

# OptiPlex 3080 Micro

## Setup and Specifications



## Notes, cautions, and warnings

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

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

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

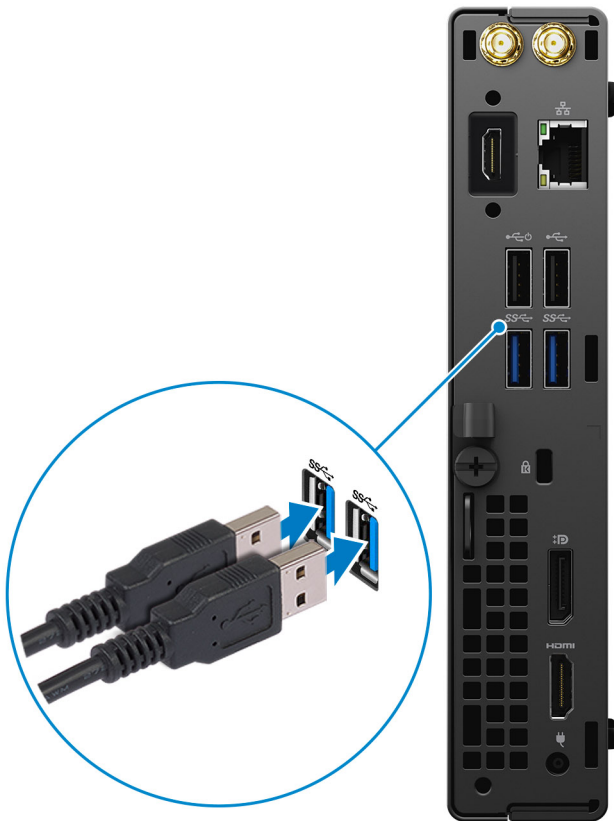
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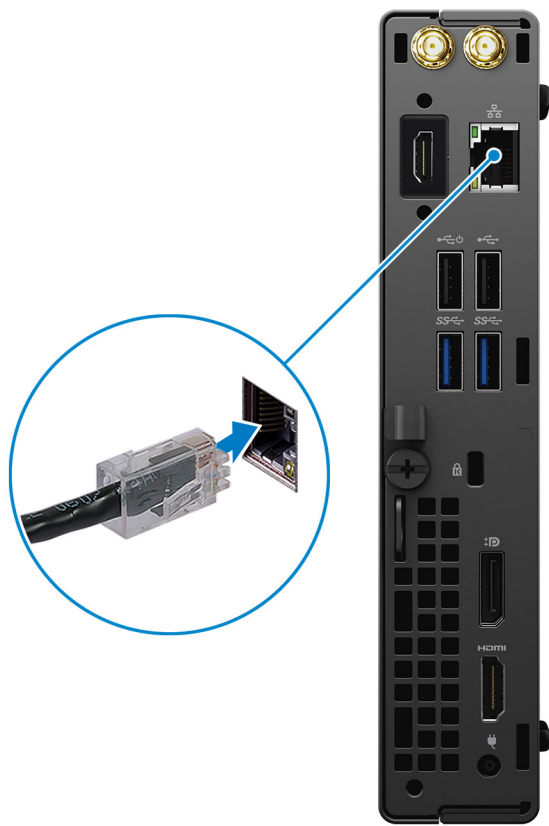
# Set up your computer

## Steps

1. Connect the keyboard and mouse.



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



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**

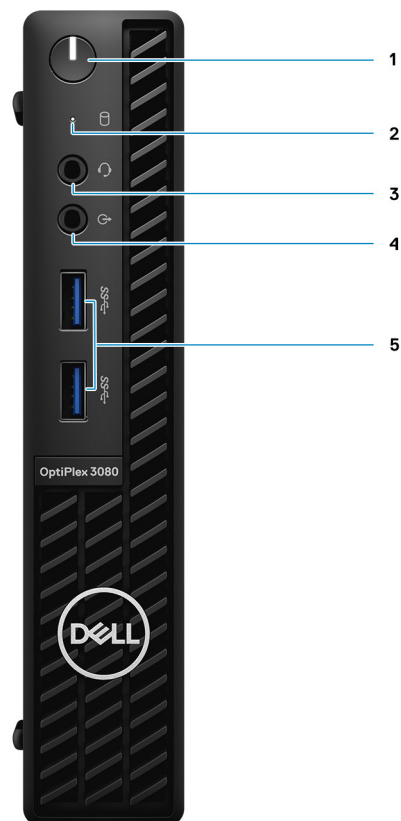
| Dell apps                                                                           | Details                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
|  | <b>Dell Product Registration</b><br>Register your computer with Dell.        |
|  | <b>Dell Help &amp; Support</b><br>Access help and support for your computer. |

