

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.

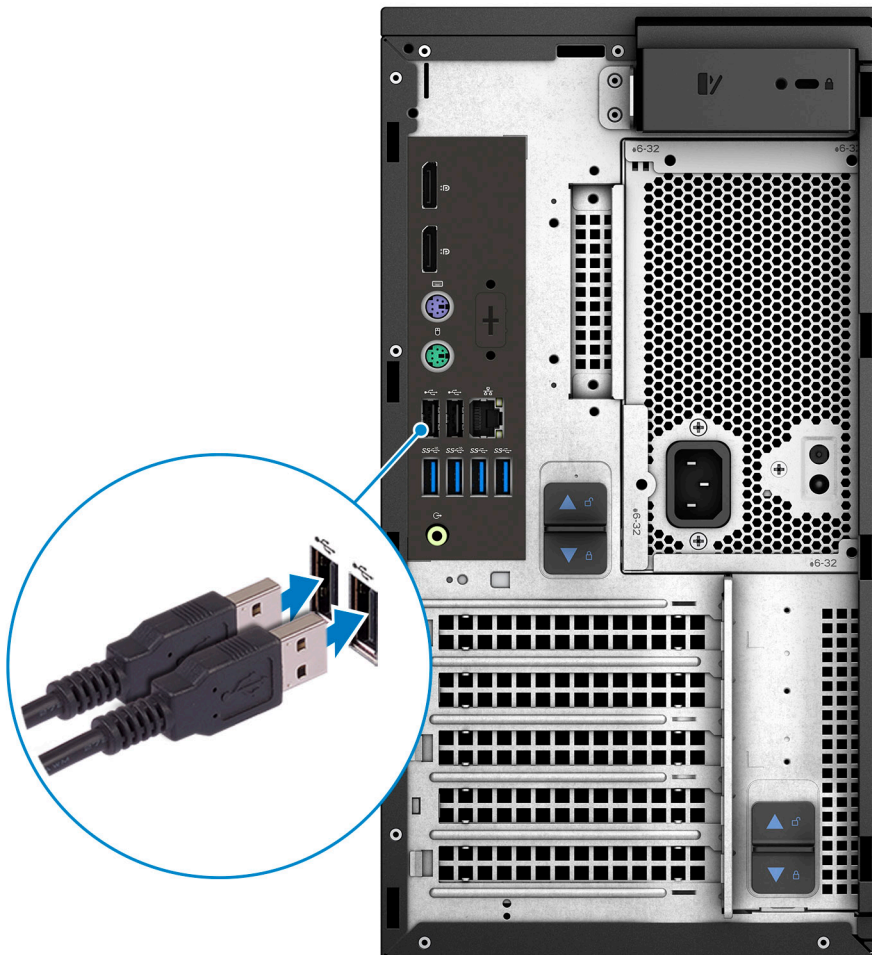
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Set up your computer

