

# Technology and components

This chapter details the technology and components available in the system.

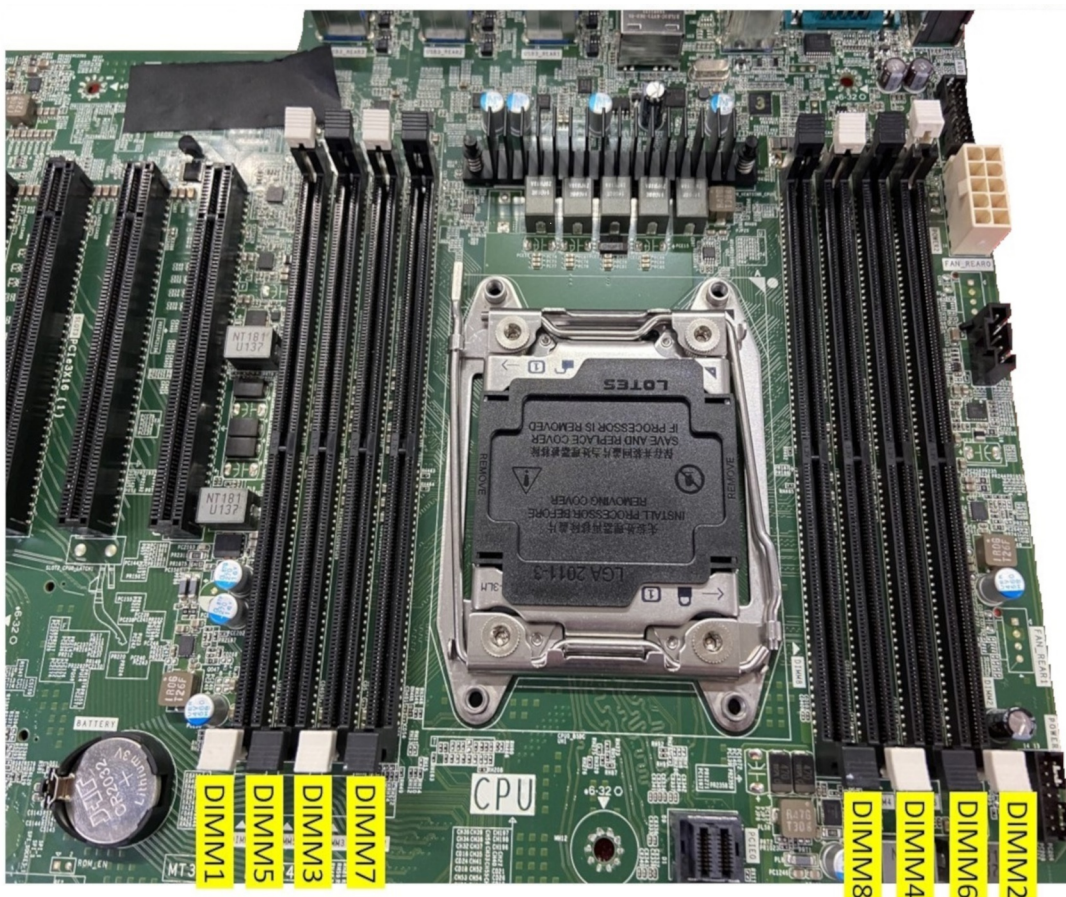
## Topics:

- Memory configuration
- Technologies list
- MegaRAID 9440-8i and 9460-16i controller
- Teradici PCoIP

## Memory configuration

This section provides information about the memory configuration for the Dell Precision Tower 5820 systems.

### DIMM slot locations



### Memory Matrix

The following table illustrates the memory configuration and population rules for the Dell Precision Tower 5820:

Main Memory 1LM (Main memory only)				CPU0							
				iMC1				iMC0			
Config	Total (GB)	DPC	Frequency	Ch3		Ch2		Ch0		Ch1	
				0	1	0	1	1	0	1	0
				DIMM2	DIMM6	DIMM4	DIMM8	DIMM7	DIMM3	DIMM5	DIMM1
S8R	8	1DPC	2667								8
S16R	16	1DPC	2667	8							8
S32R	32	1DPC	2667	8		8			8		8
S64R	64	1DPC	2667	8	8	8	8	8	8	8	8
S32Rb	32	1DPC	2667	16							16
S64R	64	1DPC	2667	16		16			16		16
S128R	128	1DPC	2667	16	16	16	16	16	16	16	16
S128R	128	1DPC	2667	32		32			32		32
S192R	192	1DPC	2667	32	32	32			32	32	32
S192R	192	1DPC	2667	32	16	32	16	16	32	16	32
S256R	256	1DPC	2667	32	32	32	32	32	32	32	32

**NOTE:** 32 GB DIMMs are only supported on systems using Xeon W Series CPUs.

## Technologies list

This section provides information about the technologies that comes with the Dell Precision 5820 Tower.