**Table 1. Locate Dell apps (continued)**

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

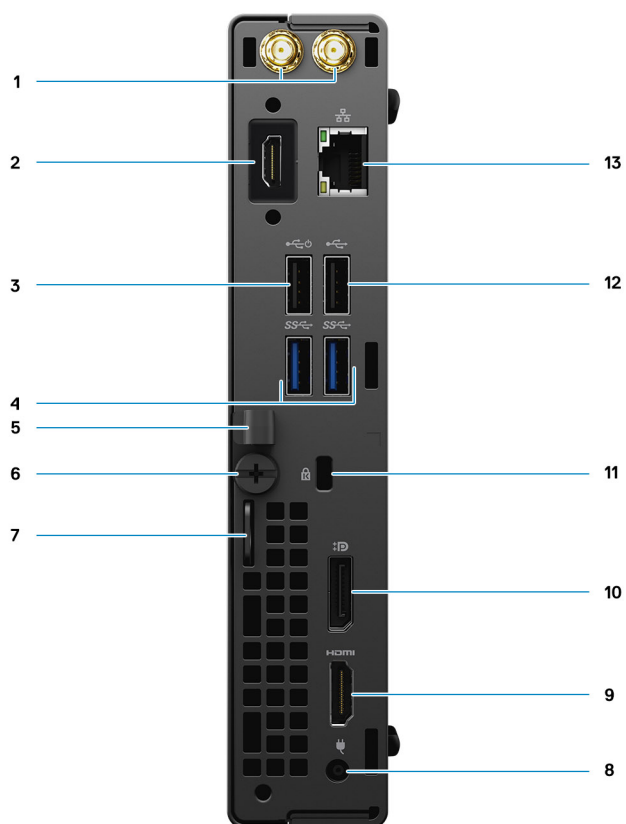
## Chassis overview

### Front view



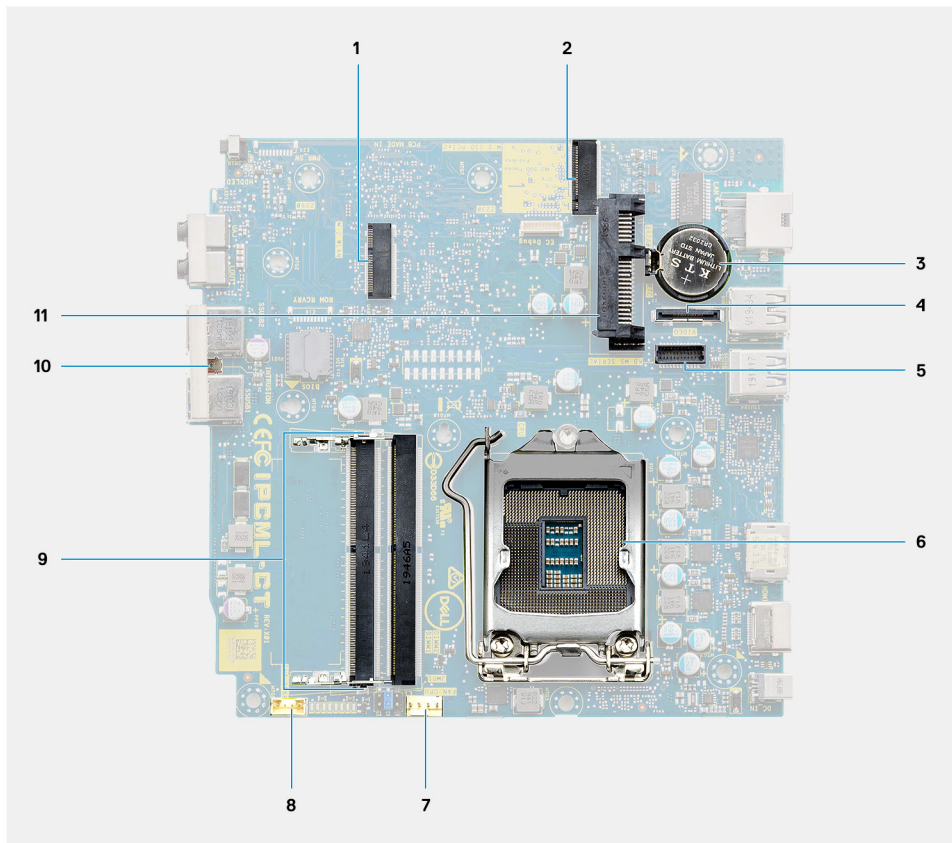
1. Power button with diagnostic LED
2. Hard-disk drive activity light
3. Universal audio jack port
4. Line-out port (retaskable Line-in)
5. USB 3.2 Gen 1 Type-A ports (2)

## Back view



1. External antenna connectors
2. Serial/Video Port (Serial/PS2/DP 1.4/HDMI 2.0b/VGA) (optional)
3. USB 2.0 port with Smart Power on
4. USB 3.2 Gen 1 Type-A ports (2)
5. Cable holder
6. Thumbscrew
7. Padlock loop
8. Power connector port
9. HDMI 1.4 port
10. DisplayPort 1.4
11. Kensington security-cable slot
12. USB 2.0 port
13. RJ-45 port 10/100/1000 Mbps

# System board Layout



1. M.2 WLAN connector
2. M.2 SSD PCIe connector
3. Coin-cell battery
4. Optional video connector (VGA Port/DisplayPort 1.4 Port/HDMI 2.0b Port)
5. Optional Keyboard and mouse serial port connector
6. Processor socket
7. CPU Fan connector
8. Internal speaker connector
9. Memory slots
10. Intrusion switch
11. HDD connector

# 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.

## Dimensions and weight

**Table 2. Dimensions and weight**

| Description      | Values                                                                                                           |
|------------------|------------------------------------------------------------------------------------------------------------------|
| Height:          |                                                                                                                  |
| Front            | 182.00 mm (7.16 in.)                                                                                             |
| Rear             | 182.00 mm (7.16 in.)                                                                                             |
| Width            | 36.00 mm (1.42 in.)                                                                                              |
| Depth            | 178.56 mm (7.03 in.)                                                                                             |
| Weight (minimum) | 1.16 kg (2.55 lb)                                                                                                |
| Weight (maximum) | 1.28 kg (2.82 lb)                                                                                                |
|                  | <b>NOTE:</b> The weight of your computer depends on the configuration ordered and the manufacturing variability. |

