual SIM (DSSA)	Supported	Supported
Antenna Diversity	Supported	Supported
Radio On/Off	Supported	Supported
Wake On Wireless	Supported	Supported
Temperature	<ul style="list-style-type: none"> <li>Normal operating temperature: -10°C to + 55°C (14°F to 131°F)</li> <li>Extended Operating temperature: -20°C to + 65°C (-4°F to 149°F)</li> </ul>	<ul style="list-style-type: none"> <li>Normal operating temperature: -10°C to + 55°C (14°F to 131°F)</li> <li>Extended Operating temperature: -30°C to +75°C (-22°F to 167°F)</li> <li>Storage temperature: -40°C to +85°C (-40°F to 185°F)</li> </ul>
Antenna connector	<ul style="list-style-type: none"> <li>WWAN Main Antenna x 4</li> <li>Supports 4x4 MIMO</li> </ul>	<ul style="list-style-type: none"> <li>WWAN Main Antenna x 4</li> <li>Supports 4x4 MIMO</li> </ul>
<p> <b>NOTE:</b> For instructions on how to find your computer's International Mobile Station Equipment Identity (IMEI) number, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>		

## Audio

The following table lists the audio specifications of your Latitude 7650.

**Table 10. Audio specifications**

Description	Values
Audio controller	Realtek ALC3281
Stereo conversion	Stereo (2.0)
Internal audio interface	High definition audio interface
External audio interface	Universal Audio Jack
Number of speakers	Four
Internal-speaker amplifier	Supported
External volume controls	Supported
Speaker output:	
Average speaker output	2W

**Table 10. Audio specifications (continued)**

Description		Values
	Peak speaker output	2.5W
Subwoofer output		Not supported
Microphone		Camera module above LCD

## Storage

This section lists the storage options on your Latitude 7650.

Your computer supports the following storage configurations:

- One M.2 2230 solid state drive

The M.2 2230 solid state drive is the primary drive of your computer.



**Table 11. Storage specifications**

Storage type	Interface type	Capacity
M.2 2230 solid state drive	PCIe NVMe Gen 4x4	256 GB/512 GB/1 TB/2 TB
M.2 2230 solid state drive, Self-encrypting drive, Opal 2.0	PCIe Gen 3.0x4 NVMe, up to 32 Gbps	512 GB

## Keyboard

The following table lists the keyboard specifications of your Latitude 7650.

**Table 12. Keyboard specifications**

Description	Values
Keyboard type	Battery-saving mini LED backlit AI hotkey keyboard  <b>NOTE:</b> Copilot in Windows is available only in approved markets.
Keyboard layout	QWERTY
Number of keys	<ul style="list-style-type: none"> <li>• United States and Canada: 79 keys</li> <li>• United Kingdom: 80 keys</li> </ul>
Keyboard size	X=19.05 mm key pitch Y=18.05 mm key pitch
Keyboard shortcuts	Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. To type the alternate character, press Shift and the desired key. To perform secondary functions, press Fn and the desired key.  <b>NOTE:</b> You can define the primary behavior of the function keys (F1–F12) changing <b>Function Key Behavior</b> in BIOS setup program.



# Camera

The following table lists the camera specifications of your Latitude 7650.

**Table 13. Front camera specifications**

Description		Values
Number of cameras		One
Camera type		FHD RGB HDR Camera
Camera location		Front camera
Camera sensor type		Ambient light sensor
Camera resolution:		
	Still image	1080p at 30 fps
	Video	1080p at 30 fps
Infrared camera resolution:		
	Still image	640 x 360
	Video	640 x 360 at 30 fps
Diagonal viewing angle:		
	Camera	80 degrees
	Infrared camera	86.6 degrees

**Table 13. Front camera specifications**

Description		Values
Number of cameras		One
Camera type		FHD RGB-IR HDR Camera
Camera location		Front camera
Camera sensor type		Ambient light sensor
Camera resolution:		
	Still image	1080p at 30 fps
	Video	1080p at 30 fps
Diagonal viewing angle:		
	Camera	82 degrees

# Clickpad

The following table lists the clickpad specifications of your Latitude 7650.

**Table 14. Clickpad specifications**

Description		Values
Clickpad resolution:		
	Horizontal	>300 dpi
	Vertical	
Clickpad dimensions:		


**Table 14. Clickpad specifications (continued)**

Description		Values
	Horizontal	133 mm (5.23 in.)
	Vertical	90 mm (3.54 in.)
Clickpad gestures		For more information about clickpad gestures available on Windows, see the Microsoft knowledge base article at <a href="https://support.microsoft.com">support.microsoft.com</a> .

## Power adapter

The following table lists the power adapter specifications of your Latitude 7650.

**Table 15. Power adapter specifications**

Description	Option one	Option two	Option three
Type	60W AC adapter, USB Type-C	65W AC adapter, USB Type-C	100W AC adapter, USB Type-C
Power-adapter dimensions:			
Height	22.00 mm (0.86 in.)	28.00 mm (1.10 in.)	26.50 mm (1.04 in.)
Width	66.00 mm (2.59 in.)	51.00 mm (2.01 in.)	60.00 mm (2.36 in.)
Depth	55.00 mm (2.16 in.)	112.00 mm (4.41 in.)	122.00 mm (4.80 in.)
Weight	0.10 kg (0.23 lbs)	0.20 kg (0.44 lbs)	0.33 kg (0.73 lbs)
Input voltage	100 VAC – 240 VAC	100 VAC – 240 VAC	100 VAC – 240 VAC
Input frequency	50 Hz – 60 Hz	50 Hz – 60 Hz	50 Hz – 60 Hz
Input current (maximum)	1.70 A	1.70 A	1.70 A
Output current (continuous)	<ul style="list-style-type: none"> <li>• 5 V/3 A</li> <li>• 9 V/3 A</li> <li>• 15 V/3 A</li> <li>• 20 V/3 A</li> </ul>	<ul style="list-style-type: none"> <li>• 5 V/3 A</li> <li>• 9 V/3 A</li> <li>• 15 V/3 A</li> <li>• 20 V/3.25 A</li> </ul>	<ul style="list-style-type: none"> <li>• 5 V/3 A</li> <li>• 9 V/3 A</li> <li>• 15 V/3 A</li> <li>• 20 V/5 A</li> </ul>
Rated output voltage	<ul style="list-style-type: none"> <li>• 5 VDC</li> <li>• 9 VDC</li> <li>• 15 VDC</li> <li>• 20 VDC</li> </ul>	<ul style="list-style-type: none"> <li>• 5 VDC</li> <li>• 9 VDC</li> <li>• 15 VDC</li> <li>• 20 VDC</li> </ul>	<ul style="list-style-type: none"> <li>• 5 VDC</li> <li>• 9 VDC</li> <li>• 15 VDC</li> <li>• 20 VDC</li> </ul>
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)
Storage	-20°C to 70°C (-4°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
 <b>CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.</b>			