The following table lists the basic of technologies that are available on the Dell Precision 5820 Tower systems for Dell internal users only.

**Table 2. Intel Xeon W Series CPUs**

No.	Category	Technology	Browser Path
1	<b>Chipset</b>	Intel C422 (Kaby Lake-W)	
2	<b>Processor</b>	<ul style="list-style-type: none"> <li>Intel Xeon Processor W family</li> <li>Up to 140 W, Single CPU</li> </ul>	
3	<b>Memory</b>	DDR4 R-DIMM	
4	<b>Audio</b>	Integrated Realtek ALC3234 High Definition Audio Codec (2 Channel)	
5	<b>Network</b>	NIC Integrated RJ45	
6	<b>Graphics</b>	Radeon Pro WX	<ul style="list-style-type: none"> <li>9100</li> <li>7100</li> <li>5100</li> <li>4100</li> <li>3100</li> <li>2100</li> <li>Radeon Pro SSG</li> </ul>
		NVIDIA	<ul style="list-style-type: none"> <li>Quadro GP100</li> <li>Quadro GV100</li> <li>Quadro P6000</li> <li>Quadro P5000</li> <li>Quadro P4000</li> <li>Quadro P2000</li> <li>Quadro P1000</li> <li>Quadro P600</li> <li>Quadro P620</li> <li>Quadro P400</li> <li>NVS 310</li> <li>NVS 315</li> </ul>

**Table 2. Intel Xeon W Series CPUs (continued)**

No.	Category	Technology	Browser Path
			<ul style="list-style-type: none"> <li>• NVIDIA GEFORCE RTX 3080</li> <li>• NVIDIA GEFORCE RTX 3090</li> </ul>
7	<b>Storage</b>	SATA	
		SAS	
		Dell UltraSpeed Quad (PCIe M.2 Interposer)	
		Dell UltraSpeed Duo (PCIe M.2 Interposer)	
9	<b>Remote Solutions</b>	1-1 Teradici PCoIP	<ul style="list-style-type: none"> <li>• CLIENT: Dell or other Branded Zero Client (TERA Gen 2) (Dell-Wyse P25) DUAL Monitor Support</li> <li>• HOST: PCIe x1 PCoIP Dual Host Card (TERA Gen 2)</li> <li>• CLIENT: Dell or other Branded Zero Client (TERA Gen 2) (Dell-Wyse P45 ) QUAD Monitor Support</li> <li>• HOST: PCIe x1 PCoIP Quad Host Card (TERA Gen 2)</li> <li>• Support Dual Terra Card configurations</li> </ul> <p><b>NOTE:</b> For further information about the Teradici PCoIP Card host driver installation, see <a href="#">Teradici PCoIP</a>.</p>

**Table 3. Intel Core X Series CPUs**

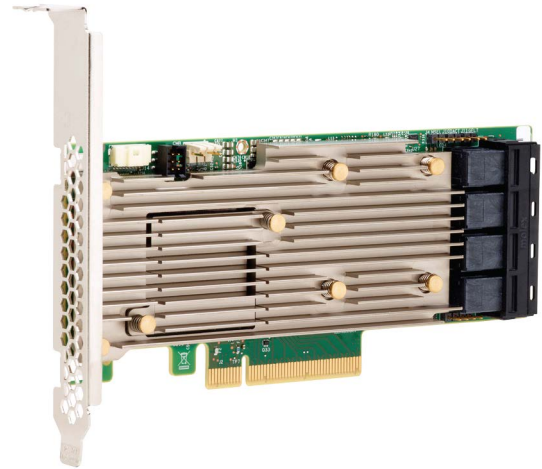
No.	Category	Technology	Browser Path
1	<b>Chipset</b>	Intel X299 (Kaby lake-H	
2	<b>Processor</b>	<ul style="list-style-type: none"> <li>• Intel Core X Processor Family</li> <li>• Up to 165 W, Single CPU</li> </ul>	
3	<b>Memory</b>	DDR4 UDIMM	
4	<b>Audio</b>	Integrated Realtek ALC3234 High Definition Audio Codec (2 Channel)	
5	<b>Network</b>	NIC Integrated RJ45	
6	<b>Graphics</b>	Radeon Pro WX	<ul style="list-style-type: none"> <li>• 7100</li> <li>• 5100</li> <li>• 4100</li> <li>• 3100</li> <li>• 2100</li> </ul>
		NVIDIA	<ul style="list-style-type: none"> <li>• Quadro P6000</li> <li>• Quadro P5000</li> <li>• Quadro P4000</li> <li>• Quadro P2000</li> <li>• Quadro P1000</li> <li>• Quadro P620</li> <li>• Quadro P400</li> </ul>
7	<b>Storage</b>	SATA	
		Dell UltraSpeed Quad (PCIe M.2 Interposer)	
		Dell UltraSpeed Duo (PCIe M.2 Interposer)	