## Chipset

**Table 3. Chipset**

| Description                                          | Values                                                                |
|------------------------------------------------------|-----------------------------------------------------------------------|
| Chipset                                              | Intel B460                                                            |
| Processor                                            | 10 <sup>th</sup> Generation Intel Core i3/i5/Pentium/Celeron          |
| 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 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 that 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 Celeron G5900T                             | 35 W    | 2          | 2            | 3.2 GHz            | 2 MB  | Intel UHD Graphics 610 | No  | Yes         |
| Intel Celeron G5905T                             | 35 W    | 2          | 2            | 3.3 GHz            | 4 MB  | Intel UHD Graphics 610 | No  | Yes         |
| Intel Pentium Gold G6400T                        | 35 W    | 2          | 4            | 3.4 GHz            | 4 MB  | Intel UHD Graphics 610 | No  | Yes         |
| Intel Pentium Gold G6405T                        | 35 W    | 2          | 4            | 3.5 GHz            | 4 MB  | Intel UHD Graphics 610 | No  | Yes         |
| Intel Pentium Gold G6500T                        | 35 W    | 2          | 4            | 3.5 GHz            | 4 MB  | Intel UHD Graphics 630 | No  | Yes         |
| Intel Pentium Gold G6505T                        | 35 W    | 2          | 4            | 3.6 GHz            | 4 MB  | Intel UHD Graphics 630 | No  | Yes         |
| 10 <sup>th</sup> Generation Intel Core i3-10100T | 35 W    | 4          | 8            | 3.0 GHz to 3.8 GHz | 6 MB  | Intel UHD Graphics 630 | No  | Yes         |
| 10 <sup>th</sup> Generation Intel Core i3-10105T | 35 W    | 4          | 8            | 3.0 GHz to 3.9 GHz | 6 MB  | Intel UHD Graphics 630 | No  | Yes         |
| 10 <sup>th</sup> Generation Intel Core i3-10300T | 35 W    | 4          | 8            | 3.0 GHz to 3.9 GHz | 8 MB  | Intel UHD Graphics 630 | No  | Yes         |
| 10 <sup>th</sup> Generation Intel Core i3-10305T | 35 W    | 4          | 8            | 3.0 GHz to 4.0 GHz | 8 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 |
|--------------------------------------------------|---------|------------|--------------|--------------------|-------|------------------------|-----|-------------|
| 10 <sup>th</sup> Generation Intel Core i5-10400T | 35 W    | 6          | 12           | 2.0 GHz to 3.6 GHz | 12 MB | Intel UHD Graphics 630 | No  | Yes         |
| 10 <sup>th</sup> Generation Intel Core i5-10500T | 35 W    | 6          | 12           | 2.3 GHz to 3.8 GHz | 12 MB | Intel UHD Graphics 630 | Yes | Yes         |
| 10 <sup>th</sup> Generation Intel Core i5-10600T | 35 W    | 6          | 12           | 2.4 GHz to 4.0 GHz | 12 MB | Intel UHD Graphics 630 | Yes | Yes         |
| 10 <sup>th</sup> Generation Intel Core i7-10700T | 35 W    | 8          | 16           | 2.0 GHz to 4.5 GHz | 16 MB | Intel UHD Graphics 630 | Yes | Yes         |

**NOTE:** 10<sup>th</sup> Generation Intel Core i7-10700T does not perform at maximum capacity on OptiPlex 3080 Micro

## Operating system

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

Commercial Platform Windows 10 N-2 and 5-year operating system 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 continues 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 about N-2 and 5-year Windows operating system 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 that are 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                    | Two SODIMM                                                                                                                                                                                                                                                                                                                                                                           |
| Type                     | DDR4                                                                                                                                                                                                                                                                                                                                                                                 |
| Speed                    | <ul style="list-style-type: none"> <li>2666 MHz for Celeron/Pentium/i3/i5<br/> <b>NOTE:</b> Intel Celeron/Pentium/i3/i5 processor supports 3200 MHz speed but due to limitations the speed is 2666 MHz</li> <li>2933 MHz for i7<br/> <b>NOTE:</b> 10<sup>th</sup> Generation Intel Core i7 processor supports 3200 MHz speed but due to limitations the speed is 2933 MHz</li> </ul> |
| Maximum memory           | 64 GB                                                                                                                                                                                                                                                                                                                                                                                |
| Minimum memory           | 4 GB                                                                                                                                                                                                                                                                                                                                                                                 |
| Memory size per slot     | 4 GB, 8 GB, 16 GB, 32 GB                                                                                                                                                                                                                                                                                                                                                             |
| Configurations supported | <ul style="list-style-type: none"> <li>4 GB, 1 x 4 GB</li> <li>8 GB, 2 x 4 GB</li> <li>8 GB, 1 x 8 GB</li> <li>16 GB, 2 x 8 GB</li> <li>16 GB, 1 x 16 GB</li> <li>32 GB, 2 x 16 GB</li> <li>32 GB, 1 x 32 GB</li> <li>64 GB, 2 x 32 GB</li> </ul>                                                                                                                                    |