# Battery

The following table lists the battery specifications of your Latitude 7650.

**Table 16. Battery specifications**

Description		Option one	Option two	Option three	Option four
Battery type		2-cell, 38 Wh, ExpressCharge Capable, Long Life Cycle, 3-year limited hardware warranty	3-cell, 57 Wh, ExpressCharge Capable, Long Life Cycle, 3-year limited hardware warranty	2-cell, 38 Wh, ExpressCharge, ExpressCharge Boost Capable	3-cell, 57 Wh, ExpressCharge, ExpressCharge Boost Capable
Battery voltage		7.60 VDC	11.40 VDC	7.60 VDC	11.40 VDC
Battery weight (maximum)		0.156 Kg (0.34 lb)	0.227 kg (0.50 lb)	0.156 Kg (0.34 lb)	0.227 kg (0.50 lb)
Battery dimensions:					
	Height	6.30 mm (0.24 in.)	6.30 mm (0.24 in.)	6.30 mm (0.24 in.)	6.30 mm (0.24 in.)
	Width	210.97 mm (8.30 in.)	254.80 mm (10.03 in.)	210.97 mm (8.30 in.)	254.8 mm (10.03 in.)
	Depth	79.80 mm (3.14 in.)	79.80 mm (3.14 in.)	79.80 mm (3.10 in.)	79.8 mm (3.10 in.)
Temperature range:					
	Operating	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>
	Storage	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (4°F to 149°F)	-20°C to 65°C (4°F to 149°F)
Battery 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.
Battery charging time (approximate)		<p><b>Express Charge Method:</b></p> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours</li> <li>16 - 45°C normal express charge</li> <li>46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul> <p><b>Standard Charge/ Predominately AC User Charge Method:</b></p> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge</li> </ul>	<p><b>Express Charge Method:</b></p> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours</li> <li>16 - 45°C normal express charge</li> <li>46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul> <p><b>Standard Charge/ Predominately AC User Charge Method:</b></p> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time</li> </ul>	<p><b>Express Charge Method:</b></p> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours</li> <li>16 - 45°C normal express charge</li> <li>46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul> <p><b>Standard Charge/ Predominately AC</b></p>	<p><b>Express Charge Method:</b></p> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours</li> <li>16 - 45°C normal express charge</li> <li>46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul> <p><b>Standard Charge/ Predominately AC</b></p>

**Table 16. Battery specifications (continued)**

Description	Option one	Option two	Option three	Option four
	time from 0 to 100% RSOC is 4 hours <ul style="list-style-type: none"> <li>16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul> <b>Express Charge Boost Charge Method (Fast Charge for Initial 35%):</b> <ul style="list-style-type: none"> <li>16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge</li> </ul>	from 0 to 100% RSOC is 4 hours <ul style="list-style-type: none"> <li>16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul> <b>Express Charge Boost Charge Method (Fast Charge for Initial 35%):</b> <ul style="list-style-type: none"> <li>16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge</li> </ul>	<b>User Charge Method:</b> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours</li> <li>16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul>	<b>User Charge Method:</b> <ul style="list-style-type: none"> <li>0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours</li> <li>16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours</li> </ul>
RTC coin-cell battery	Supported Battery life of rechargeable coin cell is 60 days	Supported Battery life of rechargeable coin cell is 60 days	Supported Battery life of rechargeable coin cell is 60 days	Supported Battery life of rechargeable coin cell is 60 days
<p><b>CAUTION:</b> Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.</p> <p><b>CAUTION:</b> Dell recommends that you charge the battery regularly for optimal power consumption. If your battery charge is completely depleted, connect the power adapter, turn on your computer, and then restart your computer to reduce the power consumption.</p>				

## Display

The following table lists the display specifications of your Latitude 7650.

**Table 17. Display specifications**

Description	Values
Display type	Full High Definition Plus (FHD+)
Touch options	No
Display-panel technology	In-Plane Switching (IPS)
Display-panel dimensions (active area):	
Height	344.68 mm (13.57 in.)
Width	215.42 mm (8.48 in.)
Diagonal	406.46 mm (16.00 in.)
Display-panel native resolution	1920 x 1200
Luminance (typical)	250 nit
Megapixels	2.30
Color gamut	45% NTSC

**Table 17. Display specifications (continued)**

Description	Values
Pixels Per Inch (PPI)	141.5 ppi
Contrast ratio (minimum)	800:1
Response time (maximum)	35 ms
Refresh rate	60 Hz
Horizontal view angle	<ul style="list-style-type: none"> <li>• 85 degrees (typical)</li> <li>• 80 degrees (min)</li> </ul>
Vertical view angle	<ul style="list-style-type: none"> <li>• 85 degrees (typical)</li> <li>• 80 degrees (min)</li> </ul>
Pixel pitch	0.17952 mm x 0.17952 mm
Power consumption (maximum)	4.15 W
Anti-glare vs glossy finish	Anti-glare

## Fingerprint reader (optional)

The following table lists the fingerprint-reader specifications of your Latitude 7650.

