


OptiPlex 7090 Micro Form Factor

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.

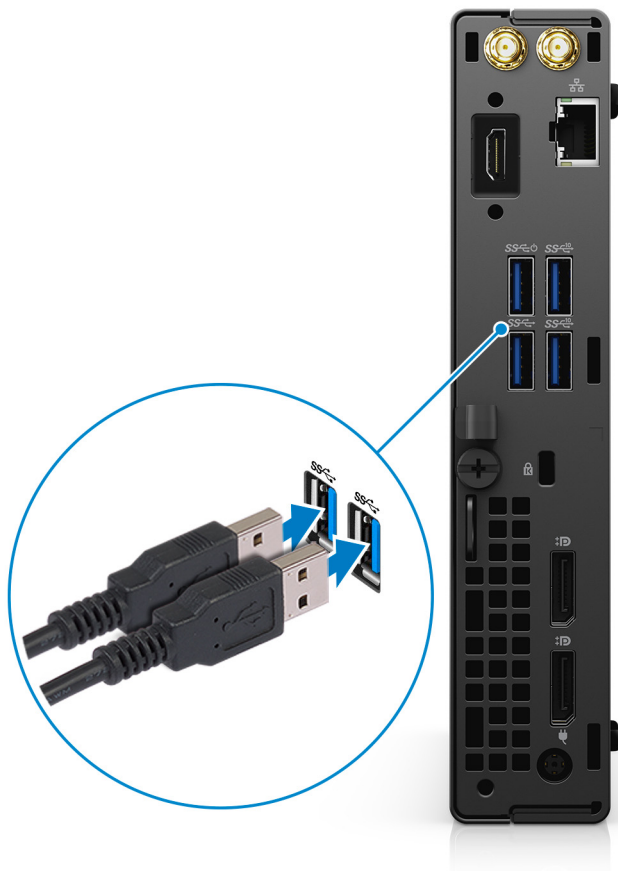
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Set up your OptiPlex 7090 Micro

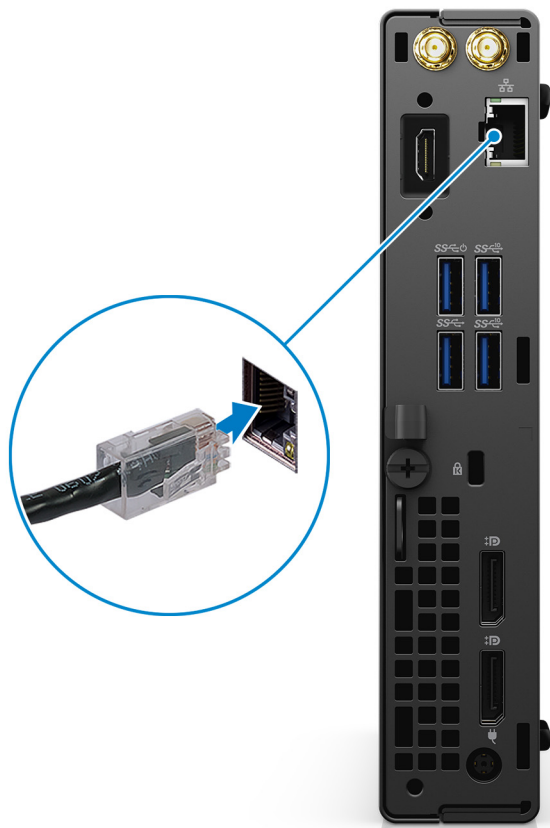
The images in this document may differ from your computer depending on the configuration you ordered.

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 setup.

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

- 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






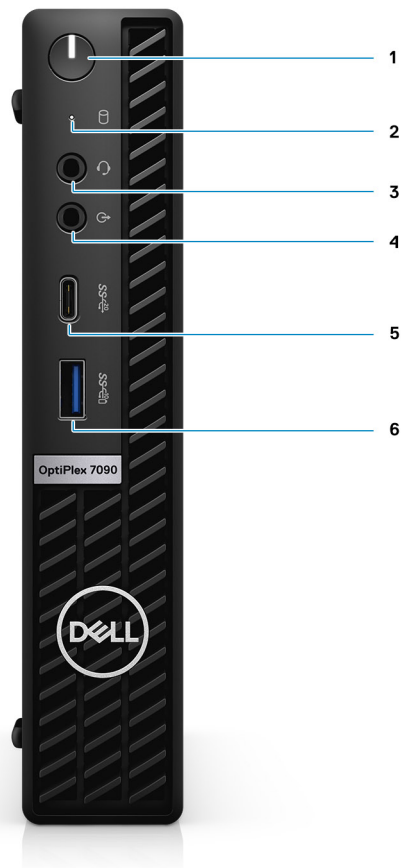
| Dell apps | Details |
|---|--|
|  | <p>Dell Product Registration Register your computer with Dell.</p> |
|  | <p>Dell Help & Support Access help and support for your computer.</p> |

Table 1. Locate Dell apps (continued)

| Dell apps | Details |
|--|---|
|  | <p>SupportAssist</p> <p>SupportAssist is the smart technology that keeps your computer running at its best by optimizing settings, detecting issues, removing viruses and notifies when you must make system updates. SupportAssist proactively checks the health of your system's hardware and software. When an issue is detected, the necessary system state information is sent to Dell to begin troubleshooting. SupportAssist is preinstalled on most of the Dell devices running Windows operating system. For more information, see SupportAssist for Business PCs User's Guide on www.dell.com/serviceabilitytools.</p> |
|  | <p>Dell Update</p> <p>Updates your computer with critical fixes and important device drivers as they become available.</p> |
|  | <p>Dell Digital Delivery</p> <p>Download software applications including software that is purchased but not preinstalled on your computer.</p> |