## Ports and connectors

**Table 6. Ports and connectors**

| Description      | Values                                                                                                                                                                                                                   |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>External:</b> |                                                                                                                                                                                                                          |
| Network          | One RJ-45 port 10/100/1000 Mbps (rear)                                                                                                                                                                                   |
| USB              | <ul style="list-style-type: none"> <li>Two USB 3.2 Gen 1 Type-A ports (front)</li> <li>One USB 2.0 port (rear)</li> <li>One USB 2.0 with Smart Power on (rear)</li> <li>Two USB 3.2 Gen 1 Type-A ports (rear)</li> </ul> |
| Audio            | <ul style="list-style-type: none"> <li>One Universal Audio Jack (front)</li> <li>One Line-out port (retaskable Line-in) (front)</li> </ul>                                                                               |
| Video            | <ul style="list-style-type: none"> <li>One HDMI 1.4 port (rear)</li> <li>One DisplayPort 1.4 port (rear)</li> <li>One Serial/Video (Serial/PS2/VGA Port/DisplayPort 1.4 Port/HDMI 2.0 Port (optional))</li> </ul>        |

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

| Description        | Values                                                                                                                                                                                                                                                                                                                                      |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Memory card reader | Not supported                                                                                                                                                                                                                                                                                                                               |
| Power port         | 4.5 mm barrel type                                                                                                                                                                                                                                                                                                                          |
| Security           | One kensington security-cable slot                                                                                                                                                                                                                                                                                                          |
| Antenna            | Two SMA connectors (optional)                                                                                                                                                                                                                                                                                                               |
| <b>Internal:</b>   |                                                                                                                                                                                                                                                                                                                                             |
| SATA               | One SATA slots for 2.5-inch Hard-disk drive                                                                                                                                                                                                                                                                                                 |
| M.2                | <ul style="list-style-type: none"> <li>One M.2 2230 slot for WiFi and Bluetooth card</li> <li>One M.2 slot for 2280 PCIe solid-state drive/Optane or 2230 PCIe solid-state drive</li> </ul> <p><b>NOTE:</b> To learn more about the features of different types of M.2 cards, see the knowledge base article <a href="#">SLN301626</a>.</p> |

## Communications

### Ethernet

**Table 7. Ethernet specifications**

| Description   | Values                |
|---------------|-----------------------|
| Model number  | REALTEK RTL8111HSD-CG |
| Transfer rate | 10/100/1000 Mbps      |

### Wireless module

**Table 8. Wireless module specifications**

| Description               | Values                                                                                                           |                                                                                                                  |                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Model number              | Qualcomm QCA61x4A                                                                                                | Intel Wi-Fi 6 AX200                                                                                              | Intel 3165                                                                                                       |
| 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                                                                                                         | <ul style="list-style-type: none"> <li>802.11ax (Wi-Fi 6)</li> </ul>                                             | 802.11ac                                                                                                         |
| Encryption                | <ul style="list-style-type: none"> <li>64-bit and 128-bit WEP</li> <li>128-bit AES-CCMP</li> <li>TKIP</li> </ul> | <ul style="list-style-type: none"> <li>64-bit and 128-bit WEP</li> <li>128-bit AES-CCMP</li> <li>TKIP</li> </ul> | <ul style="list-style-type: none"> <li>64-bit and 128-bit WEP</li> <li>128-bit AES-CCMP</li> <li>TKIP</li> </ul> |
| Bluetooth                 | 5.0                                                                                                              | 5.1                                                                                                              | 4.2                                                                                                              |

## Graphics and Video controller

**Table 9. Integrated graphics specifications**

| Integrated graphics    |                                                                                                                  |                      |                                                 |
|------------------------|------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------|
| Controller             | External display support                                                                                         | Memory size          | Processor                                       |
| Intel UHD Graphics 610 | <ul style="list-style-type: none"><li>One HDMI 1.4 port (rear)</li><li>One DisplayPort 1.4 port (rear)</li></ul> | Shared system memory | Intel Celeron/<br>Pentium Gold                  |
| Intel UHD Graphics 630 | <ul style="list-style-type: none"><li>One HDMI 1.4 port (rear)</li><li>One DisplayPort 1.4 port (rear)</li></ul> | Shared system memory | 10 <sup>th</sup> Generation Intel<br>Core i3/i5 |

## Audio and Speaker

The following table lists the audio specifications of your OptiPlex 3080 Micro.

**Table 10. Audio specifications**

| Description                | Values                                                                                                   |
|----------------------------|----------------------------------------------------------------------------------------------------------|
| Type                       | 4 Channel High Definition Audio                                                                          |
| Controller                 | Realtek ALC3246                                                                                          |
| Stereo conversion          | 24-bit DAC (Digital-to-Analog) and ADC (Analog-to-Digital)                                               |
| Internal interface         | Intel HDA (high-definition audio)                                                                        |
| External interface         | <ul style="list-style-type: none"><li>One Universal Audio Jack</li><li>One Line-out audio port</li></ul> |
| Speakers                   | One (optional)                                                                                           |
| Internal speaker amplifier | Integrated in ALC3246 (Class-D 2 W)                                                                      |
| External volume controls   | Keyboard shortcut controls.                                                                              |
| Speaker output average     | 2 W                                                                                                      |
| Speaker output peak        | 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
- One M.2 2230 or 2280 solid-state drive (class 35 or class 40)
- One 2.5-inch hard-disk drive and Intel Optane memory
- One M.2 2230 or 2280 solid-state drive (non-optane) and One 2.5-inch hard-disk drive

