OptiPlex 5080 Small Form Factor

Setup and specifications guide

Regulatory Model: D15S
Regulatory Type: D15S001
May 2020
Rev. A00

Notes, cautions, and warnings

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

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

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

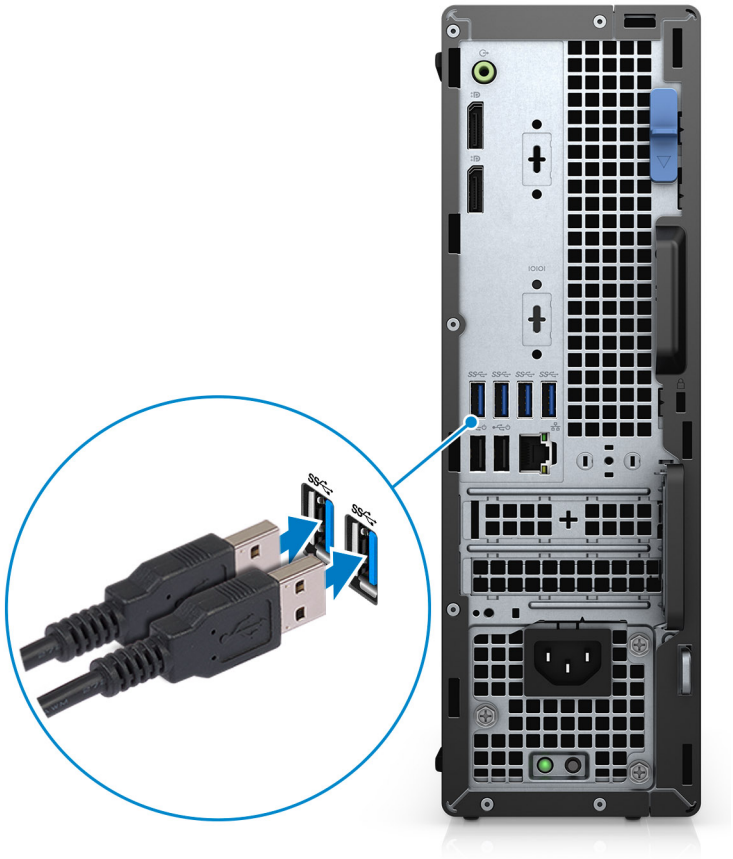
Contents

1

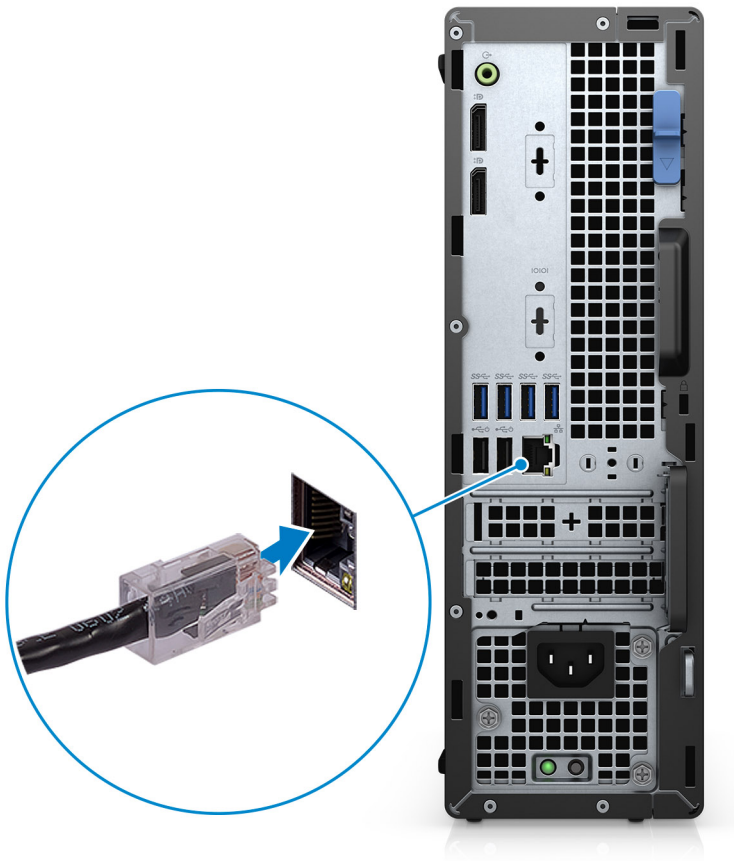
Set up your computer

Steps

1. Connect the keyboard and mouse.

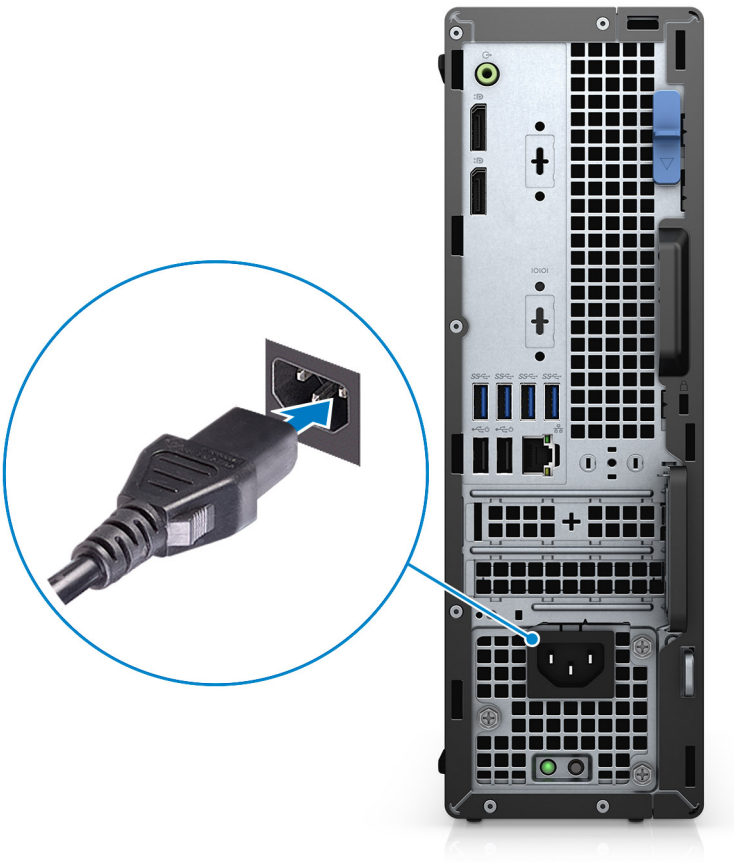


2. Connect to your network using a cable, or connect to a wireless network.



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.
	SupportAssist Proactively checks the health of your computer's hardware and software.

Table 1. Locate Dell apps (continued)

Dell apps	Details
	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.

