

# 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.

# Contents

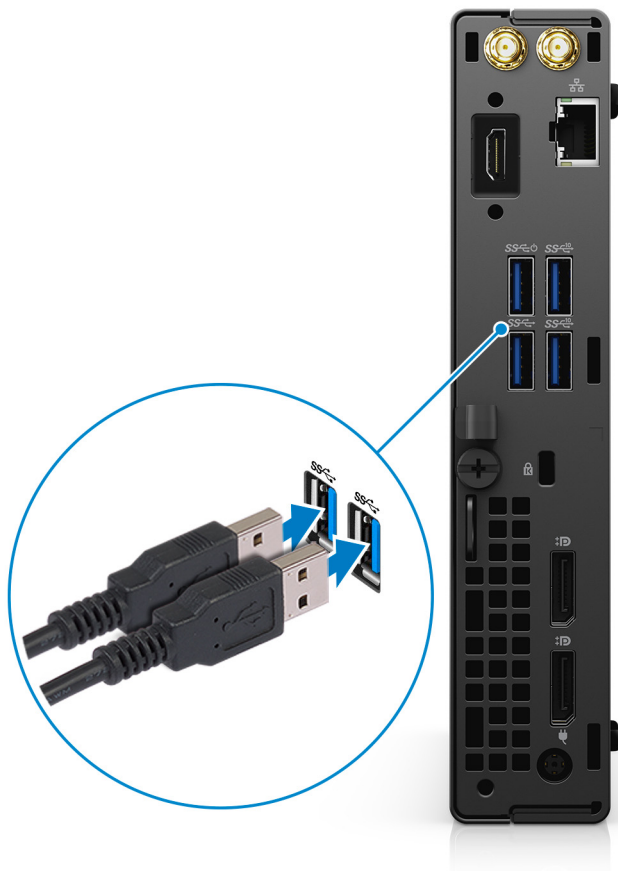
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# Set up your OptiPlex 7090 Micro

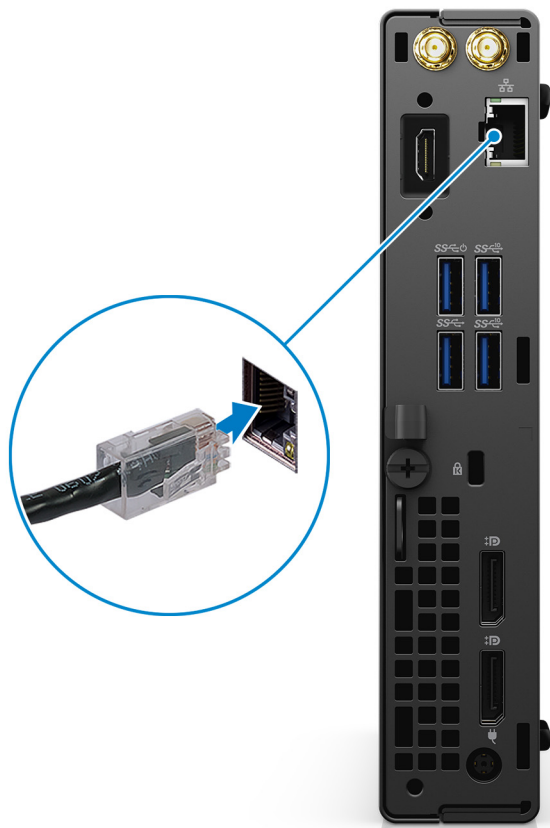
The images in this document may differ from your computer depending on the configuration you ordered.

## 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><b>Dell Product Registration</b> Register your computer with Dell.</p>
	<p><b>Dell Help &amp; Support</b> Access help and support for your computer.</p>

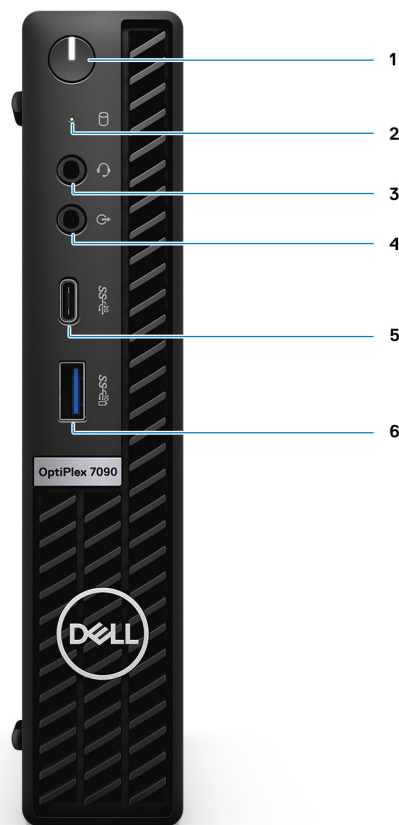
**Table 1. Locate Dell apps (continued)**