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, the 2.5-inch hard-disk drive is the primary drive

**Table 11. 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                     | 500 GB         |
| M.2 2230 solid-state drive                                         | Gen 3 PCIe x4 NVMe, Class 35 | Up to 512 GB   |
| M.2 2280 solid-state drive                                         | Gen 3 PCIe x4 NVMe, Class 40 | Up to 2 TB     |
| M.2 2280 Opal Self-Encrypting solid-state drive                    | Gen 3 PCIe x4 NVMe, Class 40 | Up to 1 TB     |
| 32 GB with 512 GB solid-state drive                                | Gen 3 PCIe x4, Optane memory | 32 GB + 512 GB |

## Power adapter

**Table 12. Power adapter specifications**

| Description                 | Values                    |
|-----------------------------|---------------------------|
| Type                        | 65 W (4.5 mm barrel type) |
| Diameter (connector)        | 4.5 mm                    |
| Input voltage               | 100 VAC to 240 VAC        |
| Input frequency             | 50 Hz to 60 Hz            |
| Input current (maximum)     | 1.50 A                    |
| Output current (continuous) | 3.34 A                    |
| Rated output voltage        | 19.50 VDC                 |
| Temperature range:          |                           |
| Operating                   | 0°C–40°C (32°F–104°F)     |
| Storage                     | -40°C–70°C (-40°F–158°F)  |

## Data security

**Table 13. 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 |

**Table 13. Data security (continued)**

| Data security options                   | Values    |
|-----------------------------------------|-----------|
| 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 |

## Environmental

**Table 14. Environmental specifications**

| Feature                       | OptiPlex 3080 Micro      |
|-------------------------------|--------------------------|
| Recyclable packaging          | Yes                      |
| BFR/PVC—free chassis          | No                       |
| MultiPack packaging           | Yes (US only) (optional) |
| Energy-Efficient Power Supply | 88%                      |
| 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, EPEAT and Trusted Platform Module (TPM)

**Table 15. 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 <sup>1,2</sup> | Integrated on system board                         |
| Firmware-TPM (Discrete TPM disabled)             | Optional                                           |

**NOTE:**

<sup>1</sup>TPM 2.0 is FIPS 140-2 certified.

<sup>2</sup>TPM is not available in all countries.

## Computer environment

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

**Table 16. 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)                                                  | 5% to 95% (non-condensing)                                                  |
| 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

 **NOTE:** For more details on Dell Service Plans, see <https://www.dell.com/learn/us/en/19/services/warranty-support-services>.

**Table 17. Warranty**

| Warranty                                                                           |
|------------------------------------------------------------------------------------|
| 1 Year Basic Warranty with Hardware Service on site service after remote diagnosis |
| 2 Years Basic Warranty Extension                                                   |
| 3 Years Basic Warranty Extension                                                   |
| 4 Years Basic Warranty Extension                                                   |
| 5 Years Basic Warranty Extension                                                   |
| 1 Year ProSupport and Next Business Day on-site service                            |
| 2 Years ProSupport and Next Business Day on-site service                           |
| 3 Years ProSupport and Next Business Day on-site service                           |
| 4 Years ProSupport and Next Business Day on-site service                           |
| 5 Years ProSupport and Next Business Day on-site service                           |
| 1 Year ProSupport Plus for Client with Next Business Day on-site service           |
| 2 Years ProSupport Plus for Client with Next Business Day on-site service          |
| 3 Years ProSupport Plus for Client with Next Business Day on-site service          |
| 4 Years ProSupport Plus for Client with Next Business Day on-site service          |
| 5 Years ProSupport Plus for Client with Next Business Day on-site service          |

**Table 18. Accidental damage services**

| Accidental Damage Services        |
|-----------------------------------|
| 1 Year Accidental Damage Service  |
| 2 Years Accidental Damage Service |
| 3 Years Accidental Damage Service |
| 4 Years Accidental Damage Service |

Table 18. Accidental damage services (continued)

| Accidental Damage Services        |
|-----------------------------------|
| 5 Years Accidental Damage Service |

# Software

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

## Downloading Windows drivers

### Steps

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

# System 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.

## Boot menu

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

The options are:

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

## Navigation keys

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

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

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

## System setup options

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

### General options

Table 19. General

| Option                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Information      | Displays the following information: <ul style="list-style-type: none"><li>• System Information: Displays <b>BIOS Version, Service Tag, Asset Tag, Ownership Tag, Manufacture Date, Ownership Date</b>, and the <b>Express Service Code</b>.</li><li>• Memory Information: Displays <b>Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, Memory Technology, DIMM 1 Size</b>, and <b>DIMM 2 Size</b>.</li><li>• PCI Information: Displays Slot1_M.2, Slot2_M.2</li><li>• Processor Information: Displays <b>Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable</b>, and <b>64-Bit Technology</b>.</li><li>• Device Information: Displays <b>SATA-0, M.2 PCIe SSD-2, LOM MAC Address, Video Controller, Audio Controller, Wi-Fi Device, and Bluetooth Device</b>.</li></ul> |
| 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 20. 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: <ul style="list-style-type: none"><li>• Disabled</li><li>• Enabled</li><li>• Enabled w/PXE (default)</li></ul>  <b>NOTE:</b> 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. <ul style="list-style-type: none"><li>• Disabled = The SATA controllers are hidden</li><li>• AHCI = SATA is configured for AHCI mode</li><li>• RAID ON = SATA is configured to support RAID mode (selected by default)</li></ul>                                                                                                                                                            |
| Drives                  | Allows you to enable or disable the various drives onboard: <ul style="list-style-type: none"><li>• SATA-0 (enabled by default)</li><li>• M.2 PCIe SSD-0 (enabled by default)</li></ul>                                                                                                                                                                                                                                                                                         |
| Smart Reporting         | This field controls whether hard-drive errors for integrated drives are reported during system startup. The <b>Enable Smart Reporting option</b> is disabled by default.                                                                                                                                                                                                                                                                                                        |
| USB Configuration       | Allows you to enable or disable the integrated USB controller for: <ul style="list-style-type: none"><li>• Enable USB Boot Support</li><li>• Enable Front USB Ports</li><li>• Enable Rear USB Ports</li></ul> 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 <b>Enable Audio</b> is selected by default. <ul style="list-style-type: none"><li>• Enable Microphone</li><li>• Enable Internal Speaker</li></ul> 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 <b>Disabled</b> is selected by default. <ul style="list-style-type: none"><li>• Disabled</li><li>• 15 days</li><li>• 30 days</li><li>• 60 days</li><li>• 90 days</li><li>• 120 days</li><li>• 150 days</li><li>• 180 days</li></ul> |

## Video screen options

Table 21. Video

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

**Table 21. Video**

| Option | Description                                                                                                                                                                                                                                                                            |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <ul style="list-style-type: none"> <li>Auto (default)</li> <li>Intel HD Graphics</li> </ul> <p> <b>NOTE:</b> If you do not select Auto, the on-board graphics device will be present and enabled.</p> |

## Security

**Table 22. 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               | <p>This option lets you bypass the System (Boot) Password and the internal hard drive password prompts during a system restart.</p> <ul style="list-style-type: none"> <li>Disabled — Always prompt for the system and internal HDD password when they are set. This option is disabled by default.</li> <li>Reboot Bypass — Bypass the password prompts on Restarts (warm boots).</li> </ul> <p> <b>NOTE:</b> 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.</p> |
| Password Change               | <p>This option lets you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set.</p> <p><b>Allow Non-Admin Password Changes</b> - This option is enabled by default.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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              | <p>Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system.</p> <ul style="list-style-type: none"> <li>TPM On (default)</li> <li>Clear</li> <li>PPI Bypass for Enable Commands</li> <li>PPI Bypass for Disable Commands</li> <li>PPI Bypass for Clear Commands</li> <li>Attestation Enable (default)</li> <li>Key Storage Enable (default)</li> <li>SHA-256 (default)</li> </ul> <p>Choose any one option:</p> <ul style="list-style-type: none"> <li>Disabled</li> <li>Enabled (default)</li> </ul>                                                                                                                                                                               |
| Absolute                      | <p>This field lets you Enable, Disable or permanently Disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute Software.</p> <ul style="list-style-type: none"> <li>Enabled - This option is selected by default.</li> <li>Disable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                      |

**Table 22. Security (continued)**

| Option                  | Description                                                                                                                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | <ul style="list-style-type: none"> <li>Permanently Disabled</li> </ul>                                                                                                                                   |
| Chassis Intrusion       | <p>This field controls the chassis intrusion feature.</p> <p>Choose any one of the options:</p> <ul style="list-style-type: none"> <li>Disabled (default)</li> <li>Enabled</li> <li>On-Silent</li> </ul> |
| 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 23. Secure Boot**

| Option                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Secure Boot Enable    | <p>Allows you to enable or disable Secure Boot feature</p> <ul style="list-style-type: none"> <li>Secure Boot Enable</li> </ul> <p>This option is not selected by default.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Secure Boot Mode      | <p>Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures.</p> <ul style="list-style-type: none"> <li>Deployed Mode (default)</li> <li>Audit Mode</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Expert key Management | <p>Allows you to manipulate the security key databases only if the system is in Custom Mode. The <b>Enable Custom Mode</b> option is disabled by default. The options are:</p> <ul style="list-style-type: none"> <li>PK (default)</li> <li>KEK</li> <li>db</li> <li>dbx</li> </ul> <p>If you enable the <b>Custom Mode</b>, the relevant options for <b>PK, KEK, db, and dbx</b> appear. The options are:</p> <ul style="list-style-type: none"> <li><b>Save to File</b>- Saves the key to a user-selected file</li> <li><b>Replace from File</b>- Replaces the current key with a key from a user-selected file</li> <li><b>Append from File</b>- Adds a key to the current database from a user-selected file</li> <li><b>Delete</b>- Deletes the selected key</li> <li><b>Reset All Keys</b>- Resets to default setting</li> <li><b>Delete All Keys</b>- Deletes all the keys</li> </ul> <p> <b>NOTE:</b> If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.</p> |

## Intel Software Guard Extensions options

Table 24. Intel Software Guard Extensions

| Option              | Description                                                                                                                                                                                                                                                                                                                       |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intel SGX Enable    | <p>This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"><li>• <b>Disabled</b></li><li>• <b>Enabled</b></li><li>• <b>Software controlled</b>—Default</li></ul> |
| Enclave Memory Size | <p>This option sets <b>SGX Enclave Reserve Memory Size</b></p> <p>Click one of the following options:</p> <ul style="list-style-type: none"><li>• <b>32 MB</b></li><li>• <b>64 MB</b></li><li>• <b>128 MB</b>—Default</li></ul>                                                                                                   |