Views of OptiPlex 7090 Micro Form Factor

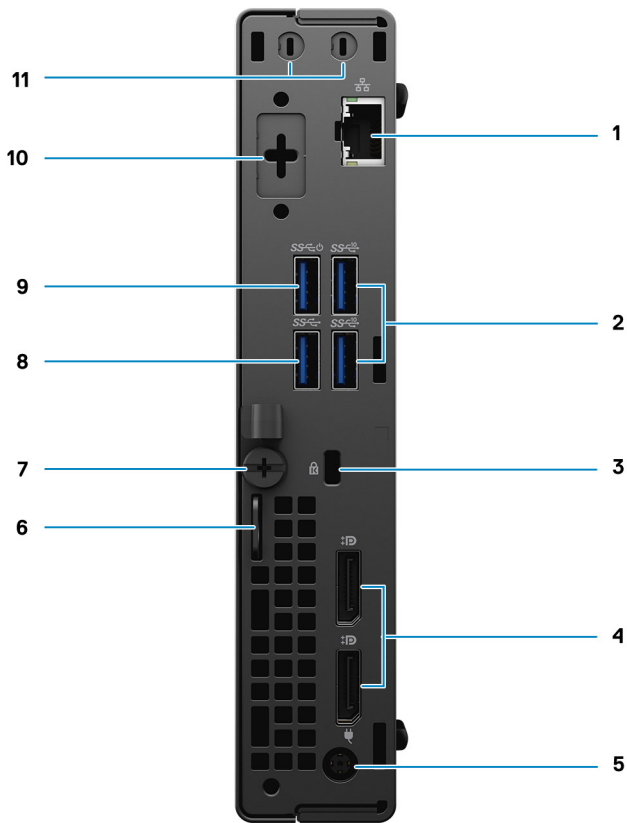
Front



1. Power button with diagnostic LED
2. Hard-disk activity light
3. Universal audio jack port
4. Re-tasking Line-in/Line out audio port
5. USB 3.2 Gen 2x2 capable Type-C port
6. USB 3.2 Gen 2 port with PowerShare

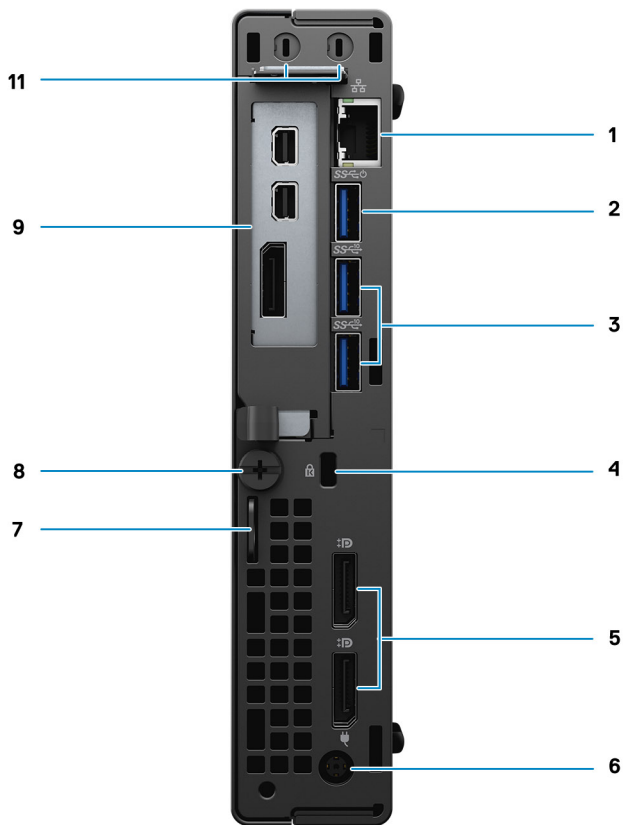
Back

Integrated



1. RJ45 Ethernet port
2. Two USB 3.2 Gen 2 Type-A ports
3. Kensington cable-lock slot
4. DisplayPort 1.4
5. Power connector port
6. Padlock loop
7. Thumbscrew
8. USB 3.2 Gen 1 Type-A port
9. USB 3.2 Gen 1 Type-A port with Smart Power on
10. Serial/Video port with Serial port/PS2 port/VGA port/DisplayPort 1.4 port/HDMI 2.0 port/USB 3.2 Gen2 Type-C port with DP Alt-mode (optional)
11. External antenna connector

