Latitude 7650

Owner's Manual

Regulatory Model: P126F
Regulatory Type: P126F002
March 2024
Rev. A00

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.

Contents

1

Introduction

Welcome - Getting started

The Latitude 7650 field service manual enables the service technicians to accurately and effectively resolve customer inquiries and technical issues regarding this computer. The document informs the field service technicians of the proper steps for replacing hardware and also gives an overview of the system BIOS, features, and safety precautions.

To contact Dell regarding issues with this reference material, write to Educate@dell.com.

2

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 5 Gbps.

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 enables 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 one of the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at 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**

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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/diagnostic light**

   Indicates the battery-charge status.

   - Solid yellow-Battery charge is low.
   - Blinking yellow-Battery charge is critical.
   - Solid white-Battery is fully charged.

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**

   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 (ALS)**

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

6. **LCD panel**

   Provides visual output to the user.

Top

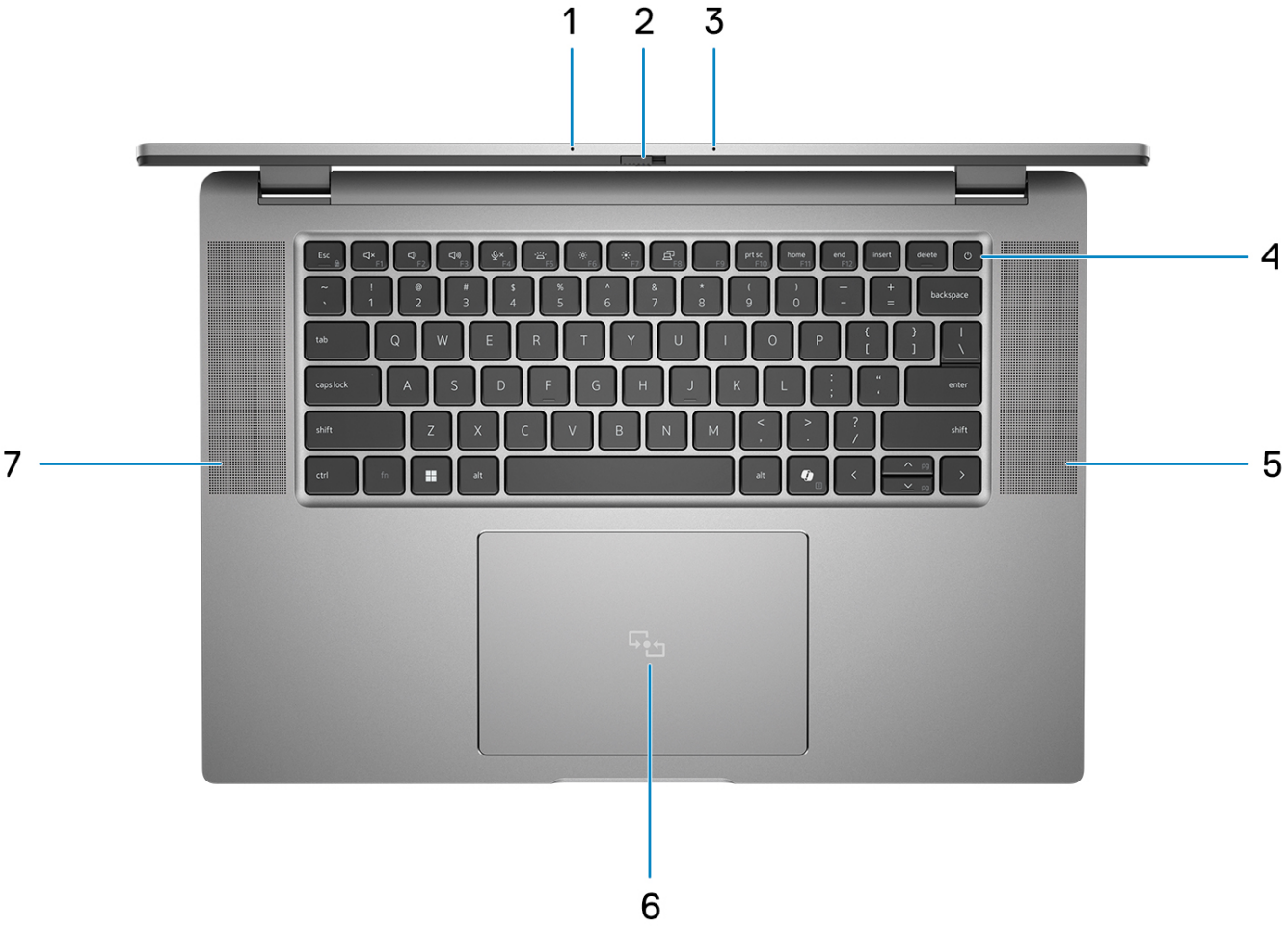

Figure 4. Image: Top view

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.

