

# Precision 3640 Tower

## Setup and Specifications

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## 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.

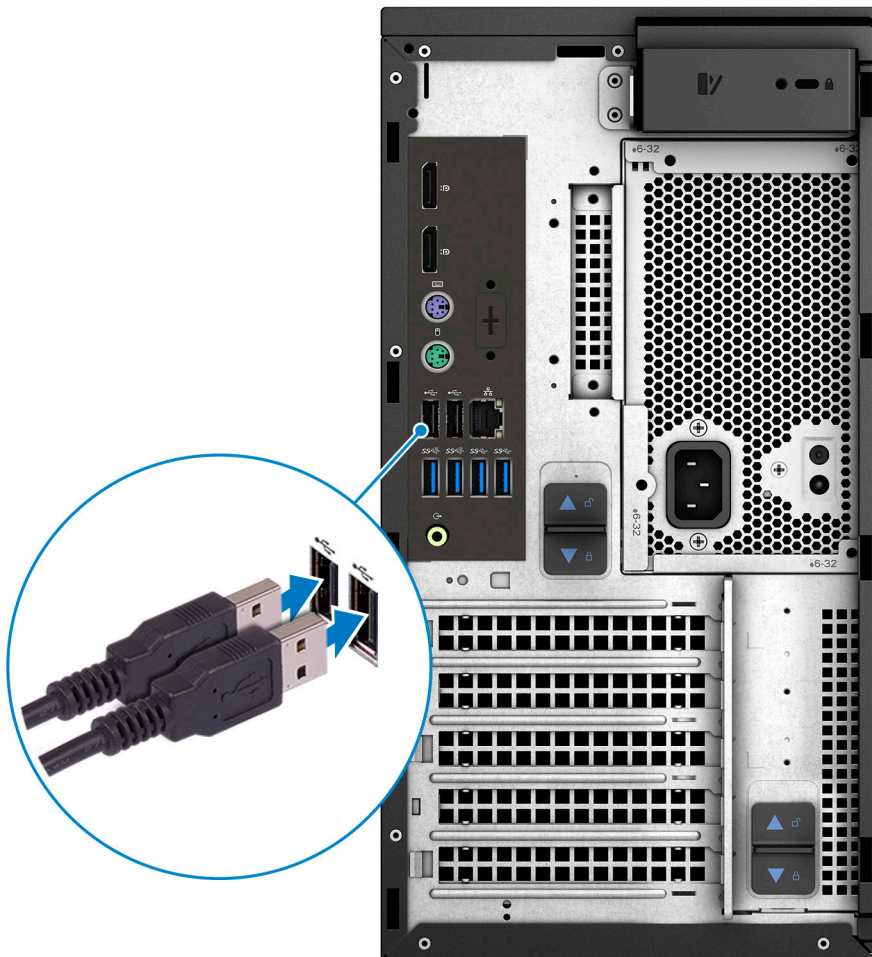
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# Set up your computer