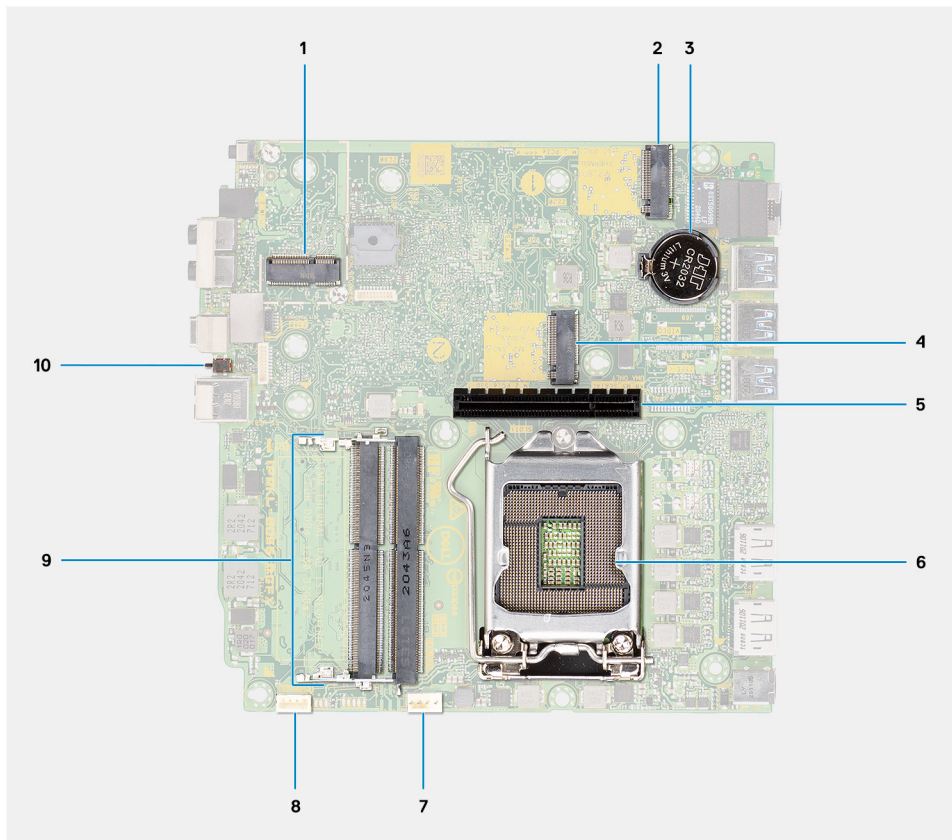
Discrete



1. RJ45 Ethernet port
2. USB 3.2 Gen 1 Type-A port with Smart Power on
3. Two USB 3.2 Gen 2 Type-A ports
4. Kensington cable-lock slot
5. DisplayPort 1.4
6. Power connector port
7. Padlock loop
8. Thumbscrew
9. AMD Radeon RX 640 with two mini DisplayPort (mDP) ports and DisplayPort 1.4
10. External antenna connector