   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.

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

4. **Keyboard**
5. **Speaker**

   Provides audio output.

6. **Clickpad**

   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

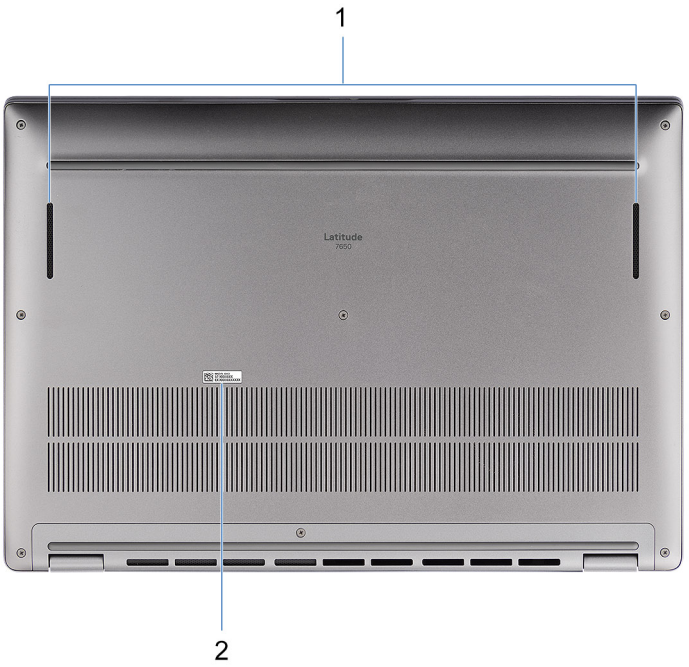

Figure 5. Image: Bottom view

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.

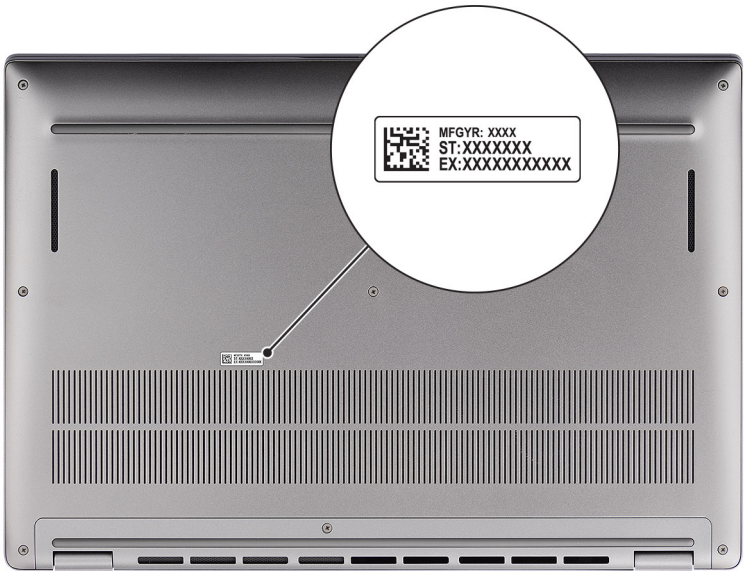

Figure 6. Image: Service Tag location

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.

3

Set up your Latitude 7650

About this task

NOTE: The images in this document may differ from your computer depending on the configuration you ordered.

Steps

1. Connect the power adapter and press the power button.

Figure 7. Connect the power adapter and press the power button

NOTE: The battery may go into power-saving mode during shipment to conserve charge on the battery. Ensure that the power adapter is connected to your computer when it is turned on for the first time.

2. Finish the operating system setup.

   For Ubuntu:

   Follow the on-screen instructions to complete the setup. For more information about installing and configuring Ubuntu, search in the Knowledge Base Resource at www.dell.com/support.

   For Windows:

   Follow the on-screen instructions to complete the setup. When setting up, Dell Technologies recommends that you:

   - Connect to a network for Windows updates.
     NOTE: If connecting to a secured wireless network, enter the password for the wireless network access when prompted.
   - If connected to the Internet, sign in with or create a Microsoft account. If not connected to the Internet, create an offline account.
   - On the **Support and Protection** screen, enter your contact details.