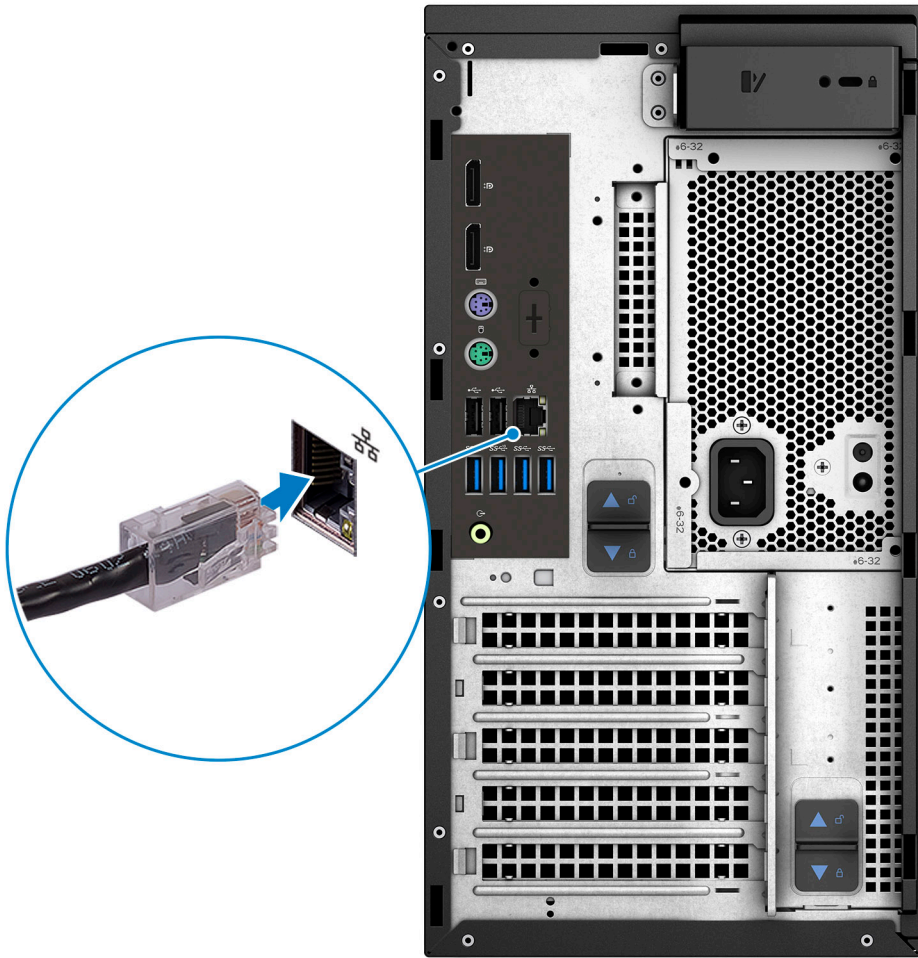
Steps

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.

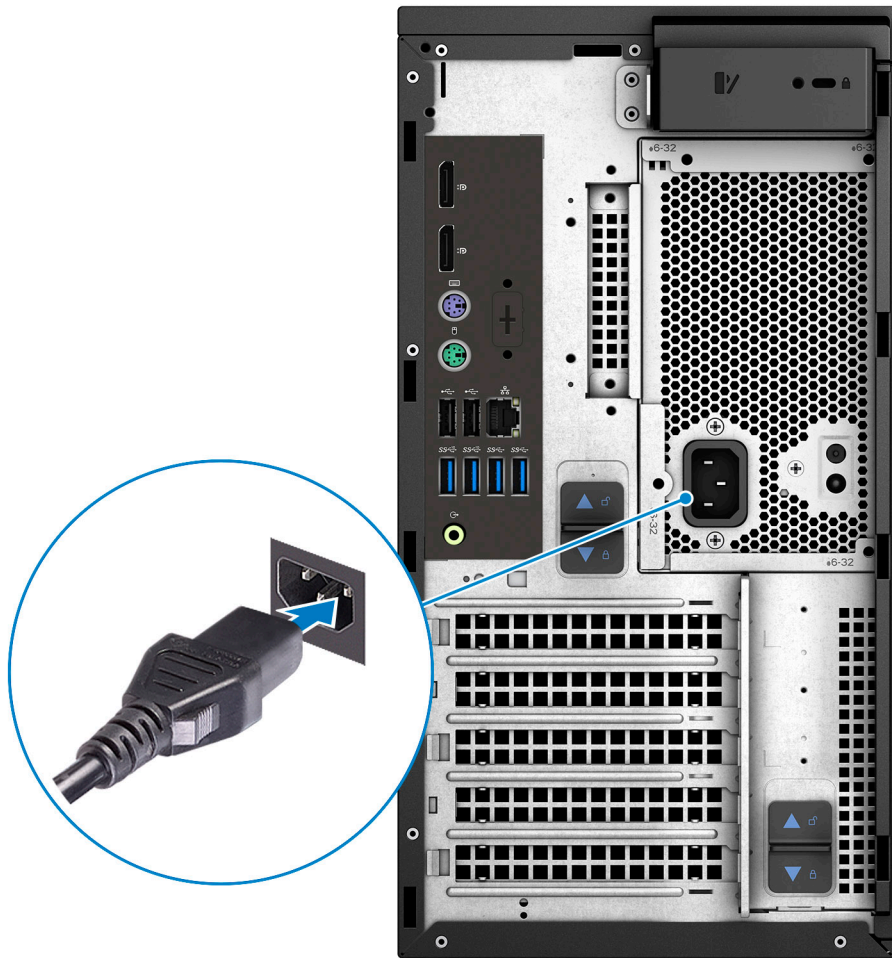


3. Connect the display.



i **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.