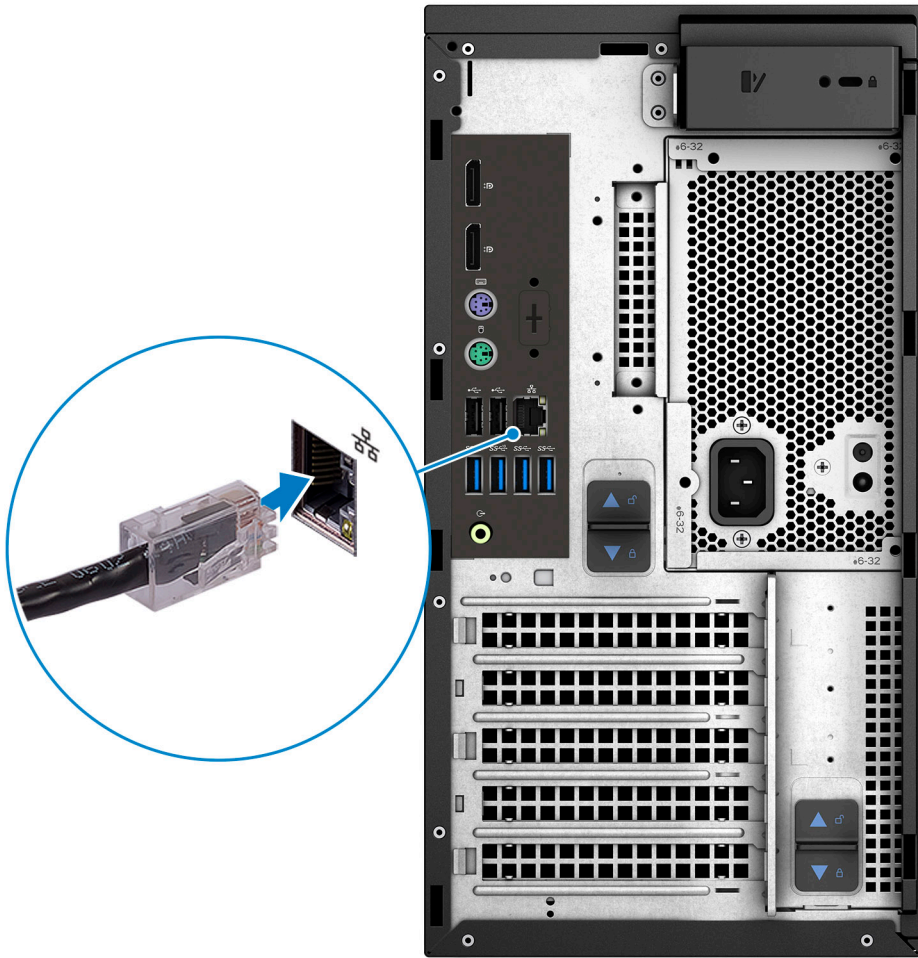
## Steps

1. Connect the keyboard and mouse.



2. Connect to your network using a cable, or connect to a wireless network.

**i** **NOTE:** The wireless network card is optional and needs to be purchased separately.

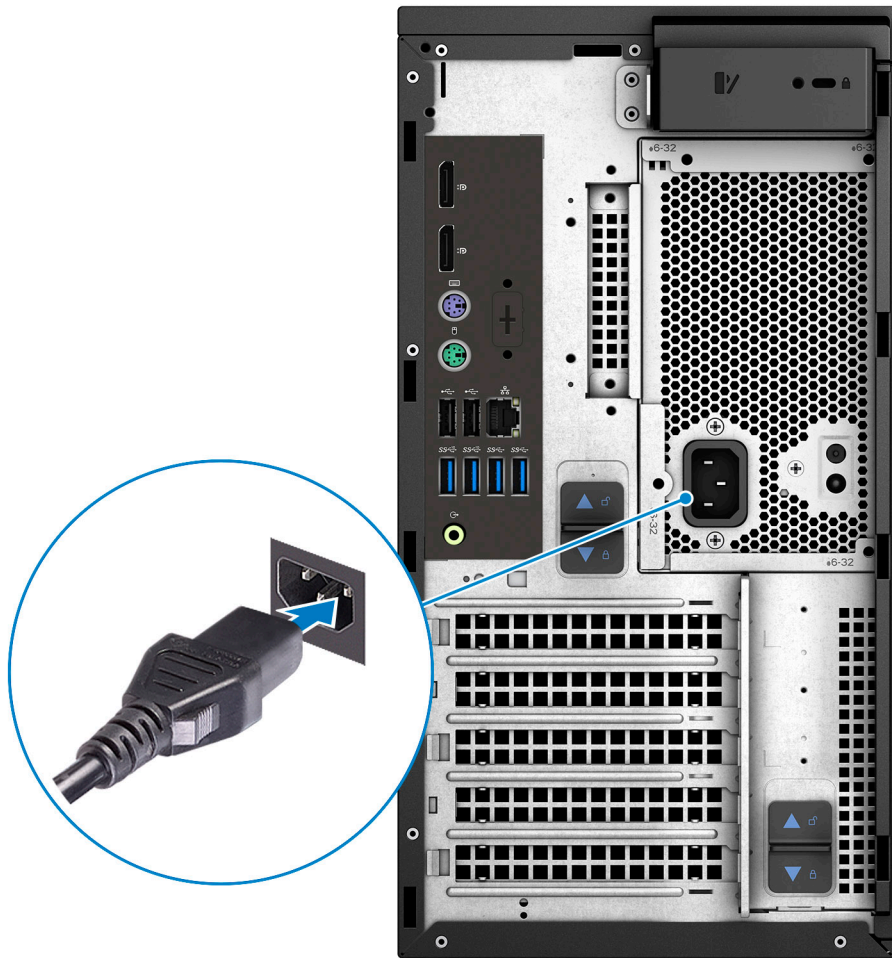


3. Connect the display.



**NOTE:** If you ordered your computer with a discrete graphics card, the HDMI and the display ports on the back panel of your computer are covered. Connect the display to the discrete graphics card.

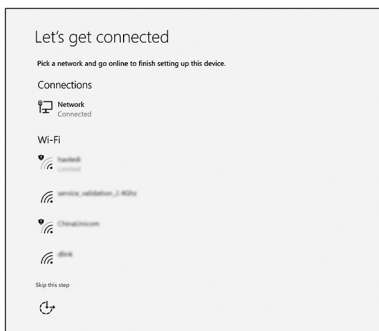
4. Connect the power cable.



5. Press the power button.



6. Follow the instructions on the screen to finish Windows setup:
  - a. Connect to a network.



- b. Sign-in to your Microsoft account or create a new account.



Make it yours

Your Microsoft account opens a world of benefits. [Learn more](#)

Email or phone

Password

[Forgot my password](#)



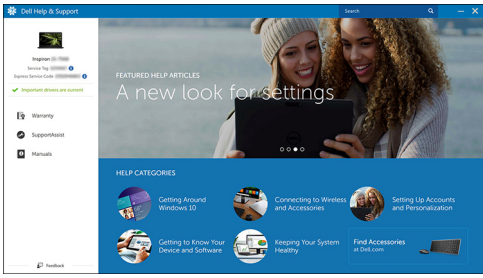

No account? [Create one!](#)

[Microsoft privacy statement](#)

[Sign in](#)

7. Locate Dell apps.

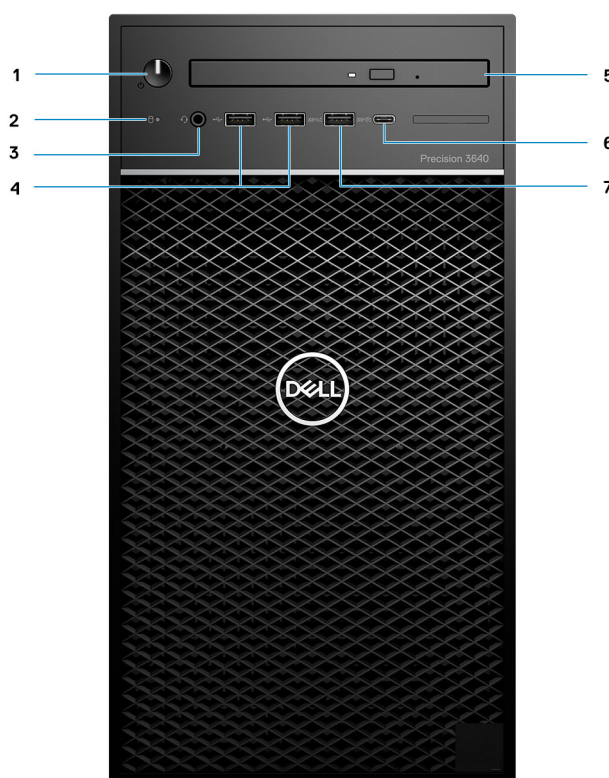
**Table 1. Locate Dell apps**

Icons	Functions
	Register your computer
	Dell Help & Support 
	SupportAssist — Check and update your computer

## Chassis

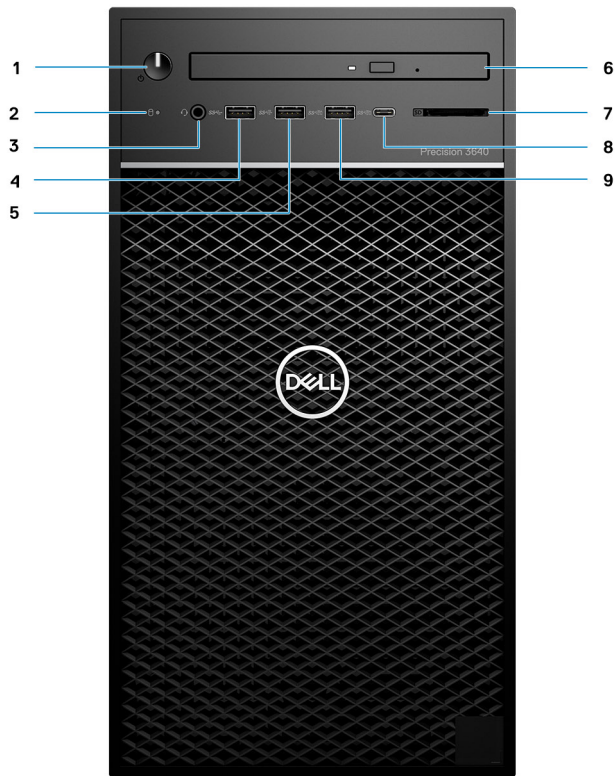
This chapter illustrates the multiple chassis views along with the ports and connectors and also explains the FN hot key combinations.

### Front view



**Figure 1. Front view with standard I/O configuration**

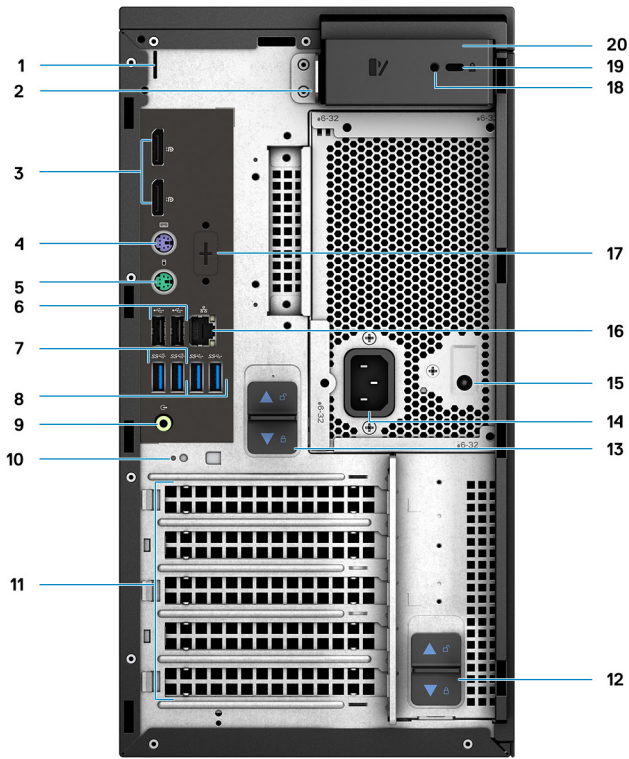
1. Power button/Diagnostics indicator
2. Hard drive activity LED
3. 3.5 mm stereo headset/mic combo
4. 2x USB 2.0 Type-A ports
5. Optical drive/CAC Reader (Optional)
6. USB 3.2 Type C Gen2 (10 Gbps), with PowerShare
7. USB 3.2 Type A Gen1 (5 Gbps), with PowerShare



