

ChengMing 3988

Setup and specification guide

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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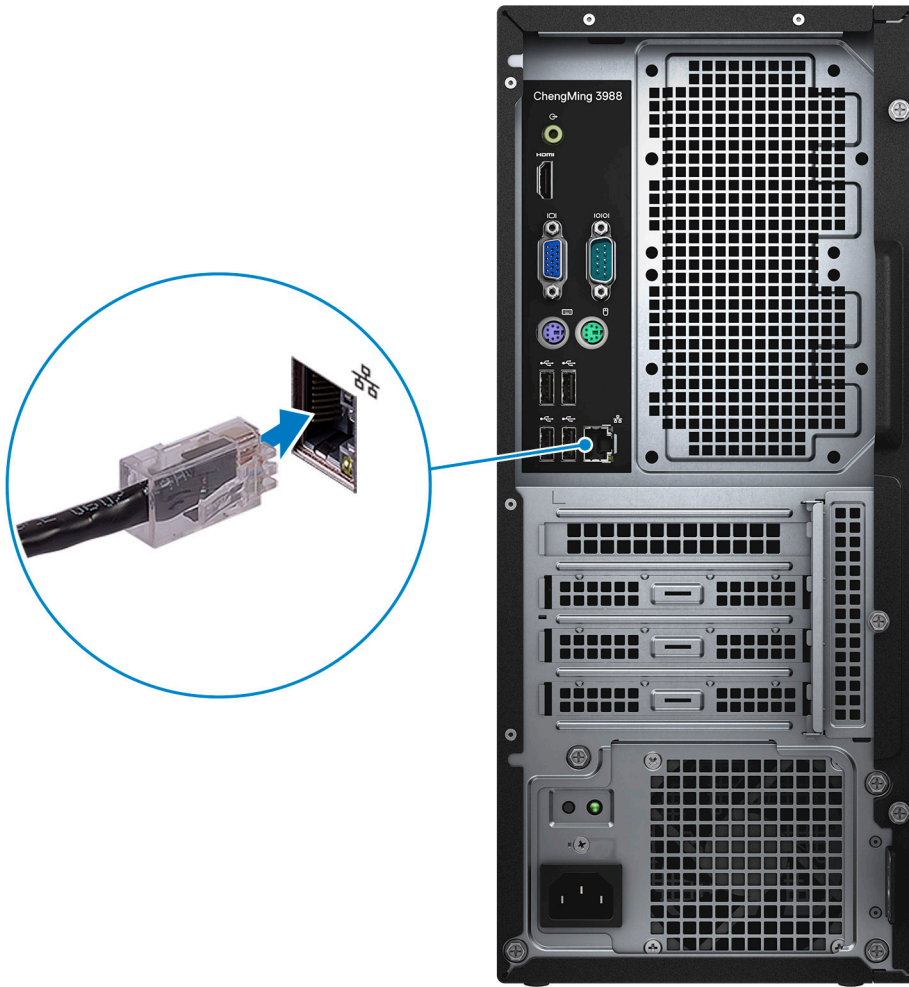
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Set up your computer

1. Connect the keyboard and mouse.



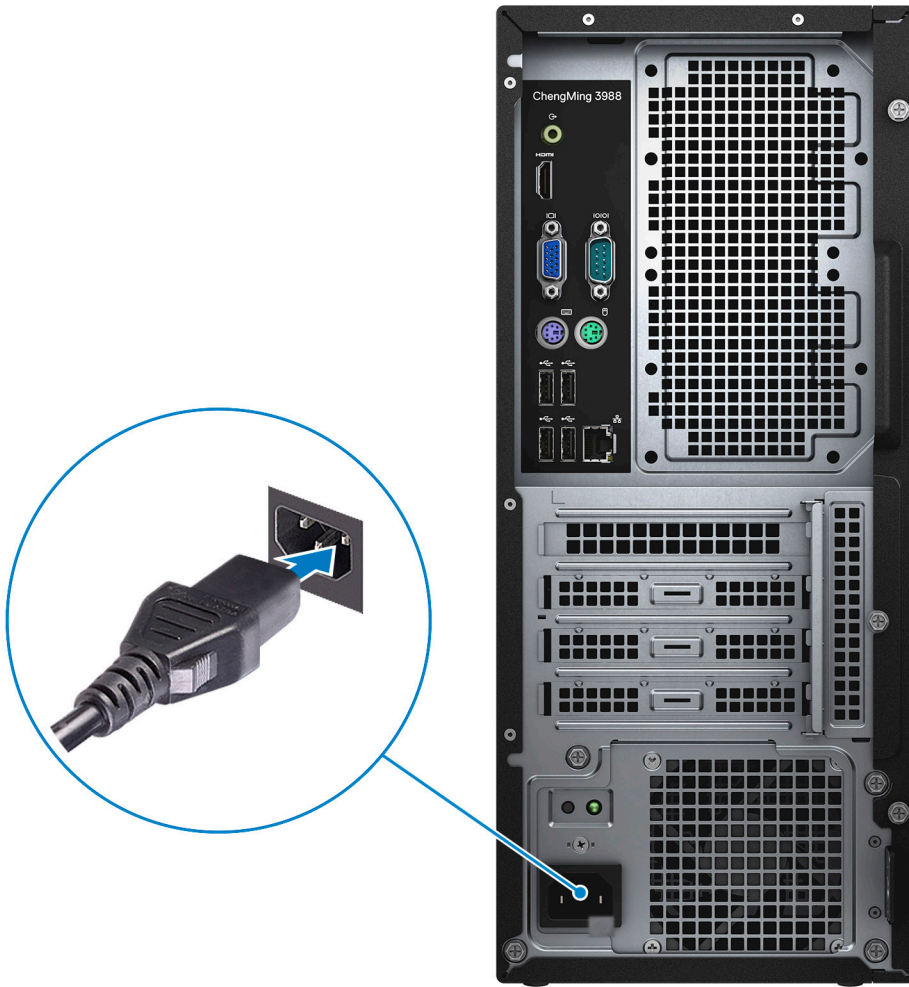
2. Connect to your network using a cable.



