OptiPlex 7080 Small Form Factor

Setup and Specifications

Regulatory Model: D15S
Regulatory Type: D15S001
March 2024
Rev. A02

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

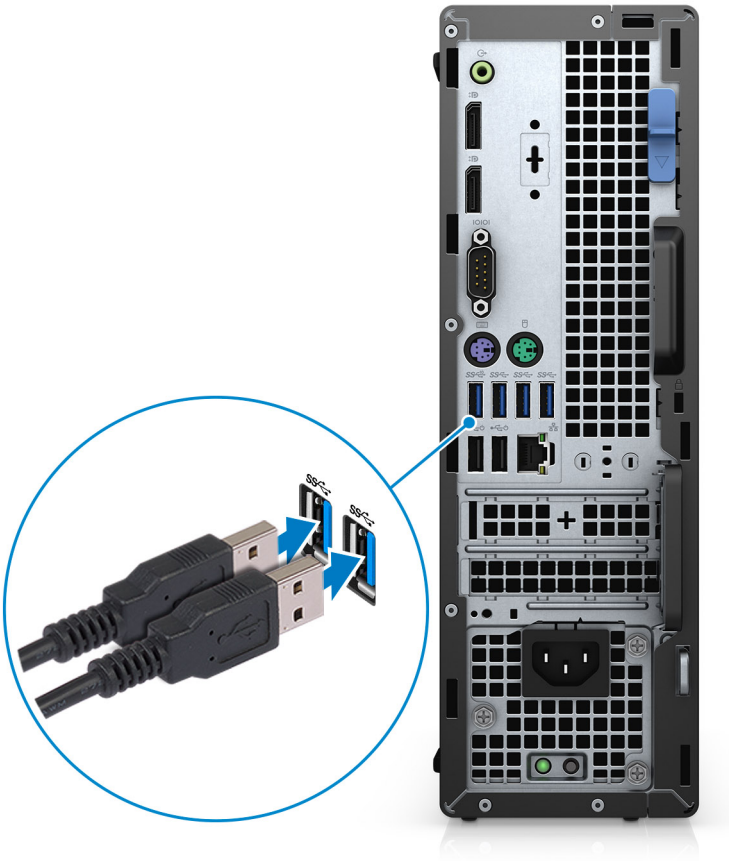
Contents

1

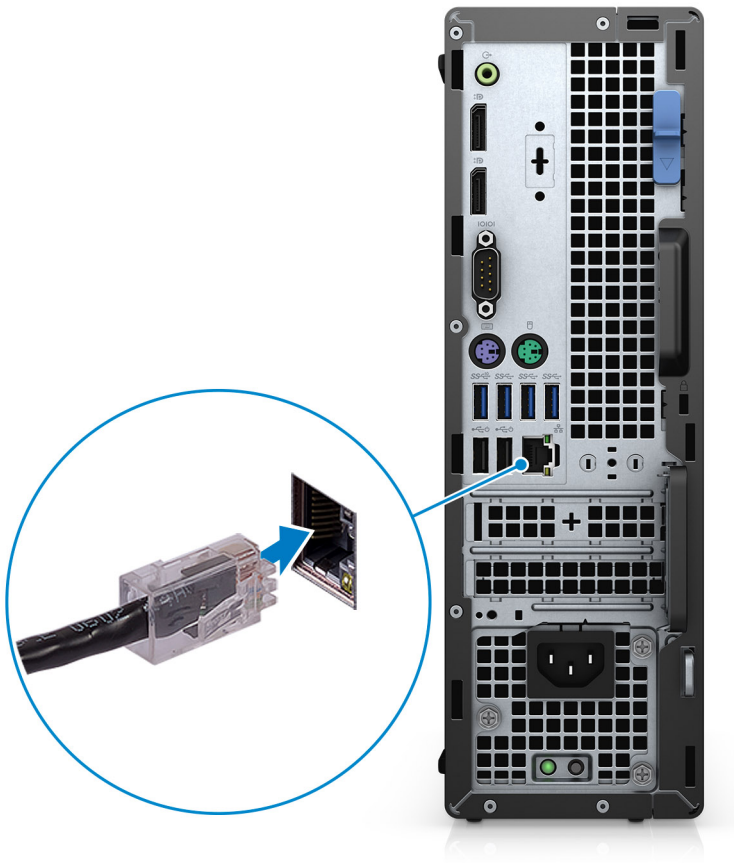
Set up your computer

Steps

1. Connect the keyboard and mouse.

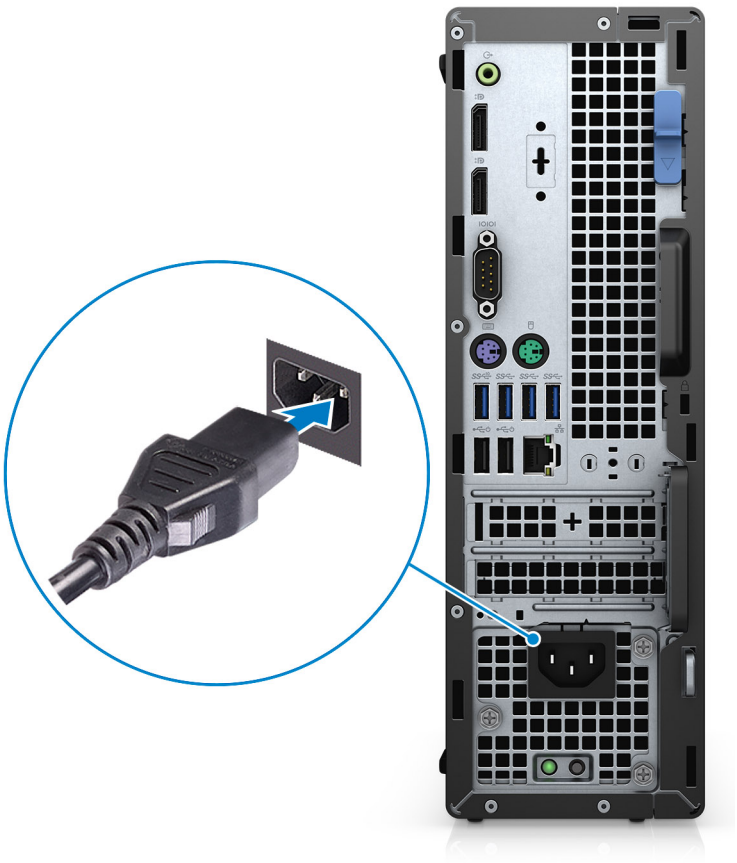


2. Connect to your network using a cable, or connect to a wireless network.



3. Connect the display.

4. Connect the power cable.



5. Press the power button.

6. Finish Windows system setup.

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

   - Connect to a network for Windows updates.

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

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