**Figure 2. Front view with advanced I/O configuration**

1. Power button/Diagnostics indicator
2. Hard drive activity LED
3. 3.5 mm stereo headset/mic combo
4. USB 3.2 Type A Gen1 (5 Gbps)
5. USB 3.2 Type A Gen2 (10 Gbps)
6. Optical drive/CAC Reader (Optional)
7. Media card reader
8. USB 3.2 Type C Gen2 (10 Gbps), with PowerShare
9. USB 3.2 Type A Gen2 (10 Gbps), with PowerShare

# Back view



- |   |  |
|---|--|
| 1. Cable cover slot   | 2. Padlock loop                                |
| 3. 2x DisplayPort 1.4   | 4. PS/2 port (Keyboard)                        |
| 5. PS/2 port (Mouse)  | 6. 2x USB 2.0 Type-A ports with Smart Power On |
| 7. 2x USB 3.2 Type A Gen2 (10 Gbps)                               | 8. 2x USB 3.2 Type A Gen1 (5 Gbps)             |
| 9. Line-out re-tasking Line-in audio port                         | 10. Cable hook slot                            |
| 11. PCIe Expansion slots (Placeholder)                            | 12. PSU hinge release latch                    |
| 13. PSU release latch   | 14. Power port                                 |
| 15. PSU Built in Self Test (BIST) LED                             | 16. Ethernet port                              |
| 17. Placeholder for optional VGA, DP, HDMI, Type-C daughterboards | 18. Security screw                             |
| 19. Kensington Cable lock   | 20. Cover release latch                        |

# Specifications of Precision 3640 Tower

## Dimensions and weight

**Table 2. Dimensions and weight**

Description	Values
Height	13.19 in. (335.0 mm)
Width	6.95 in. (176.6 mm)
Depth	13.58 in. (345.0 mm)
Weight (approximate)	23.37 lb (10.6 kg)
<b>i NOTE:</b> The weight of your system unit varies depending on the configuration ordered and the manufacturing variability.	

## Processors

**i NOTE:** Global Standard Products (GSP) are a subset of Dell's relationship products that are managed for availability and synchronized transitions on a worldwide basis. They ensure the same platform is available for purchase globally. This allows customers to reduce the number of configurations managed on a worldwide basis, thereby reducing their costs. They also enable companies to implement global IT standards by locking in specific product configurations worldwide.

Device Guard (DG) and Credential Guard (CG) are the new security features that are only available on Windows Enterprise operating system today. Device Guard is a combination of enterprise-related hardware and software security features. When you configure together, it locks a device down so that it can only run trusted applications. Credential Guard uses virtualization-based security to isolate secrets (credentials) so that only privileged system software can access them. Unauthorized access to these secrets can lead to credential theft attacks. Credential Guard prevents these attacks by protecting NT LAN Manager (NTLM) password hashes and Kerberos Ticket Granting Tickets.

**i NOTE:** Processor numbers are not a measure of performance. Processor availability is subject to change and may vary by region/country.

**Table 3. Processors**

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics
10 <sup>th</sup> Generation Intel Core i3-10100, DDR4 2666	65 W	4	8	3.6 GHz to 4.3 GHz	6 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i5-10500, DDR4 2666	65 W	6	12	3.1 GHz to 4.5 GHz	12 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i5-10600, DDR4 2666	65 W	6	12	3.3 GHz to 4.8 GHz	12 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i5-10600K, DDR4 2666	125 W	6	12	4.1 GHz to 4.8 GHz	12 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i7-10700, DDR4 2933	65 W	8	16	2.9 GHz to 4.8 GHz	16 MB	Intel UHD Graphics 630

**Table 3. Processors (continued)**

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics
10 <sup>th</sup> Generation Intel Core i7-10700K, DDR4 2933	125 W	8	16	3.8 GHz to 5.1 GHz	16 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i9-10900, DDR4 2933	65 W	10	20	2.8 GHz to 5.2 GHz	20 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i9-10900K, DDR4 2933	125 W	10	20	3.7 GHz to 5.3 GHz	20 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Xeon W-1250, DDR4 2666	80 W	6	12	3.3 GHz to 4.7 GHz	12 MB	Intel UHD Graphics P630
10 <sup>th</sup> Generation Intel Xeon W-1250P, DDR4 2666	125 W	6	12	4.1 GHz to 4.8 GHz	12 MB	Intel UHD Graphics P630
10 <sup>th</sup> Generation Intel Xeon W-1270, DDR4 2933	80 W	8	16	3.4 GHz to 5.0 GHz	16 MB	Intel UHD Graphics P630
10 <sup>th</sup> Generation Intel Xeon W-1270P, DDR4 2933	125 W	8	16	3.8 GHz to 5.1 GHz	16 MB	Intel UHD Graphics P630
10 <sup>th</sup> Generation Intel Xeon W-1290, DDR4 2933	80 W	10	20	3.2 GHz to 5.2 GHz	20 MB	Intel UHD Graphics P630
10 <sup>th</sup> Generation Intel Xeon W-1290P, DDR4 2933	125 W	10	20	3.7 GHz to 5.3 GHz	20 MB	Intel UHD Graphics P630

**NOTE:**

- Intel Core i3, i5, and Xeon 1250, 1250P support up to 2666 MHz memory operating speed.
- Intel Core i7, i9, and Xeon 1270, 1270P, 1290, 1290P support up to 2933 MHz memory operating speed.

## Chipset

**Table 4. Chipset**

Description	Values
Chipset	Comet Lake PCH-H W480
Processor	10 <sup>th</sup> Intel Comet Lake Core i3/i5/i7/i9 and Xeon CPU
DRAM bus width	64-bit
PCIe bus	Up to Gen 3.0

## Operating system

Your Precision 3640 Tower supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Pro, 64-bit
- Windows 11 Pro National Academic, 64-bit
- Windows 11 Pro for Workstations, 64-bit
- Windows 10 Home, 64-bit
- Windows 10 Pro, 64-bit
- Windows 10 Pro National Academic, 64-bit
- Windows 10 Enterprise, 64-bit \*

- Windows 10 Pro for Workstation, 64-bit
- RHEL 8.4
- Ubuntu 20.04 LTS, 64-bit
- Neokylin 10