3. Connect the display.



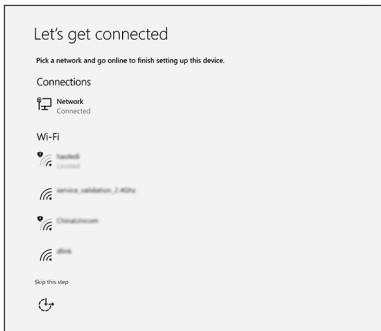
4. Connect the power cable.



5. Press the power button.



6. Follow the instructions on the screen to finish Windows setup:
- a) Connect to a network.



- b) Sign-in to your Microsoft account or create a new account.

Make it yours

Your Microsoft account opens a world of benefits. [Learn more](#)

[Forgot my password](#)

No account? [Create one!](#)

[Microsoft privacy statement](#)

[Sign in](#)

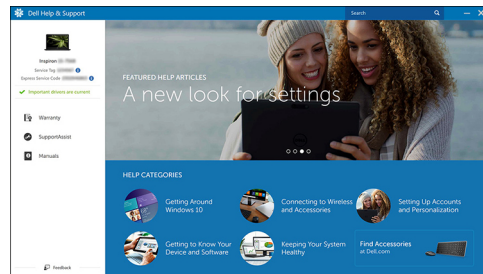
7. Locate Dell apps.