**i** **NOTE:** The fingerprint reader is located on the power button.

**Table 18. Fingerprint reader specifications**

Description	Option One	Option two
Fingerprint-reader sensor technology	Capacitive	Capacitive
Fingerprint-reader sensor resolution	500 dpi	508 dpi
Fingerprint-reader sensor pixel size	<ul style="list-style-type: none"> <li>• X: 108</li> <li>• Y: 88</li> </ul>	<ul style="list-style-type: none"> <li>• X: 96</li> <li>• Y: 96</li> </ul>

## Sensor

The following table lists the sensor of your Latitude 7650.

**Table 19. Sensor**

Sensor support
Accelerometer (ST Micro <b>LIS2DW12TR</b> ): On the base (system board)
Accelerometer (ST Micro <b>LIS2DW12TR</b> ): On the hinge-up 180 midboard
Ambient Light Sensor
E-compass (ST Micro LIS2MDLTR), only for 2-in-1 computer
Proximity for SAR compliance (for the WWAN module) Near Field Proximity Sensor
Hall Effect Sensor

## GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Latitude 7650.

**Table 20. GPU—Integrated**

Controller	Memory size	Processor
Intel Arc Graphics	Shared system memory	For Intel Core H processors and requires 128-bit (dual-channel) memory with minimum of 16 GB memory)
Intel Graphics	Shared system memory	Intel Core Ultra 5/7

## Multiple display support matrix

The following table lists the multiple display support matrix for your Latitude 7650.

**Table 21. Multiple display support matrix**

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel Arc Graphics	Not applicable	3	4
Intel Graphics	Not applicable	3	4

## Hardware security

The following table lists the hardware security of your Latitude 7650.

**Table 22. Hardware security**

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
Trusted Computing Group (TCG) Certification for TPM
Contacted smart card and Control vault 3 +
Contactless smart card, NFC, and Control vault 3 +
SED SSD NVMe, SSD, and HDD (Opal and non-Opal) per SDL
Fingerprint reader in power button tied to Control vault 3 +
One wedge-shaped lock slot
SED (Opal 2.0 only - PCIe Interface)
Windows Hello - Fingerprint Reader (optional)
Mechanical privacy shutter for camera (only for metal laptops)
Control vault 3 + Advanced Authentication with FIPS 140-2 Level 3 Certification

# Smart-card reader

## Contactless smart-card reader


This section lists the contactless smart-card reader specifications of your Latitude 7650. This module is only available in computers shipped with Smart-card readers.

**Table 23. Contactless smart-card reader specifications**

Title	Description	Dell ControlVault 3 contactless smart-card 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 smart card standards as posted to <a href="http://www.emvco.com">www.emvco.com</a>	Yes
EMVCo Certified	Formally certified based on EMVCO smart card standards	Yes
NFC Proximity OS Interface	Enumerates NFP (Near Field Proximity) device for OS to use	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

**Table 23. Contactless smart-card reader specifications (continued)**

Title	Description	Dell ControlVault 3 contactless smart-card reader with NFC
FIDO2 compliance	Dell ControlVault 3 Smart-card reader is compliant with the FIDO SPEC	No

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

**Table 24. Supported cards**

Manufacturer	Card
HID	jCOP readertest3 A card (14443a)
	1430 1L
	DESFire D8H
	iClass (Legacy)
	iClass SEOS
NXP/Mifare	Mifare DESFire 8 K White PVC Cards
	Mifare Classic 1 K White PVC Cards
	NXP Mifare Classic S50 ISO Card
G&D	idOnDemand - SCE3.2 144 K
	SCE6.0 FIPS 80 K Dual+ 1 K Mifare
	SCE6.0 non-FIPS 80 K Dual+ 1 K Mifare
	SCE6.0 FIPS 144 K Dual + 1 K Mifare
	SCE6.0 non-FIPS 144 K Dual + 1 K Mifare
	SCE7.0 FIPS 144 K
Oberthur	idOnDemand - OCS5.2 80 K
	ID-One Cosmo 64 RSA D V5.4 T = 0 card

## Contacted smart-card reader

The following table lists the contacted smart-card reader specifications of your Latitude 7650.

**Table 25. Contacted smart-card reader specifications**

Title	Description	Dell ControlVault 3 smart-card reader
ISO 7816 -3 Class A Card Support	Reader capable of reading 5V powered smart card	Yes
ISO 7816 -3 Class B Card Support	Reader capable of reading 3V powered smart card	Yes
ISO 7816 -3 Class C Card support	Reader capable of reading 1.8V powered smart card	Yes
ISO 7816-1 Compliant	Specification for the reader	Yes
ISO 7816 -2 Compliant	Specification for smart card device physical characteristics (size, location of connection points, so forth.)	N/A



**Table 25. Contacted smart-card reader specifications (continued)**

Title	Description	Dell ControlVault 3 smart-card reader
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) smart card standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smart card 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
FIDO2 compliance	Dell ControlVault 3 Smart-card reader is compliant with the FIDO SPEC	No

## Operating and storage environment

This table lists the operating and storage specifications of your Latitude 7650.

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

**Table 26. 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 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	1.30 GRMS
Shock (maximum)	110 G†	160 G†
Altitude range	-15.2 m to 3048 m (4.64 ft to 5518.4 ft)	-15.2 m to 10668 m (4.64 ft to 19234.4 ft)

 **CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.**

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

† Measured using a 2 ms half-sine pulse.

# Engineering specifications

## Wireless module

### Intel BE200, 2x2 MIMO, 320MHz, 5760 Mbps, 2.4/5/6 GHz, Wi-Fi 7 (WiFi 802.11 a/b/g/n/ac/ax/be), Bluetooth wireless card

The following table lists the Intel BE200 specifications.