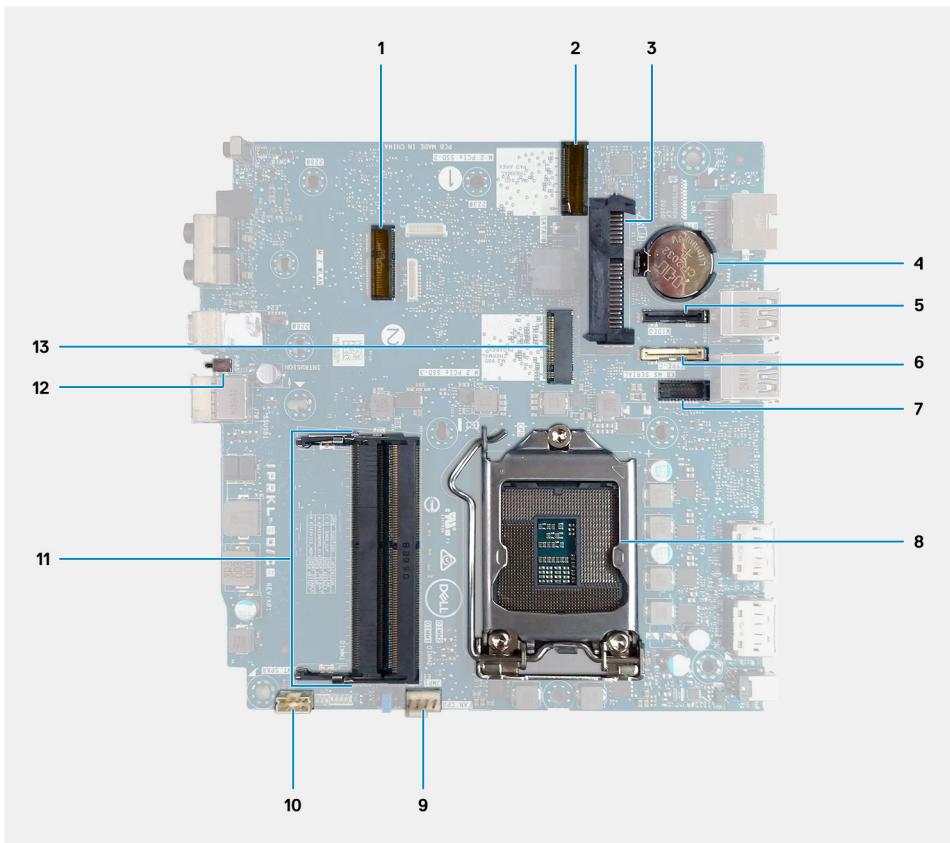
System board layout

Discrete system board



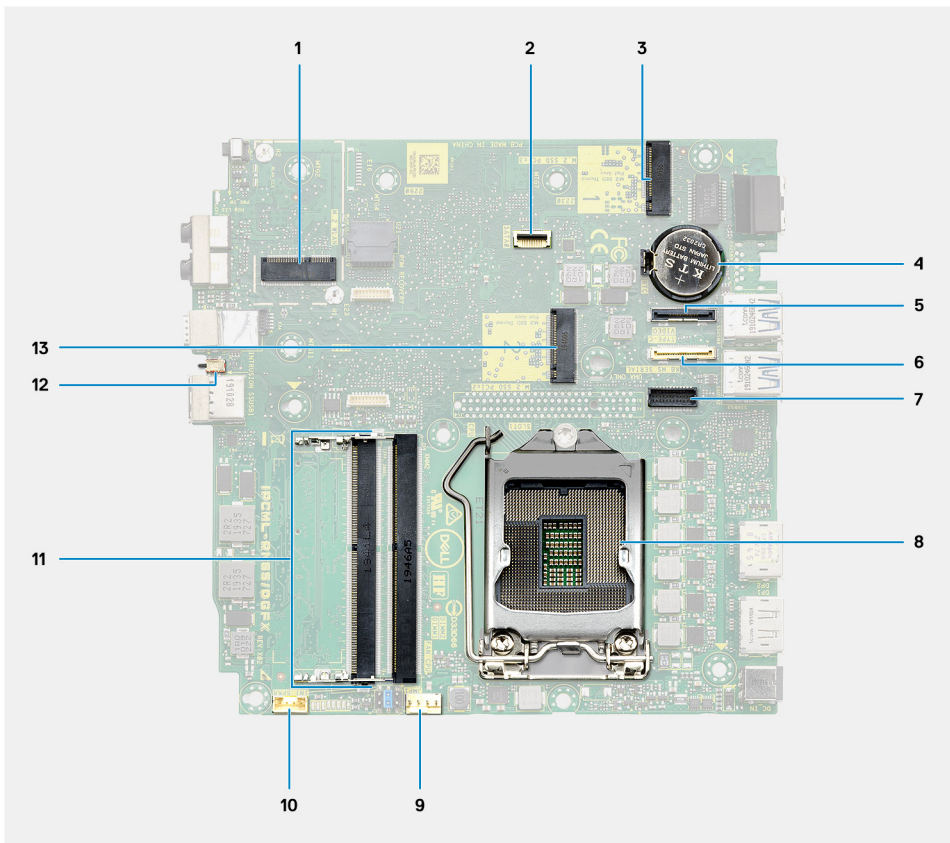
1. M.2 WLAN connector
2. M.2 SSD PCIe connector
3. Coin-cell battery
4. M.2 SSD PCIe connector
5. Riser card connector
6. Processor socket
7. Memory slots
8. Intrusion switch
9. Memory slots
10. Riser card connector

35 W system board



1. M.2 WLAN card connector
2. M.2 SSD PCIe connector
3. 2.5-inch hard-drive connector
4. Coin-cell battery
5. Optional video connector (VGA Port/DisplayPort 1.4 Port/HDMI 2.0b Port)
6. Optional connector (USB 3.2 Gen 2 Type-C Port)
7. Optional Keyboard and mouse serial port connector
8. Processor socket
9. CPU Fan connector
10. Internal speaker connector
11. Memory modules
12. M.2 SSD PCIe connector
13. M.2 SSD PCIe connector

65 W system board




1. M.2 WLAN card connector
2. 2.5-inch hard-drive connector
3. M.2 SSD PCIe connector
4. Coin-cell battery
5. Optional video connector (VGA Port/DisplayPort 1.4 Port/HDMI 2.0b Port)
6. Optional connector (USB 3.2 Gen 2 Type-C Port)
7. Optional Keyboard and mouse serial port connector
8. Processor socket
9. CPU Fan connector
10. Internal speaker connector
11. Memory modules
12. Intrusion switch
13. M.2 SSD PCIe connector

Specifications of OptiPlex 7090 Micro Form Factor

Dimensions and weight

The following table lists the height, width, depth, and weight of your OptiPlex 7090 Micro Form Factor.

Table 2. Dimensions and weight

| Description | Values |
|--|--|
| Height: | |
| Front height | 182 mm (7.16 in.) |
| Rear height | 182 mm (7.16 in.) |
| Width | 178.50 mm (7.02 in.) |
| Depth | 36 mm (1.41 in.) |
| Weight  NOTE: The weight of your computer depends on the configuration ordered and manufacturing variability. | <ul style="list-style-type: none"> • Minimum: 1.30 kg (2.87 lbs) • Maximum: 1.38 kg (3.05 lbs) |

Processor

The following table lists the details of the processors that are supported by your OptiPlex 7090 Micro Form Factor .


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

Table 3. Processor

| Processor type | Processor wattage | Processor core count | Processor thread count | Processor speed | Processor cache | Integrated graphics |
|--|-------------------|----------------------|------------------------|--------------------|-----------------|------------------------|
| 10 th Generation Intel Core i3-10105T | 65 W | 4 | 8 | 3.0 GHz to 3.9 GHz | 6 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i3-10105 | 65 W | 4 | 8 | 3.7 GHz to 4.4 GHz | 6 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i3-10305T | 35 W | 4 | 8 | 3.0 GHz to 4.0 GHz | 8 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i3-10305 | 65 W | 4 | 8 | 3.8 GHz to 4.5 GHz | 8 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i5-10505 | 65 W | 6 | 12 | 3.2 GHz to 4.6 GHz | 12 MB | Intel UHD Graphics 630 |