Table 1. Locate Dell apps



Register your computer

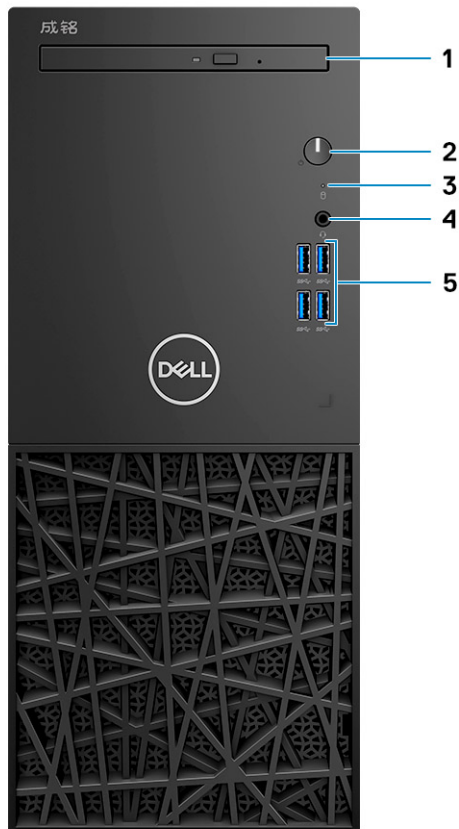
Dell Help & Support



SupportAssist — Check and update your computer

Chassis overview

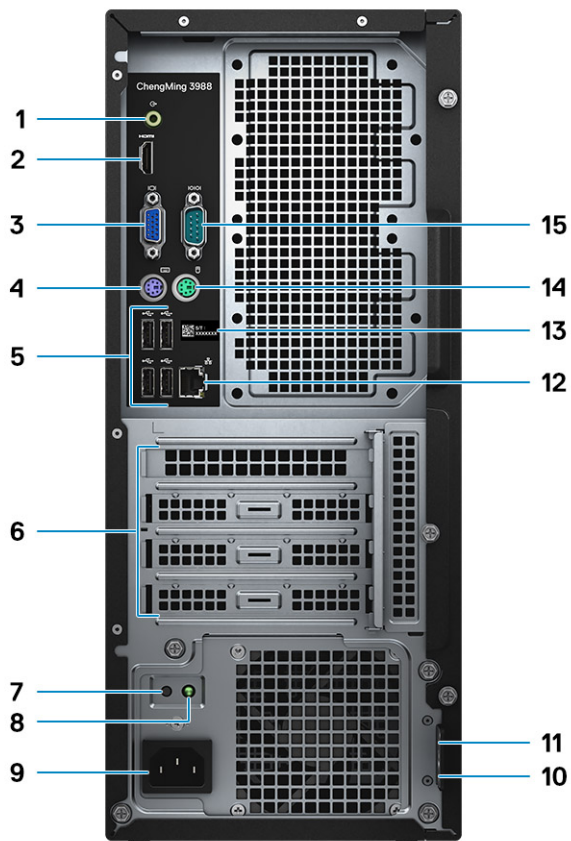
System front view



1. Optical drive
2. Power button and power status light
3. Hard drive activity light
4. Universal audio jack
5. USB 3.1 Gen 4 ports

System back view

Back view (ChengMing 3988, Refresh)



1. Line out port
2. HDMI port
3. VGA port
4. PS2 port for keyboard
5. USB 2.0 ports (4)
6. Expansion card slots
7. Power supply diagnostic button
8. Power diagnostic light
9. Power connector port
10. Padlock ring
11. Kensington security slot
12. Network port
13. Service tag
14. PS2 port for mouse
15. Serial port

Technical specifications

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

Topics:

- [Physical specifications](#)
- [System information](#)
- [Processor specifications](#)
- [Operating system](#)
- [Memory specifications](#)
- [Ports and connectors](#)
- [Communications](#)
- [Video](#)
- [Audio specifications](#)
- [Storage](#)
- [Power supply specifications](#)
- [Security hardware](#)
- [Regulatory and Environmental Compliance](#)

Physical specifications

Table 2. Dimensions and weight

Feature	Specifications
Height	14.7 inch (373.7 mm)
Width	6.3 inch (160 mm)
Depth	11.4 inch (289.4 mm)
Weight	13.01 lb (5.9 kg)

System information

Table 3. System information

Feature	Specifications
Chipset	Intel B365
DRAM bus width	64-bit wide channels
FLASH EPROM	256Mbit
PCIe Clock bus	100 Mhz
External bus frequency	DMI 3.0-8GT/s

Processor specifications

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

Table 4. Processor specifications

Type	UMA Graphics
Intel 8th Generation Celeron processor G4900 (2 MB Cache, 2 cores, 2 thread, 54 W, 3.1 GHz)	Intel UHD Graphics 610 with shared graphics memory
Intel 8th Generation Pentium Gold processor G5400 (4 MB Cache, 2 cores, 4 thread, 58 W, 3.7 GHz)	Intel UHD Graphics 610 with shared graphics memory
Intel 8th Generation Core i3-8100 processor (6 MB Cache, 4 cores, 4 thread, 65 W, 3.6 GHz)	Intel UHD Graphics 630 with shared graphics memory
Intel 8th Generation Core i5-8400 processor (9 MB Cache, 6 cores, 6 thread, 65 W, 2.8 GHz (up to 4.0 GHz))	Intel UHD Graphics 630 with shared graphics memory
Intel 8th Generation Core i5-8500 processor (9 MB Cache, 6 cores, 6 thread, 65 W, 2.8 GHz (up to 4.0 GHz))	Intel UHD Graphics 630 with shared graphics memory
Intel 8th Generation Core i7-8700 processor (12 MB Cache, 6 cores, 12 thread, 65 W, 3.2 GHz (up to 4.6 GHz))	Intel UHD Graphics 630 with shared graphics memory
Intel 9th Generation Celeron G4930 (2 MB Cache, 2 cores, 2 Thread, 54 W, 3.2 GHz)	Intel UHD Graphics 610 with shared graphics memory
Intel 9th Generation Pentium Gold G5420 (4 MB Cache, 2 cores, 4 cores, 54 W, 3.8 GHz)	Intel UHD Graphics 610 with shared graphics memory
Intel 9th Generation Core i3-9100 (8 MB Cache, 4 cores, 4 thread, 65 W, 3.6 GHz (up to 4.2 GHz))	Intel UHD Graphics 630 with shared graphics memory
Intel 9th Generation Core i5-9400 (9 MB Cache, 6 cores, 6 thread, 65 W, 2.9 GHz (up to 4.1 GHz))	Intel UHD Graphics 630 with shared graphics memory
Intel 9th Generation Core i5-9500 (9 MB Cache, 6 cores, 6 thread, 65 W, 2.9 GHz (up to 4.1 GHz))	Intel UHD Graphics 630 with shared graphics memory
Intel 9th Generation Core i7-9700 (12 MB Cache, 8 cores, 8 thread, 65 W, 3.0 GHz (up to 4.7 GHz))	Intel UHD Graphics 630 with shared graphics memory