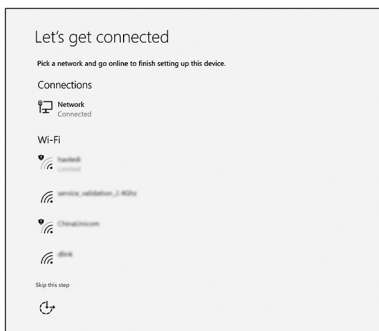
4. Connect the power cable.



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](#)



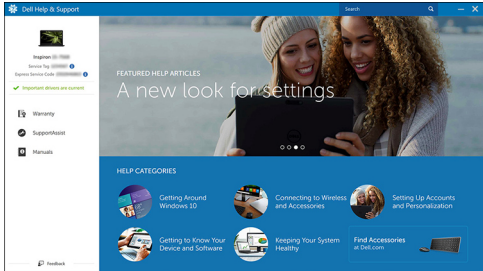

No account? [Create one!](#)

[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

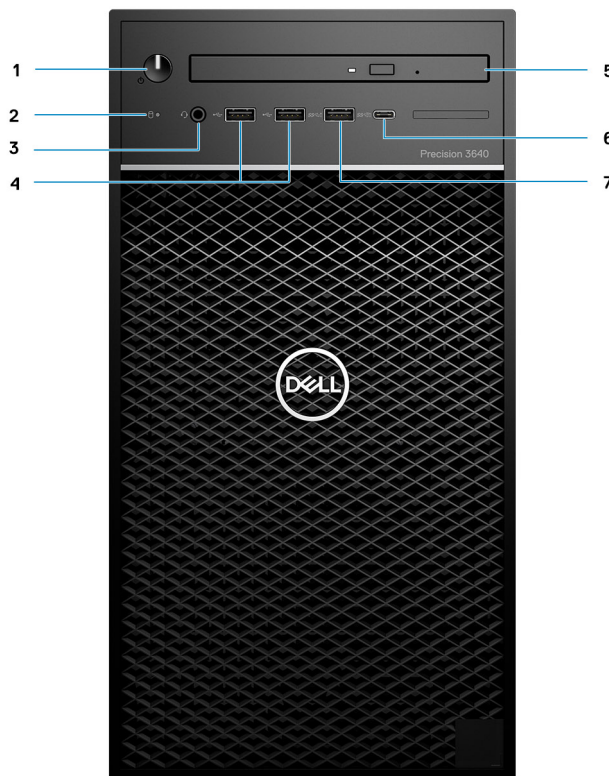


Figure 1. Front view with standard I/O configuration

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

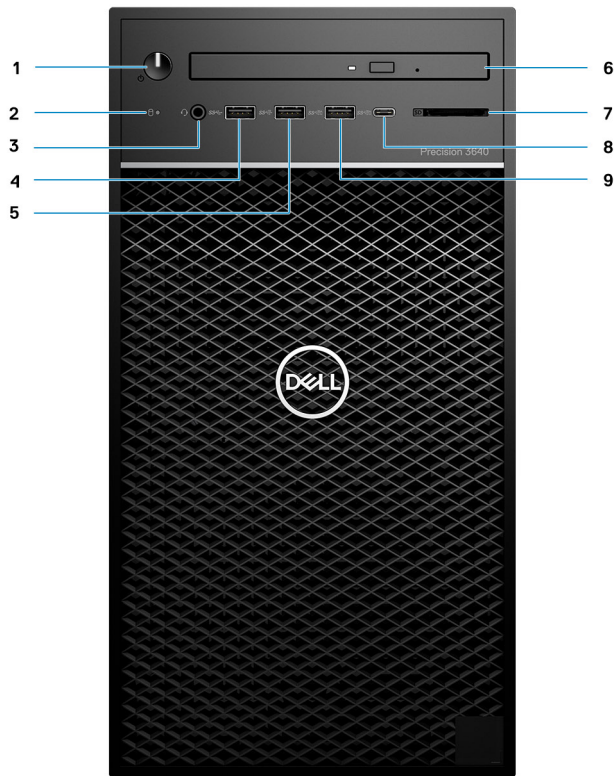
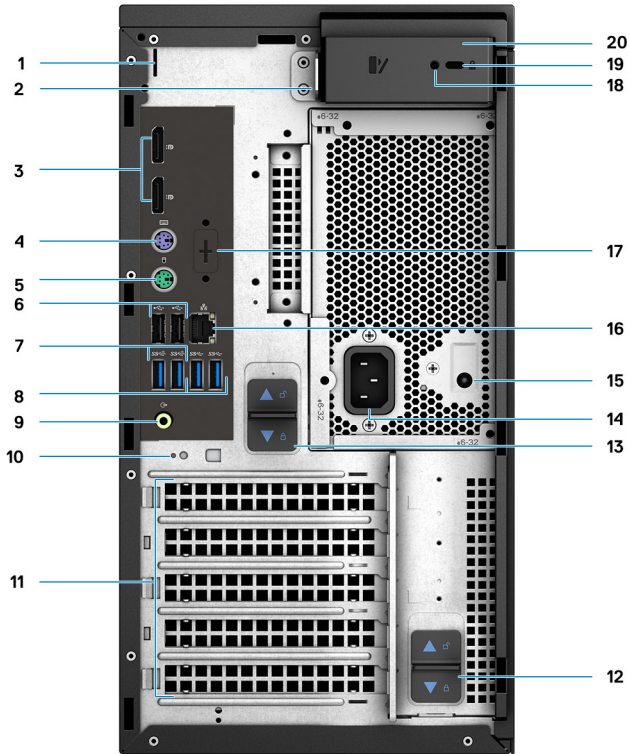


Figure 2. Front view with advanced I/O configuration

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)
NOTE: The weight of your system unit varies depending on the configuration ordered and the manufacturing variability.	

Processors

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 10 Enterprise 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.

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 th 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 th 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 th 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 th 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 th Generation Intel Core i7-10700, DDR4 2933	65 W	8	16	2.9 GHz to 4.7 GHz	16 MB	Intel UHD Graphics 630
10 th Generation Intel Core i7-10700K, DDR4 2933	125 W	8	16	3.8 GHz to 5.0 GHz	16 MB	Intel UHD Graphics 630