Table 1. Locate Dell apps

Dell apps	Details
	Dell Product Registration Register your computer with Dell.
	Dell Help & Support Access help and support for your computer.

Table 1. Locate Dell apps (continued)

Dell apps	Details
	**SupportAssist** Proactively checks the health of your computer's hardware and software. **NOTE:** Renew or upgrade your warranty by clicking the warranty expiry date in SupportAssist.
	**Dell Update** Updates your computer with critical fixes and important device drivers as they become available.
	**Dell Digital Delivery** Download software applications including software that is purchased but not preinstalled on your computer.

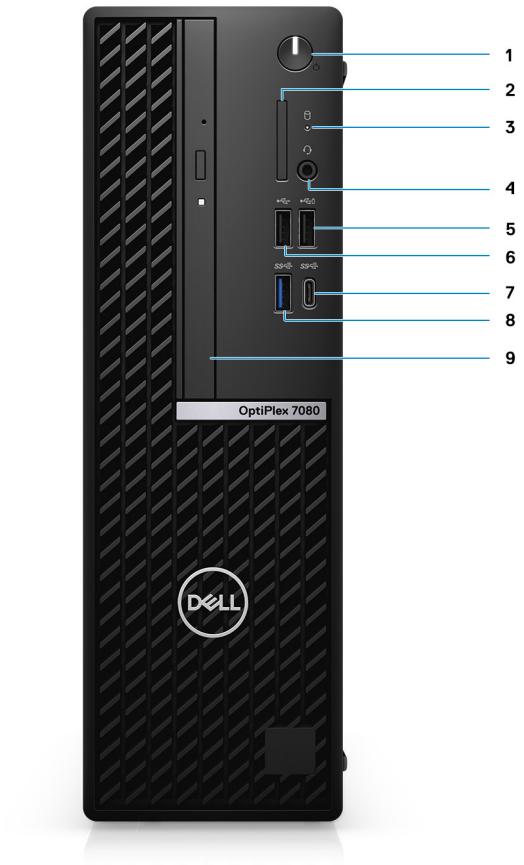
2

Chassis

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

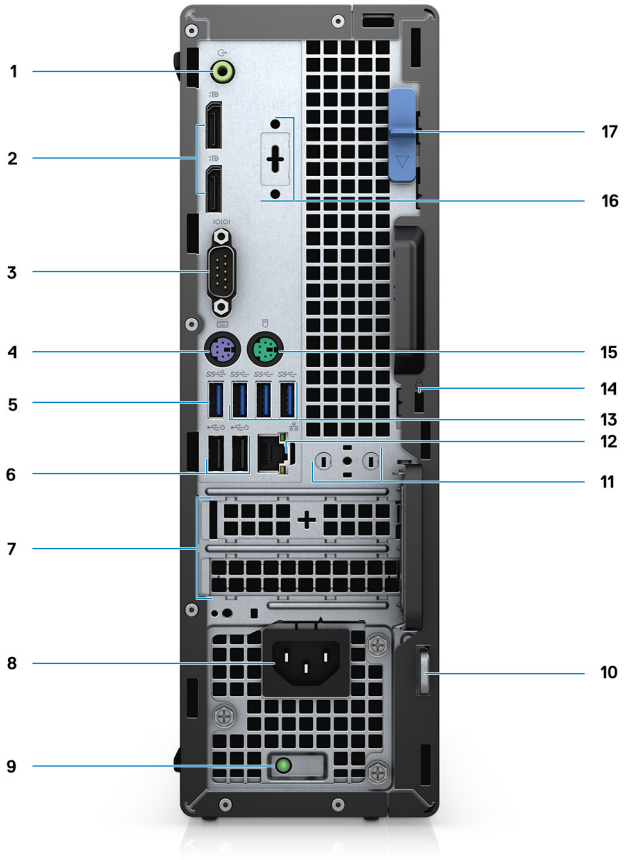
Topics:

Front view



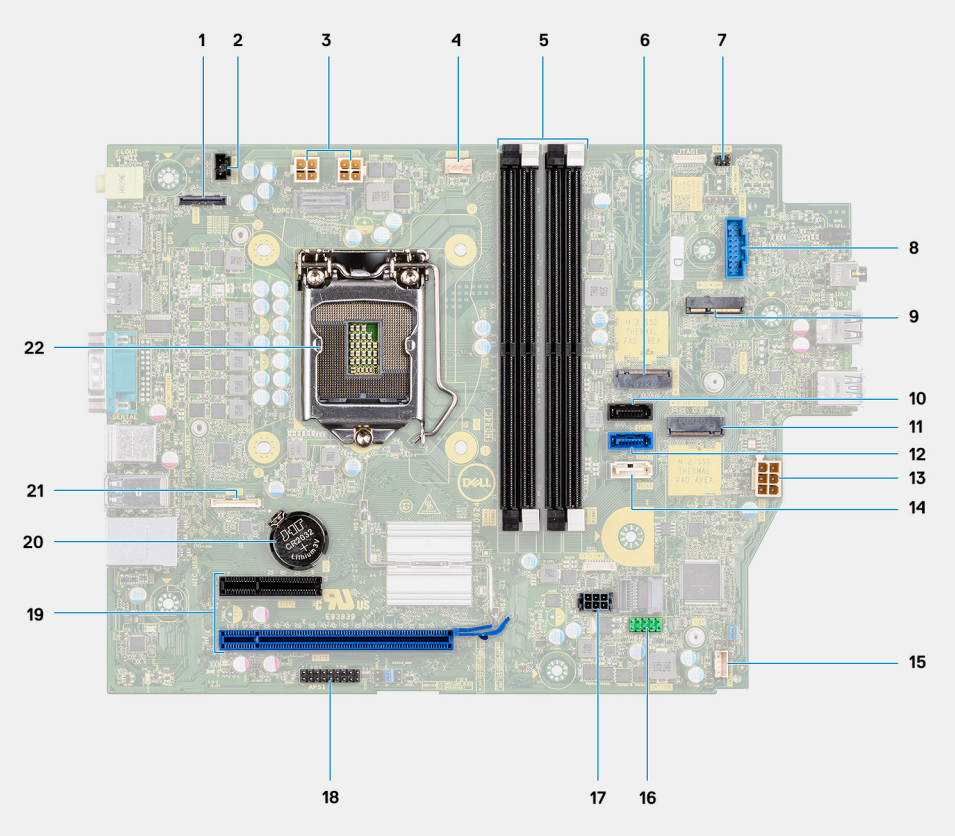
1. Power button and power light
2. SD card reader (Optional)
3. Hard drive activity light
4. Universal audio jack port
5. USB 2.0 Type-A port with PowerShare
6. USB 2.0 Type-A port
7. USB 3.2 Gen 2 Type-C port with PowerDelivery
8. USB 3.2 Gen2 Type-A port with PowerShare
9. Optical disk drive

Back view



1. Audio Line-in/out port retasking
2. Two DisplayPort 1.4 ports
3. Serial Port
4. PS/2 port for keyboard
5. USB 3.2 Gen 2 Type-A port
6. USB 2.0 ports with Power On
7. PCIe Gen 3 slot
8. Power connector port
9. Power supply diagnostics light
10. Padlock loop
11. Antenna module slot
12. RJ-45 port 10/100/1000 Mbps
13. Three USB 3.2 Gen 1 Type-A ports
14. Kensington security-cable slot
15. PS/2 port for mouse
16. VGA/HDMI2.0/DP++1.4/Type-C w/DP-Alt mode
17. Release latch

Small Form Factor System board layout



1. Video connector
2. Intrusion switch connector (Intruder)
3. CPU power connector (ATX_CPU)
4. CPU fan connector
5. Memory slots (DIMM1, DIMM2, DIMM3, DIMM4)
6. M.2 Solid-state drive connector
7. Power switch connector (PWR_SW)
8. Media card reader connector (Card_reader)
9. M.2 WLAN connector
10. SATA 1 connector
11. SATA 2 connector
12. PSU connector
13. SATA 3 connector
14. Internal speaker connector
15. Internal speaker connector
16. SATA 2 connector
17. SATA power connector
18. SATA 3 connector
19. PCI-e connectors
20. Coin cell battery
21. USB Type-C connector
22. Processor socket (CPU)

3

Technical specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information about the configuration of your computer, go to Help and Support in your Windows operating system and select the option to view information about your computer.

Topics:

Dimensions and weight

Table 2. Dimensions and weight

Description	Values
Height:	
Front	290.00 mm (11.42 in)
Rear	290.00 mm (11.42 in)
Width	92.60 mm (3.65 in)
Depth	292.80 mm (11.53 in)
Weight (maximum)	5.28 Kg (11.63 lb) **NOTE:** The weight of your computer depends on the configuration ordered and the manufacturing variability.

Processors

Table 3. Processors

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics	GSP	DG/CG Ready
10th Generation Intel Core i3-10100	65 W	4	8	3.6 GHz to 4.3 GHz	6 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i3-10300	65 W	4	8	3.7 GHz to 4.4 GHz	8 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i5-10400	65 W	6	12	2.9 GHz to 4.3 GHz	12 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i5-10500	65 W	6	12	3.1 GHz to 4.5 GHz	12 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i5-10600	65 W	6	12	3.3 GHz to 4.8 GHz	12 MB	Intel UHD Graphics 630	Yes	Yes
10th Generation Intel Core i7-10700	65 W	8	16	2.9 GHz to 4.8 GHz	16 MB	Intel UHD Graphics 630	Yes	Yes
10th Generation Intel Core i9-10900	65 W	10	20	2.8 GHz to 5.2 GHz	20 MB	Intel UHD Graphics 630	Yes	Yes