3. Locate and use Dell apps from the Windows Start menu—Recommended.

Table 2. Locate Dell apps in Windows in S-mode

Resources	Description
	**Dell Product Registration** Register your computer with Dell.
	**Dell Help & Support** Access help and support for your computer.
	**SupportAssist** SupportAssist proactively and predictively identifies hardware and software issues on your computer and automates the engagement process with Dell Technical support. It addresses performance and stabilization issues, prevents security threats, monitors, and detects hardware failures. For more information, see *SupportAssist for Home PCs User's Guide* at www.dell.com/support/home/product-support/product/dell-supportassist-pcs-tablets/docs. **NOTE:** In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

Table 3. Locate Dell apps in Windows

Resources	Description
	**Dell Command Update** Updates your computer with critical fixes and latest device drivers as they become available. For more information about using Dell Command Update, see the product guides and third-party license documents at www.dell.com/support.
	**Dell Digital Delivery** Download software applications, which are purchased but not preinstalled on your computer. For more information about using Dell Digital Delivery, search in the Knowledge Base Resource at www.dell.com/support.
	**SupportAssist** SupportAssist proactively and predictively identifies hardware and software issues on your computer and automates the engagement process with Dell Technical support. It addresses performance and stabilization issues, prevents security threats, monitors, and detects hardware failures. For more information, see *SupportAssist for Home PCs User's Guide* at www.dell.com/support/home/product-support/product/dell-supportassist-pcs-tablets/docs. **NOTE:** In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.

4

Specifications of Latitude 7650

Dimensions and weight

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

Table 4. 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 **NOTE:** 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 5. 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 5. 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 6. 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 7. Memory specifications

Description	Values
Memory slots	Onboard memory **NOTE:** The memory is not ungradable
Memory type	Dual-channel, LPDDR5x

Table 7. Memory specifications (continued)

Description	Values
Memory speed	6400 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	16 GB
Memory configurations supported	• 16 GB: LPDDR5x, 6400 MT/s, dual-channel • 32 GB: LPDDR5x, 6400 MT/s, dual-channel • 64 GB: LPDDR5x, 6400 MT/s, dual-channel

External ports

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

Table 8. External ports

Description	Values
USB ports	• Two Thunderbolt™ 4 with DisplayPort™ Alt Mode/USB Type-C/USB4/Power Delivery • Two USB 3.2 Gen 1 ports
Audio port	One Universal audio port
Video port/ports	One HDMI 2.1 port
Media-card reader	Not supported
Power-adapter 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 9. Internal slots

Description	Values
M.2	• One M.2 2230 slot for solid-state drive • One M.2 3042 slot for WWAN Card (optional) **NOTE:** To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at www.dell.com/support.

Wireless module

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

Table 10. 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	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax) • Wi-Fi 7 (WiFi 802.11be)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	Bluetooth 5.4 wireless card
	NOTE: 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 11. 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	• Up to 1 Gbps DL (Cat 12) • Up to 150 Mbps UL	• SA: DL 4.67 Gbps/UL 1.25 Gbps • NSA: DL 3.74 Gbps/UL 700 Mbps • LTE: DL 1.6 Gbps (CAT19)/UL 150 Mbps • UMTS: DL 384 kbps/UL 384 kbps DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)

Table 11. WWAN module specifications (continued)

Description	Option one	Option two
Operating Frequency Bands	• 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 • WCDMA/HSPA+ (1, 2, 4,5, 8)	• NR (n1, n2, n3, n5, n7, n8, n20, n25, n28, n30, n38, n40, n41, n48, n66, n71, n77, n78, n79) • 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) • WCDMA/HSPA+ (1, 2, 4, 5, 8)
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	• Normal operating temperature: -10°C to + 55°C (14°F to 131°F) • Extended Operating temperature: -20°C to + 65°C (-4°F to 149°F)	• Normal operating temperature: -10°C to + 55°C (14°F to 131°F) • Extended Operating temperature: -30°C to +75°C (-22°F to 167°F) • Storage temperature: -40°C to +85°C (-40°F to 185°F)
Antenna connector	• WWAN Main Antenna x 4 • Supports 4x4 MIMO	• WWAN Main Antenna x 4 • Supports 4x4 MIMO

NOTE: For instructions on how to find your computer's International Mobile Station Equipment Identity (IMEI) number, search in the Knowledge Base Resource at www.dell.com/support.