Table 3. Processors(continued)

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics
10 th 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 th 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 th 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 th 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 th Generation Intel Xeon W-1270, DDR4 2666	80 W	8	16	3.4 GHz to 4.9 GHz	16 MB	Intel UHD Graphics P630
10 th Generation Intel Xeon W-1270P, DDR4 2666	125 W	8	16	3.8 GHz to 5.1 GHz	16 MB	Intel UHD Graphics P630
10 th Generation Intel Xeon W-1290, DDR4 2666	80 W	10	20	3.2 GHz to 5.2 GHz	20 MB	Intel UHD Graphics P630
10 th Generation Intel Xeon W-1290P, DDR4 2666	125 W	10	20	3.7 GHz to 5.3 GHz	20 MB	Intel UHD Graphics P630

Chipset

Table 4. Chipset

Description	Values
Chipset	Comet Lake PCH-H W480
Processor	10 th 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

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)
- Windows 10 Professional (64-bit) National Academic
- Windows CMIT Government Edition (CMGE V2020-L)
- Windows 10 Professional Workstation (64-bit) (for 6 or more cores)
- Windows 10 IoT Enterprise LTSC
- Red Hat Linux 8.2
- Ubuntu Linux 18.04 LTS
- NeoKylin Linux 7.0 (China only)

Memory

Table 5. Memory specifications

Description	Values
Slots	Four DIMM slots

Table 5. Memory specifications(continued)