**i** **NOTE:** Asterisk(\*): means that "Only supported on systems with Xeon W Series CPUs.

## Memory

**Table 5. Memory specifications**

Description	Values
Slots	Four DIMM slots
Type	DDR4 DRAM ECC or non-ECC memory
Speed	2666 MHz or 2933 MHz <b>i</b> <b>NOTE:</b> 2933 MHz for Intel Core i7, i9 or, Xeon 1270, 1270P, 1290, 1290P processors.
Maximum memory	128 GB
Minimum memory	8 GB
Memory per slot	<ul style="list-style-type: none"> <li>• 4 GB, 8 GB, 16 GB and, 32 GB</li> </ul>
Configurations supported:	<ul style="list-style-type: none"> <li>• 128 GB: 4 x 32 GB, UDIMM, ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 64 GB: 2 x 32 GB or 4 x 16 GB, UDIMM, ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 32 GB: 2 x 16 GB or 4 x 8 GB or 1 x 32 GB, UDIMM, ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 16 GB: 2 x 8 GB, 1 x 16 GB, UDIMM, ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 8 GB: 1 x 8 GB, 2 x 4 GB, UDIMM, ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 128 GB: 4 x 32 GB, UDIMM, non-ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 64 GB: 2 x 32 GB or 4 x 16 GB, UDIMM, non-ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 32 GB: 4 x 8 GB, 1 x 32 GB, 2 x 16 GB, UDIMM, non-ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 16 GB: 4 x 4 GB, 2 x 8 GB, UDIMM, non-ECC, 2933 MHz, or 2666 MHz depending on processor</li> <li>• 8 GB: 1 x 8 GB, 2 x 4 GB, UDIMM, non-ECC, 2933 MHz, or 2666 MHz depending on processor</li> </ul> <p><b>i</b> <b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• Intel Core i3, i5, and Xeon 1250, 1250P support up to 2666 MHz memory operating speed.</li> <li>• Intel Core i7, i9, and Xeon 1270, 1270P, 1290, 1290P support up to 2933 MHz memory operating speed.</li> </ul> <p><b>i</b> <b>NOTE:</b> A multiple DIMM memory option is recommended to prevent any performance reduction. If the computer configuration includes integrated graphics, consider selecting 2 or more DIMMs.</p>


# Ports and connectors

**Table 6. Ports and connectors**

Description	Values
Network	One RJ-45 Network connector
Front USB	<p><b>i</b> <b>NOTE:</b> Front I/O offerings are tied with chassis (PSU) selection and are different based on region. Precision 3640 Tower has two Front I/O offerings: Standard and Advanced Front I/O</p> <p><b>Standard Front I/O USB ports:</b></p> <ul style="list-style-type: none"> <li>● Two USB 2.0 Type A</li> <li>● One USB 3.2 Type A Gen1, with PowerShare</li> <li>● One USB 3.2 Type C Gen2, with PowerShare</li> </ul> <p><b>Advanced Front I/O USB ports:</b></p> <ul style="list-style-type: none"> <li>● One USB 3.2 Type A Gen1</li> <li>● One USB 3.2 Type A Gen2</li> <li>● One USB 3.2 Type A Gen2, with PowerShare</li> <li>● One USB 3.2 Type C Gen2, with PowerShare</li> </ul> <p><b>i</b> <b>NOTE:</b> PowerShare delivers power only while the system is in S3 (Standby) state. The S4/S5 (Hibernate or Powered down) sleep states are not supported.</p>
Back USB	<ul style="list-style-type: none"> <li>● Two USB 2.0 Type A (with SmartPower)</li> <li>● Two USB 3.2 Type A Gen2</li> <li>● Two USB 3.2 Type A Gen1</li> </ul>
Audio	<ul style="list-style-type: none"> <li>● One 3.5 mm headphone jack (Front)</li> <li>● One Line-out re-tasking Line-in audio port (Back)</li> </ul>
Memory card reader	<p><b>i</b> <b>NOTE:</b> SD Media card reader is only included with Advanced Front I/O configuration.</p> <p>Push-Pull type with USB 3.0 interface and WORM (Write Once Read Many) support.</p>
Video	<ul style="list-style-type: none"> <li>● Two DisplayPort 1.4</li> <li>● One Optional Port (VGA or HDMI 2.0 or DP1.4 or USB Type C with DP-Alt mode)</li> </ul> <p><b>i</b> <b>NOTE:</b> Download and install the latest Intel Graphics driver from <a href="http://www.dell.com/support">www.dell.com/support</a> to enable multiple displays.</p>
Serial	Two PS2 (Legacy for keyboard and mouse)
<b>Internal</b>	
Expansion	<ul style="list-style-type: none"> <li>● One Full-height Gen 3 PCIe x16 slot</li> <li>● One Full-height Gen 3 PCI slot</li> <li>● One Full-height Gen 3 PCIe x4 slot</li> </ul>
M.2	<ul style="list-style-type: none"> <li>● One M.2 2230 PCIe x1 slot, keyed E for WiFi and Bluetooth card</li> <li>● One M.2 2280 PCIe x4, keyed M for solid-state drive</li> <li>● One M.2 2280 PCIe x4 and SATA slot, keyed M for solid-state drive</li> </ul>



**Table 6. Ports and connectors (continued)**

Description	Values
	 <b>NOTE:</b> To learn more about the features of different types of M.2 cards, see the knowledge base article at <a href="https://www.dell.com/support/article/sln301626/">https://www.dell.com/support/article/sln301626/</a> .

## Communications

### WLAN module

**Table 7. Wireless module specifications**

Description	Values	
Model number	Qualcomm QCA61x4A (DW1820)	Intel Wi-Fi 6, AX201, 2x2, 802.11ax with Bluetooth 5.1
Transfer rate	867 Mbps	2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 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> </ul>	<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 6 (WiFi 802.11ax)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>• 64-bit/128-bit WEP</li> <li>• AES-CCMP</li> <li>• TKIP</li> </ul>	<ul style="list-style-type: none"> <li>• 64-bit/128-bit WEP</li> <li>• AES-CCMP</li> <li>• TKIP</li> </ul>
Bluetooth	Bluetooth 4.2	Bluetooth 5.1

### Ethernet

**Table 8. Ethernet specifications**

Description	Values
Model number	Intel WGI219LM
Transfer rate	10/100/1000 Mbps

## Audio

**Table 9. Audio specifications**

Description	Values
Type	Universal type
Controller	Realtek ALC3246
Internal interface	High Definition audio
External interface	<ul style="list-style-type: none"> <li>• Universal 3.5 mm headphone jack (Front)</li> <li>• Line-out re-tasking Line-in audio port</li> </ul>

# Storage

## Primary storage

Precision 3640 supports up to 4x 2.5" HDD or up to 3x 3.5" HDD. Also, Precision 3640 supports up to 3x M.2 NVMe SSDs. (2x via M.2 2280 slots on motherboard and 1x via Dell Ultra Speed Drive)

Your computer supports one or any combination of the following storage configurations:

- 4x 2.5 inch SATA hard-disk drive or
- 3x 3.5 inch SATA hard-disk drive and
- 2x M.2 2280 NVMe solid-state drive (class 40 or 50)

**i** **NOTE:** 1x 2280 NVMe SSD on optional PCIe SSD M.2 Interposer Card (Dell Ultra Speed Drive).

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

- with a M.2 drive, the M.2 drive is the primary drive
- without a M.2 drive, the 2.5-inch/3.5-inch hard drive is the primary hard drive

**Table 10. Primary Storage specifications**

Storage type	Interface type	Capacity
2.5 in. hard disk drive, 5400 RPM	SATA AHCI, upto 6 Gbps	up to 2 TB
2.5 in. hard disk drive, 7200 RPM	SATA AHCI, upto 6 Gbps	Up to 1 TB
3.5 in. hard disk drive, 5400 RPM	SATA AHCI, upto 6 Gbps	4 TB
3.5 in. hard disk drive, 7200 RPM	SATA AHCI, upto 6 Gbps	Up to 2 TB
3.5 in. hard disk drive, 7200 RPM Enterprise	SATA AHCI, upto 6 Gbps	Up to 8 TB
2.5 in. hard-disk drive, 7200 RPM, FIPS Self Encrypting	SATA AHCI, upto 6 Gbps	500 GB
M.2 2280, PCIe x4 Gen 3 NVMe, Class 40 solid-state drive	NVMe 3.0 PCIe x4	Up to 2 TB
M.2 2280, PCIe x4 Gen 3 NVMe, Class 50 solid-state drive	NVMe 3.0 PCIe x4	Up to 1 TB
M.2 2280, PCIe x4 Gen 3 NVMe, Class 50 solid-state drive Self Encrypting Opal 2.0	NVMe 3.0 PCIe x4	Up to 1 TB

**i** **NOTE:** 3640 ships with only the required number of HDD bays (blue plastic carriers) and SATA cables according to the ordered configurations. To install additional HDDs, extra HDD bays and SATA cables are available via Customer Kits. Please refer the service manual or get in touch with our Sales Specialists if you need further advise on installing hard drives after purchasing the system.