## Performance

Table 25. Performance

| Option               | Description                                                                                                                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi Core Support   | <p>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.</p> <ul style="list-style-type: none"><li>• <b>All</b>—Default</li><li>• <b>1</b></li><li>• <b>2</b></li><li>• <b>3</b></li></ul> |
| Intel SpeedStep      | <p>Allows you to enable or disable the Intel SpeedStep mode of processor.</p> <ul style="list-style-type: none"><li>• <b>Enable Intel SpeedStep</b></li></ul> <p>This option is set by default.</p>                                                                                  |
| C-States Control     | <p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"><li>• <b>C states</b></li></ul> <p>This option is set by default.</p>                                                                                                |
| Intel TurboBoost     | <p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"><li>• <b>Enable Intel TurboBoost</b></li></ul> <p>This option is set by default.</p>                                                                            |
| Hyper-Thread Control | <p>Allows you to enable or disable the HyperThreading in the processor.</p> <ul style="list-style-type: none"><li>• <b>Disabled</b></li><li>• <b>Enabled</b>—Default</li></ul>                                                                                                       |

## Power management

Table 26. 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: <ul style="list-style-type: none"><li>• Power Off</li><li>• Power On</li><li>• Last Power State</li></ul> 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 <b>Enable Intel Speed Shift Technology</b> 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.<br> <b>NOTE:</b> This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if <b>Auto Power is set to disabled</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Deep Sleep Control                  | Allows you to define the controls when Deep Sleep is enabled. <ul style="list-style-type: none"><li>• Disabled</li><li>• Enabled in S5 only</li><li>• Enabled in S4 and S5</li></ul> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 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. <ul style="list-style-type: none"><li>• <b>Disabled</b> - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN.</li><li>• <b>LAN</b> or <b>WLAN</b> - Allows the system to be powered on by special LAN or wireless LAN signals.</li><li>• <b>LAN Only</b> - Allows the system to be powered on by special LAN signals.</li><li>• <b>LAN with PXE Boot</b> - 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.</li><li>• <b>WLAN Only</b> - Allows the system to be powered on by special WLAN signals.</li></ul> 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 27. 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 <b>Enable Keyboard Error Detection</b> is enabled by default. |
| Fast Boot        | This option can speed up the boot process by bypassing some compatibility steps:                                                                                |

**Table 27. POST Behavior (continued)**

| Option                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <ul style="list-style-type: none"> <li>Minimal — The system boots quickly, unless the BIOS has been updated, memory changed, or the previous POST did not complete.</li> <li>Thorough — The system does not skip any steps in the boot process.</li> <li>Auto — This allows the operating system to control this setting (this works only when the operating system supports Simple Boot Flag).</li> </ul> <p>This option is set to <b>Thorough</b> by default.</p> |
| Extend BIOS POST Time | <p>This option creates an additional pre-boot delay.</p> <ul style="list-style-type: none"> <li>0 seconds (default)</li> <li>5 seconds</li> <li>10 seconds</li> </ul>                                                                                                                                                                                                                                                                                               |
| Full Screen Logo      | <p>This option will display full screen logo if your image match screen resolution. The option <b>Enable Full Screen Logo</b> is not set by default.</p>                                                                                                                                                                                                                                                                                                            |
| Warnings and Errors   | <p>This option causes the boot process to only pause when warning or errors are detected. Choose any one of the option:</p> <ul style="list-style-type: none"> <li>Prompt on Warnings and Errors - default</li> <li>Continue on Warnings</li> <li>Continue on Warnings and Errors</li> </ul>                                                                                                                                                                        |

## Virtualization support

**Table 28. Virtualization Support**

| Option            | Description                                                                                                                                                                                                                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Virtualization    | <p>This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by the Intel Virtualization technology.</p> <ul style="list-style-type: none"> <li><b>Enable Intel Virtualization Technology</b></li> </ul> <p>This option is set by default.</p> |
| VT for Direct I/O | <p>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by the Intel Virtualization technology for direct I/O.</p> <ul style="list-style-type: none"> <li><b>Enable VT for Direct I/O</b></li> </ul> <p>This option is set by default.</p>     |

## Wireless options

**Table 29. Wireless**

| Option                 | Description                                                                                                                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wireless Device Enable | <p>Allows you to enable or disable the internal wireless devices.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li><b>WLAN/WiGig</b></li> <li><b>Bluetooth</b></li> </ul> <p>All the options are enabled by default.</p> |

## Maintenance

Table 30. 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.<br>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. <ul style="list-style-type: none"><li>• <b>Allow BIOS Downgrade</b></li></ul> This option is set by default.                                                                                                                                                                                                                                     |
| Data Wipe           | Allows you to securely erase data from all internal storage devices. <ul style="list-style-type: none"><li>• <b>Wipe on Next Boot</b></li></ul> This option is not set by default.                                                                                                                                                                                                                              |
| BIOS Recovery       | <b>BIOS Recovery from Hard Drive</b> —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.<br> <b>NOTE:</b> BIOS Recovery from Hard Drive field must be enabled.<br><b>Always Perform Integrity Check</b> —Performs integrity check on every boot. |
| First Power On Date | Allows you the set Ownership date. The option <b>Set Ownership Date</b> is not set by default.                                                                                                                                                                                                                                                                                                                  |