Description	Values
Type	DDR4 DRAM ECC or non-ECC memory
Speed	2666 MHz or 2933 MHz i NOTE: 2933 MHz requires Intel Core i7, i9 or, Xeon processors
Maximum memory	128 GB
Minimum memory	8 GB
Memory per slot	· 4 GB, 8 GB, 16 GB, 32 GB
Configurations supported:	<ul style="list-style-type: none"> · 128 GB: 4 x 32 GB, 2666 MHz, UDIMM, ECC · 64 GB: 2 x 32 GB or 4 x 16 GB, 2666 MHz, UDIMM, ECC · 32 GB: 2 x 16 GB or 4 x 8 GB or 1 x 32 GB, 2666, MHz, UDIMM, ECC · 16 GB: 2 x 8 GB, 1 x 16 GB, 2666 MHz, UDIMM, ECC · 8 GB: 1 x 8 GB, 2 x 4 GB, 2666 MHz, UDIMM, ECC · 128 GB: 4 x 32 GB, 2666 MHz, for Intel Core i3 or i5 processors and 2933 MHz for Intel Core i7 or i9 or Xeon processors, UDIMM, non-ECC · 64 GB: 2 x 32 GB or 4 x 16 GB, 2666 MHz, for Intel Core i3 or i5 processors and 2933 MHz for Intel Core i7 or i9 or Xeon processors, UDIMM, non-ECC · 32 GB: 4 x 8 GB, 1 x 32 GB, 2 x 16 GB, 2666 MHz, for Intel Core i3 or i5 processors and 2933 MHz for Intel Core i7 or i9 or Xeon processors, UDIMM, non-ECC · 16 GB: 4 x 4 GB, 1 x 16 GB, 2 x 8 GB, 2666 MHz, for Intel Core i3 or i5 processors and 2933 MHz for Intel Core i7 or i9 or Xeon processors, UDIMM, non-ECC · 8 GB: 1 x 8 GB, 2 x 4 GB, 2666 MHz, for Intel Core i3 or i5 processors and 2933 MHz for Intel Core i7 or i9 or Xeon processors, UDIMM, non-ECC <p>i NOTE: A multiple DIMM memory option is recommended to prevent any performance reduction. If the system 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>i NOTE: 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>Standard Front I/O USB ports:</p> <ul style="list-style-type: none"> · Two USB 2.0 Type A · One USB 3.2 Type A Gen1, with PowerShare

Table 6. Ports and connectors(continued)

Description	Values
	<ul style="list-style-type: none"> One USB 3.2 Type C Gen2, with PowerShare <p>Advanced Front I/O USB ports:</p> <ul style="list-style-type: none"> One USB 3.2 Type A Gen1 One USB 3.2 Type A Gen2 One USB 3.2 Type A Gen2, with PowerShare One USB 3.2 Type C Gen2, with PowerShare
Back USB	<ul style="list-style-type: none"> Two USB 2.0 Type A (with SmartPower) Two USB 3.2 Type A Gen2 Two USB 3.2 Type A Gen1
Audio	<ul style="list-style-type: none"> One 3.5 mm headphone jack (Front) One Line-out re-tasking Line-in audio port (Back)
Memory card reader	<p>NOTE: 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"> Two DisplayPort 1.4 One Optional Port (VGA or HDMI 2.0 or DP1.4 or USB Type C with DP-Alt mode)
Serial	Two PS2 (Legacy for keyboard and mouse)
Internal	
Expansion	<ul style="list-style-type: none"> One Full-height Gen 3 PCIe x16 slot One Full-height Gen 3 PCI slot One Full-height Gen 3 PCIe x4 slot
M.2	<ul style="list-style-type: none"> One M.2 2230 PCIe x1 slot, keyed E for WiFi and Bluetooth card One M.2 2280 PCIe x4, keyed M for solid-state drive One M.2 2280 PCIe x4 and SATA slot, keyed M for solid-state drive <p>NOTE: To learn more about the features of different types of M.2 cards, see the knowledge base article at https://www.dell.com/support/article/sln301626/.</p>

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

Table 7. Wireless module specifications(continued)