Operating system

Operating systems supported:

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)
- NeoKylin
- Windows 10 national academy

Memory specifications

Table 5. Memory specifications

Feature	Specifications
Minimum memory configuration	4 GB
Maximum memory configuration	32 GB
Number of slots	2
Maximum memory supported per slot	<ul style="list-style-type: none"> Slot configuration1: 4 GB Slot configuration2: 8 GB Slot configuration3: 16 GB
Memory options	<ul style="list-style-type: none"> 4 GB DDR4 2666 MHz (4 GB x 1) 8 GB DDR4 2666 MHz (4 GB x 2 or 8 GB x 1) 16 GB DDR4 2666 MHz (8 GB x 2 or 16 GB x 1) 32 GB DDR4 2666 MHz (16 GB x 2) Intel Optane 16 GB memory Intel Optane 32 GB memory <p>i NOTE: The memory modules are customer replaceable units (CRU), and it can be upgraded.</p>
Type	Dual-channel DDR4
Speed	<ul style="list-style-type: none"> Speed Configuration1: 2666 MHz

Ports and connectors

Table 6. External ports and connectors

Description	Values
External:	
Network	One RJ-45 port
USB	<ul style="list-style-type: none"> Two USB 3.1 Gen1 ports Four USB 2.0 ports
Audio	One headset (headphone and microphone combo) port, and one line-out only
Video	One HDMI 1.4b port and one VGA port
Media card reader	Not supported
Docking port	Not supported
Power adapter port	NA
Security	NA
Express card	Not supported
Smart card reader	Not supported
Legacy ports	Not supported
Micro subscriber identity module (uSIM) card	Not supported

Table 7. Internal ports and connectors

Description	Values
Internal:	
Expansion	One PCIe16 expansion card slot, one PCIe1 expansion card slot and two PCI slot.
mSATA slots	N/A
SATA slots	One SATA slot for 3.5-inch HDD, two SATA slot for optional 2.5-inch.
M.2	<ul style="list-style-type: none"> One M.2 2230/2280 slot for NVMe or Intel Optane <p>NOTE: To learn more about the features of different types of M.2 cards, see the knowledge base article SLN301626.</p>

Communications

Ethernet

Table 8. Ethernet specifications

Description	Values
Model number	REALTEK RTL8111H PCI-e Gigabit ethernet controller
Transfer rate	10/100/1000

Table 9. Wireless module specifications

Description	Values
Model number	Intel Dual Band Wireless-AC 3165
Transfer rate	Up to 433 Mbps
Frequency bands supported	2.4 GHz, 5 GHz
Wireless standards	WiFi 802.11b/g/n Wi-Fi 4 (WiFi 802.11n) Wi-Fi 5 (WiFi 802.11ac; 80MHz)
Encryption	<ul style="list-style-type: none"> 64-bit/128-bit WEP AES-CCMP TKIP
Bluetooth	Bluetooth 4.2

Video

Table 10. Discrete graphics specification

Discrete graphics			
Controller	External display support	Memory size	Memory Type
NVIDIA GT730LP	1*HDMI/1*DVI-D/1*VGA	2 GB	GDDR5
AMD Radeon RX 550	2*mini DP/1*DP	4 GB	GDDR5
AMD R5 430 2GB	1*HDMI/1*DVI-D/3*DP	3 GB	GDDR5

Table 11. Integrated graphics specifications

Integrated graphics			
Controller	External display support	Memory size	Processor
Intel UHD 630 Graphics	One HDMI 1.4b port	Shared system memory	8 th /9th Generation Intel Core i3/i5/i7
Intel UHD 610 Graphics	One HDMI 1.4b port	Shared system memory	Intel Cel, PDC

Audio specifications

Table 12. Audio specifications

Features	Specifications
Controller	Audio software: Waves MaxxAudio Pro
Type	Four-channel high-definition audio
Speakers	Two (Directional speakers)
Interface	<ul style="list-style-type: none"> • Universal audio jack • High quality speakers • Microphones • Stereo headset/mic combo
Internal speaker amplifier	2W (RMS) per channel

Storage

Your computer supports one of the following configurations:

- One 3.5-inch hard-drive.
- One M.2 2230/2280 NVMe solid-state drive.
- One 3.5-inch hard-drive and one M.2 2230/2280 NVMe solid-state drive.
- One 3.5-inch hard-drive, one M.2 2230/2280 NVMe solid-state drive, and one or two 2.5-inch hard-drive.
- The primary drive of your computer varies with the storage configuration. With a M.2 drive, the M.2 drive is the primary drive, and for computers without a M.2 drive, the 3.5-inch hard drive is the primary drive.