Audio

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

Table 12. 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 12. 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 13. 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 14. Keyboard specifications

Description	Values
Keyboard type	Battery-saving mini LED backlit AI hotkey keyboard **NOTE:** Copilot in Windows is available only in approved markets.
Keyboard layout	QWERTY
Number of keys	• United States and Canada: 79 keys • United Kingdom: 80 keys
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. **NOTE:** You can define the primary behavior of the function keys (F1–F12) changing **Function Key Behavior** in BIOS setup program.
Copilot	Launch Copilot in Windows **NOTE:** If Copilot in Windows is not available on your computer, the Copilot key launches Windows Search. For

Table 14. Keyboard specifications (continued)

Description	Values
	more information about Copilot in Windows, search in the Knowledge Base Resource at www.dell.com/support.

Camera

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

Table 15. 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 15. 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 16. Clickpad specifications

Description		Values
Clickpad resolution:		
	Horizontal	>300 dpi
	Vertical	
Clickpad dimensions:		
	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 support.microsoft.com.

Power adapter

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

Table 17. 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)		• 5 V/3 A • 9 V/3 A • 15 V/3 A • 20 V/3 A	• 5 V/3 A • 9 V/3 A • 15 V/3 A • 20 V/3.25 A	• 5 V/3 A • 9 V/3 A • 15 V/3 A • 20 V/5 A
Rated output voltage		• 5 VDC • 9 VDC • 15 VDC • 20 VDC	• 5 VDC • 9 VDC • 15 VDC • 20 VDC	• 5 VDC • 9 VDC • 15 VDC • 20 VDC
Temperature range:				
	Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)

Table 17. Power adapter specifications (continued)

Description		Option one	Option two	Option three
	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)

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.

Battery

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

Table 18. 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	• Charge: 0°C to 45°C (32°F to 113°F) • Discharge: 0°C to 70°C (32°F to 158°F)	• Charge: 0°C to 45°C (32°F to 113°F) • Discharge: 0°C to 70°C (32°F to 158°F)	• Charge: 0°C to 45°C (32°F to 113°F) • Discharge: 0°C to 70°C (32°F to 158°F)	• Charge: 0°C to 45°C (32°F to 113°F) • Discharge: 0°C to 70°C (32°F to 158°F)
	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) **NOTE:** Control the charging time, duration, start and end time, and so on using the Dell Power		**Express Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours	**Express Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours	**Express Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours	**Express Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours

Table 18. Battery specifications (continued)

Description	Option one	Option two	Option three	Option four
Manager application. For more information about Dell Power Manager, search in the Knowledge Base Resource at www.dell.com/support.	• 16 - 45°C normal express charge • 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours **Standard Charge/ Predominately AC User Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours • 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours **Express Charge Boost Charge Method (Fast Charge for Initial 35%):** • 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	• 16 - 45°C normal express charge • 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours **Standard Charge/ Predominately AC User Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours • 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours **Express Charge Boost Charge Method (Fast Charge for Initial 35%):** • 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	• 16 - 45°C normal express charge • 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours **Standard Charge/ Predominately AC User Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours • 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours	• 16 - 45°C normal express charge • 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours **Standard Charge/ Predominately AC User Charge Method:** • 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours • 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours
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

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.

CAUTION: 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.

Display

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

Table 19. 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.)

Table 19. Display specifications (continued)

Description	Values
Display-panel native resolution	1920 x 1200
Luminance (typical)	250 nit
Megapixels	2.30
Color gamut	45% NTSC
Pixels Per Inch (PPI)	141.5 ppi
Contrast ratio (minimum)	800:1
Response time (maximum)	35 ms
Refresh rate	60 Hz
Horizontal view angle	• 85 degrees (typical) • 80 degrees (min)
Vertical view angle	• 85 degrees (typical) • 80 degrees (min)
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.

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

Table 20. 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	• X: 108 • Y: 88	• X: 96 • Y: 96

Sensor

The following table lists the sensor of your Latitude 7650.

Table 21. Sensor

Sensor support
Accelerometer (ST Micro **LIS2DW12TR**): On the base (system board)
Accelerometer (ST Micro **LIS2DW12TR**): 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

Table 21. Sensor (continued)

Sensor support
Hall Effect Sensor

GPU—Integrated

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

Table 22. 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 23. 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 24. 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 25. 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 www.emvco.com	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 25. 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 26. 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 27. 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 27. 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 28. 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.