## Optical Disk Drive (ODD)

**Table 11. 8x Optical Disk 9.5mm Drive DVD +/- R/W**

Description	Values		
Type	8x Optical Disk 9.5 mm Drive DVD +/- R/W	8x Optical Disk 9.5 mm Drive DVD ROM	6x BluRay 9.5 mm Drive DVD/CD/BD +/- R/W
External dimensions without bezel (W x H X D)	128.0 mm (5.04 in.)/ 9.5 mm (0.37 in.)/ 126.1 mm (4.97 in.)	128.0 mm (5.04 in.)/ 9.5 mm (0.37 in.)/ 126.1 mm (4.97 in.)	128.0 mm (5.04 in.)/ 9.5 mm (0.37 in.)/ 126.1 mm (4.97 in.)
Weight (max)	140 g (0.39 lb)	140 g (0.39 lb)	140 g (0.39 lb)
Interface type and speed	SATA 1.5 Gb/s	SATA 1.5 Gb/s	SATA 1.5 Gb/s

**Table 11. 8x Optical Disk 9.5mm Drive DVD +/- R/W (continued)**

Description	Values		
Disc capacity	Standard	Standard	Standard
Internal buffer size	0.5 MB	0.5 MB	4 MB
Access time (typical)	Supplier dependent	Supplier dependent	Supplier dependent
<b>Maximum data transfer rates</b>			
Writes	8x DVD/24x CD	Not applicable	8x DVD/24x CD/ 6x BD
Reads	8x DVD/24x CD	8x DVD/24x CD	8x DVD/24x CD/ 6x BD
<b>Power source</b>			
DC power requirement	5 V	5 V	5 V
DC current	1300 mA	1300 mA	1300 mA
<b>Environmental Operating Conditions (Non-Condensing):</b>			
Operating Temperature Range	5°C to 50°C	5°C to 50°C	5°C to 50°C
Relative Humidity Range	10% to 90% RH	10% to 90% RH	10% to 90% RH
Maximum Wet Bulb Temperature	29°C	29°C	29°C
Altitude Range	0 m to 3048 m	0 m to 3048 m	0 m to 3048 m
<b>Environmental Non-Operating Conditions (Non-Condensing):</b>			
Operating Temperature Range	-40°C to 65°C	-40°C to 65°C	-40°C to 65°C
Relative Humidity Range	5% to 95% RH	5% to 95% RH	5% to 95% RH
Maximum Wet Bulb Temperature	38°C	38°C	38°C
Altitude Range	0 m to 10600 m	0 m to 10600 m	0 m to 10600 m

## Media-card reader

**Table 12. Media-card reader specifications**

Description	Values
Type	SD 4.0 Media card reader, Push-Pull Type with WORM support (Optional)
Cards supported	<ul style="list-style-type: none"> <li>• SDHC</li> <li>• SDXC</li> </ul>

# Power supply unit

**Table 13. Power supply unit specifications**

Description	Values				
	ATX 300 W Bronze	ATX 300 W Gold	ATX 460 W Gold	ATX 550 W Gold	ATX 1000 W Gold
Type	ATX 300 W Bronze	ATX 300 W Gold	ATX 460 W Gold	ATX 550 W Gold	ATX 1000 W Gold
Input voltage	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC	90 VAC to 264 VAC
Input frequency	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz
Input current (maximum)	6 A	6 A	6 A	6 A	<ul style="list-style-type: none"> <li>100 V - 240 V : 12 A</li> <li>220 V - 240 V: 6A</li> </ul>
Output current (continuous)	<ul style="list-style-type: none"> <li>5.1 V /13 A</li> <li>12 VA1/16.5 A</li> <li>12 VA2/16.5 A</li> <li>12 VB/16 A</li> <li>3.3 V/10 A</li> <li>5.1 Vaux/4 A</li> </ul>	<ul style="list-style-type: none"> <li>5.1 V /13 A</li> <li>12 VA1/16.5 A</li> <li>12 VA2/16.5 A</li> <li>12 VB/16 A</li> <li>3.3 V/10 A</li> <li>5.1 Vaux/4 A</li> </ul>	<ul style="list-style-type: none"> <li>5.1 V /20 A</li> <li>12 VA1/18 A</li> <li>12 VA2/18 A</li> <li>12 VB/16 A</li> <li>12 VC/18 A</li> <li>3.3 V/15 A</li> <li>5.1 Vaux/4 A</li> </ul>	<ul style="list-style-type: none"> <li>5.1 V /20 A</li> <li>12 VA1/18 A</li> <li>12 VA2/18 A</li> <li>12 VB/16 A</li> <li>12 VC1/18 A</li> <li>12 VC2/18 A</li> <li>3.3 V/15 A</li> <li>5.1 Vaux/4 A</li> </ul>	<ul style="list-style-type: none"> <li>12 VA / 42 A</li> <li>12 VB / 52 A</li> <li>12 D / 16 A</li> <li>3.3 V / 20 A</li> <li>5.1 V / 20 A</li> <li>-12 V / 0.5 A</li> <li>5.1 Vaux / 4 A</li> </ul>
Rated output voltage	<ul style="list-style-type: none"> <li>5.1 V</li> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> <li>3.3 V</li> <li>5.1 Vaux</li> </ul>	<ul style="list-style-type: none"> <li>5.1 V</li> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> <li>3.3 V</li> <li>5.1 Vaux</li> </ul>	<ul style="list-style-type: none"> <li>5.1 V</li> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> <li>12 VC</li> <li>3.3 V</li> <li>5.1 Vaux</li> </ul>	<ul style="list-style-type: none"> <li>5.1 V</li> <li>12 VA1</li> <li>12 VA2</li> <li>12 VB</li> <li>12 VC1</li> <li>12 VC2</li> <li>3.3 V</li> <li>5.1 Vaux</li> </ul>	<ul style="list-style-type: none"> <li>12 VA</li> <li>12 VB</li> <li>12 D</li> <li>3.3 V</li> <li>5.1 V</li> <li>-12 V</li> <li>5.1 Vaux</li> </ul>
Temperature range:					
Operating	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)	5°C to 45°C (41°F to 113°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

## Video

**Table 14. Integrated graphics specifications**

Integrated graphics			
Controller	External display support	Memory size	Processor
Intel UHD Graphics 630	<ul style="list-style-type: none"> <li>Two DisplayPort</li> <li>VGA/ USB Type-C Alt mode/HDMI</li> </ul>	Shared system memory	10 <sup>th</sup> Generation Intel Core i5/ i7/i9 processors
Intel UHD Graphics P630	<ul style="list-style-type: none"> <li>Two DisplayPort</li> <li>VGA/ USB Type-C Alt mode/HDMI</li> </ul>	Shared system memory	10 <sup>th</sup> Generation Intel Xeon W-series processors