Table 13. Storage specifications

Storage type	Interface type	Capacity
One 3.5-inch hard drive	SATA AHCI, up to 6 Gbps	
Two 2.5-inch hard drives	SATA AHCI, up to 6 Gbps	
One M.2 2280 solid-state drive	PCIe Gen3.0x2 NVMe, up to 16 Gbps	
One 9.5 mm slimline DVD-RW drive	SATA AHCI, up to 1.5 Gbps	

Power supply specifications

Table 14. Power supply

Feature	Specifications
Input Voltage	100–240 VAC or 200-240 VAC, 50–60Hz

Feature	Specifications
Wattage	<ul style="list-style-type: none"> • 290W PSU (APFC) • 290W PSU (EPA Bronze) • 365 W PSU (EPA Gold)

Security hardware

Table 15. Security hardware

Feature	Specifications
Security HW	<ul style="list-style-type: none"> • Data wipe via BIOS (Secure Erase)

Regulatory and Environmental Compliance

Table 16. Regulatory and Environmental Compliance

Feature	Specifications
Regulatory and Environmental Compliance	<ul style="list-style-type: none"> • Energy Star 7.1 (available in selected configurations only) • EPEAT Registered (for selected configurations only). For specific country participation and rating, please visit www.epeat.net • CCC/CECP (China only) • 1 Million Hr MTBF (China only, Post-RTS)
Temperature range	<ul style="list-style-type: none"> • Operating :10°C to 35°C (50°F to 95°F) • Storage: -40°C to 65°C (-40°F to 149°F)
Relative humidity	<ul style="list-style-type: none"> • Operating : 20% to 80% (*Max dew point temperature = 26°C) (non-condensing) • Storage: 5% to 95% (+Max dew point temperature = 33°C) (non-condensing)
Airborne contaminant level	G1 as defined by ISA-S71.04-1985
Vibration	Vibration (maximum)*: operating=0.26 GRMS; Storage=1.37 GRMS
Shock	Shock (maximum): operating=40 G†; Storage=105 G‡

System setup

System setup enables you to manage your hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Topics:

- [Boot Sequence](#)
- [Navigation Keys](#)
- [System Setup options](#)
- [Updating the BIOS in Windows](#)
- [System and setup password](#)

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
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

NOTE: XXXX denotes the SATA drive number.

NOTE: Choosing Diagnostics, displays the ePSA diagnostics screen.

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


Navigation Keys

The following table displays the system setup 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.

Table 17. Navigation Keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.

Keys	Navigation
<Tab>	Moves to the next focus area.  NOTE: For the standard graphics browser only.
<Esc>	Moves to the previous page till 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.
<F1>	Displays the System Setup help file.


System Setup options

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

Table 18. General

Option	Description
System Information	Displays the following information: <ul style="list-style-type: none"> System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Date, Manufacture Date, and the Express Service Code. Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM 1 Size, and DIMM 2 Size. PCI Information: Displays SLOT1, SLOT2, SLOT3, SLOT4, SLOT5_M.2 Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit Technology. Device Information: Displays SATA-0, SATA-1, SATA-2, SATA-3, LOM MAC Address, Video Controller
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. <ul style="list-style-type: none"> Legacy UEFI (default)
Advanced Boot Options	Allows you to select the Enable Legacy Option ROMs option, when in UEFI boot mode. By default, this option is enabled.
UEFI Boot Path Security	Options: <ul style="list-style-type: none"> Always, Except Internal HDD (default) Always Never
Date/Time	Allows you to set the date and time settings. Changes to the system date and time take effect immediately.

Table 19. System Configuration

Option	Description
Integrated NIC	Allows you to control the on-board LAN controller. The options are: <ul style="list-style-type: none"> Enable UEFI Network stack Disabled Enabled Enabled w/PXE (default) <p> NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.</p>