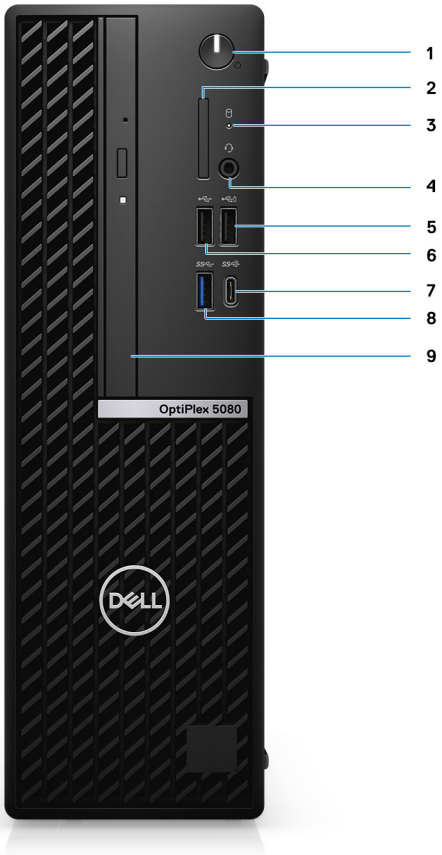
2

Chassis

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

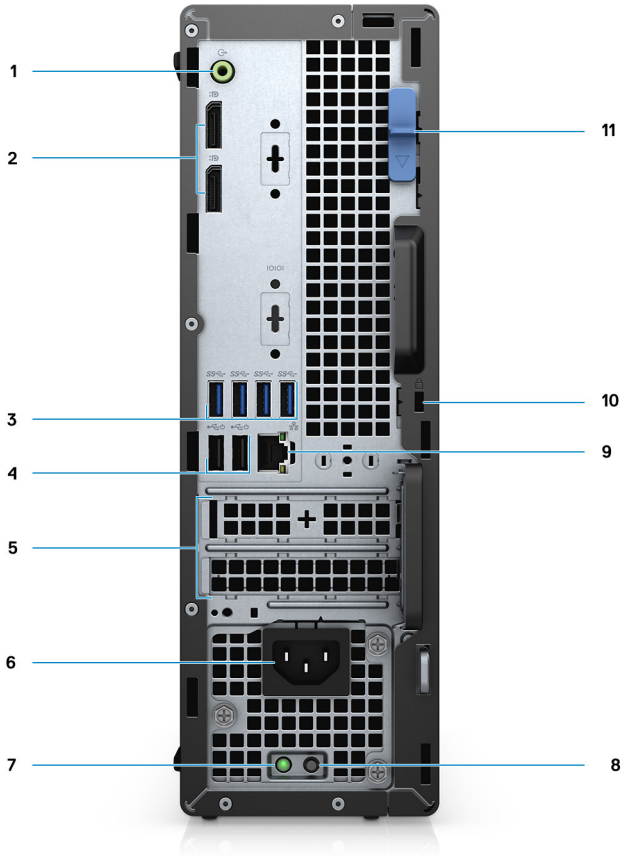
Topics:

Front view



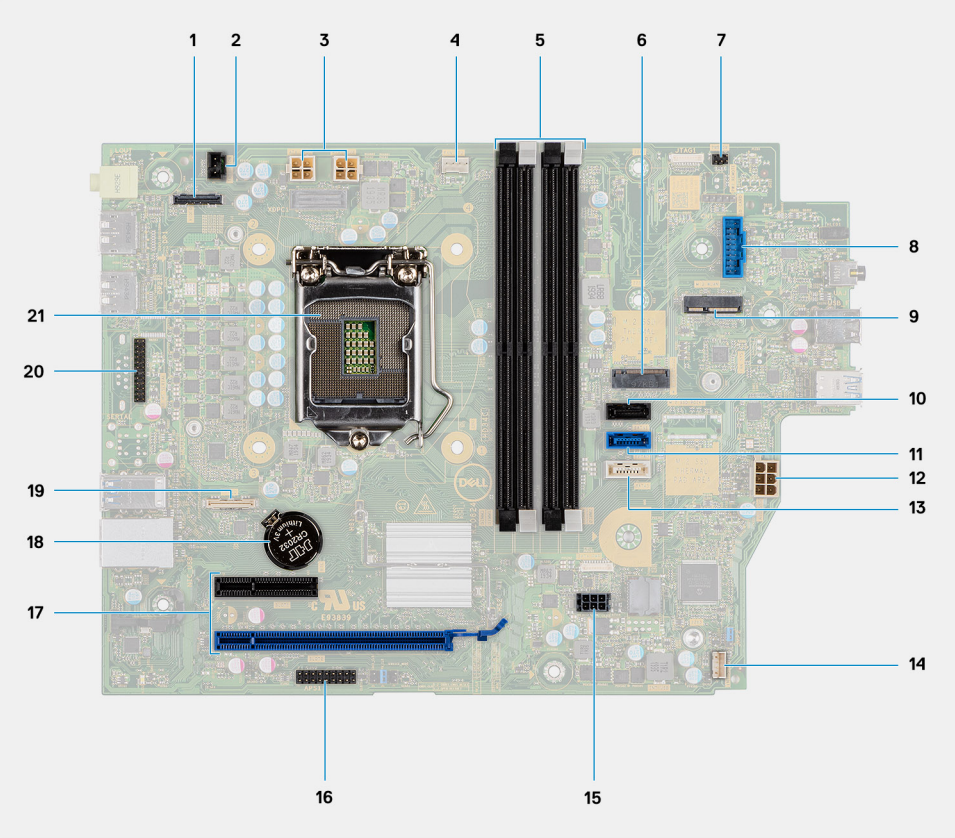
1. Power button with diagnostic LED
2. SD 4.0 card reader (optional)
3. Hard-disk drive activity light
4. Universal audio jack port
5. USB 2.0 port with PowerShare
6. USB 2.0 port
7. USB 3.2 Gen 2 Type-C port
8. USB 3.2 Gen1 type-A
9. Optical Disk Drive (optional)

Back view



1. Line-out re-tasking Line-in audio port
2. Two DisplayPort 1.4 ports
3. Four USB 3.2 Gen 1 Type-A ports
4. Two USB 2.0 ports with Smart Power On
5. Two expansion card slots
6. Power connector port
7. Power supply diagnostic light
8. Padlock loop
9. Antenna module slot
10. RJ-45 port 10/100/1000 Mbps
11. Kensington security-cable slot
12. Expansion card slots
13. Release latch

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. SATA power connector
16. SATA 3 connector
17. PCI-e connectors
18. Coin cell battery
19. USB Type-C connector
20. Serial port
21. 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 mm (11.42 in)
Rear	290 mm (11.42 in)
Width	92.60 mm (3.65 in)
Depth	292.80 mm (11.53 in)
Weight (maximum)	5.25 Kg (11.57lb) **NOTE: The weight of your computer depends on the configuration ordered and the manufacturing variability.**

Chipset

Table 3. Chipset

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

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 that, when configured together, will lock a device down so that it can only run trusted applications. If it is not a trusted application, it cannot run.