Description	Values	
Wireless standards	<ul style="list-style-type: none"> WiFi 802.11a/b/g Wi-Fi 4 (WiFi 802.11n) Wi-Fi 5 (WiFi 802.11ac) 	<ul style="list-style-type: none"> WiFi 802.11a/b/g Wi-Fi 4 (WiFi 802.11n) Wi-Fi 5 (WiFi 802.11ac) Wi-Fi 6 (WiFi 802.11ax)
Encryption	<ul style="list-style-type: none"> 64-bit/128-bit WEP AES-CCMP TKIP 	<ul style="list-style-type: none"> 64-bit/128-bit WEP AES-CCMP TKIP
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"> Universal 3.5 mm headphone jack (Front) Line-out re-tasking Line-in audio port

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)

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

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
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
Maximum data transfer rates			
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
Power source			
DC power requirement	5 V	5 V	5 V
DC current	1300 mA	1300 mA	1300 mA
Environmental Operating Conditions (Non-Condensing):			
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

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

Description	Values		
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
Environmental Non-Operating Conditions (Non-Condensing):			
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"> · SDHC · SDXC

Power supply unit

Table 13. Power supply unit specifications

Description	Values			
Type	ATX 300 W Bronze	ATX 300 W Gold	ATX 460 W Gold	ATX 550 W Gold
Input voltage	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
Input current (maximum)	6 A	6 A	6 A	6 A
Output current (continuous)	<ul style="list-style-type: none"> · 5.1 V /13 A · 12 VA1/16.5 A · 12 VA2/16.5 A · 12 VB/16 A · 3.3 V/10 A · 5.1 Vaux/4 A 	<ul style="list-style-type: none"> · 5.1 V /13 A · 12 VA1/16.5 A · 12 VA2/16.5 A · 12 VB/16 A · 3.3 V/10 A · 5.1 Vaux/4 A 	<ul style="list-style-type: none"> · 5.1 V /20 A · 12 VA1/18 A · 12 VA2/18 A · 12 VB/16 A · 12 VC/18 A · 3.3 V/15 A · 5.1 Vaux/4 A 	<ul style="list-style-type: none"> · 5.1 V /20 A · 12 VA1/18 A · 12 VA2/18 A · 12 VB/16 A · 12 VC1/18 A · 12 VC2/18 A · 3.3 V/15 A · 5.1 Vaux/4 A
Rated output voltage	<ul style="list-style-type: none"> · 5.1 V · 12 VA1 · 12 VA2 · 12 VB 	<ul style="list-style-type: none"> · 5.1 V · 12 VA1 · 12 VA2 · 12 VB 	<ul style="list-style-type: none"> · 5.1 V · 12 VA1 · 12 VA2 · 12 VB 	<ul style="list-style-type: none"> · 5.1 V · 12 VA1 · 12 VA2 · 12 VB

Table 13. Power supply unit specifications(continued)

Description	Values			
	<ul style="list-style-type: none"> 3.3 V 5.1 Vaux 	<ul style="list-style-type: none"> 3.3 V 5.1 Vaux 	<ul style="list-style-type: none"> 12 VC 3.3 V 5.1 Vaux 	<ul style="list-style-type: none"> 12 VC1 12 VC2 3.3 V 5.1 Vaux
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)
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)

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"> Two DisplayPort VGA/ USB Type-C Alt mode/HDMI 	Shared system memory	10 th Generation Intel Core i5/ i7/i9 processors
Intel UHD Graphics P630	<ul style="list-style-type: none"> Two DisplayPort VGA/ USB Type-C Alt mode/HDMI 	Shared system memory	10 th Generation Intel Xeon W-series processors

Table 15. Discrete graphics specifications

Discrete graphics			
Controller	External display support	Memory size	Memory Type
NVIDIA Quadro RTX 5000	<ul style="list-style-type: none"> Four DisplayPort One USB Type-C port 	16 GB	DDR6
NVIDIA Quadro RTX 4000	<ul style="list-style-type: none"> Three DisplayPort One USB Type-C port 	8 GB	DDR6
NVIDIA Quadro P2200	<ul style="list-style-type: none"> Four DisplayPort 	5 GB	DDR5X
NVIDIA Quadro P1000	<ul style="list-style-type: none"> Four mini-DisplayPort 	4 GB	DDR5
NVIDIA Quadro P620	<ul style="list-style-type: none"> Four mini-DisplayPort 	2 GB	DDR5
NVIDIA Quadro P400	<ul style="list-style-type: none"> Three mini-DisplayPort One USB Type-C port 	2 GB	DDR5
AMD Radeon Pro W5700	<ul style="list-style-type: none"> Four mini-DisplayPort One USB Type-C port 	8 GB	DDR6
AMD Radeon PRO W5500	<ul style="list-style-type: none"> Four DisplayPort 	8 GB	DDR6
AMD Radeon Pro WX3200	<ul style="list-style-type: none"> Four mini-DisplayPort 	4 GB	DDR5X