**Table 3. Intel Core X Series CPUs (continued)**

No.	Category	Technology	Browser Path
9	Remote Solutions	Not supported with these CPUs	

## MegaRAID 9440-8i and 9460-16i controller

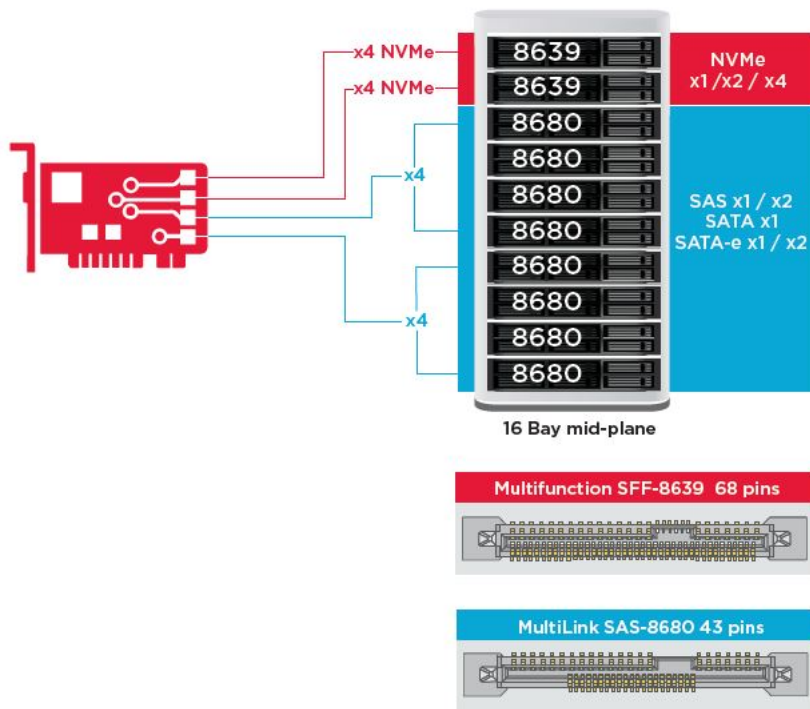
Small and medium businesses (SMBs) deploying entry-level server platforms and workstations need affordable, reliable storage solutions. The MegaRAID Tri-Mode Storage Adapter is a 12Gb/s SAS/SATA/PCIe (NVMe) controller card that addresses these needs by delivering proven performance and RAID data protection for a range of non-business critical applications. The MegaRAID Tri-Mode storage adapters bring NVMe performance benefits to the storage tier by providing connectivity and data protection for SAS/SATA interfaces. Based on the dual-core SAS3516 or SAS3508 RAID on Chip (ROC) and 72-bit DDR4-2133 SDRAM, these controllers provide bandwidth and IOPS performance increases and are ideal for high-end servers utilizing



internal storage or connecting to large-scale external storage enclosures.

**NOTE:** The MegaRAID 9440 and 9460 controllers are only supported when using Intel Xeon W Series CPUs.

Tri-Mode SerDes Technology enables operation of NVMe, SAS, or SATA storage devices in a single drive bay. All the 3 modes concurrently serving NVMe, SAS, and SATA drives can be operated by a single controller. The controller negotiates between the speeds and protocols to seamlessly work with any of the three types of storage devices. Tri-Mode support provides a non-disruptive way to evolve existing data center infrastructure. By upgrading to a tri-mode controller, users can expand beyond SAS/SATA and use NVMe without major changes to other system configurations. The MegaRAID Tri-Mode storage adapters support both REFCLK and SRIS based NVMe x1, x2, and x4 devices.