Option	Description
Serial Port	<p data-bbox="469 230 1225 253">Identifies and defines the serial port settings. You can set the serial port to:</p> <ul data-bbox="469 275 667 427" style="list-style-type: none"> <li data-bbox="469 275 592 297">• Disabled <li data-bbox="469 304 667 327">• COM1 (default) <li data-bbox="469 333 576 356">• COM2 <li data-bbox="469 362 576 385">• COM3 <li data-bbox="469 392 576 414">• COM4
SATA Operation	<p data-bbox="469 459 1302 481">Allows you to configure the operating mode of the integrated hard drive controller.</p> <ul data-bbox="469 504 946 593" style="list-style-type: none"> <li data-bbox="469 504 946 526">• Disabled = The SATA controllers are hidden <li data-bbox="469 533 560 555">• AHCI <li data-bbox="469 562 699 593">• RAID On (default)
Drives	<p data-bbox="469 620 1066 642">Allows you to enable or disable the various drives on-board:</p> <ul data-bbox="469 665 676 817" style="list-style-type: none"> <li data-bbox="469 665 587 687">• SATA-0 <li data-bbox="469 694 587 716">• SATA-1 <li data-bbox="469 723 587 745">• SATA-2 <li data-bbox="469 752 587 775">• SATA-3 <li data-bbox="469 781 676 817">• M.2 PCIe SSD-0 <p data-bbox="469 840 850 862">Default Setting: All drives are enabled.</p>
Smart Reporting	<p data-bbox="469 889 1406 943">This field controls whether hard drive errors for integrated drives are reported during system startup. This option is disabled by default.</p>
USB Configuration	<p data-bbox="469 965 1121 987">Allows you to enable or disable the integrated USB controller for:</p> <ul data-bbox="469 1010 751 1099" style="list-style-type: none"> <li data-bbox="469 1010 719 1032">• Enable Boot Support <li data-bbox="469 1039 751 1061">• Enable Front USB Ports <li data-bbox="469 1068 743 1090">• Enable Rear USB Ports <p data-bbox="469 1113 847 1144">All the options are enabled by default.</p>
Front USB Configuration	<p data-bbox="469 1171 1246 1193">Allows you to enable or disable the Front USB configuration. The options are:</p> <ul data-bbox="469 1216 727 1341" style="list-style-type: none"> <li data-bbox="469 1216 711 1238">• Front Port 1 (Left)* <li data-bbox="469 1245 727 1267">• Front Port 2 (Right)* <li data-bbox="469 1274 711 1296">• Front Port 3 (Left)* <li data-bbox="469 1303 727 1341">• Front Port 4 (Right)* <p data-bbox="469 1355 847 1377">All the options are enabled by default.</p> <p data-bbox="469 1400 815 1431">* denotes a USB 3.0-capable port</p>
Rear USB Configuration	<p data-bbox="469 1458 1230 1480">Allows you to enable or disable the rear USB configuration. The options are:</p> <ul data-bbox="469 1503 703 1628" style="list-style-type: none"> <li data-bbox="469 1503 687 1525">• Rear Port 1 (Left) <li data-bbox="469 1532 703 1554">• Rear Port 2 (Right) <li data-bbox="469 1561 687 1583">• Rear Port 3 (Left) <li data-bbox="469 1590 703 1628">• Rear Port 4 (Right) <p data-bbox="507 1668 887 1691">All the options are enabled by default.</p> <p data-bbox="507 1713 855 1744">* denotes a USB 3.0-capable port</p>
Audio	<p data-bbox="469 1771 1094 1794">Allows you to enable or disable the integrated audio controller.</p> <ul data-bbox="469 1816 743 1870" style="list-style-type: none"> <li data-bbox="469 1816 703 1839">• Enable Microphone <li data-bbox="469 1845 743 1870">• Enable Internal Speaker <p data-bbox="469 1892 874 1915">Both the options are enabled by default.</p>

Option	Description
Miscellaneous Devices	Allows you to enable or disable the various on-board devices. <ul style="list-style-type: none"> Enable PCI Slot (default option) .

Table 20. Video

Option	Description
Primary Display	Allows you to select the primary display when multiple controllers are available in the system. <ul style="list-style-type: none"> Auto (default) Intel HD Graphics NVIDI HD Graphics <p>NOTE: If you do not select Auto, the on-board graphics device will be present and enabled.</p>
Multi-Display	The option is enabled by default

Table 21. Security

Option	Description
Admin Password	This option lets you enable or disable Admin passwords for the system. <p>NOTE: You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password.</p> <p>NOTE: Successful password changes take effect immediately.</p> <p>Default Setting: Not set</p>
System Password	Allows you to set, change or delete the system password. <p>NOTE: Successful password changes take effect immediately.</p> <p>Default Setting: Not set</p>
Internal HDD-0 Password	Allows you to set, change or delete the password on the system's internal hard-disk drive. <p>NOTE: Successful password changes take effect immediately.</p> <p>Default Setting: Not set</p>
Internal HDD-2 Password	Allows you to set, change or delete the password on the system's internal hard-disk drive. <p>NOTE: Successful password changes take effect immediately.</p> <p>Default Setting: Not set</p>
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. <p>Default Setting: Allow Non-Admin Password Changes is selected.</p>
UEFI Capsule Firmware Updates	Allows you to controls whether the system allows BIOS update via UEFI capsule update packages. <p>Default setting: Enable</p>
PTT Security	Allows you to control the Platform Trust Technology feature (PTT) is visible to the operating system. The options are: <ul style="list-style-type: none"> PTT On <p>NOTE: Disabling this option dose not change any setting you have made to the PTT nor dose it delete or change any information or keys you may have stored in the PTT. Changes to this settings take effect immediately</p>
Master Password Lockout	The option is disabled by default
HDD Protection Support	The option is disabled by default

Option	Description
SMM Security Mitigation	The option is disabled by default
CPU XD Support	Allows you to enable or disable the Execute Disable mode of the processor. This option is enabled by default.