Table 3. Processor (continued)

| Processor type | Processor wattage | Processor core count | Processor thread count | Processor speed | Processor cache | Integrated graphics |
|--|--------------------------|-----------------------------|-------------------------------|------------------------|------------------------|----------------------------|
| 10 th Generation Intel Core i5-10400T | 35 W | 6 | 12 | 2.0 GHz to 3.6 GHz | 12 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i5-10400 | 65 W | 6 | 12 | 2.9 GHz to 4.3 GHz | 12 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i5-10500T | 35 W | 6 | 12 | 2.3 GHz to 3.8 GHz | 12 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i5-10500 | 65 W | 6 | 12 | 3.1 GHz to 4.5 GHz | 12 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i5-10600T | 35 W | 6 | 12 | 2.4 GHz to 4.0 GHz | 12 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i5-10600 | 65 W | 6 | 12 | 3.3 GHz to 4.8 GHz | 12 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i7-10700T | 35 W | 8 | 16 | 2.0 GHz to 4.5 GHz | 16 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i7-10700 | 65 W | 8 | 16 | 2.9 GHz to 4.8 GHz | 16 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i9-10900T | 35 W | 10 | 20 | 1.9 GHz to 4.6 GHz | 20 MB | Intel UHD Graphics 630 |
| 10 th Generation Intel Core i9-10900 | 65 W | 10 | 20 | 2.8 GHz to 5.2 GHz | 20 MB | Intel UHD Graphics 630 |
| 11 th Generation Intel Core i5-11400T | 35 W | 6 | 12 | 1.3 GHz to 3.7 GHz | 12 MB | Intel UHD Graphics 730 |
| 11 th Generation Intel Core i5-11400 | 65 W | 6 | 12 | 2.6 GHz to 4.4 GHz | 12 MB | Intel UHD Graphics 730 |
| 11 th Generation Intel Core i5-11500T | 35 W | 6 | 12 | 1.5 GHz to 3.9 GHz | 12 MB | Intel UHD Graphics 750 |
| 11 th Generation Intel Core i5-11500 | 65 W | 6 | 12 | 2.7 GHz to 4.6 GHz | 12 MB | Intel UHD Graphics 750 |
| 11 th Generation Intel Core i5-11600T | 35 W | 6 | 12 | 1.7 GHz to 4.1 GHz | 12 MB | Intel UHD Graphics 750 |
| 11 th Generation Intel Core i5-11600 | 65 W | 6 | 12 | 2.8 GHz to 4.8 GHz | 12 MB | Intel UHD Graphics 750 |
| 11 th Generation Intel Core i7-11700T | 35 W | 8 | 16 | 1.4 GHz to 4.6 GHz | 16 MB | Intel UHD Graphics 750 |

Table 3. Processor (continued)

| Processor type | Processor wattage | Processor core count | Processor thread count | Processor speed | Processor cache | Integrated graphics |
|--|-------------------|----------------------|------------------------|--------------------|-----------------|------------------------|
| 11 th Generation Intel Core i7-11700 | 65 W | 8 | 16 | 2.5 GHz to 4.9 GHz | 16 MB | Intel UHD Graphics 750 |
| 11 th Generation Intel Core i9-11900T | 35 W | 8 | 16 | 1.5 GHz to 4.9 GHz | 16 MB | Intel UHD Graphics 750 |
| 11 th Generation Intel Core i9-11900 | 65 W | 8 | 16 | 2.5 GHz to 5.2 GHz | 16 MB | Intel UHD Graphics 750 |

Chipset

The following table lists the details of the chipset supported by your OptiPlex 7090 Micro Form Factor

Table 4. Chipset

| Description | Option one | Option two |
|----------------|--|---|
| Processors | 10 th Generation Intel Core i3/i5/i7/i9 | 11 th Generation Intel Core i5/i7/i9 |
| Chipset | Intel Q570 | Intel Q570 |
| DRAM bus width | 64-bit (for single channel) | 64-bit (for single channel) |
| Flash EPROM | 32 MB | 32 MB |
| PCIe bus | Up to Gen 3.0 | Up to Gen 3.0 |

Operating system

Your OptiPlex 7090 Micro Form Factor supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Home National Academic, 64-bit
- Windows 11 Pro, 64-bit
- Windows 11 Pro National Academic, 64-bit
- Windows 10 Home, 64-bit
- Windows 10 Pro, 64-bit
- Windows 10 Pro Education, 64-bit
- Windows 10 IoT Enterprise 2019 LTSC (OEM only)
- Windows 10 CMIT Government Edition, 64-bit (China only)
- Ubuntu 20.04 LTS, 64-bit
- Kylin Linux Desktop version 10.1 (China only)

Memory

The following table lists the memory specifications of your OptiPlex 7090 Micro Form Factor.

Table 5. Memory specifications

| Description | Values |
|--------------|----------------|
| Memory slots | Two DIMM slots |

Table 5. Memory specifications (continued)

| Description | Values |
|---------------------------------|---|
| Memory type | DDR4 |
| Memory speed | 2666/2933/3200 MHz |
| Maximum memory configuration | 64 GB |
| Minimum memory configuration | 4 GB |
| Memory size per slot | 4 GB, 8 GB, 16 GB, 32 GB |
| Memory configurations supported | <ul style="list-style-type: none"> • 4 GB, 1 x 4 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 8 GB, 1 x 8 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 8 GB, 2 x 4 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 16 GB, 1 x 16 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 16 GB, 2 x 8 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 32 GB, 1 x 32 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 32 GB, 2 x 16 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors • 64 GB, 2 x 32 GB, DDR4, 2666 MHz for 10th Generation Intel Core i5, 2933 MHz for 10th Generation Intel Core i7/i9, 3200 MHz for 11th Generation Intel Core i5/i7/i9 processors |

Memory configuration matrix

Table 6. Memory configuration matrix

| Configuration | Slot | |
|---------------|-------|-------|
| | DIMM1 | DIMM2 |
| 4 GB DDR4 | 4 GB | |
| 8 GB DDR4 | 4 GB | 4 GB |
| 8 GB DDR4 | 8 GB | |
| 16 GB DDR4 | 8 GB | 8 GB |
| 16 GB DDR4 | 16 GB | |