**Table 15. Discrete graphics specifications**

<b>Discrete graphics</b>			
<b>Controller</b>	<b>External display support</b>	<b>Memory size</b>	<b>Memory Type</b>
NVIDIA Quadro RTX 5000	<ul style="list-style-type: none"> <li>• Four DisplayPort</li> <li>• One USB Type-C port</li> </ul>	16 GB	DDR6
NVIDIA Quadro P2200	<ul style="list-style-type: none"> <li>• Four DisplayPort</li> </ul>	5 GB	DDR5X
NVIDIA Quadro P1000	<ul style="list-style-type: none"> <li>• Four mini-DisplayPort</li> </ul>	4 GB	DDR5
NVIDIA Quadro P620	<ul style="list-style-type: none"> <li>• Four mini-DisplayPort</li> </ul>	2 GB	DDR5
NVIDIA Quadro P400	<ul style="list-style-type: none"> <li>• Three mini-DisplayPort</li> <li>• One USB Type-C port</li> </ul>	2 GB	DDR5
AMD Radeon Pro W5700	<ul style="list-style-type: none"> <li>• Five mini-DisplayPort</li> <li>• One USB Type-C port</li> </ul>	8 GB	DDR6
AMD Radeon PRO W5500	<ul style="list-style-type: none"> <li>• Four DisplayPort</li> </ul>	8 GB	DDR6
AMD Radeon Pro WX3200	<ul style="list-style-type: none"> <li>• Four mini-DisplayPort</li> </ul>	4 GB	DDR5X

## Add-in cards

**Table 16. Add-in cards**

<b>Add-in cards</b>
Thunderbolt PCIe Add-In Card
Dell Ultra-Speed Drive
PCIe card with serial and parallel port, Full Height
Serial port add-in card (PCIe)
Intel I210 1Gb Ethernet Adapter (1X1GbE)
Aquantia AQtion AQN-108 5/2.5 GbE NIC Adapter (Full Height)
Intel Ethernet Converged Network Adapter X550-T2
USB 3.2 Type C PCIe add-in card

## Security

**Table 17. Security**

<b>Security options</b>	<b>Dell Precision Tower 3640</b>
Cable lock	Supported
Padlock	Supported
Lockable port cover	Optional
Chassis Intrusion Switch	Standard
Dell Smartcard Keyboard	Optional

# Regulatory

**Table 18. Regulatory compliance**

Features	Specifications
ENERGY STAR 8.0 qualified	Compliant
EPEAT Gold Registered	available in select configurations and regions only
China CECP	Compliant
China RoHS	Compliant
TCO 8.0	available in select configurations only
CEL	Compliant
WEEE	Compliant
Japan Energy Law	Compliant
South Korea E-standby	Compliant
South Korea Eco-label	Compliant
EU RoHS	Compliant

# Data security

**Table 19. Data security**

Data security options	Values
Dell Data Protection—Endpoint Security Suite and Endpoint Security Suite Enterprise	Supported
Dell Data Protection—Software Encryption	Supported
Dell Data Protection—External Media Encryption	Not supported
Windows Device Guard and Credential Guard (Enterprise SKU)	Supported
Microsoft Windows BitLocker	Supported
Local hard drive data wipe through BIOS (secure erase)	Supported
FIPS Self-Encrypting Opal 2.0 hard drive	Supported
Dell Data Guardian	Supported

# Environmental

**Table 20. Environmental specifications**

Feature	Dell Precision 3640 Tower
Recyclable packaging	Yes
BFR/PVC—free chassis	No
Vertical orientation packaging support	Yes
Energy-Efficient Power Supply	Standard
ENV0424 compliant	Yes

**NOTE:** Wood-based fiber packaging contains a minimum of 35% recycled content by total weight of wood-based fiber. Packaging that contains without wood-based fiber can be claimed as Not Applicable. Anticipated Required Criteria for EPEAT Revision Effective 1H 2018.

## Computer environment

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

**Table 21. Computer environment**

Description	Operating	Storage
Temperature range	Normal ambient condition 25°C and 40~50%RH 0°C to Normal ambient condition 25°C and 40~50%RH 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	Normal ambient condition 25°C and 40~50%RH 10% to Normal ambient condition 25°C and 40~50%RH 80% (non-condensing)	0%RH 10% to 95%RH 95% (non-condensing)
Vibration (maximum)*	0.26 GRMS	1.37 GRMS
Shock (maximum)	40 G†	105 G†
Altitude (maximum)	-15.2 m to 3048 m (-50 ft to 10,000 ft)	-15.2 m to 10,668 m (-50 ft to 35,000 ft)

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

† Measured using a 2 ms half-sine pulse when the hard drive is in use.

‡ Measured using a 2 ms half-sine pulse when the hard-drive head is in parked position.

# System setup

System setup enables you to manage your hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

## BIOS overview

The BIOS manages data flow between the computer's operating system and attached devices such as hard disk, video adapter, keyboard, mouse, and printer.

## Entering BIOS setup program

### About this task

Turn on (or restart) your computer and press F2 immediately.


## Boot menu

Press <F12> when the Dell logo appears to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.

The options are:

- UEFI Boot:
  - Windows Boot Manager
- Other Options:
  - BIOS Setup
  - BIOS Flash Update
  - Diagnostics
  - Change Boot Mode Settings

## Navigation keys

 **NOTE:** For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the system.

Keys	Navigation
<b>Up arrow</b>	Moves to the previous field.
<b>Down arrow</b>	Moves to the next field.
<b>Enter</b>	Selects a value in the selected field (if applicable) or follow the link in the field.
<b>Spacebar</b>	Expands or collapses a drop-down list, if applicable.



Keys	Navigation
Tab	Moves to the next focus area.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

## Boot Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable Drive (if available)
- STXXXX Drive (if available)
  - **NOTE:** XXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics
  - **NOTE:** Choosing **Diagnostics**, will display the **diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

## System setup options

**NOTE:** Depending on this computer and its installed devices, the items listed in this section may or may not appear.

**Table 22. System setup options—System information menu**

General-System Information	
<b>System Information</b>	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Ownership Tag	Displays the ownership tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the express service code of the computer.
<b>Memory Information</b>	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology used for the memory.
DIMM 1 Size	Displays the DIMM 1 memory size.
DIMM 2 Size	Displays the DIMM 2 memory size.

**Table 22. System setup options—System information menu (continued)**

<b>General-System Information</b>	
<b>PCI Information</b>	
SLOT2	Displays the PCI information of the computer.
SLOT3	Displays the PCI information of the computer.
SLOT5_M.2	Displays the PCI information of the computer.
<b>Processor Information</b>	
Processor Type	Displays the processor type.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Current Clock Speed	Displays the current processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Maximum Clock Speed	Displays the maximum processor clock speed.
Processor L2 Cache	Displays the Processor L2 Cache size.
Processor L3 Cache	Displays the Processor L2 Cache size.
HT Capable	Displays whether the processor is HyperThreading (HT) capable.
64-Bit Technology	Displays whether 64-bit technology is used.
<b>Device Information</b>	
SATA-0	Displays the SATA device information of the computer.
SATA-1	Displays the SATA device information of the computer.
M.2 PCIe SSD-2	Displays the M.2 PCIe SSD information of the computer.
LOM MAC Address	Displays the LOM MAC address of the computer.
Video Controller	Displays the video controller type of the computer.
Audio Controller	Displays the audio controller information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Bluetooth Device	Displays the bluetooth device information of the computer.
<b>Boot Sequence</b>	
Boot Sequence	Displays the boot sequence.
Boot List Option	Displays the available boot options.
<b>UEFI Boot Path Security</b>	
Always,Except Internal HDD	Enable or disable the system to prompt the user to enter the Admin password when booting a UEFI boot path from the F12 boot menu. Default: Enabled
Always	Enable or disable the system to prompt the user to enter the Admin password when booting a UEFI boot path from the F12 boot menu. Default: Disabled
Never	Enable or disable the system to prompt the user to enter the Admin password when booting a UEFI boot path from the F12 boot menu. Default: Disabled
<b>Date/Time</b>	Displays the current date in MM/DD/YY format and current time in HH:MM:SS AM/PM format.