Chipset

Table 4. Chipset

Description	Values
Chipset	Intel Q470
Processor	10th Generation Intel Core i3/i5/i7/i9
DRAM bus width	64-bit (for single channel)
Flash EPROM	32 MB
PCIe bus	Up to Gen 3.0
Non-volatile memory	Yes

Table 4. Chipset (continued)

Description	Values
BIOS Configuration Serial Peripheral Interface (SPI)	256 Mbit (32 MB) located at SPI_FLASH on chipset
Trusted Platform Module (Discrete TPM Enabled)	24 KB located at TPM 2.0 on chipset
Firmware TPM (Discrete TPM Disabled)	By default the Platform Trust Technology feature is visible to the OS
NIC EEPROM	LOM configuration contained within SPI flash ROM instead of LOM e-fuse

Operating system

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)
- Windows 10 IoT Enterprise 2019 LTSC (OEM only)
- Windows 10 Pro Education (64-bit)
- NeoKylin 7.0 (China only)
- Ubuntu 18.04 (64-bit)

Commercial Platform Windows 10 N-2 and 5 year OS Supportability

All newly introduced commercial platforms (Latitude, OptiPlex, and Precision) will qualify and ship with the most current factory installed Semi-Annual Channel Windows 10 version (N) and qualify (but not ship) the previous two versions (N-1, N-2). This device platform will RTS with Windows 10 version v19H2 at the time of launch, and this version will determine the N-2 versions that are initially qualified for this platform.

For future versions of Windows 10, Dell will continue to test the commercial platform with coming Windows 10 releases during device production and for five years post-production, including both fall and spring releases from Microsoft.

Please reference the Dell Windows as a Service (WaaS) website for additional information on N-2 and 5 year Windows OS supportability. Website can be found at this link:

Platforms Qualified on specific versions of Windows 10

This website also includes a matrix of other platforms qualified on specific versions of Windows 10.

Memory

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.

NOTE: Memory modules should be installed in pairs of matched memory size, speed, and technology. If the memory modules are not installed in matched pairs, the computer continues to operate, but with a slight reduction in performance. The entire memory range is available to 64-bit operating systems.

Table 5. Memory specifications

Description	Values
Slots	Four DIMM slots
Type	DDR4
Speed	2666/2933 MHz
Maximum memory	128 GB
Minimum memory	4 GB
Memory size per slot	4 GB, 8 GB, 16 GB, 32 GB

Table 5. Memory specifications (continued)

Description	Values
Configurations supported	• 4 GB, 1 x 4 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 8 GB, 1 x 8 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 8 GB, 2 x 4 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 16 GB, 4 x 4 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 16 GB, 1 x 16 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 16 GB, 2 x 8 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 32 GB, 1 x 32 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 32 GB, 2 x 16 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 64 GB, 2 x 32 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors • 128 GB, 4 x 32 GB, 2666 MHz for Intel Core i3/i5 processors, 2933 MHz for Intel Core i7/i9 processors **NOTE:** The Memory speed supported in Brazil for Intel Core i7/i9 processors is 2666 MHz.

Intel Optane memory

Intel Optane memory functions only as a storage accelerator. It neither replaces nor adds to the memory (RAM) installed on your computer.

NOTE: Intel Optane memory is supported on computers that meet the following requirements:

- 7th Generation or higher Intel Core i3/i5/i7 processor
- Windows 10 64-bit version or higher (Anniversary Update)
- Latest version of Intel Rapid Storage Technology driver
- UEFI boot mode configuration

Table 6. Intel Optane memory

Description	Values
Type	Memory/Storage/Storage accelerator
Interface	Gen 3 PCIe x4 NVMe
Connector	M.2 2280
Configurations supported	16 GB and 32 GB
Capacity	Up to 32 GB

Ports and connectors

Table 7. Ports and connectors

Description	Values
External:	
Network	One RJ-45 port 10/100/1000 Mbps (rear)
USB	• One USB 2.0 port with PowerShare (front) • One USB 3.2 Gen 1 port (front) • One USB 2.0 port (front) • One USB 3.2 Gen 2 Type-C port (front) • Two USB 2.0 ports with Smart Power On (rear) • Three USB 3.2 Gen 1 Type-A port (rear) • One USB 3.2 Gen 2 Type-A ports (rear)
Audio	• One Universal Audio Jack (front) • One Line-out audio port with re-tasking to Line-in(rear)
Video	• Two DisplayPort 1.4 ports (rear) • One VGA Port/DisplayPort 1.4 Port/HDMI 2.0b Port/ USB 3.2 Gen2 Type-C Port with Alt-mode (optional),
Memory card reader	One SD 4.0 (optional)
Power port	4.50 mm x 2.90 mm DC-in
Serial	1 port
PS/2	2 ports
Security	One Kensington security-cable slot
Internal:	
M.2	• One M.2 2230 slot for WiFi and Bluetooth card • One M.2 2230 slot for solid-state drive • One M.2 2230/2280 slot for SSD/Intel Optane **NOTE:** To learn more about the features of different types of M.2 cards, see the knowledge base article SLN301626.