Table 6. Memory configuration matrix (continued)

| Configuration | Slot | |
|---------------|-------|-------|
| | DIMM1 | DIMM2 |
| 32 GB DDR4 | 16 GB | 16 GB |
| 32 GB DDR4 | 32 GB | |
| 64 GB DDR4 | 32 GB | 32 GB |

Memory configuration matrix

Table 7. Memory configuration matrix

| Configuration | Slot | |
|---------------|-------|-------|
| | DIMM1 | DIMM2 |
| 4 GB DDR4 | 4 GB | |
| 8 GB DDR4 | 4 GB | 4 GB |
| 8 GB DDR4 | 8 GB | |
| 16 GB DDR4 | 8 GB | 8 GB |
| 16 GB DDR4 | 16 GB | |
| 32 GB DDR4 | 16 GB | 16 GB |
| 32 GB DDR4 | 32 GB | |
| 64 GB DDR4 | 32 GB | 32 GB |

Intel Optane Memory H10 with Solid State Storage (optional)

Intel Optane Memory technology utilizes 3D XPoint memory technology and functions as a non-volatile storage cache/accelerator and/or storage device depending on the Intel Optane Memory installed in your computer.

Intel Optane Memory H10 with Solid State Storage functions as both a non-volatile storage cache/accelerator (enabling enhanced read/write speeds for hard-drive storage) and a solid-state storage solution. It neither replaces nor adds to the memory (RAM) installed on your computer.

Table 8. Intel Optane Memory H10 with Solid State Storage specifications

| Description | Values |
|--------------------------------|---|
| Interface | PCIe 3 x4 NVMe <ul style="list-style-type: none"> One PCIe 3 x2 for Optane memory One PCIe 3 x2 for solid-state storage |
| Connector | M.2 |
| Form factor | 2280 |
| Capacity (Intel Optane memory) | Up to 32 GB |
| Capacity (solid-state storage) | Up to 512 GB |

NOTE: Intel Optane Memory H10 with Solid State Storage is supported on computers that meet the following requirements:

- 9th Generation or higher Intel Core i3/i5/i7 processors
- Windows 10 64-bit version or higher

- Intel Rapid Storage Technology driver version 15.9.1.1018 or higher

External ports

Table 9. External ports-Integrated

| Description | Values |
|---------------------|---|
| Network port/slots | Rear <ul style="list-style-type: none"> • One RJ45 Ethernet port • Two knock-out slots for wireless antenna |
| USB ports | Front <ul style="list-style-type: none"> • One USB 3.2 Gen 2x2 capable Type-C port • One USB 3.2 Gen 2 port with power share Rear <ul style="list-style-type: none"> • One USB 3.2 Gen 1 port • One USB 3.2 Gen 1 port with smart power on • Two USB 3.2 Gen 2 ports |
| Audio port | Front <ul style="list-style-type: none"> • One Universal audio jack • One re-tasking Line out/Line in audio port |
| Video port/ports | Rear <ul style="list-style-type: none"> • One Serial/Video port with Serial/Serial+PS2 port/VGA port/DisplayPort 1.4 port/HDMI 2.0 Port/USB 3.2 Gen2 Type-C Port with Alt-mode (optional) • Two DisplayPort 1.4 ports <p>NOTE: Download and install the latest Intel Graphics driver from www.dell.com/support to enable multiple displays.</p> |
| Media-card reader | N/A |
| Power-adaptor port | Rear <ul style="list-style-type: none"> • DC-in power input: 4.5 mm barrel type |
| Security-cable slot | Rear <ul style="list-style-type: none"> • One Kensington security-cable slot • One padlock loop lock |

Table 10. External ports-Discrete

| Description | Values |
|-------------|---|
| Network | Rear <ul style="list-style-type: none"> • One RJ45 Ethernet port • Two knock-out slots for wireless antenna |
| USB ports | Front <ul style="list-style-type: none"> • One USB 3.2 Gen 2x2 capable Type-C port • One USB 3.2 Gen 2x2 port with power share Rear <ul style="list-style-type: none"> • One USB 3.2 Gen 1 port with smart power on • Two USB 3.2 Gen 2 ports |
| Audio port | Front <ul style="list-style-type: none"> • One Universal audio jack • One re-tasking Line out/Line in audio port |

Table 10. External ports-Discrete (continued)

| Description | Values |
|---------------------|--|
| Video port/ports | Rear <ul style="list-style-type: none"> Two mini DisplayPort 1.4 ports Two DisplayPort 1.4 ports <i>i</i> NOTE: Download and install the latest Intel Graphics driver from www.dell.com/support to enable multiple displays. |
| Media-card reader | N/A |
| Power-adapter port | Rear <ul style="list-style-type: none"> DC-in power input: 7.4 mm barrel type |
| Security-cable slot | Rear <ul style="list-style-type: none"> One Kensington security-cable slot One padlock loop lock |

Internal slots

The following table lists the internal slots of your OptiPlex 7090 Micro Form Factor.