**Table 23. System setup options—System Configuration menu**

<b>System Configuration</b>	
<b>Integrated NIC</b>	
Enable UEFI Network Stack	Controls the on-board LAN controller.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack.

**Table 23. System setup options—System Configuration menu (continued)**

<b>System Configuration</b>	
<b>SATA Operation</b>	Configure operating mode of the integrated SATA hard drive controller.
<b>Drives</b>	Enable or disable various drives on board.
SATA-0	Displays the SATA device information of the computer.
SATA-1	Displays the SATA device information of the computer.
M.2 PCIe SSD-2	Displays the M.2 PCIe SSD information of the computer.
<b>SMART Reporting</b>	Enable or disable SMART Reporting during system startup.
<b>USB Configuration</b>	
Enable USB Boot Support	Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.
Enable front USB Port	Enable or disable the front USB ports.
Enable rear USB Port	Enable or disable the rear USB ports.
<b>Front USB Configuration</b>	Enable or disable the front USB ports.
<b>Rear USB Configuration</b>	Enable or disable the rear USB ports.
<b>Audio</b>	Enable or disable the integrated audio controller.
<b>Miscellaneous Devices</b>	Enable or disable various onboard devices.

**Table 24. System setup options—Video menu**

<b>Video</b>	
Multi-Display	Enable or disable multiple displays.
Primary Display	Set or change the primary display.

**Table 25. System setup options—Security menu**

<b>Security</b>	
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the system password.
Internal HDD-0 Password	Set, change, or delete the internal hard-disk drive password.
Password Configuration	Control the minimum and maximum number of characters allowed for Admin and System passwords.
Password Change	Enable or disable changes to the System and Hard Disk passwords when an administrator password is set.
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages.
<b>PTT Security</b>	
PTT On	Enable or disable Platform Trust Technology (PTT) visibility to the operating system.
Clear	Default: Disabled
PPI ByPass for Clear Command	Enable or disable the TPM Physical Presence Interface (PPI). When enabled, this setting will allow the OS to skip BIOS PPI user prompts when issuing the Clear command. Changes to this setting take effect immediately. Default: Disabled
Absolute(R)	Enable or disable the BIOS module interface of the optional Computrace(R) Service from Absolute Software.
Admin Setup Lockout	Enable to prevent users from entering Setup when an Admin Password is set.
Master Password Lockout	Disables the master password support. Hard Disk passwords need to be cleared before changing the setting.

**Table 25. System setup options—Security menu (continued)**

<b>Security</b>	
SMM Security Mitigation	Enable or disable SMM Security Mitigation

**Table 26. System setup options—Secure Boot menu**

<b>Secure Boot</b>	
Secure Boot Enable	Enable or disable the secure boot feature.
Secure Boot Mode	Modifies the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures. <ul style="list-style-type: none"> <li>● Deployed Mode-Default: Enabled</li> <li>● Audit Mode-Default: Disabled</li> </ul>
Deployed Mode	Enable or disable the deployed mode.
Audit Mode	Enable or disable the audit mode.
<b>Expert Key Management</b>	
Expert Key Management	Enable or disable Expert Key Management.
Custom Mode Key Management	Select the custom values for expert key management.

**Table 27. System setup options—Intel Software Guard Extensions menu**

<b>Intel Software Guard Extensions</b>	
Intel SGX Enable	Enable or disable Intel Software Guard Extensions.
Enclave Memory Size	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.
<b>Performance</b>	
Multi Core Support	Enable multiple cores. Default: Enabled.
Intel SpeedStep	Enable or disable Intel Speedstep Technology. Default: Enabled. <b>NOTE:</b> If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.
C-States Control	Enable or disable additional processor sleep states. Default: Enabled.
Intel TurboBoost	Enable or disable Intel TurboBoost mode of the processor. Default: Enabled.
HyperThread control	Enable or disable HyperThreading in the processor. Default: Enabled.
<b>Power Management</b>	
AC Recovery	Sets what action the computer takes when power is restored.
Enable Intel Speed Shift Technology	Enable or disable Intel Speed Shift Technology.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays or Selected Days. Default: Disabled.
USB Wake Support	Enable the USB devices to wake the computer from Standby.
Deep Sleep Control	Enables you to control the Deep Sleep mode support.

**Table 27. System setup options—Intel Software Guard Extensions menu (continued)**

<b>Intel Software Guard Extensions</b>	
Wake on LAN/WLAN	Enables the computer to be powered on by special LAN signals.
Block sleep	Enables you to block entering to sleep mode in OS environment.
<b>POST Behavior</b>	
Numlock LED	Enables the NumLock function when computer boots.
Keyboard Errors	Enables the keyboard error detection.
Fastboot	Enable to set the speed of the boot process. Default: Thorough.
Extend BIOS POST Time	Configure additional pre-boot delay.
Full Screen Logo	Enable or disable to display full screen logo.
Warnings and Errors	Sets the boot process to pause when Warnings or Errors are detected.

**Table 28. System setup options—Virtualization Support menu**

<b>Virtualization Support</b>	
Virtualization	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.

**Table 29. System setup options—Wireless menu**

<b>Wireless</b>	
Wireless Device Enable	Enable or disable internal wireless devices.

**Table 30. System setup options—Maintenance menu**

<b>Maintenance</b>	
Service Tag	Display the system's Service Tag.
Asset Tag	Create a system Asset Tag.
SERR Messages	Enable or disable SERR messages.
BIOS Downgrade	Control flashing of the system firmware to previous revisions.
Data Wipe	Enable to securely erase data from all internal storage devices.
BIOS Recovery	Enable the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.

**Table 31. System setup options—System Logs menu**

<b>System Logs</b>	
BIOS Events	Display BIOS events.

**Table 32. System setup options—SupportAssist System Resolution menu**

<b>SupportAssist System Resolution</b>	
Auto OS Recovery Threshold	Control the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery tool.

# Assigning a system setup password

## Prerequisites

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

## About this task

To enter the system setup, press F2 immediately after a power-on or reboot.

## Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press **Enter**.  
The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.  
Use the following guidelines to assign the system password:
  - A password can have up to 32 characters.
  - The password can contain the numbers 0 through 9.
  - Only lower case letters are valid, upper case letters are not allowed.
  - Only the following special characters are allowed: space, ("), (+), (.), (-), (.), (/), (:), ([], (\), (]), (`).
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press **Esc** and a message prompts you to save the changes.
5. Press **Y** to save the changes.  
The computer reboots.

# Deleting or changing an existing system setup password


## Prerequisites

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

## About this task

To enter the System Setup, press **F2** immediately after a power-on or reboot.

## Steps

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press **Enter**.  
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press **Enter** or **Tab**.
4. Select **Setup Password**, alter or delete the existing setup password and press **Enter** or **Tab**.  
 **NOTE:** If you change the System and/or Setup password, re enter the new password when prompted. If you delete the System and Setup password, confirm the deletion when prompted.
5. Press **Esc** and a message prompts you to save the changes.
6. Press **Y** to save the changes and exit from System Setup.  
The computer restarts.