## Key Features:

- Tri-Mode SerDes Technology enables the operation of NVMe, SAS or SATA devices in a single drive bay, allowing for endless design flexibility
- Supports 12, 6, and 3 Gb/s SAS and 6, 3 Gb/s SATA data transfer rates
- Up to 8 PCIe links. Each link supporting x4, x2, or x1 link widths, supporting 8.0 GT/s (PCIe Gen3) per lane
- SFF-9402 Compliant, Connector Pin-out
- SFF-8485 Compliant, SGPIO
- Fits into rack-mounted servers with low-profile form factor and side-mounted SAS connectors
- Support critical, high-bandwidth applications with PCIe 3.1 connectivity
- CacheVault flash back-up at power fail. Supports bad block management
- Balance protection and performance for critical applications with RAID levels 0, 1, 5, 6, 10, 50, and 60

**Table 4. Features of MegaRAID 9440-8i and 9460-16i controller**

	<b>9440-8i</b>	<b>9460-16i</b>
Ports	8 internal	16 internal
Connectors	2 x SFF8643	4 x SFF8643 x4
Storage Interface Support	SATA: Eight x1 SAS: One x8, Two x4, Four x2, Eight x1 NVMe: Two x4, Four x2, Four x1	SATA: Sixteen x1 SAS: Two x8, Four x4, Eight x2, Sixteen x1 NVMe: Four x4, Eight x2, Eight x1
Max Devices Per Controller	SAS/SATA: 64 NVMe: 4	SAS/SATA: 240 NVMe: 24
Cache Memory	N/A	4 GB 2133 MHz DDR4 SDRAM
I/O Processor / SAS Controller	SAS3408	SAS3516
Host Bus Type	PCIe 3.1 x8	PCIe 3.1 x8

**Table 4. Features of MegaRAID 9440-8i and 9460-16i controller (continued)**

	<b>9440-8i</b>	<b>9460-16i</b>
Cache Protection	N/A	CacheVault CVPM05
Physical Dimensions	6.127" x 2.712" (155.65 mm x 68.90 mm)	6.127" x 2.712" (155.65 mm x 68.90 mm)
Maximum Operating Conditions	Operating: 10°C to 55°C 20 to 80% non-condensing Airflow: 300 LFM Storage: -45°C to 105°C 5 to 90% non-condensing	Operating: 10°C to 55°C 20 to 80% non-condensing Airflow: 300 LFM Storage: -45°C to 105°C 5 to 90% non-condensing
MTBF (Calculated)	>3,000,000 hours at 40C	>3,000,000 hours at 40C
Operating Voltage	+12V +/-8%; 3.3V +/-9%	+12V +/-8%; 3.3V +/-9%
Hardware Warranty	3 years; with advanced replacement option	3 years; with advanced replacement option
MegaRAID Management Suite	LSI Storage Authority (LSA) StorCLI (command-line interface), CTRL-R (BIOS configuration utility), HII (UEFI Human Interface Infrastructure)	LSI Storage Authority (LSA) StorCLI (command-line interface), CTRL-R (BIOS configuration utility), HII (UEFI Human Interface Infrastructure)
Regulatory Certifications	USA (FCC 47 CFR part 15 Subpart B, class B); Canada (ICES -003, Class B); Taiwan (CNS 13438); Japan (VCCI V-3);  Australia/New Zealand (AS/NZS CISPR 22); Korea (RRA no 2013-24 & 25); Europe (EN55022/EN55024);  Safety: EN/IEC/UL 60950; RoHS; WEEE	USA (FCC 47 CFR part 15 Subpart B, class B); Canada (ICES -003, Class B); Taiwan (CNS 13438); Japan (VCCI V-3);  Australia/New Zealand (AS/NZS CISPR 22); Korea (RRA no 2013-24 & 25); Europe (EN55022/EN55024);  Safety: EN/IEC/UL 60950; RoHS; WEEE
OS Support	Microsoft Windows, VMware vSphere/ ESXi, Red Hat Linux, SuSe Linux, Ubuntu Linux, Oracle Linux, CentOS Linux, Debian Linux, Fedora, and FreeBSD. Contact Oracle support for Oracle Solaris driver or software support.	Microsoft Windows, VMware vSphere/ ESXi, Red Hat Linux, SuSe Linux, Ubuntu Linux, Oracle Linux, CentOS Linux, Debian Linux, Fedora, and FreeBSD. Contact Oracle support for Oracle Solaris driver or software support.

## Teradici PCoIP

This section provides an overview of the host driver installation process.

### Installing the Teradici PCoIP Card Host Dual/Quad

Install the PCoIP host driver software from [dell.com/support](http://dell.com/support).

**NOTE:** You cannot upgrade the PCoIP host driver software while a VMware View-brokered PCoIP session is active between a host workstation or host PC and VMware View client. Doing this will result in losing access to your mouse and keyboard when the driver software is removed.

To upgrade the PCoIP host driver software in this type of deployment, do one of the following:

- Connect to the host from a zero client.

- Upgrade the software while connecting to the host through another desktop-remoting protocol such as RDP or VNC.