Table 11. Internal slots

| Description | Values |
|-------------|---|
| M.2 | <ul style="list-style-type: none"> One M.2 slot for WiFi and Bluetooth card Two M.2 2230/2280 slot for SSD/Intel Optane <i>i</i> NOTE: To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at www.dell.com/support . |

Communications

Ethernet

Table 12. Ethernet specifications

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

Wireless module

Table 13. Wireless module specifications

| Description | Values | | |
|---------------------------|----------------|-------------------|------------------|
| | Model number | Qualcomm QCA61x4a | Qualcomm QCA9377 |
| Transfer rate | Up to 867 Mbps | Up to 433 Mbps | Up to 2.40 Gbps |
| Frequency bands supported | 2.4 GHz/5 GHz | 2.40 GHz/5 GHz | 2.4 GHz/5 GHz |

Table 13. Wireless module specifications (continued)

| Description | Values | | |
|-------------|--|--|--|
| | Wireless standards | 802.11ac | 802.11ac |
| Encryption | <ul style="list-style-type: none"> 64-bit and 128-bit WEP 128-bit AES-CCMP TKIP | <ul style="list-style-type: none"> 64-bit and 128-bit WEP 128-bit AES-CCMP TKIP | <ul style="list-style-type: none"> 64-bit and 128-bit WEP 128-bit AES-CCMP TKIP |
| Bluetooth | 5.0 | 5.0 | 5.2 |

Audio

The following table lists the audio specifications of your OptiPlex 7090 Micro Form Factor.

Table 14. Audio specifications

| Description | Values |
|--------------------------|--|
| Audio type | 4 Channel High Definition Audio |
| Audio controller | Realtek ALC3246 |
| Internal audio interface | Intel HDA (high-definition audio) |
| External audio interface | <ul style="list-style-type: none"> One Universal Audio Jack (front) One Line-out audio port with re-tasking to Line-in(rear) |

Storage

This section lists the storage options on your OptiPlex 7090 Micro Form Factor.

Your computer supports one of the following configurations:

Table 15. Storage Matrix

| Storage | | 1st 2.5-inch hard drive | Single M.2 socket | 2nd M.2 2280 socket | 1st Bootable Device |
|----------------------------|---|-------------------------|-------------------|---------------------|---------------------------|
| 2.5-inch hard drive | | Y | N | N | 2.5-inch hard drive |
| M.2 solid-state drive | | N | Y | N | M.2 solid-state drive |
| Dual M.2 solid-state drive | | N | Y | Y | 1st M.2 solid-state drive |
| M.2 solid-state drive | 2.5-inch hard drive/ solid-state drive | N | Y | N | M.2 solid-state drive |
| M.2 Intel Optane | 2.5-inch hard drive | Y | Y | N | 2.5-inch hard drive |

Table 16. 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 |

Table 16. Storage specifications (continued)

| Storage type | Interface type | Capacity |
|--|------------------------------|--|
| 2.5-inch, 7200 RPM, FIPS Self Encrypting Opal 2.0, hard-disk drive | SATA 3.0 | Up to 500 GB |
| M.2 2230 solid-state drive | PCIe 3 Gen x4 NVMe, Class 35 | Up to 512 GB |
| M.2 2280 solid-state drive | PCIe 3 Gen x4 NVMe, Class 40 | Up to 2 TB |
| M.2 2280 solid-state drive | PCIe 4 Gen x4 NVMe, Class 40 | Up to 2 TB <i>i</i> NOTE: Your computer has both PCIe 3 Gen x4 and PCIe 4 Gen x4 interface type. PCIe Gen 4 supports only the PCIe Gen 3 speed by platform chipset architecture. |
| M.2 2280 Opal Self-Encrypting solid-state drive | PCIe NVMe Gen3 x4, Class 40 | Up to 1 TB |

RAID (Redundant Array of Independent Disks)

For optimal performance when configuring drives as a RAID volume, Dell recommends drive models that are identical.

i **NOTE:** RAID is not supported on Intel Optane configurations.

RAID 0 (Striped, Performance) volumes benefit from higher performance when drives are matched because the data is split across multiple drives: any I/O operations with block sizes larger than the stripe size splits the I/O and become constrained by the slowest of the drives. For RAID 0 I/O operations where block sizes are smaller than the stripe size, whichever drive the I/O operation targets determine the performance, which increases variability and results in inconsistent latencies. This variability is particularly pronounced for write operations, and it can be problematic for applications that are latency sensitive. One such example of this is any application that performs thousands of random writes per second in small block sizes.

RAID 1 (Mirrored, Data Protection) volumes benefit from higher performance when drives are matched because the data is mirrored across multiple drives: all I/O operations must be performed identically to both drives, thus variations in drive performance when the models are different, results in the I/O operations completing only as fast as the slowest drive. While this does not suffer the variable latency issue in small random I/O operations as with RAID 0 across heterogeneous drives, the impact is nonetheless large because the higher performing drive becomes limited in all I/O types. One of the worst examples of constrained performance here is when using unbuffered I/O. To ensure that writes are fully committed to non-volatile regions of the RAID volume, unbuffered I/O bypasses cache (for example by using the Force Unit Access bit in the NVMe protocol) and the I/O operation will not complete until all the drives in the RAID volume have completed the request to commit the data. This kind of IO operation completely negates any advantage of a higher performing drive in the volume.

Care must be taken to match not only the drive vendor, capacity, and class, but also the specific model. Drives from the same vendor, with the same capacity, and even within the same class, can have different performance characteristics for certain types of I/O operations. Thus, matching by model ensures that the RAID volumes are consisted of a homogeneous array of drives that deliver all the benefits of a RAID volume without incurring the additional penalties when one or more drives in the volume are lower performing.

OptiPlex 7090Micro supports RAID with more than one hard drive configuration.