**NOTE:** Wi-Fi 6 is supported in regions where Wi-Fi 6E is unavailable.

**Table 27. Intel BE200 specifications**

Intel BE200 specifications	Values
Host interface	PCIe for Wi-Fi; USB/I2S for Bluetooth
Network standard	IEEE 802.11a/b/g/n/ac/ax/be, 320MHz channel use, MU-MIMO, new 6 GHz band
Wi-Fi Alliance certifications	Wi-Fi 7 Technology support, Wi-Fi CERTIFIED 6 with Wi-Fi 6E, Wi-Fi CERTIFIED a/b/g/n/ac, WMM, WMM-Power Save, WPA3, PMF, Wi-Fi Direct, Wi-Fi Agile Multiband, Wi-Fi Location R2 HW readiness  <b>NOTE:</b> Other names and brands may be claimed as the property of others.
Operating frequency bands	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• 5 GHz</li> <li>• 6 GHz</li> </ul>
Data rate	<ul style="list-style-type: none"> <li>• 2.4 GHz 40M: Up to 688 Mbps</li> <li>• 5/6 GHz 80M: Up to 1.44 Gbps</li> <li>• 5/6 GHz 160M: Up to 2.88 Gbps</li> <li>• 5/6 GHz 320M: Up to 5.76 Gbps</li> </ul>
Power consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity.
Security methods	<ul style="list-style-type: none"> <li>• WPA2 Transition mode</li> <li>• WPA3 Personal and Enterprise</li> </ul>
Authentication protocols	<ul style="list-style-type: none"> <li>• 802.1X EAP-TLS</li> <li>• EAP-TTLS/MSCHAPv2</li> <li>• PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>• 128-bit AES-CCMP</li> <li>• 256-bit AES-GCMP</li> </ul>
Product safety	<ul style="list-style-type: none"> <li>• UL</li> <li>• C-UL</li> <li>• CB (IEC60950-1)</li> </ul>
Management capabilities alerting	Support for Intel AMT

**Table 27. Intel BE200 specifications (continued)**

Intel BE200 specifications	Values
Government compliance	FIPS 140-3
Client utility	Intel PRO/Set wireless software v23 and later.
Antenna diversity	Supported
Radio On/Off	Supported
Roaming	Support seamless roaming between access points.
Wake on wireless	Supported
Wireless display	Native Miracast support by Windows
Wireless PAN standard	<ul style="list-style-type: none"> <li>• Dual-Mode Bluetooth wireless card 5.4</li> <li>• BLE</li> </ul>
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.
Bluetooth data encryption	128-bit encryption
Bluetooth output power	Power Class 1
Operating temperature	0°C to + 80°C (Adapter shield)
Storage temperature	-40°C to +70°C
Humidity	50% to 90% RH non-condensing (at temperatures of 25°C to 35°C)

## WWAN module


### Qualcomm Snapdragon SDX12 Global LTE-Advanced (DW5825e)

The following table lists specifications of the Qualcomm Snapdragon SDX12 Global LTE-Advanced (DW5825e) WWAN module.

**Table 28. Qualcomm Snapdragon SDX12 Global LTE-Advanced (DW5825e) specifications**

Description	Value
Form factor	M.2 3042 Key-B
Host interface	USB 3.0/2.0
Network standard	<ul style="list-style-type: none"> <li>• LTE FDD/TDD</li> <li>• WCDMA/HSPA+</li> <li>• GPS/GLONASS/Beidou/Galileo</li> </ul>
Transfer rate	<ul style="list-style-type: none"> <li>• Up to 600 Mbps DL (CAT6)</li> <li>• Up to 150 Mbps UL</li> </ul>
Operating frequency bands	<ul style="list-style-type: none"> <li>• LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B38, B39, B40, B41, B42, B43, B48, B66, B71)</li> <li>• HSPA+ (1,2,4,5,6,8,19)</li> </ul>
Power supply	DC 3.135 V to 4.4 V, Typical 3.3 V
SIM card	Supported through external SIM-card slot
eSIM with Dual SIM (DSSA)	Supported


**Table 28. Qualcomm Snapdragon SDX12 Global LTE-Advanced (DW5825e) specifications (continued)**

Description	Value
	 <b>NOTE:</b> The availability of eSIM functionality embedded on the module is dependent on the region and specific carrier requirements.
Antenna diversity	Supported
Radio On/Off	Supported
Wake on wireless	Supported
Normal operating temperature	-10°C to +55°C
Extended operating temperature	-30°C to +75°C
Antenna connector	<ul style="list-style-type: none"> <li>• WWAN Main Antenna x 1</li> <li>• WWAN Diversity Antenna x 1</li> </ul>

## Qualcomm Snapdragon X62 Global 5G Modem (DW5932e)

The following table lists specifications of the Qualcomm Snapdragon X62 Global 5G Modem (DW5932e) WWAN module.

**Table 29. Qualcomm Snapdragon X62 Global 5G Modem (DW5932e) specifications**

Description	Value
Form factor	M.2 3042 Key-B
Host interface	PCIe Gen3
Network standard	<ul style="list-style-type: none"> <li>• NR FR1 (Sub6) FDD/TDD</li> <li>• LTE FDD/TDD</li> <li>• WCDMA/HSPA+</li> <li>• GPS/GLONASS/Beidou/Galileo</li> </ul>
Transfer rate	<ul style="list-style-type: none"> <li>• 5G NR: DL 3.5 Gbps/UL 900 Mbps</li> <li>• LTE: DL 1.6 Gbps (CAT19)/UL 211 Mbps (CAT18)</li> <li>• UMTS: DL DC-HSPA+ Rel8:42 Mbps/UL 5.76 Mbps</li> </ul>
Operating frequency bands	<ul style="list-style-type: none"> <li>• NR (n1, n2, n3, n5, n7, n8, n12, n13, n14, 18, n20, n25, n26, n28, n30, n38, n40, n41, n48, n53, n66, n70, n71, n75, n76, n77, n78, n79)</li> <li>• LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71)</li> <li>• WCDMA/HSPA+ (1, 2, 4, 5, 8)</li> </ul>
Power supply	DC 3.135 V to 3.63 V, Typical 3.3 V
SIM card	Supported through external SIM-card slot
eSIM with Dual SIM (DSSA)	Supported  <b>NOTE:</b> The availability of eSIM functionality embedded on the module is dependent on the region and specific carrier requirements.
Antenna diversity	Supported
Radio On/Off	Supported
Wake on wireless	Supported
Normal operating temperature	-30°C to +70°C
Extended operating temperature	-40°C to +85°C