Table 22. Secure Boot


Option	Description
Secure Boot Enable	Allows you to enable or disable Secure Boot feature. The option is disabled by default.
Secure Boot Mode	<ul style="list-style-type: none"> • Deployed Mode (default) • Audit Mode
Expert key Management	<p>Allows you to manipulate the security key databases only if the system is in Custom Mode. The Enable Custom Mode option is disabled by default. The options are:</p> <ul style="list-style-type: none"> • PK (default) • KEK • db • dbx <p>If you enable the Custom Mode, the relevant options for PK, KEK, db, and dbx appear. The options are:</p> <ul style="list-style-type: none"> • Save to File- Saves the key to a user-selected file • Replace from File- Replaces the current key with a key from a user-selected file • Append from File- Adds a key to the current database from a user-selected file • Delete- Deletes the selected key • Reset All Keys- Resets to default setting • Delete All Keys- Deletes all the keys <p> NOTE: If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.</p>

Table 23. Intel Software Guard Extensions

Option	Description
Intel SGX Enable	<p>Allows you to enable or disable the Intel Software Guard Extensions to provide a secured environment for running code/storing sensitive information in the context of the main operating system.</p> <ul style="list-style-type: none"> • Disabled • Enabled • Software Controlled (default)
Enclave Memory Size	<p>Allows you to set the Intel SGX Enclave Reserve Memory Size.</p> <ul style="list-style-type: none"> • 32 MB • 64 MB • 128 MB

Table 24. Performance

Option	Description
Multi Core Support	This field specifies whether the process will have one or all cores enabled. This option is enabled by default.
Enable Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of the processor. This option is enabled by default.
C States Control	Allows you to enable or disable additional processor sleep states. This option is enabled by default.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. This option is enabled by default.

Option	Description
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. <ul style="list-style-type: none"> Disabled Enabled (default)

Table 25. 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"> Power Off Power On Last Power State This option is Power Off by default.
Enable Intel Speed Shift Technology	The option is enabled 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. <p>NOTE: This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if Auto Power is set to disabled.</p>
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled. <ul style="list-style-type: none"> Disabled (default) Enabled in S5 only Enabled in S4 and S5 This option is Disabled by default.
USB Wake Support	Allows you to enable the USB devices to wake the computer from standby mode. This option is enabled by default.
Block Sleep	Allows you to block entering to sleep (S3 state) in OS environment. This option is disabled by default.

Table 26. POST Behavior

Option	Description
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. This option is enabled by default.
Fast Boot	This option can speed up the boot process by bypassing some compatibility steps: <ul style="list-style-type: none"> Minimal — The system boots quickly, unless the BIOS has been updated, memory changed, or the previous POST did not complete. Thorough — The system does not skip any steps in the boot process. Auto — This allows the operating system to control this setting (this works only when the operating system supports Simple Boot Flag). This option is set to Thorough by default.
Extended BIOS Post Time	<ul style="list-style-type: none"> 0 seconds (default) 5 seconds 10 seconds
Full Screen Logo	The option is disabled by default
Warnings and Errors	<ul style="list-style-type: none"> Prompt on Warnings and Errors (default) Continue on Warnings and Errors Continue on Warnings

Table 27. Virtualization Support

Option	Description
Virtualization	This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel® Virtualization Technology. Enable Intel Virtualization Technology - This option is enabled by default.
VT for Direct I/O	This option is enabled by default.

Table 28. Maintenance


Option	Description
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
SERR Messages	The option is enabled by default
BIOS Downgrade	Allows you to control flashing of the system firmware to the previous versions. This option is enabled by default.  NOTE: If this option is not selected, the flashing of the system firmware to the previous versions is blocked.
Data Wipe	The option is disabled by default
BIOS recovery	Allows you to recover the corrupted BIOS conditions from the recovery files on the primary hard drive or an external USB key.
First Power On Date	This option lets you set ownership date. The option is disabled by default

Table 29. System Logs

Option	Description
BIOS Events	Displays the system event log and allows you to: <ul style="list-style-type: none">• Clear Log• Mark all Entries

Table 30. Advanced configurations

Option	Description
ASPM	<ul style="list-style-type: none">• Auto (default)• Disabled• L1 only

Table 31. SupportAssist System Resolution

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


Updating the BIOS in Windows

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available.

 **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.**

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.


System and setup password

Table 32. 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

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

To enter the system setup, press F2 immediately after a power-on or re-boot.