Communications

Ethernet

Table 8. Ethernet specifications

Description	Values
Model number	Intel i219-LM
Transfer rate	10/100/1000 Mbps

Wireless module

Table 9. Wireless module specifications

Description	Values		
Model number	Qualcomm QCA61x4a	Intel Wi-Fi 6 AX201	Qualcomm QCA9377
Transfer rate	Up to 867 Mbps	Up to 2.4 Gbps	Up to 867 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz
Wireless standards	802.11ac	802.11ax (Wi-Fi 6)	802.11ac
Encryption	• 64-bit and 128-bit WEP • 128-bit AES-CCMP • TKIP	• 64-bit and 128-bit WEP • 128-bit AES-CCMP • TKIP	• 64-bit and 128-bit WEP • 128-bit AES-CCMP • TKIP
Bluetooth	5.0	5.1	5.0

Graphics and Video controller

Table 10. Integrated graphics specifications

Controller	External display support	Memory size	Processor
Intel UHD Graphics 630	• Two DisplayPort 1.4 port	Shared system memory	10th Generation Intel Core i3/i5/i7/i9

Table 11. Discrete graphics specifications

Controller	External display support	Memory size	Memory Type
NVIDIA GeForce GT 730	Two DP 1.4/One HDMI 2.0b	2 GB	GDDR5
AMD Radeon R5 430	One DP 1.4/Two mDP	2 GB	GDDR5
AMD Radeon RX640	One DP 1.4/Two mDP	4 GB	GDDR5
NOTE: Tower supports Full height (FH) cards			

Audio and Speaker

The following table lists the audio specifications of your OptiPlex 7080 Small Form Factor.

Table 12. Audio and speaker specifications

Description	Values
Audio Type	4 Channel High Definition Audio
Audio Controller	Realtek ALC3246
Internal interface	Intel HDA (high-definition audio)
External interface	• One Universal Audio Jack (front) • One Line-out audio port with re-tasking to Line-in(rear)

Storage

Your computer supports one of the following configurations:

NOTE: Upgrading or adding hard-disk drive configurations will require a hard-disk drive kit.

- One 2.5 inch hard-disk drive
- Two 2.5 inch hard-disk drives
- One 3.5 inch hard-disk drive
- Two 3.5 inch hard-disk drives
- One 2.5 inch hard-disk drive and one 3.5 inch hard-disk drive
- One M.2 2230/2280 solid-state drive (class 35 or class 40)
- One M.2 2230/2280 solid-state drive (class 35 or class 40) and one 3.5 inch hard-disk drive
- One M.2 2230/2280 solid-state drive (class 35 or class 40) and one 2.5 inch hard-disk drive
- One M.2 2230/2280 solid-state drive (class 35 or class 40) and two 2.5 inch hard-disk drives
- One M.2 2230/2280 solid-state drive and one M.2 2230 solid-state drive through media card reader
- One 2.5 inch hard-disk drive and one M.2 16/32 GB Intel Optane memory
- Two 2.5 inch hard-disk drives and one M.2 16/32 GB Intel Optane memory
- One 3.5 inch hard-disk drive and one M.2 16/32 GB Intel Optane memory
- One 3.5 inch/2.5 inch hard-disk drive and one M.2 16/32 GB Intel Optane memory

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

- with a M.2 solid-state drive, the M.2 solid-state drive is the primary drive
- without a M.2 drive, either the 3.5-inch hard drive or one of the 2.5-inch hard drives/Solid state drive is the primary drive
- with a M.2 16 or 32 GB Intel Optane memory, the 2.5-inch hard-disk drive is the primary drive

Table 13. Storage specifications

Storage type	Interface type	Capacity
2.5-inch, 5400 RPM, hard-disk drive	SATA 3.0	Up to 2 TB
2.5-inch, 7200 RPM, hard-disk drive	SATA 3.0	Up to 1 TB
2.5-inch, 7200 RPM, FIPS Self Encrypting Opal 2.0, hard-disk drive	SATA 3.0	Up to 500 GB
3.5-inch, 5400 RPM, hard-disk drive	SATA 3.0	4 TB
3.5-inch,7200 RPM, hard-disk drive	SATA 3.0	Up to 2 TB
M.2 2230 solid-state drive	PCIe 3 Gen x4 NVMe, Class 35	Up to 512 GB
M.2 2280 solid-state drive	PCIe 3 Gen x4 NVMe, Class 40	Up to 2 TB
M.2 2280 Opal Self-Encrypting solid-state drive	PCIe 3 Gen x4 NVMe, Class 40	Up to 1 TB

Power ratings

Table 14. Power ratings specifications

Type	200 W (80 PLUS Bronze)	200 W (80 PLUS Platinum)
Input voltage	90 VAC to 264 VAC	90 VAC to 264 VAC
Input frequency	47 Hz to 63 Hz	47 Hz to 63 Hz
Input current (maximum)	3.2 A	3.2 A

Table 14. Power ratings specifications (continued)

Type		200 W (80 PLUS Bronze)	200 W (80 PLUS Platinum)
Output current (continuous)		• +12 VA/16.50 A • +12 VB/14 A • +12 VSB/2.50 A Standby mode: • +12 VA/1.5 A • +12 VB/2.5 A	• +12 VA/16.50 A • +12 VB/14 A • +12 VSB/2.50 A Standby mode: • +12 VA/1.5 A • +12 VB/2.5 A
Rated output voltage		• +12 VA • +12 VB	• +12 VA • +12 VB
Temperature range			
	Operating	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)

Add-in cards

Table 15. Add-in cards

Add-in cards
USB Type-C 3.1 PCIe Card
USB Type-A 3.1 Gen 2
2nd-gigabit NIC add-in card
PCIe x1 5/2.5 GbE NIC
Thunderbolt PCIe Card 3.0
PCIe Parallel/Serial add-in card (FH)
PS/2/Serial add-in bracket
M.2 SSD Zoom2 Card (Expansion card)