Hard drive preloaded bracket matrix

Table 17. HDD preloaded bracket cable

| | |
|------------------------|-----|
| 3.5-inch Caddy/Bracket | Yes |
| 2.5-inch Caddy/Bracket | No |

Power adapter

Table 18. Power adapter specifications

| Description | | Values | | |
|-----------------------------|-----------|---------------------------------|---------------------------------|---------------------------------|
| Type | | 90 W (35 W CPU) | 130 W (35 W CPU) | 180 W (65 W CPU and DGFX SKU) |
| Diameter (connector) | | 4.5 mm x 2.9 mm | 4.5 mm x 2.9 mm | 7.4 mm x 5.1 mm |
| Input voltage | | 100 VAC—240 VAC | 100 VAC—240 VAC | 100 VAC—240 VAC |
| Input frequency | | 50 Hz—60 Hz | 50 Hz—60 Hz | 50 Hz—60 Hz |
| Input current (maximum) | | 1.50 A | 2.50 A | 2.34 A |
| Output current (continuous) | | 4.62 A | 6.70 A | 9.23 A |
| Rated output voltage | | 19.50 VDC | 19.50 VDC | 19.50 VDC |
| Temperature range: | | | | |
| | Operating | 0 °C to 40 °C (32 °F to 104 °F) | 0 °C to 40 °C (32 °F to 104 °F) | 0 °C to 40 °C (32 °F to 104 °F) |
| | Storage | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) |

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your OptiPlex 7090 Micro Form Factor.

Table 19. GPU—Integrated

| Controller | External display support | Memory size | Processor |
|----------------------------|---------------------------|----------------------|--|
| Intel UHD Graphics 630 | Two DisplayPort 1.4 ports | Shared system memory | 10 th Generation Intel Core i3/i5/i7/i9 |
| Intel UHD Graphics 730/750 | Two DisplayPort 1.4 ports | Shared system memory | 11 th Generation Intel Core i5/i7/i9 |

GPU—Discrete

The following table lists the specifications of the discrete Graphics Processing Unit (GPU) supported by your OptiPlex 7090 Micro Form Factor.

Table 20. GPU—Discrete

| Controller | External display support | Memory size | Memory type |
|-------------------|---|-------------|-------------|
| AMD Radeon RX 640 | <ul style="list-style-type: none"> One DisplayPort 1.4 Two mini DisplayPort (mDP) ports | 4 GB | GDDR5 |

Multiple display support matrix

Table 21. Multiple display support matrix

| Graphics Card | Radeon RX 640 |
|--------------------------------|--|
| Memory | 4 GB GDDR5 |
| Video Ports on Graphics Card | <ul style="list-style-type: none"> • 2 x Mini DisplayPorts • 1 x DisplayPort |
| Max Displays (direct connect) | 3 |
| Max Displays (DP multi-stream) | 1 |
| Number of displays | 3 |
| Supported Resolution | 3 x FHD (1920 x 1080) |
| Total Power | 40 W |

Hardware Security

Table 22. Hardware Security

| |
|---|
| One Kensington security-cable slot |
| One Padlock loop |
| Chassis intrusion switch |
| SafelD including Trusted Platform Module (TPM) 2.0 |
| Smart card keyboard (FIPS) |
| Microsoft 10 Device Guard and Credential Guard (Enterprise SKU) |
| Microsoft Windows Bitlocker |
| Local hard drive data wipe through BIOS (Secure Erase) |
| Self-encrypting storage drives (Opal, FIPS) |
| Trusted Platform Module (TPM) 2.0 |
| China TPM |
| Intel Secure Boot |
| Intel Authenticate |
| SafeBIOS: includes Dell Off-host BIOS Verification, BIOS Resilience, BIOS Recovery, and additional BIOS Controls |
| Physical Security Options: Chassis lock slot support, Chassis Intrusion Switch, Lockable Cable Covers, Supply chain tamper alerts |

Environmental

Table 23. Environmental specifications

| Feature | OptiPlex 7090 Micro |
|----------------------|--------------------------|
| Recyclable packaging | Yes |
| BFR/PVC—free chassis | No |
| MultiPack packaging | Yes (US only) (optional) |

Table 23. Environmental specifications (continued)

| Feature | OptiPlex 7090 Micro |
|-------------------------------|---------------------|
| Energy-Efficient Power Supply | Standard |
| ENV0424 compliant | Yes |

NOTE: Wood-based fiber packaging contains a minimum of 35% recycled content by total weight of wood-based fiber. Packaging that contains without wood-based fiber can be claimed as Not Applicable.

Energy Star, EPEAT and Trusted Platform Module (TPM)

Table 24. Energy Star, EPEAT and TPM

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

NOTE:

¹TPM 2.0 is FIPS 140-2 certified.

²TPM is not available in all countries.

Operating and storage environment

This table lists the operating and storage specifications of your OptiPlex 7090 Micro Form Factor.

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

Table 25. Computer environment

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

CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.

* 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.

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 26. Self-help resources

| Self-help resources | Resource location |
|---|--|
| Information about Dell products and services | www.dell.com |
| My Dell app |  |
| Tips |  |
| Contact Support | In Windows search, type <code>Contact Support</code> , and press Enter. |
| Online help for operating system | www.dell.com/support/windows www.dell.com/support/linux |
| 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 www.dell.com/support . For more information on how to find the Service Tag for your computer, see Locate the Service Tag on your computer . |
| Dell knowledge base articles for a variety of computer concerns | <ol style="list-style-type: none"> 1. Go to www.dell.com/support. 2. On the menu bar at the top of the Support page, select Support > Knowledge Base. 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. |

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see 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.