## System logs

Table 31. System Logs

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

## Advanced configuration

Table 32. Advanced configuration

| Option | Description                                                                                                                                                                                                                                                                                                                                              |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASPM   | Allows you to set the ASPM level. <ul style="list-style-type: none"><li>• Auto (default) - There is handshaking between the device and PCI Express hub to determine the best ASPM mode supported by the device</li><li>• Disabled - ASPM power management is turned off at all time</li><li>• L1 Only - ASPM power management is set to use L1</li></ul> |

## SupportAssist System Resolution

| Option                            | Description                                                                                                                                                                                         |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Auto OS Recovery Threshold</b> | Allows you to control the automatic boot flow for SupportAssist System. Options are: <ul style="list-style-type: none"><li>• Off</li><li>• 1</li><li>• 2 (Enabled by default)</li><li>• 3</li></ul> |
| <b>SupportAssist OS Recovery</b>  | Allows you to recover the SupportAssist OS Recovery (Enabled by default).                                                                                                                           |
| <b>BIOSConnect</b>                | 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.

### 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 system cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another system and save it to a bootable USB Flash Drive.

**NOTE:** You will need to use a bootable USB Flash drive. Please refer to the following article for further details: <https://www.dell.com/support/article/sln143196/>

### Steps

1. Download the BIOS update .EXE file to another system.
2. Copy the file e.g. O9010A12.EXE onto the bootable USB Flash drive.
3. Insert the USB Flash drive into the system that requires the BIOS update.
4. Restart the system and press F12 when the Dell Splash logo appears to display the One Time Boot Menu.
5. Using arrow keys, select **USB Storage Device** and click Return.
6. The system will boot to a Diag C:\> prompt.
7. Run the file by typing the full filename e.g. O9010A12.exe and press Return.
8. The BIOS Update Utility will load, follow the instructions on screen.

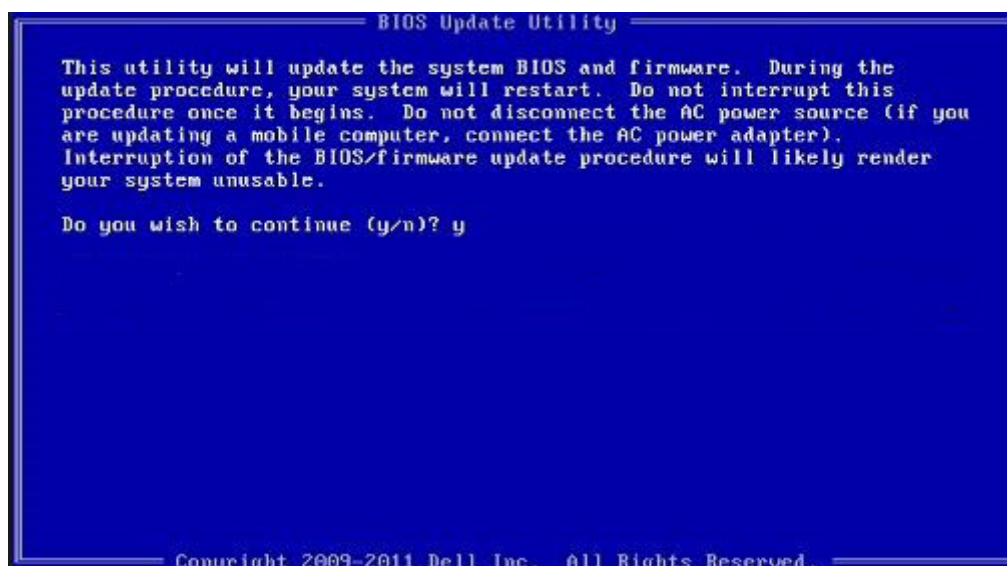


Figure 1. DOS BIOS Update Screen

## System and setup password

Table 33. 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.

# Getting help and contacting Dell

## Self-help resources

You can get information and help on Dell products and services using these self-help resources:

**Table 34. Self-help resources**

| Self-help resources                                                                                                                 | Resource location                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Information about Dell products and services                                                                                        | <a href="http://www.dell.com">www.dell.com</a>                                                                                                                                                                                                                                                                                                                                                              |
| My Dell app                                                                                                                         |                                                                                                                                                                                                                                                                                                                            |
| Tips                                                                                                                                |                                                                                                                                                                                                                                                                                                                            |
| Contact Support                                                                                                                     | In Windows search, type <code>Contact Support</code> , and press Enter.                                                                                                                                                                                                                                                                                                                                     |
| Online help for operating system                                                                                                    | <a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a><br><a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a>                                                                                                                                                                                                                                                |
| Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals and documents. | Your Dell computer is uniquely identified by a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at <a href="http://www.dell.com/support">www.dell.com/support</a> .<br>For more information on how to find the Service Tag for your computer, see <a href="#">Locate the Service Tag on your computer</a> .    |
| Dell knowledge base articles for a variety of computer concerns                                                                     | <ol style="list-style-type: none"> <li>1. Go to <a href="http://www.dell.com/support">www.dell.com/support</a>.</li> <li>2. On the menu bar at the top of the Support page, select <b>Support &gt; Knowledge Base</b>.</li> <li>3. In the Search field on the Knowledge Base page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.</li> </ol> |

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://www.dell.com/contactdell).

 **NOTE:** Availability varies by country/region and product, and some services may not be available in your country/region.

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