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 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 4. Processors

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics	GSP	DG/CG Ready
Intel Pentium G6400	58 W	2	4	4.0 GHz	4 MB	Intel UHD Graphics 610	No	Yes
Intel Pentium G6500	58 W	2	4	4.1 GHz	4 MB	Intel UHD Graphics 610	No	Yes
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

Table 4. Processors (continued)

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics	GSP	DG/CG Ready
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	Yes 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

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

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

Intel Optane memory (optional)

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**

Table 6. Intel Optane memory

Description	Values
Type	Memory/Storage/Storage accelerator
Interface	Gen 3 PCIe x4 NVMe

Table 6. Intel Optane memory (continued)

Description	Values
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 Type-A 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) • Four USB 3.2 Gen 1 Type-A ports (rear)
Audio	• One Universal Audio Jack (front) • One Line-out re-tasking Line-in audio port (rear)
Video	• Two DisplayPort 1.4 ports (rear) • One Optional 3rd Video Port (VGA/DP/HDMI 2.0b/USB Type-C)
Memory card reader	One SD 4.0 (optional)
Power port	4.50 mm x 2.90 mm DC-in
Parallel/Serial port	One Serial port (optional)
PS/2 port	One (optional)
Security	One Kensington security-cable slot
Antenna	Two SMA connectors (optional)
Internal:	
Expansion	• One half-height PCIe x16 Gen 3 slot • One half-height PCIe x4 Gen 3 slot
SATA	Three SATA slots for 3.5-inch Hard-disk drive/2.5-inch Hard-disk drive and slim Optical Disk Drive
M.2	• One M.2 2230 slot for WiFi and Bluetooth card • One M.2 slot for 2280 PCIe solid-state drive/Optane or 2230 PCIe solid-state drive **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 610	• 1 x HDMI 1.4 port • 1 x DisplayPort 1.4 port	Shared system memory	Intel Celeron/Pentium Gold
Intel UHD Graphics 630	• 1 x HDMI 1.4 port • 1 x DisplayPort 1.4 port	Shared system memory	10th Generation Intel Core i3/i5/i7

Table 11. Discrete graphics specifications

Controller	External display support	Memory size	Memory Type
NVIDIA GeForce GT730	Two DisplayPort	2 GB	GDDR5
AMD Radeon R5 430	Two DisplayPort	2 GB	GDDR5
AMD Radeon RX 640	Two mini DisplayPorts One DisplayPort	4 GB	GDDR5

Audio

The following table lists the audio specifications of your OptiPlex 5080 Small Form Factor.

Table 12. Audio specifications

Description		Values
Audio controller		Realtek ALC3246
Stereo conversion		24-bit DAC (Digital-to-Analog) and ADC (Analog-to-Digital)
Internal audio interface		Intel HDA (high-definition audio)
External audio interface		• One Universal Audio Jack (front) • One Line-out re-tasking Line-in audio port (rear)
Number of speakers		One (optional)
Internal-speaker amplifier		Integrated in ALC3246 (Class-D 2 W)
External volume controls		Keyboard shortcut controls.
Speaker output:		
	Average speaker output	2 W
	Peak speaker output	2.5 W
Subwoofer output		Not supported
Microphone		Not supported

Storage

Your computer supports one of the following configurations:

- One 2.5-inch hard-disk drive
- Two 2.5-inch hard-disk drives
- One 3.5-inch hard-disk drive
- One 2.5-inch hard-disk drive and one 3.5-inch hard-disk drive
- One M.2 2230 or 2280 solid-state drive (class 35 or class 40)
- One M.2 2230 or 2280 solid-state drive (class 35 or class 40) and one 3.5-inch hard-disk drive
- One M.2 2230 or 2280 solid-state drive (class 35 or class 40) and one 2.5-inch hard-disk drive
- One M.2 2230 or 2280 solid-state drive (class 35 or class 40) and dual 2.5-inch hard-disk drives
- One M.2 2230 or 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 or 32 GB Intel Optane memory
- Two 2.5-inch hard-disk drives and one M.2 16 or 32 GB Intel Optane memory
- One 3.5-inch hard-disk drive and one M.2 16 or 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-disk drive or one of the 2.5-inch hard-disk drives 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	Upto 2 TB