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

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press F2 immediately after a power-on or reboot.

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/or 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 reboot.

Operating system

Operating systems supported:

- Windows 10 Home (64-bit)
- Windows 10 Professional (64-bit)
- NeoKylin
- Windows 10 national academy

Downloading drivers

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.

Intel chipset drivers

Verify if the Intel chipset drivers are already installed in the system.

- System devices
 - ACPI Fan
 - ACPI Fan
 - ACPI Fan
 - ACPI Fan
 - ACPI Fan
 - ACPI Fixed Feature Button
 - ACPI Power Button
 - ACPI Processor Aggregator
 - ACPI Thermal Zone
 - ACPI Thermal Zone
 - Composite Bus Enumerator
 - Dell Diag Control Device
 - Dell System Analyzer Control Device
 - High Definition Audio Controller
 - High Definition Audio Controller
 - High precision event timer
 - Intel(R) Management Engine Interface
 - Intel(R) Power Engine Plug-in
 - Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) Gaussian Mixture Model - 1911
 - Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901
 - Legacy device
 - Microsoft ACPI-Compliant System
 - Microsoft System Management BIOS Driver
 - Microsoft UEFI-Compliant System
 - Microsoft Virtual Drive Enumerator
 - Microsoft Windows Management Interface for ACPI
 - Microsoft Windows Management Interface for ACPI
 - Microsoft Windows Management Interface for ACPI
 - NDIS Virtual Network Adapter Enumerator
 - Numeric data processor
 - PCI Express Root Complex
 - PCI standard host CPU bridge
 - PCI standard RAM Controller
 - PCI-to-PCI Bridge
 - Plug and Play Software Device Enumerator
 - Programmable interrupt controller
 - Remote Desktop Device Redirector Bus
 - System CMOS/real time clock
 - System timer
 - UMBus Root Bus Enumerator

Serial IO driver

Verify if the drivers for Touchpad, IR camera, and keyboard and are installed.

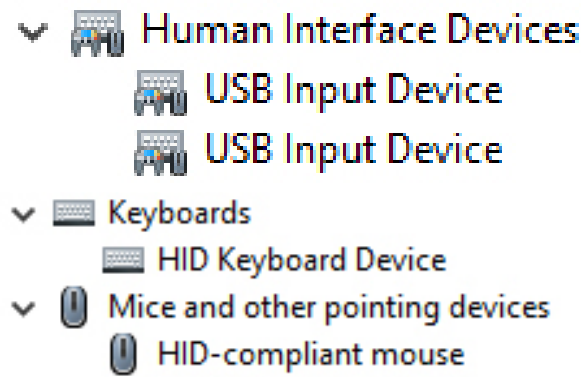
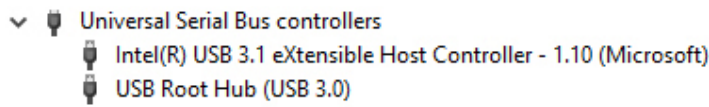


Figure 1. Serial IO driver

USB drivers

Verify if the USB drivers are already installed in the computer.



Network drivers

Install the WLAN and Bluetooth drivers from the Dell support site.

Table 33. Network drivers

Before installation	After installation
<ul style="list-style-type: none"> Network adapters <ul style="list-style-type: none"> Bluetooth Device (Personal Area Network) Bluetooth Device (RFCOMM Protocol TDI) 	<ul style="list-style-type: none"> Network adapters <ul style="list-style-type: none"> Bluetooth Device (Personal Area Network) Bluetooth Device (RFCOMM Protocol TDI) Intel(R) Dual Band Wireless-AC 3165 Realtek PCIe GBE Family Controller WAN Miniport (IKEv2) WAN Miniport (IP) WAN Miniport (IPv6) WAN Miniport (L2TP) WAN Miniport (Network Monitor) WAN Miniport (PPPOE) WAN Miniport (PPTP) WAN Miniport (SSTP)

Realtek Audio

Verify if audio drivers are already installed in the computer.

Table 34. Realtek audio

Before Installation	After Installation
<ul style="list-style-type: none">Sound, video and game controllers<ul style="list-style-type: none">Intel(R) Display Audio	<ul style="list-style-type: none">Sound, video and game controllers<ul style="list-style-type: none">Intel(R) Display AudioNVIDIA High Definition AudioRealtek(R) Audio

Serial ATA drivers

Install the latest Intel Rapid Storage driver for best performance. Using the default Windows storage drivers is not recommended. Verify if the default serial ATA drivers are installed in the computer.


- Storage controllers
 - Intel(R) Chipset SATA/PCIe RST Premium Controller
 - Microsoft Storage Spaces Controller

Getting help

Topics:

- [Contacting Dell](#)

Contacting Dell

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

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

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