Add-in cards

Table 16. Add-in cards

Add-in cards
Serial and parallel port PCIe add-in card
USB 3.2 Gen 1 PCIe card
USB 3.2 Type-C PCIe card
Intel Ethernet server adapter I210-T1
Dell Ultra Speed Drive
2.5/5.0GbE NIC (Aquantia) add-in card

Security

Table 17. Security

Security options	Dell Precision Tower 3640
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 10 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†

Table 21. Computer environment(continued)

Description	Operating	Storage
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
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.

Keys

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.

Navigation

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)

i **NOTE: XXX denotes the SATA drive number.**

- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

i **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

i **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	
System Information	
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.
Memory Information	
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.
PCI Information	
SLOT2	Displays the PCI information of the computer.
SLOT3	Displays the PCI information of the computer.

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

General-System Information	
SLOT5_M.2	Displays the PCI information of the computer.
Processor Information	
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.
Device Information	
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.
Boot Sequence	
Boot Sequence	Displays the boot sequence.
Boot List Option	Displays the available boot options.
UEFI Boot Path Security	
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
Date/Time	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

System Configuration	
Integrated NIC	
Enable UEFI Network Stack	Controls the on-board LAN controller. Enable or disable UEFI Network Stack.
SATA Operation	
Configure operating mode of the integrated SATA hard drive controller.	
Drives	
Enable or disable various drives on board.	
SATA-0	Displays the SATA device information of the computer.

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

System Configuration	
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.
SMART Reporting	Enable or disable SMART Reporting during system startup.
USB Configuration	
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.
Front USB Configuration	Enable or disable the front USB ports.
Rear USB Configuration	Enable or disable the rear USB ports.
Audio	Enable or disable the integrated audio controller.
Miscellaneous Devices	Enable or disable various onboard devices.

Table 24. System setup options—Video menu

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

Table 25. System setup options—Security menu

Security	
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.
PTT Security	
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.
SMM Security Mitigation	Enable or disable SMM Security Mitigation

Table 26. System setup options—Secure Boot menu

Secure Boot	
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"> · Deployed Mode-Default: Enabled · Audit Mode-Default: Disabled
Deployed Mode	Enable or disable the deployed mode.
Audit Mode	Enable or disable the audit mode.
Expert Key Management	
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

Intel Software Guard Extensions	
Intel SGX Enable	Enable or disable Intel Software Guard Extensions.
Enclave Memory Size	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.
Performance	
Multi Core Support	Enable multiple cores. Default: Enabled.
Intel SpeedStep	Enable or disable Intel Speedstep Technology. Default: Enabled.
	i NOTE: 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.
Power Management	
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.
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.
POST Behavior	

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

Intel Software Guard Extensions	
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

Virtualization Support	
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

Wireless	
Wireless Device Enable	Enable or disable internal wireless devices.

Table 30. System setup options—Maintenance menu

Maintenance	
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

System Logs	
BIOS Events	Display BIOS events.

Table 32. System setup options—SupportAssist System Resolution menu

SupportAssist System Resolution	
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.

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.

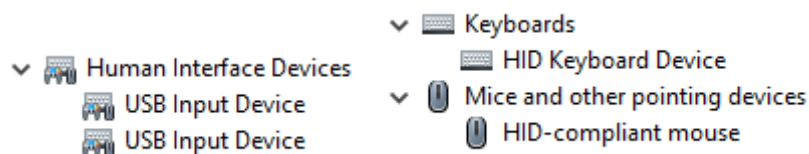
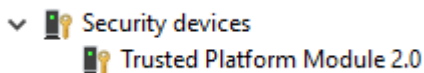


Figure 3. Serial IO driver




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

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.**