Security

Table 16. Security

Security options	OptiPlex 7080 Small Form Factor
Kensington security-cable slot	Supported
Padlock loop	Supported
Lockable port cover	Supported
Chassis lock slot support	Supported
Lockable Cable Covers	Supported
Chassis intrusion switch	Supported
Dell Data Protection - Software Encryption (DDPE)	Supported

Table 16. Security (continued)

Security options	OptiPlex 7080 Small Form Factor
Dell Data Protection - Endpoint Security Suite (DDP | ESS) and Endpoint Security Suite Enterprise (DDP | ESS-E)	Supported
Microsoft 10 Device Guard and Credential Guard (Enterprise SKU)	Supported
Microsoft Windows Bitlocker	Supported
Local hard drive data wipe through BIOS (Secure Erase)	Supported
Encryption - SED Hard Drive (Opal FIPS)	Supported
Trusted Platform Module TPM 2.0	Supported
Intel Secure Boot	Supported
Intel Authenticate	Supported

Environmental

Table 17. Environmental specifications

Feature	
Recyclable packaging	Yes
BFR/PVC—free chassis	No
MultiPack packaging	Yes (US only) (optional)
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.

Energy Star and Trusted Platform Module (TPM)

Table 18. Energy Star and TPM

Features	Specifications
ENERGY STAR qualified configurations available	Compliant configurations available
Trusted Platform Module (TPM) 2.0[1,2]	Integrated on system board
Discrete TPM	Onboard
EPEAT Gold and Silver compliant configurations available	Compliant configurations available

NOTE:

[1]TPM 2.0 is FIPS 140-2 certified.

[2]TPM is not available in all countries.

Computer environment

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

Table 19. Computer environment

Description	Operating	Storage
Temperature range	10 °C–35°C (50 °F–95°F)	-40°C-65°C (-40°F-149°F)
Relative humidity (maximum)	20% to 80% (non-condensing, Max dew point temperature = 26°C)	5% to 95% (non-condensing, Max dew point temperature = 33°C)
Vibration (maximum)*	0.26 GRMS random at 5 Hz to 350 Hz	1.37 GRMS random at 5 Hz to 350 Hz
Shock (maximum)	Bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 in./sec)	105G half-sine pulse with a change in velocity of 133 cm/sec (52.5 in./sec)
Altitude (maximum)	3048 m (10,000 ft)	10,668 m (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.

Service and support

4

Software

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

Topics:

- Downloading Windows 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.

5

System setup

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the size of the hard drive.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enabling or disabling base devices.

Topics:

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

Steps

1. Turn on your computer.
2. Press F2 immediately to enter the BIOS Setup.

   NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the desktop. Then, turn off your computer and try again.

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.
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.

F12 One Time Boot menu

To enter the One Time Boot menu, turn on your computer, and then press F12 immediately.

NOTE: It is recommended to shut down the computer, if it is on.

The F12 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

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

System setup options

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

General options

Table 20. General

Option	Description
System Information	Displays the following information: • System Information: Displays **BIOS Version, Service Tag, Asset Tag, Ownership Tag, Manufacture Date, Ownership Date,** and the **Express Service Code**. • Memory Information: Displays **Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, Memory Technology, DIMM 1 Size**, and **DIMM 2 Size**. • PCI Information: Displays Slot1_M.2, Slot2_M.2 • Processor Information: Displays **Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable,** and **64-Bit Technology.** • Device Information: Displays **SATA-0, M.2 PCIe SSD-2, LOM MAC Address, Video Controller, Audio Controller, Wi-Fi Device, and Bluetooth Device.**
Boot Sequence	Allows you to specify the order in which the computer attempts to find an operating system from the devices specified in this list.
UEFI Boot Path Security	This option controls whether or not the system prompts the user to enter the Admin password when booting a UEFI boot path from the F12 Boot Menu.
Date/Time	Allows you to set the date and time settings. Changes to the system date and time take effect immediately.

.

System information

Table 21. System Configuration

Option	Description
Integrated NIC	Allows you to control the onboard LAN controller. The option 'Enable UEFI Network Stack' is not selected by default. The options are: ● Disabled ● Enabled ● Enabled w/PXE (default) **NOTE:** Depending on the computer and its installed devices, the items that are listed in this section may or may not appear.
SATA Operation	Allows you to configure the operating mode of the integrated hard drive controller. ● Disabled = The SATA controllers are hidden ● AHCI = SATA is configured for AHCI mode ● RAID ON = SATA is configured to support RAID mode (selected by default)
Drives	Allows you to enable or disable the various drives onboard: ● SATA-0 (enabled by default) ● M.2 PCIe SSD-0 (enabled by default)
Smart Reporting	This field controls whether hard-drive errors for integrated drives are reported during system startup. The **Enable Smart Reporting option** is disabled by default.
USB Configuration	Allows you to enable or disable the integrated USB controller for: ● Enable USB Boot Support ● Enable Front USB Ports ● Enable Rear USB Ports All the options are enabled by default.
Front USB Configuration	Allows you to enable or disable the front USB ports. All the ports are enabled by default.
Rear USB Configuration	Allows you to enable or disable the back USB ports. All the ports are enabled by default.
Audio	Allows you to enable or disable the integrated audio controller. The option **Enable Audio** is selected by default. ● Enable Microphone ● Enable Internal Speaker Both the options are selected by default.
Dust Filter Maintenance	Allows you to enable or disable BIOS messages for maintaining the optional dust filter that is installed in your computer. BIOS will generate a pre-boot reminder to clean or replace the dust filter based on the interval set. The option **Disabled** is selected by default. ● Disabled ● 15 days ● 30 days ● 60 days ● 90 days ● 120 days ● 150 days ● 180 days

Video screen options

Table 22. Video

Option	Description
Primary Display	Allows you to select the primary display when multiple controllers are available in the system.