Table 13. Storage specifications (continued)

Storage type	Interface type	Capacity
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 1 TB
M.2 2280 Opal Self-Encrypting solid-state drive	PCIe 3 Gen x4 NVMe, Class 40	Up to 512 GB

Power ratings

Table 14. Power ratings specifications

Type	200 W (80 PLUS Bronze)	200 W (80 PLUS Platinum)	360 W (80 Plus Platinum)
Input voltage	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
Input current (maximum)	4.20/2.1 A	4.20/2.1 A	5 A
Output current (continuous)	• +12 VA/16.50 A • +12 VB/16 A • +12 VSB/2.50 A Standby mode: • +12 VA/0.5 A • +12 VB/2.5 A	• +12 VA/16.50 A • +12 VB/16 A • +12 VSB/2.50 A Standby mode: • +12 VA/0.5 A • +12 VB/2.5 A	• 12 VA/18 A • 12 VB/18 A • 12 VC/12 A Standby mode: • 12 VA/1.5 A • 12 VB/2.5 A • 12 VC/0 A
Rated output voltage	• +12 VA • +12 VB	• +12 VA • +12 VB	• +12 VA • +12 VB • +12 VC
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)
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)

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)
Powered Serial PCIe card for Tower
Powered USB card

Data security

Table 16. Data security

Data security options	Values
McAfee Small Business Security 30 Day Free Trial	Supported
McAfee Small Business Security 12-month subscription	Supported
McAfee Small Business Security 36-month subscription	Supported
SafeGuard and Response, powered by VMware Carbon Black and Secureworks	Supported
Next Generation anti-virus (NGAV)	Supported
Endpoint Detection and Response (EDR)	Supported
Threat Detection and Response (TDR)	Supported
Managed Endpoint Detection and Response	Supported
Incident Management Retainer	Supported
Emergency Incident Response	Supported
SafeData	Supported

Security

Table 17. Security

Security options	OptiPlex 5080 Small Form Factor
Kensington security-cable slot	Supported
Padlock loop	Supported
Lockable port cover	Supported
Chassis lock slot support	Supported

Table 17. Security (continued)

Security options	OptiPlex 5080 Small Form Factor
Lockable Cable Covers	Supported
Chassis intrusion switch	Supported
Supply chain tamper alerts	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

Energy Star, EPEAT and Trusted Platform Module (TPM)

Table 18. Energy Star, EPEAT and TPM

Features	Specifications
Energy Star 8.0	Compliant configurations available
EPEAT	Gold and Silver compliant configurations available
Trusted Platform Module (TPM) 2.0[1,2]	Integrated on system board
Firmware-TPM (Discrete TPM disabled)	Optional

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)

Table 19. Computer environment (continued)

Description	Operating	Storage
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.

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 notebook.
2. Go to **Dell.com/support**.
3. Click **Product Support**, enter the Service Tag of your notebook, and then click **Submit**.

   NOTE: If you do not have the Service Tag, use the auto detect feature or manually browse for your notebook model.

4. Click **Drivers and Downloads**.
5. Select the operating system installed on your notebook.
6. Scroll down the page and select the driver to install.
7. Click **Download File** to download the driver for your notebook.
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:

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	Navigation
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 enables 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

  NOTE: XXXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

  NOTE: Choosing Diagnostics, displays the SupportAssist screen.

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

System setup options

NOTE: Depending on the tabletcomputerlaptop and its installed devices, the items 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, Slot3_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.

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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.
USB PowerShare	This option allows you to charge the external devices, such as mobile phones, music player. This option is disabled 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. · 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)

Table 23. Security (continued)

Option	Description
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 • Permanently Disabled
Chassis Intrusion	This field controls the chassis intrusion feature. Choose any one of the options: • Disabled (default) • Enabled • On-Silent
OROM Keyboard Access	This option determines whether users can enter Option ROM Configuration screens using hotkeys during boot. • Enabled - This option is selected by default. • Disable • One Time Enable
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.
HDD Protection Support	This field allows users to enable and disable the HDD Protection feature. 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

Table 24. Secure Boot (continued)

Option	Description
	• **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**

Table 26. Performance (continued)

Option	Description
	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 This option is Enabled in S4 and S5 by defaultDisabled (by default).
Fan Control Override	This field determines the speed of the fan. When enabled the system fan runs at full speed. This option is disabled by default.
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.