**Table 29. Qualcomm Snapdragon X62 Global 5G Modem (DW5932e) specifications (continued)**

Description	Value
Storage temperature	-40°C to +85°C
Antenna connector	<ul style="list-style-type: none"> <li>• WWAN Main Antenna x 1</li> <li>• WWAN Diversity Antenna x 1</li> <li>• 4x4 MIMO Antenna x 2</li> </ul>

## GPU—Integrated

### Graphics

**Table 30. Intel Arc Graphics specifications**

Intel Arc Graphics specifications	Values
Bus type	Integrated graphics <b>i</b> <b>NOTE:</b> Intel Arc Graphics uses the computers memory as video memory.
Memory type	Shared system memory
Graphics level	i5/i7
Memory interface	64 Gbps, Unified Memory Architecture
Estimated maximum power consumption (TDP)	28 W (H-series) included in the CPU power
Overlay planes	Yes
Operating systems graphics/ video API support	DirectX 12 Ultimate, OpenGL 4.6
Maximum color depth	10 bits
Maximum vertical refresh rate	Up to 120 Hz <b>i</b> <b>NOTE:</b> The refresh rate depends on the resolution.
External ports	HDMI 2.1 port, DisplayPort 2.1 over USB Type-C
Multiple display support	Up to four displays including laptop display.

**Table 31. Intel Graphics specifications**

Intel Graphics specifications	Values
Bus type	Integrated graphics <b>i</b> <b>NOTE:</b> Intel Arc Graphics uses the computers memory as video memory.
Memory type	Shared system memory
Graphics level	i5/i7
Memory interface	64 Gbps, Unified Memory Architecture
Estimated maximum power consumption (TDP)	15 W (U-series)/28 W (H-series), included in the CPU power
Overlay planes	Yes
Operating systems graphics/ video API support	DirectX 12 Ultimate, OpenGL 4.6
Maximum color depth	10 bits
Maximum vertical refresh rate	Up to 120 Hz <b>i</b> <b>NOTE:</b> The refresh rate depends on the resolution.

**Table 31. Intel Graphics specifications (continued)**

Intel Graphics specifications	Values
External ports	HDMI 2.1 port, DisplayPort 2.1 over USB Type-C
Multiple display support	Up to four displays including laptop display.

## Video port and resolution matrix

The following table lists the Video port and resolution matrix of your Latitude 7650.

**Table 32. Video port and resolution matrix**

Port type	USB Type-C Thunderbolt 4 with DisplayPort 1.4	HDMI-OUT port-HDMI 2.0
Maximum resolution —single display	7680 x 4320 @ 60 Hz	4096 x 2160 @ 60 Hz
Maximum resolution —dual MST	4096 x 2304 @ 60 Hz, 4096 x 2304 @ 60 Hz	Not applicable
Maximum resolution —triple MST	4096 x 2304 @ 60 Hz, 4096 x 2304 @ 60 Hz, 4096 x 2304 @ 60 Hz	Not applicable

## Storage

### M.2 2230, 256 GB, TLC PCIe NVMe Gen 4, Class 35 SSD

The following table lists the M.2 2230, 256 GB SSD specifications.

**Table 33. 256 GB SSD specifications**

Description	Values
Capacity	256 GB
Height (approximate)	3.50 mm (0.13 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTTF	1.4M hours
Logical blocks	500,118,192
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>Idle: 5 mW (PS4)</li> <li>Active: 4W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C

**Table 33. 256 GB SSD specifications (continued)**

Description	Values
Relative humidity range	5% to 95%

## M.2 2230, 512 GB, TLC PCIe NVMe Gen 4, Class 35 SSD

The following table lists the M.2 2230, 512 GB SSD specifications.

**Table 34. 512 GB SSD specifications**

Description	Values
Capacity	512 GB
Height (approximate)	3.50 mm (0.13 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTTF	1.4M hours
Logical blocks	1,000,215,216
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>Idle: 5 mW (PS4)</li> <li>Active: 4W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

## M.2 2230, 1 TB, TLC PCIe NVMe Gen 4, Class 35 SSD

The following table lists the M.2 2230, 1 TB SSD specifications.

**Table 35. 1 TB SSD specifications**

Description	Values
Capacity	1 TB
Height (approximate)	3.50 mm (0.13 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours

**Table 35. 1 TB SSD specifications (continued)**

Description	Values
Logical blocks	2,000,409,264
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 mW (PS4)</li> <li>• Active: 4W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%

## M.2 2230, 2 TB, PCIe NVMe Gen 4 x4, Class 25 SSD

The following table lists the M.2 2230, 2 TB SSD specifications.

**Table 36. 2 TB SSD specifications**

Description	Values
Capacity	2 TB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to four lanes)
MTBF	1.4M hours
Logical blocks	4,000,797,360
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>• Idle: 5 mW (PS4)</li> <li>• Active: 4W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental nonoperating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%



## M.2 2230, 512 GB, PCIe NVMe Gen 4 x4, Opal Self-Encrypting, Class 35 SSD

The following table lists the M.2 2230, 512 GB SSD specifications.