Dell apps	Details
	<p><b>SupportAssist</b></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 <a href="http://www.dell.com/serviceabilitytools">www.dell.com/serviceabilitytools</a>.</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>



# Views of OptiPlex 7090 Micro Form Factor

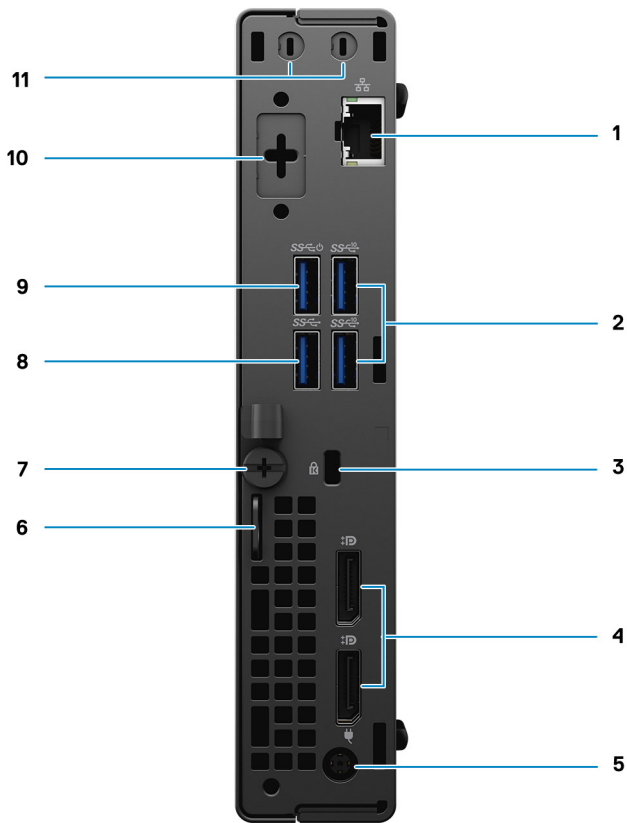
## Front



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

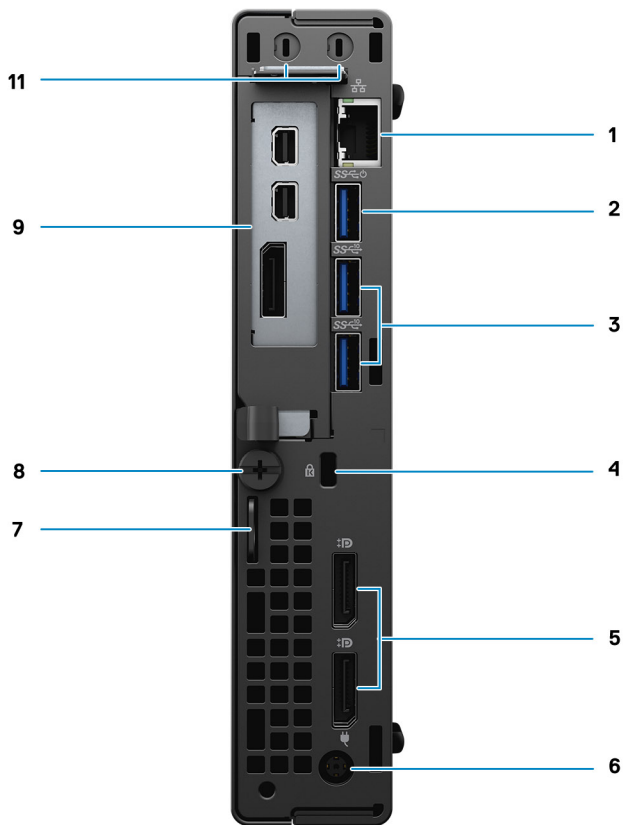