Table 27. Power Management (continued)

Option	Description
	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: · 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.

Table 29. Virtualization Support (continued)

Option	Description
	· **Enable VT for Direct I/O** This option is set by default.
Trusted Execution	This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. · Trusted Execution This option is not 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 in Windows

Prerequisites

It is recommended to update your BIOS (System Setup) when you replace the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power before initiating a BIOS update.

About this task

NOTE: If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re enabled after the BIOS update is completed.

Steps

1. Restart the computer.
2. Go to **Dell.com/support**.
   - Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   - Click **Detect Product** and follow the instructions on screen.
3. If you are unable to detect or find the Service Tag, click **Choose from all products**.
4. Choose the **Products** category from the list.

   NOTE: Choose the appropriate category to reach the product page.

5. Select your computer model and the **Product Support** page of your computer appears.
6. Click **Get drivers** and click **Drivers and Downloads**.
   The Drivers and Downloads section opens.
7. Click **Find it myself**.
8. Click **BIOS** to view the BIOS versions.
9. Identify the latest BIOS file and click **Download**.
10. Select your preferred download method in the **Please select your download method below** window, click **Download File**.
    The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.
    Follow the instructions on the screen.

Updating BIOS on systems with BitLocker enabled

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system 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 re-install. For more information on this subject, see Knowledge Article: https://www.dell.com/support/article/sln153694

Updating your system BIOS using a USB flash drive

About this task

If the computer cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another computer and save it to a bootable USB flash drive.

NOTE: You must use a bootable USB flash drive. For more information, see the knowledge base article SLN143196.

Steps

1. Download the BIOS update .exe file to another computer.
2. Copy the .exe file onto the bootable USB flash drive.
3. Insert the USB flash drive into the computer that requires the BIOS update.
4. Restart the computer and press F12 when the Dell logo appears to display the One Time Boot Menu.
5. Using arrow keys, select **USB Storage Device** and press Enter.
6. The computer restarts to a Diag C:\> prompt.
7. Run the file by typing the complete filename and press Enter.
8. The BIOS Update Utility is displayed. Follow the on-screen instructions.

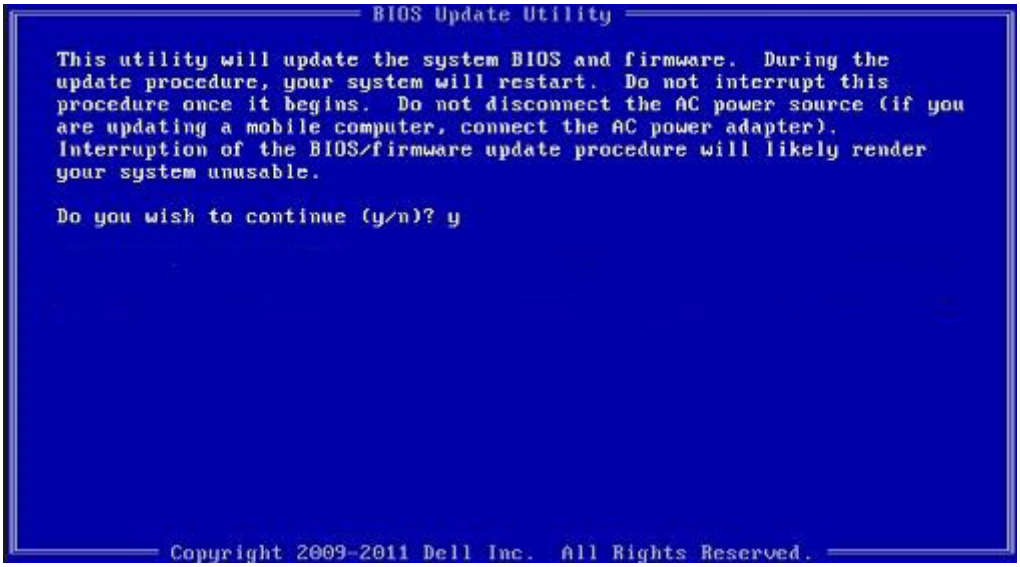

Figure 1. DOS BIOS Update Screen

System and setup password

Table 34. System and setup password

Password type	Description
System password	Password that you must enter to log on 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 stored on your computer if it is 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 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.

6

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.