**Table 37. 512 GB SSD, self-encrypting drive specifications**

Description	Values
Capacity	512 GB
Height (approximate)	2.38 mm (0.09 in.)
Width (approximate)	22 mm (0.87 in.)
Depth (approximate)	30 mm (1.18 in.)
Interface type	PCIe Gen 4
Speed (maximum)	64 Gb/s (up to 4 lanes)
MTBF	1.4M hours
Logical blocks	500,118,192
<b>Power source</b>	
Power consumption (reference only)	<ul style="list-style-type: none"> <li>Idle: 5 mW (PS4)</li> <li>Active: 4W</li> </ul>
<b>Environmental operating conditions (non-condensing)</b>	
Temperature range	0°C to 70°C
Relative humidity range	10% to 90%
Op shock	1500G
<b>Environmental non-operating conditions (non-condensing)</b>	
Temperature range	-40°C to 70°C
Relative humidity range	5% to 95%


## Power adapter

The following table lists the power adapter specifications of your Latitude 7650.

**Table 38. Power adapter specifications**

Description	Option one	Option two	Option three
Type	60W AC adapter, USB Type-C	65W AC adapter, USB Type-C	100W AC adapter, USB Type-C
Power-adapter dimensions:			
Height	22.00 mm (0.86 in.)	28.00 mm (1.10 in.)	26.50 mm (1.04 in.)
Width	66.00 mm (2.59 in.)	51.00 mm (2.01 in.)	60.00 mm (2.36 in.)
Depth	55.00 mm (2.16 in.)	112.00 mm (4.41 in.)	122.00 mm (4.80 in.)
Weight	0.10 kg (0.23 lbs)	0.20 kg (0.44 lbs)	0.33 kg (0.73 lbs)
Input voltage	100 VAC – 240 VAC	100 VAC – 240 VAC	100 VAC – 240 VAC
Input frequency	50 Hz – 60 Hz	50 Hz – 60 Hz	50 Hz – 60 Hz
Input current (maximum)	1.70 A	1.70 A	1.70 A

**Table 38. Power adapter specifications (continued)**

Description	Option one	Option two	Option three
Output current (continuous)	<ul style="list-style-type: none"> <li>• 5 V/3 A</li> <li>• 9 V/3 A</li> <li>• 15 V/3 A</li> <li>• 20 V/3 A</li> </ul>	<ul style="list-style-type: none"> <li>• 5 V/3 A</li> <li>• 9 V/3 A</li> <li>• 15 V/3 A</li> <li>• 20 V/3.25 A</li> </ul>	<ul style="list-style-type: none"> <li>• 5 V/3 A</li> <li>• 9 V/3 A</li> <li>• 15 V/3 A</li> <li>• 20 V/5 A</li> </ul>
Rated output voltage	<ul style="list-style-type: none"> <li>• 5 VDC</li> <li>• 9 VDC</li> <li>• 15 VDC</li> <li>• 20 VDC</li> </ul>	<ul style="list-style-type: none"> <li>• 5 VDC</li> <li>• 9 VDC</li> <li>• 15 VDC</li> <li>• 20 VDC</li> </ul>	<ul style="list-style-type: none"> <li>• 5 VDC</li> <li>• 9 VDC</li> <li>• 15 VDC</li> <li>• 20 VDC</li> </ul>
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)
Storage	-20°C to 70°C (-4°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
 <b>CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.</b>			

## Accessories

The following table lists the supported accessories on your Latitude 7650.

**Table 39. Accessories**

Accessories
<p><b>Audio:</b></p> <ul style="list-style-type: none"> <li>Dell Premier Wireless ANC Headset</li> </ul>
<p><b>Adapters:</b></p> <ul style="list-style-type: none"> <li>• Dell 7-in-1 USB-C Multiport Adapter</li> <li>• Dell Mobile Adapter Speakerphone</li> </ul>
<p><b>Carrying case:</b></p> <ul style="list-style-type: none"> <li>• Dell EcoLoop Pro Backpack</li> <li>• Dell EcoLoop Pro Sleeve 11-14</li> <li>• Dell EcoLoop Pro Sleeve 15-16</li> <li>• Dell Premier Briefcase 15</li> <li>• Dell Premier Slim Backpack 15</li> </ul>
<p><b>Dock:</b></p> <ul style="list-style-type: none"> <li>Dell Thunderbolt 4 Dock</li> </ul>
<p><b>Mouse:</b></p> <ul style="list-style-type: none"> <li>Dell Premier Rechargeable Wireless Mouse</li> </ul>
<p><b>Keyboard:</b></p> <ul style="list-style-type: none"> <li>Dell Premier Multi-Device Wireless Keyboard and Mouse</li> </ul>
<p><b>Monitor:</b></p> <ul style="list-style-type: none"> <li>• Dell Collaboration 27 USB-C Hub Monitor</li> </ul>

**Table 39. Accessories (continued)**

<b>Accessories</b>
<ul style="list-style-type: none"> <li>Dell UltraSharp 27 4K USB-C Monitor</li> </ul>
<b>Webcam:</b> Dell UltraSharp Webcam
<b>Power bank:</b> Dell Notebook Power Bank Plus û USB C, 65 Wh

## Security

### Software security

The following table lists the software security details of your Latitude 7650.

**Table 40. Software security**

<b>Security options</b>
Dell Client Command Suite: On-prem
Dell Client Command Suite: Cloud
Dell Optimizer
Dell SupportAssist for PCs
Dell SupportAssist OS Recovery (Excalibur)
Dell SafeBIOS - Off Host Verification
Dell SafeBIOS - Indicators of Attack
Dell SafeID
VMware Carbon Black Endpoint Standard
VMware Carbon Black Endpoint Advanced
VMware Carbon Black Endpoint Enterprise
Absolute Visibility
Absolute Control
Absolute Resilience
Dell Encryption Personal
Dell Encryption Enterprise
Netskope Cloud Access Security Broker (CASB)
Netskope Secure Web Gateway
Netskope Private Access

## Dell Control Vault 3 +

The following table lists the Dell ControlVault 3.0 specifications of your Latitude 7650.