Table 22. Video

Option	Description
	• Auto (default) • Intel HD Graphics **NOTE:** If you do not select Auto, the on-board graphics device will be present and enabled.

Security

Table 23. Security

Option	Description
Admin Password	Allows you to set, change, and delete the admin password.
System Password	Allows you to set, change, and delete the system password.
Internal HDD-0 Password	Allows you to set, change, and delete the computer's internal hard drive password.
Password Configuration	Allows you to control the minimum and maximum number of characters that are allowed for an administrative password and the system password. The range of characters is between 4 and 32.
Password Bypass	This option lets you bypass the System (Boot) Password and the internal hard drive password prompts during a system restart. • Disabled — Always prompt for the system and internal HDD password when they are set. This option is disabled by default. • Reboot Bypass — Bypass the password prompts on Restarts (warm boots). **NOTE:** The system will always prompt for the system and internal HDD passwords when powered on from the off state (a cold boot). Also, the system will always prompt for passwords on any module bay HDDs that may be present.
Password Change	This option lets you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set. **Allow Non-Admin Password Changes** - This option is enabled by default.
UEFI Capsule Firmware Updates	This option controls whether this system allows BIOS updates via UEFI capsule update packages. This option is selected by default. Disabling this option will block BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS).
TPM 2.0 Security	Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system. • TPM On (default) • Clear • PPI Bypass for Enable Commands • PPI Bypass for Disable Commands • PPI Bypass for Clear Commands • Attestation Enable (default) • Key Storage Enable (default) • SHA-256 (default) Choose any one option: • Disabled • Enabled (default)
Absolute	This field lets you Enable, Disable or permanently Disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute Software. • Enabled - This option is selected by default. • Disable

Table 23. Security (continued)

Option	Description
	• Permanently Disabled
Chassis Intrusion	This field controls the chassis intrusion feature. Choose any one of the options: • Disabled (default) • Enabled • On-Silent
Admin Setup Lockout	Allows you to prevent users from entering Setup when Admin password is set. This option is not set by default.
Master Password Lockout	Allows you to disable master password support. Hard Disk passwords need to be cleared before the settings can be changed. This option is not set by default.
SMM Security Mitigation	Allows you to enable or disable additional UEFI SMM Security Mitigation protections. This option is not set by default.

Secure boot options

Table 24. Secure Boot

Option	Description
Secure Boot Enable	Allows you to enable or disable Secure Boot feature • Secure Boot Enable This option is not selected by default.
Secure Boot Mode	Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures. • Deployed Mode (default) • Audit Mode
Expert key Management	Allows you to manipulate the security key databases only if the system is in Custom Mode. The **Enable Custom Mode** option is disabled by default. The options are: • PK (default) • KEK • db • dbx If you enable the **Custom Mode**, the relevant options for **PK, KEK, db, and dbx** appear. The options are: • **Save to File**- Saves the key to a user-selected file • **Replace from File**- Replaces the current key with a key from a user-selected file • **Append from File**- Adds a key to the current database from a user-selected file • **Delete**- Deletes the selected key • **Reset All Keys**- Resets to default setting • **Delete All Key**s- Deletes all the keys **NOTE:** If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.

Intel Software Guard Extensions options

Table 25. Intel Software Guard Extensions

Option	Description
Intel SGX Enable	This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS. Click one of the following options: • **Disabled** • **Enabled** • **Software controlled**—Default
Enclave Memory Size	This option sets **SGX Enclave Reserve Memory Size** Click one of the following options: • **32 MB** • **64 MB** • **128 MB**—Default

Performance

Table 26. Performance

Option	Description
Multi Core Support	This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores. • **All**—Default • **1** • **2** • **3**
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of processor. • **Enable Intel SpeedStep** This option is set by default.
C-States Control	Allows you to enable or disable the additional processor sleep states. • **C states** This option is set by default.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. • **Enable Intel TurboBoost** This option is set by default.
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. • **Disabled** • **Enabled**—Default

Power management

Table 27. Power Management

Option	Description
AC Recovery	Determines how the system responds when AC power is re-applied after a power loss. You can set the AC Recovery to: ● Power Off ● Power On ● Last Power State This option is Power Off by default.
Enable Intel Speed Shift Technology	Allows you to enable or disable Intel Speed Shift Technology support. The option **Enable Intel Speed Shift Technology** is set by default.
Auto On Time	Sets time to automatically turn on the computer. Time is kept in standard 12-hour format (hour:minutes:seconds). Change the startup time by typing the values in the time and AM/PM fields. **NOTE:** This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if **Auto Power is set to disabled**.
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled. ● Disabled ● Enabled in S5 only ● Enabled in S4 and S5 .
USB Wake Support	Allows you to enable the USB devices to wake the computer from standby mode. The option "Enable USB Wake Support" is selected by default
Wake on LAN/WWAN	This option allows the computer to power up from the off state when triggered by a special LAN signal. This feature only works when the computer is connected to AC power supply. ● **Disabled** - Does not allows the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN. ● **LAN** or **WLAN** - Allows the system to be powered on by special LAN or wireless LAN signals. ● **LAN Only** - Allows the system to be powered on by special LAN signals. ● **LAN with PXE Boot** - A wakeup packet sent to the system in either the S4 or S5 state, that will cause the system to wake-up and immediately boot to PXE. ● **WLAN Only** - Allows the system to be powered on by special WLAN signals. This option is Disabled by default.
Block Sleep	Allows you to block entering to sleep (S3 state) in OS environment. This option is disabled by default.