## Back

### 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

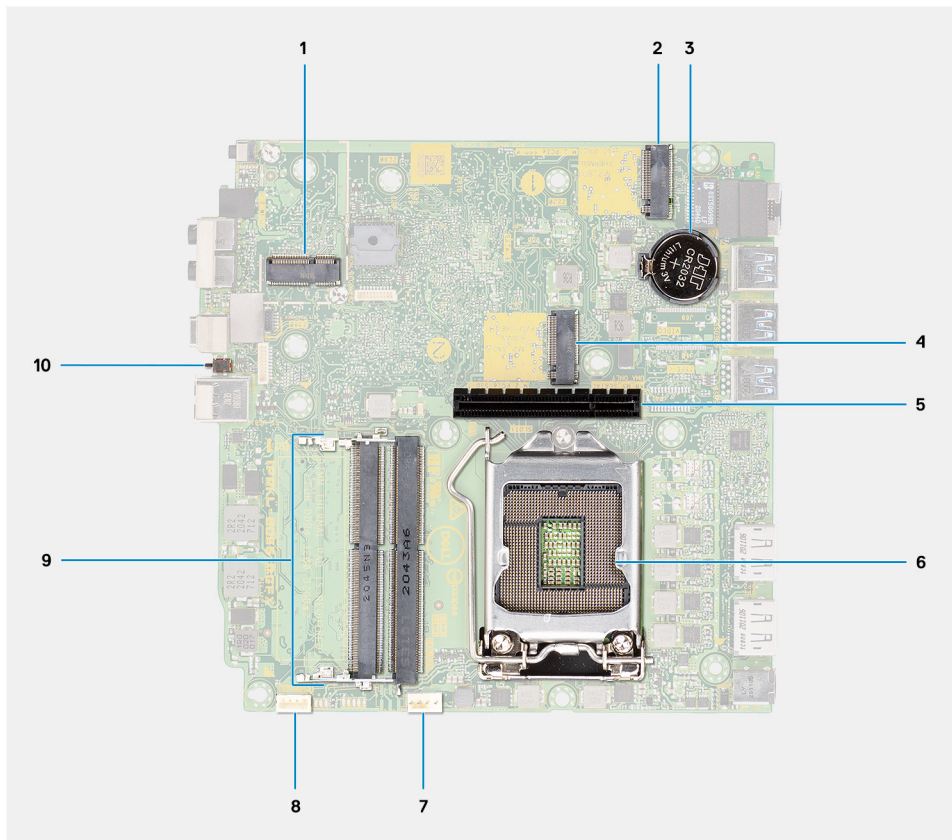
**Discrete**



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

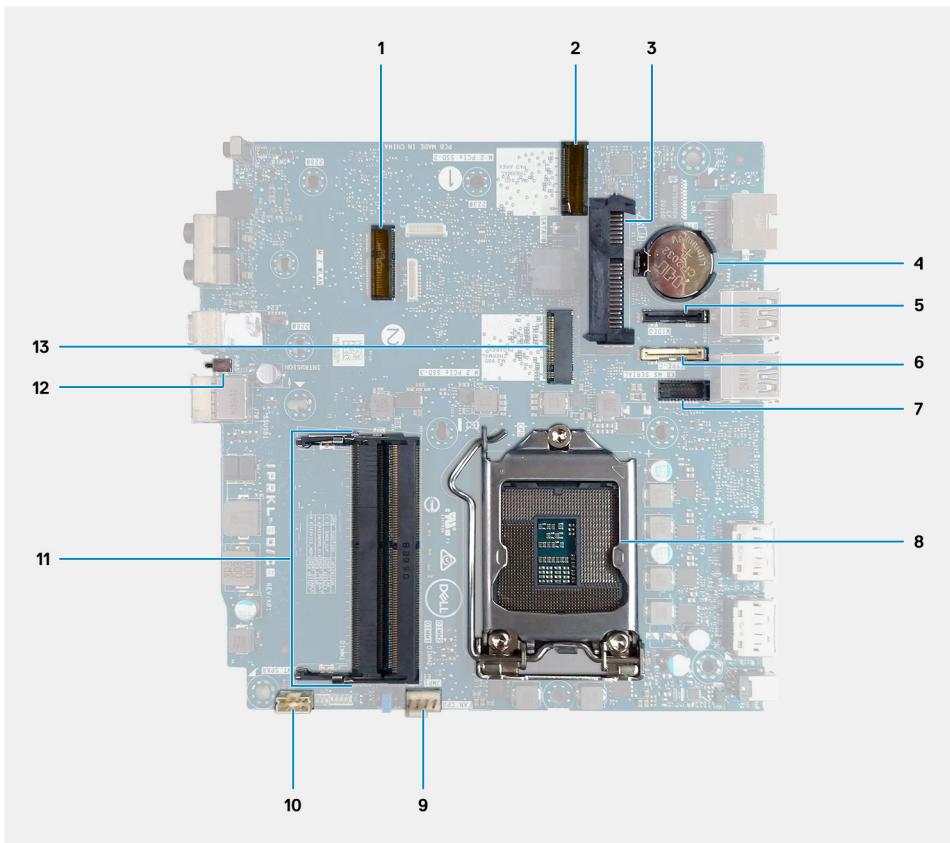
## System board layout

## Discrete system board



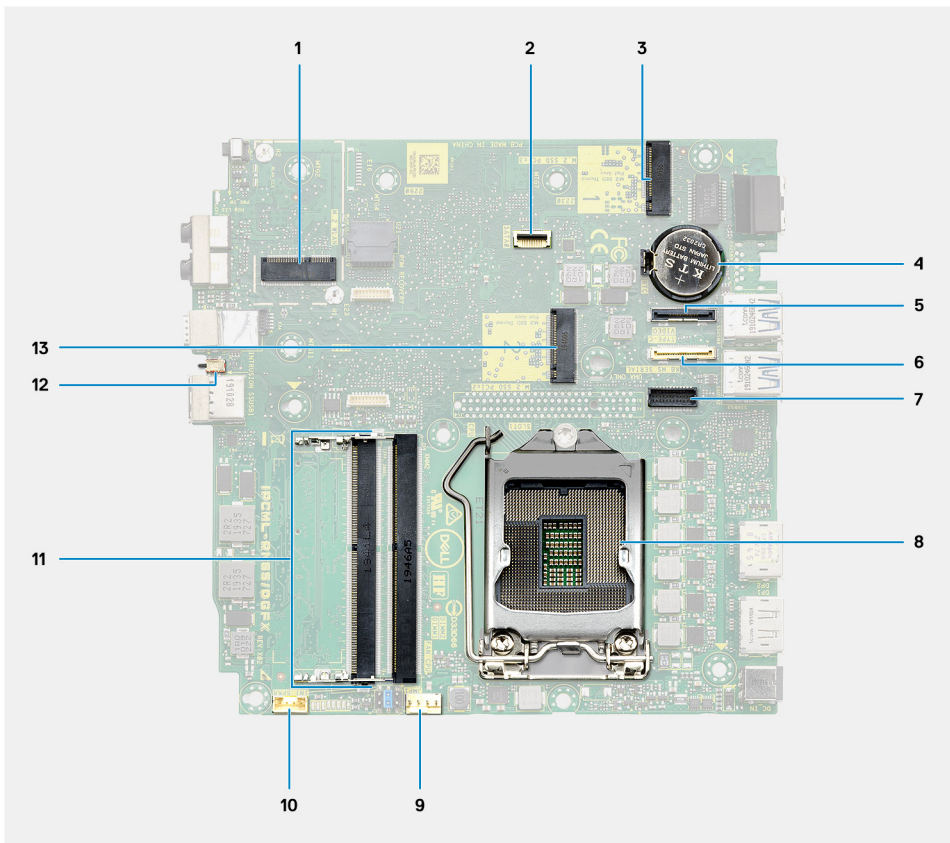
1. M.2 WLAN connector
2. M.2 SSD PCIe connector
3. Coin-cell battery
4. M.2 SSD PCIe connector
5. Riser card connector
6. Processor socket
7. Memory slots
8. Intrusion switch
9. Memory slots
10. Riser card connector

## 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  <b>NOTE:</b> The weight of your computer depends on the configuration ordered and manufacturing variability.	<ul style="list-style-type: none"> <li>• Minimum: 1.30 kg (2.87 lbs)</li> <li>• Maximum: 1.38 kg (3.05 lbs)</li> </ul>