**Table 41. Dell Control Vault 3 + specifications**

Title	Description	Dell Control Vault 3 +
CPU technology	N/A	1 GHz ARM Cortex A7
RAM	N/A	1 MB
ROM	N/A	16 MB
TPM included	TPM enumeration included within Control vault +	No
Host Interface	N/A	USB 2.0
Fingerprint procession on chip	Fingerprint processing occurs within secure boundary of Control vault +	Yes
Windows WBF support	Support for Windows biometric framework when Fingerprint reader is attached	Yes
FIPS 140-2 level 3 complaint	Device complaint with FIPS 140-2 level 3 requirements	Yes
FIPS 140-2 level 3 certified	Device certified with FIPS 140-2 level 3 requirements	Yes

## Trusted Platform Module

The following table lists the Trusted Platform Module (TPM) of your Latitude 7650.

**Table 42. Trusted Platform Module (TPM)**

<b>TPM: ST/ST33 HTPH2X32AHE4</b>
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
Trusted Computing Group (TCG) certification for TPM

## System management features

Dell commercial systems come with a number of systems management options that are include by default for In-Band management with our Dell Client Command Suite. In-Band management meaning that the Operating System is functional and the device is connected to a network so that it can be managed. The Dell Client Command Suite of tools can be leveraged individually or with a systems management console like SCCM, LANDESK, KACE, etc.

We also offer Out-of-Band management as an option. Out-of-band management is when the system does not have a functional operating system or is turned off and you still want to be able to manage the system in that state.

## Dell Client Command Suite for in-band systems management

**Dell Client Command Suite** is a free toolkit available for download, for all Latitude Rugged tablets at [dell.com/support](http://dell.com/support), that automates and streamlines systems management tasks, saving time, money, and resources. It consists of the following modules that can be used independently, or with a variety of systems management consoles such as SCCM.

Dell Client Command Suite's integration with VMware Workspace ONE Powered by AirWatch, now allows customers to manage their Dell client hardware from the cloud, using a single Workspace ONE console.

**Dell Command | Deploy** enables easy operating system (OS) deployment across all major OS deployment methodologies and provides numerous system-specific drivers that have been extracted and reduced to an OS-consumable state.

**Dell Command | Configure** is a graphical user interface (GUI) admin tool for configuring and deploying hardware settings in a pre-OS or post-OS environment, and it operates seamlessly with SCCM and Airwatch and can be self-integrated into LANDesk and KACE. Simply, this is all about the BIOS. Command | Configure allows you to remotely automate and configure over 150+ BIOS settings for a personalized user experience.

**Dell Command | PowerShell Provider** can do the same things as Command | Configure, but with a different method. PowerShell is a scripting language that allows customers to create a customized and dynamic configuration process.

**Dell Command | Monitor** is a Windows Management Instrumentation (WMI) agent that provides IT admins with an extensive inventory of the hardware and health-state data. Admins can also configure hardware remotely by using command line and scripting.

**Dell Command | Update (end-user tool)** is factory-installed and allows admins to individually manage and automatically present and install Dell updates to the BIOS, drivers, and software. Command | Update eliminates the time-consuming hunting and pecking process of update installation.

**Dell Command | Update Catalog** provides searchable metadata that allows the management console to retrieve the latest system-specific updates (driver, firmware or BIOS). The updates are then delivered seamlessly to end-users using the customer's systems management infrastructure that is consuming the catalog (like SCCM).


**Dell Command | vPro Out of Band** console extends hardware management to systems that are offline or have an unreachable OS (Dell exclusive features).

**Dell Command | Integration Suite for System Center** - This suite integrates all the key components of the Client Command Suite into Microsoft System Center Configuration Manager 2012 and Current Branch versions.

## Out-of-band systems management

Intel Standard Manageability option **must be configured in our factory at the time of purchase, as it is NOT field upgradable**. It offers out-of-band management and DASH compliance ([https://registry.dmtf.org/registry/results/field\\_initiative\\_name%3A%22DASH%201.0%22](https://registry.dmtf.org/registry/results/field_initiative_name%3A%22DASH%201.0%22)).

## ComfortView Plus

 **WARNING: Prolonged exposure to blue light from the display may lead to long-term effects such as eye strain, eye fatigue, or damage to the eyes.**

Blue light is a color in the light spectrum which has a short wavelength and high energy. Chronic exposure to blue light, particularly from digital sources, may disrupt sleep patterns and cause long-term effects such as eye strain, eye fatigue, or damage to the eyes.

The display on this computer is designed to minimize blue light and complies with TÜV Rheinland's requirement for low blue light displays.

Low blue light mode is enabled at the factory, so no further configuration is necessary.

To reduce the risk of eye strain, it is also recommended that you:

- Position the display at a comfortable viewing distance between 20 and 28 inches (50 cm and 70 cm) from your eyes.
- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- Look away from your display, and gaze at a distant object at 20 ft (609.60 cm) away for at least 20 seconds during each break.
- Take an extended break for 20 minutes every two hours.

## Dell Optimizer

This section details the Dell Optimizer specifications of your Latitude 7650.

Dell Optimizer is a software application that intelligently optimizes the performance of your computer by using artificial intelligence and machine learning. Dell Optimizer dynamically configures your computer settings to optimize the performance of your applications. It improves the productivity, performance, and user experience through computer usage analysis and learning.