Post behavior

Table 28. POST Behavior

Option	Description
Adapter Warnings	This option lets you choose whether the system displays warning messages when you use certain power adapters. This option is enabled by default.
Numlock LED	Allows you to enable or disable the Numlock feature when your computer starts. This option is enabled by default.
Keyboard Errors	Allows you to enable or disable the keyboard error reporting when the computer starts. The option **Enable Keyboard Error Detection** is enabled by default.
Fast Boot	This option can speed up the boot process by bypassing some compatibility steps:

Table 28. POST Behavior (continued)

Option	Description
	• Minimal — The system boots quickly, unless the BIOS has been updated, memory changed, or the previous POST did not complete. • Thorough — The system does not skip any steps in the boot process. • Auto — This allows the operating system to control this setting (this works only when the operating system supports Simple Boot Flag). This option is set to **Thorough** by default.
Extend BIOS POST Time	This option creates an additional pre-boot delay. • 0 seconds (default) • 5 seconds • 10 seconds
Full Screen Logo	This option will display full screen logo if your image match screen resolution. The option **Enable Full Screen Logo** is not set by default.
Warnings and Errors	This option causes the boot process to only pause when warning or errors are detected. Choose any one of the option: • Prompt on Warnings and Errors - default • Continue on Warnings • Continue on Warnings and Errors

Virtualization support

Table 29. Virtualization Support

Option	Description
Virtualization	This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by the Intel Virtualization technology. • **Enable Intel Virtualization Technology** This option is set by default.
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by the Intel Virtualization technology for direct I/O. • **Enable VT for Direct I/O** This option is set by default.

Wireless options

Table 30. Wireless

Option	Description
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. The options are: • **WLAN/WiGig** • **Bluetooth** All the options are enabled by default.

Maintenance

Table 31. Maintenance

Option	Description
Service Tag	Displays the service tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
SERR Messages	Controls the SERR message mechanism. This option is set by default. Some graphics cards require that the SERR message mechanism be disabled.
BIOS Downgrade	Allows you to flash previous revisions of the system firmware. • **Allow BIOS Downgrade** This option is set by default.
Data Wipe	Allows you to securely erase data from all internal storage devices. • **Wipe on Next Boot** This option is not set by default.
BIOS Recovery	**BIOS Recovery from Hard Drive**—This option is set by default. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB key. **NOTE: BIOS Recovery from Hard Drive** field must be enabled. **Always Perform Integrity Check**—Performs integrity check on every boot.
First Power On Date	Allows you the set Ownership date. The option **Set Ownership Date** is not set by default.

System logs

Table 32. System Logs

Option	Description
BIOS events	Allows you to view and clear the System Setup (BIOS) POST events.

Advanced configuration

Table 33. Advanced configuration

Option	Description
ASPM	Allows you to set the ASPM level. • Auto (default) - There is handshaking between the device and PCI Express hub to determine the best ASPM mode supported by the device • Disabled - ASPM power management is turned off at all time • L1 Only - ASPM power management is set to use L1

SupportAssist System Resolution

Option	Description
Auto OS Recovery Threshold	Allows you to control the automatic boot flow for SupportAssist System. Options are: • Off • 1 • 2 (Enabled by default) • 3
SupportAssist OS Recovery	Allows you to recover the SupportAssist OS Recovery (Enabled by default).
BIOSConnect	BIOSConnect enable or disable cloud Service OS upon absence of Local OS Recovery (Enabled by default).

Updating the BIOS

Updating the BIOS in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, search in the Knowledge Base Resource at Dell Support Site.

Steps

1. Go to Dell Support Site.
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, search in the Knowledge Base Resource at Dell Support Site.

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 at Dell Support Site.

Updating the BIOS using the USB drive in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the

computer will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, search in the Knowledge Base Resource at Dell Support Site.

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, search in the Knowledge Base Resource at Dell Support Site.
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

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, search in the Knowledge Base Resource at Dell Support Site.

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 the 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 an 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.

System and setup password

Table 34. System and setup password

Password type	Description
System password	Password that you must enter to log in to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

You can create a system password and a setup password to secure your computer.

CAUTION: The password features provide a basic level of security for the data on your computer.

CAUTION: Anyone can access the data that is stored on your computer, when not locked and left unattended.

NOTE: System and setup password feature is disabled.

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 BIOS 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 visible.
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.
   - At least one special character: "(! " # $ % & ' * + , - . / : ; < = > ? @ [\ ] ^ _ ` { | })"
   - Numbers 0 to 9.
   - Upper case letters from A to Z.
   - Lower case letters from a to z.
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and save the changes as prompted by the message.
5. Press Y to save the changes.
   The computer restarts.

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/or 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 the Password Status is **Unlocked**.
3. Select **System Password**, update, or delete the existing system password, and press Enter or Tab.
4. Select **Setup Password**, update, or delete the existing setup password, and press Enter or Tab.

   NOTE: If you change the System and/or Setup password, reenter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

5. Press Esc. A message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.
   The computer restarts.

Clearing BIOS (System Setup) and System passwords

About this task

To clear the computer or BIOS passwords, contact Dell technical support as described at Contact Support at Dell Support Site.

NOTE: For information about how to reset Windows or application passwords, see the documentation accompanying Windows or your application.

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Getting help

Topics:

- Contacting Dell

Contacting Dell

Prerequisites

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

About this task

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

Steps

1. Go to **Dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.