# Clearing CMOS settings/RTC reset

## About this task


 **CAUTION:** Clearing CMOS settings will reset the BIOS settings on your computer as well as reset the Real-Time Clock on your BIOS.

## Steps

1. Press and hold the power button for 30 seconds.
2. Release the power button and allow the system to boot.

# Clearing BIOS (System Setup) and System passwords

## About this task

 **NOTE:** To conduct a BIOS and System password reset, you must call the Dell Tech Support number in your region.


## Steps

1. Key in your computer's service tag number into the locked BIOS/system setup screen.
2. Convey the code generated to the Dell Tech Support agent.
3. The Dell Tech Support agent will provide a 32 character Master System Password that can be used to access the locked BIO/system setup.

# Updating the BIOS

## Updating the BIOS in Windows

### Steps

1. Go to [www.dell.com/support](http://www.dell.com/support).
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.  
 **NOTE:** If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.  
For more information, see knowledge base article [000124211](https://www.dell.com/support) at [www.dell.com/support](http://www.dell.com/support).

## Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the knowledge base article [000131486](https://www.dell.com/support) at [www.dell.com/support](http://www.dell.com/support).

# Updating the BIOS using the USB drive in Windows

## Steps

1. Follow the procedure from step 1 to step 6 in [Updating the BIOS in Windows](#) to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, see the knowledge base article [000145519](#) at [www.dell.com/support](http://www.dell.com/support).
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12**.
6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.  
The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.

# Updating the BIOS from the F12 One-Time boot menu


Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 One-Time boot menu.

## About this task

### BIOS Update

You can run the BIOS update file from Windows using a bootable USB drive or you can also update the BIOS from the F12 One-Time boot menu on the computer.

Most of the Dell computers built after 2012 have this capability, and you can confirm by booting your computer to the F12 One-Time Boot Menu to see if BIOS FLASH UPDATE is listed as a boot option for your computer. If the option is listed, then the BIOS supports this BIOS update option.

 **NOTE:** Only computers with BIOS Flash Update option in the F12 One-Time boot menu can use this function.

## Updating from the One-Time boot menu

To update your BIOS from the F12 One-Time boot menu, you need the following:

- USB drive formatted to the FAT32 file system (key does not have to be bootable)
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB drive
- AC power adapter that is connected to the computer
- Functional computer battery to flash the BIOS

Perform the following steps to perform the BIOS update flash process from the F12 menu:

 **CAUTION:** Do not turn off the computer during the BIOS update process. The computer may not boot if you turn off your computer.

## Steps

1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.
2. Turn on the computer and press F12 to access the One-Time Boot Menu, select BIOS Update using the mouse or arrow keys then press Enter.  
The flash BIOS menu is displayed.
3. Click **Flash from file**.
4. Select external USB device.
5. Select the file and double-click the flash target file, and then click **Submit**.
6. Click **Update BIOS**. The computer restarts to flash the BIOS.
7. The computer will restart after the BIOS update is completed.



## Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

### Downloading Windows drivers

#### Steps

1. Turn on the .
2. Go to **Dell.com/support**.
3. Click **Product Support**, enter the Service Tag of your , and then click **Submit**.
  - NOTE:** If you do not have the Service Tag, use the auto detect feature or manually browse for your model.
4. Click **Drivers and Downloads**.
5. Select the operating system installed on your .
6. Scroll down the page and select the driver to install.
7. Click **Download File** to download the driver for your .
8. After the download is complete, navigate to the folder where you saved the driver file.
9. Double-click the driver file icon and follow the instructions on the screen.

### System device drivers

Verify if the system device drivers are already installed in the system.

#### Serial IO driver

Verify if the drivers for Touchpad, IR camera, and keyboard and are installed.

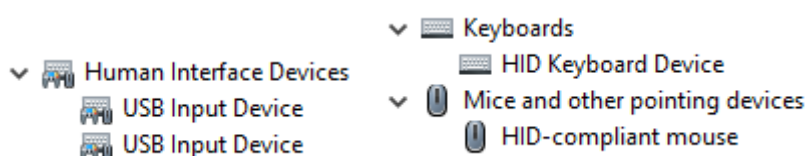
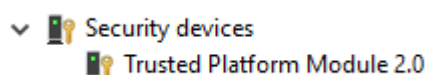


Figure 3. Serial IO driver




### Security drivers

Verify if the security drivers are already installed in the system.



### USB drivers

Verify if the USB drivers are already installed in the computer.




- ▼  Universal Serial Bus controllers
  -  Intel(R) USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)
  -  USB Root Hub (USB 3.0)

## Network adapter drivers

Verify if the Network adapter drivers are already installed in the system.

## Realtek Audio

Verify if audio drivers are already installed in the computer.

- ▼  Sound, video and game controllers
  -  Intel(R) Display Audio
  -  Realtek Audio

## Storage controller



Verify if the storage control drivers are already installed in the system.

# 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 33. Self-help resources**

Self-help resources	Resource location
Information about Dell products and services	<a href="https://www.dell.com/">https://www.dell.com/</a>
Dell Support	
Tips	
Contact Support	In Windows search, type <b>Contact Support</b> , and press Enter.
Online help for operating system	<ul style="list-style-type: none"> <li>Windows: <a href="https://www.dell.com/support/windows">https://www.dell.com/support/windows</a></li> <li>Linux: <a href="https://www.dell.com/support/linux">https://www.dell.com/support/linux</a></li> </ul>
Troubleshooting information, user manuals, set up instructions, product specifications, technical help blogs, drivers, software updates, and so on.	<a href="https://www.dell.com/support/home/">https://www.dell.com/support/home/</a>
Dell knowledge base articles for various of system concerns:	<ol style="list-style-type: none"> <li>Go to <a href="https://www.dell.com/support/home/?app=knowledgebase">https://www.dell.com/support/home/?app=knowledgebase</a>.</li> <li>Type the subject or keyword in the <b>Search</b> box.</li> <li>Click <b>Search</b> to retrieve the related articles.</li> </ol>
Learn and get more information about your product: <ul style="list-style-type: none"> <li>Product specifications</li> <li>Operating system</li> <li>Setting up and using your product</li> <li>Data backup</li> <li>Troubleshooting and diagnostics</li> <li>Factory and system restore</li> <li>BIOS information</li> </ul>	Dell provides several online and telephone-based support and service options. 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. <ul style="list-style-type: none"> <li>Select <b>Detect Product</b>.</li> <li>Locate your product through the drop-down menu under <b>View Products</b>.</li> <li>Enter the <b>Service Tag number</b> or <b>Product ID</b> in the search bar.</li> <li>Once on product support page, scroll down to Manuals and Documents section to preview all the Manuals, documents, and other information for your product.</li> </ul>

# Contacting Dell

Dell provides several online and telephone-based support and service options. 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. Availability varies by country/region and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to <https://www.dell.com/support/>.
  2. Select your country/region from the drop-down menu on the lower right corner of the page.
  3. For **customized support**:
    - a. Enter your system Service Tag in the **Enter your Service Tag** field.
    - b. Click **submit**.
      - The support page that lists the various support categories is displayed.
  4. For **general support**:
    - a. Select your product category.
    - b. Select your product segment.
    - c. Select your product.
      - The support page that lists the various support categories is displayed.
  5. For contact details of Dell Global Technical Support, see <https://www.dell.com/contactdell>.  
 **NOTE:** The Contact Technical Support page is displayed with details to call, chat, or email the Dell Global Technical Support team.
-  **NOTE:** Availability varies by country/region and product, and some services may not be available in your area.