## 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 <sup>th</sup> Generation Intel Core i3-10105T	65 W	4	8	3.0 GHz to 3.9 GHz	6 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i3-10105	65 W	4	8	3.7 GHz to 4.4 GHz	6 MB	Intel UHD Graphics 630
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
10 <sup>th</sup> Generation Intel Core i3-10305	65 W	4	8	3.8 GHz to 4.5 GHz	8 MB	Intel UHD Graphics 630

**Table 3. Processor (continued)**

<b>Processor type</b>	<b>Processor wattage</b>	<b>Processor core count</b>	<b>Processor thread count</b>	<b>Processor speed</b>	<b>Processor cache</b>	<b>Integrated graphics</b>
10 <sup>th</sup> Generation Intel Core i5-10505	65 W	6	12	3.2 GHz to 4.6 GHz	12 MB	Intel UHD Graphics 630
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
10 <sup>th</sup> Generation Intel Core i5-10400	65 W	6	12	2.9 GHz to 4.3 GHz	12 MB	Intel UHD Graphics 630
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
10 <sup>th</sup> Generation Intel Core i5-10500	65 W	6	12	3.1 GHz to 4.5 GHz	12 MB	Intel UHD Graphics 630
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
10 <sup>th</sup> Generation Intel Core i5-10600	65 W	6	12	3.3 GHz to 4.8 GHz	12 MB	Intel UHD Graphics 630
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
10 <sup>th</sup> Generation Intel Core i7-10700	65 W	8	16	2.9 GHz to 4.8 GHz	16 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i9-10900T	35 W	10	20	1.9 GHz to 4.6 GHz	20 MB	Intel UHD Graphics 630
10 <sup>th</sup> Generation Intel Core i9-10900	65 W	10	20	2.8 GHz to 5.2 GHz	20 MB	Intel UHD Graphics 630
11 <sup>th</sup> Generation Intel Core i5-11400T	35 W	6	12	1.3 GHz to 3.7 GHz	12 MB	Intel UHD Graphics 730
11 <sup>th</sup> Generation Intel Core i5-11400	65 W	6	12	2.6 GHz to 4.4 GHz	12 MB	Intel UHD Graphics 730
11 <sup>th</sup> Generation Intel Core i5-11500T	35 W	6	12	1.5 GHz to 3.9 GHz	12 MB	Intel UHD Graphics 750
11 <sup>th</sup> Generation Intel Core i5-11500	65 W	6	12	2.7 GHz to 4.6 GHz	12 MB	Intel UHD Graphics 750
11 <sup>th</sup> Generation Intel Core i5-11600T	35 W	6	12	1.7 GHz to 4.1 GHz	12 MB	Intel UHD Graphics 750
11 <sup>th</sup> Generation Intel Core i5-11600	65 W	6	12	2.8 GHz to 4.8 GHz	12 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 <sup>th</sup> Generation Intel Core i7-11700T	35 W	8	16	1.4 GHz to 4.6 GHz	16 MB	Intel UHD Graphics 750
11 <sup>th</sup> Generation Intel Core i7-11700	65 W	8	16	2.5 GHz to 4.9 GHz	16 MB	Intel UHD Graphics 750
11 <sup>th</sup> Generation Intel Core i9-11900T	35 W	8	16	1.5 GHz to 4.9 GHz	16 MB	Intel UHD Graphics 750
11 <sup>th</sup> 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 <sup>th</sup> Generation Intel Core i3/i5/i7/i9	11 <sup>th</sup> 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 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
Memory type	DDR4

**Table 5. Memory specifications (continued)**

Description	Values
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"> <li>• 4 GB, 1 x 4 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 8 GB, 1 x 8 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 8 GB, 2 x 4 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 16 GB, 1 x 16 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 16 GB, 2 x 8 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 32 GB, 1 x 32 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 32 GB, 2 x 16 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> <li>• 64 GB, 2 x 32 GB, DDR4, 2666 MHz for 10<sup>th</sup> Generation Intel Core i5, 2933 MHz for 10<sup>th</sup> Generation Intel Core i7/i9, 3200 MHz for 11<sup>th</sup> Generation Intel Core i5/i7/i9 processors</li> </ul>