On Latitude 7650 with Dell Optimizer, the following features are supported:

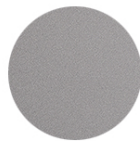
- Improves user experience through computer usage analysis and learning
- Faster application launch and seamless application transition
- Intelligent battery run-time extension
- Optimized Audio for best meeting experience
- Locks computer when walks away for enhanced security
- Faster computer wake-on-user approach
- Intelligently shows alerts
- Updates automatically to minimize disruption

For more information about configuring and using these features, search for the Dell Optimizer User Guide at [www.dell.com/support](http://www.dell.com/support).

## Color, material, and finish

This section details the color, material, and finish (CMF) specifications of your Latitude 7650.

### Mainstream



Ano Titan Gray

**Table 43. CMF specifications**

<b>Mainstream / Anodized Titan Gray</b>	
A cover	<ul style="list-style-type: none"> <li>• Aluminum + Stamping</li> <li>• Stamping + Bead blasting + Anodizing (&lt;0.5 R hard EDGE)</li> <li>• Ano Titan Gray BB Dull</li> <li>• Bead blasting 11+/-3 GU</li> </ul>
B Cover	<ul style="list-style-type: none"> <li>• Single-Shot Plastic (Apollo, Resin)</li> <li>• WB Painted: Basecoat + Velvet Top Coat</li> <li>• Apollo Velvet WPUST</li> <li>• 5+/-1.5 GU</li> </ul>



**Table 43. CMF specifications (continued)**

<b>Mainstream / Anodized Titan Gray</b>	
C cover	<ul style="list-style-type: none"> <li>● AL Stamping with Anodized</li> <li>● Stamping + Bead blasting + Anodizing + CNC drilled speaker holes + Print I/O Icons (&lt;0.5 R hard EDGE)</li> <li>● Ano Titan Gray BB Dull</li> <li>● Bead blasting 11+/-3 GU</li> </ul>
D Cover	<ul style="list-style-type: none"> <li>● Aluminum + Stamping</li> <li>● Stamping + Bead blasting + Anodizing (&lt;0.5 R hard EDGE) + Print Model Name</li> <li>● Ano Titan Gray BB Dull</li> <li>● Bead blasting 11+/-3 GU</li> </ul>

# Keyboard shortcuts of Latitude 7650

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

Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. The symbol that is shown on the lower part of the key refers to the character that is typed out when the key is pressed. If you press shift and the key, the symbol that is shown on the upper part of the key is typed out. For example, if you press **2**, **2** is typed out; if you press **Shift + 2**, **@** is typed out.

The keys F1-F12 at the top row of the keyboard are function keys for multimedia control, as indicated by the icon at the bottom of the key. Press the function key to invoke the task represented by the icon. For example, pressing F1 mutes the audio (refer to the table below).

However, if the function keys F1-F12 are needed for specific software applications, multimedia functionality can be disabled by pressing **Fn + Esc**. Later, multimedia control can be invoked by pressing **Fn** and the respective function key. For example, mute audio by pressing **Fn + F1**.

**NOTE:** You can also define the primary behavior of the function keys (F1–F12) by changing **Function Key Behavior** in BIOS setup program.

**Table 44. List of keyboard shortcuts**

Keyboard shortcut	Primary behavior
F1	Mute audio
F2	Decrease volume
F3	Increase volume
F4	Mute mic
F5	Click keyboard backlight (optional). <b>NOTE:</b> Non-backlight keyboards have the F10 function key without the backlight icon and do not support the toggle keyboard backlight function. <b>NOTE:</b> Toggle to cycle the keyboard backlight status through off, low-backlight, and high-backlight.
F6	Decrease brightness
F7	Increase brightness
F8	Win+P
F9	Null
F10	Print screen
F11	Home
F12	End

The **Fn** key is also used with selected keys on the keyboard to invoke other secondary functions.

**Table 45. Secondary behavior**

Keyboard shortcut	Secondary behavior
Fn + F1	Operating system and application-specific F1 behavior
Fn + F2	Operating system and application-specific F2 behavior

**Table 45. Secondary behavior (continued)**


Keyboard shortcut	Secondary behavior
Fn + F3	Operating system and application-specific F3 behavior
Fn + F4	Operating system and application-specific F4 behavior
Fn + F5	Operating system and application-specific F5 behavior
Fn + F6	Operating system and application-specific F6 behavior
Fn + F8	Operating system and application-specific F8 behavior
Fn + F9	Operating system and application-specific F9 behavior
Fn + F10	Operating system and application-specific F10 behavior
Fn + F11	Operating system and application-specific F11 behavior
Fn + F12	Operating system and application-specific F12 behavior
Fn + PrtScr	Turn off or on wireless
Fn + B	Pause or Break
Fn + Insert	Sleep
Fn + S	Toggle scroll lock
Fn + H	Toggle between power and battery-status light or hard drive activity light
Fn + R	System request
Fn + Ctrl	Open the application menu
Fn + Esc	Toggle Fn-key lock
Fn + PgUp	Page up
Fn + PgDn	Page down
Fn + Home	Home
Fn + End	End
Copilot	<p>Launch Copilot in Windows</p> <p><b>NOTE:</b> If Copilot in Windows is not available on your computer, the Copilot key launches Windows Search. For more information about Copilot in Windows, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>

# Getting help and contacting Dell

## Self-help resources


You can get information and help on Dell products and services using these self-help resources:


**Table 46. Self-help resources**

Self-help resources	Resource location
Information about Dell products and services	<a href="http://www.dell.com">www.dell.com</a>
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	<a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a> <a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a>
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at <a href="http://www.dell.com/support">www.dell.com/support</a> .  For more information about how to find the Service Tag for your computer, see <a href="#">Locate the Service Tag on your computer</a> .
Dell knowledge base articles	<ol style="list-style-type: none"> <li>1. Go to <a href="http://www.dell.com/support">www.dell.com/support</a>.</li> <li>2. On the menu bar at the top of the Support page, select <b>Support &gt; Support Library</b>.</li> <li>3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.</li> </ol>

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://www.dell.com/contactdell).

 **NOTE:** Availability of the services may vary depending on the country or region, and product.

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