## 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	
32 GB DDR4	16 GB	16 GB

**Table 6. Memory configuration matrix (continued)**

Configuration	Slot	
	DIMM1	DIMM2
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"> <li>One PCIe 3 x2 for Optane memory</li> <li>One PCIe 3 x2 for solid-state storage</li> </ul>
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:
- 9<sup>th</sup> 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	<b>Rear</b> <ul style="list-style-type: none"> <li>One RJ45 Ethernet port</li> <li>Two knock-out slots for wireless antenna</li> </ul>
USB ports	<b>Front</b> <ul style="list-style-type: none"> <li>One USB 3.2 Gen 2x2 capable Type-C port</li> <li>One USB 3.2 Gen 2 port with power share</li> </ul> <b>Rear</b> <ul style="list-style-type: none"> <li>One USB 3.2 Gen 1 port</li> <li>One USB 3.2 Gen 1 port with smart power on</li> <li>Two USB 3.2 Gen 2 ports</li> </ul>
Audio port	<b>Front</b> <ul style="list-style-type: none"> <li>One Universal audio jack</li> <li>One re-tasking Line out/Line in audio port</li> </ul>
Video port/ports	<b>Rear</b> <ul style="list-style-type: none"> <li>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)</li> <li>Two DisplayPort 1.4 ports</li> </ul>
Media-card reader	N/A
Power-adaptor port	<b>Rear</b> <ul style="list-style-type: none"> <li>DC-in power input: 4.5 mm barrel type</li> </ul>
Security-cable slot	<b>Rear</b> <ul style="list-style-type: none"> <li>One Kensington security-cable slot</li> <li>One padlock loop lock</li> </ul>

**Table 10. External ports-Discrete**

Description	Values
Network	<b>Rear</b> <ul style="list-style-type: none"> <li>One RJ45 Ethernet port</li> <li>Two knock-out slots for wireless antenna</li> </ul>
USB ports	<b>Front</b> <ul style="list-style-type: none"> <li>One USB 3.2 Gen 2x2 capable Type-C port</li> <li>One USB 3.2 Gen 2x2 port with power share</li> </ul> <b>Rear</b> <ul style="list-style-type: none"> <li>One USB 3.2 Gen 1 port with smart power on</li> <li>Two USB 3.2 Gen 2 ports</li> </ul>
Audio port	<b>Front</b> <ul style="list-style-type: none"> <li>One Universal audio jack</li> <li>One re-tasking Line out/Line in audio port</li> </ul>
Video port/ports	<b>Rear</b> <ul style="list-style-type: none"> <li>Two mini DisplayPort 1.4 ports</li> <li>Two DisplayPort 1.4 ports</li> </ul>
Media-card reader	N/A
Power-adaptor port	<b>Rear</b>

**Table 10. External ports-Discrete (continued)**

Description	Values
	<ul style="list-style-type: none"> <li>DC-in power input: 7.4 mm barrel type</li> </ul>
Security-cable slot	<b>Rear</b> <ul style="list-style-type: none"> <li>One Kensington security-cable slot</li> <li>One padlock loop lock</li> </ul>

## 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"> <li>One M.2 slot for WiFi and Bluetooth card</li> <li>Two M.2 2230/2280 slot for SSD/Intel Optane</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="https://www.dell.com/support/000144170">000144170</a> at <a href="https://www.dell.com/support">www.dell.com/support</a>.</p>

## 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		
	Qualcomm QCA61x4a	Qualcomm QCA9377	Intel AX201
Model number	Qualcomm QCA61x4a	Qualcomm QCA9377	Intel AX201
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
Wireless standards	802.11ac	802.11ac	Wi-Fi 6 (WiFi 802.11ax)
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	5.0	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"> <li>One Universal Audio Jack (front)</li> <li>One Line-out audio port with re-tasking to Line-in(rear)</li> </ul>

# 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
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
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.

**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		
	90 W (35 W CPU)	130 W (35 W CPU)	180 W (65 W CPU and DGFX SKU)
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)

**Table 18. Power adapter specifications (continued)**

Description		Values		
	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 <sup>th</sup> Generation Intel Core i3/i5/i7/i9
Intel UHD Graphics 730/750	Two DisplayPort 1.4 ports	Shared system memory	11 <sup>th</sup> 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"> <li>One DisplayPort 1.4</li> <li>Two mini DisplayPort (mDP) ports</li> </ul>	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"> <li>2 x Mini DisplayPorts</li> <li>1 x DisplayPort</li> </ul>
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)
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

**Table 24. Energy Star, EPEAT and TPM (continued)**

Features	Specifications
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.

## 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	<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> <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> .  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.