#### Installing the PCoIP Host Driver Software on a Host PC:

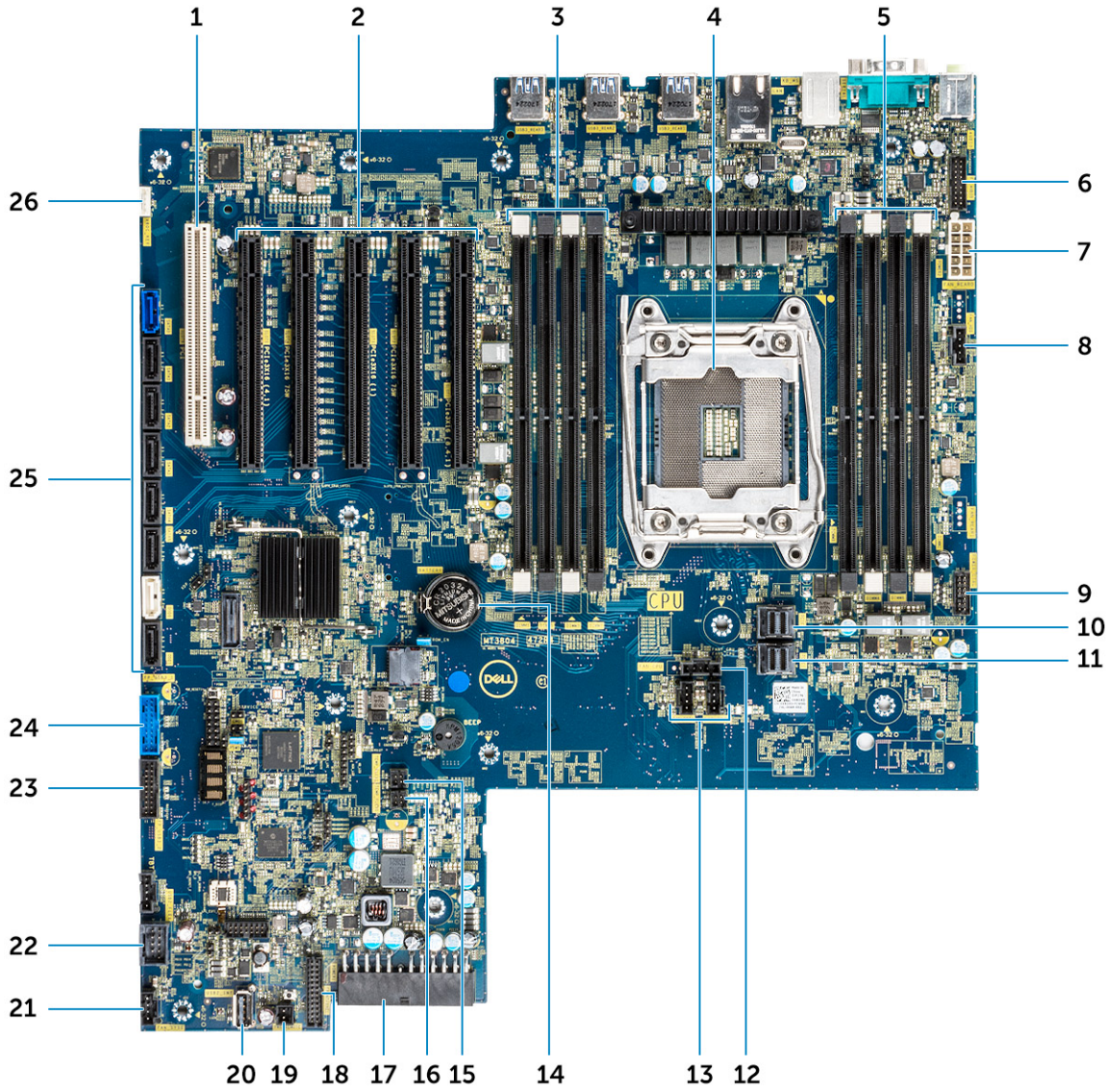
1. Download the PCoIP host driver software from the Teradici Support site (click Current PCoIP Product and Releases).
2. Log in to the administrative web interface for the host card.
3. From the **Configuration > Host Driver Function** menu, enable the Host Driver Function.
4. Restart the host PC.
5. Install the PCoIP host software package appropriate for the operating system installed on the host PC. You can start the install process by double-clicking the installer:
  - a. 64 bit: PCoipHostSoftware\_x64-v4.3.0.msi (or later)
6. When the Welcome screen appears, click **Next**.
7. Accept the terms, and then click **Next**.
8. Ensure that the installation location is correct, and click **Next**.
9. Click **Install**.

**i** **NOTE:** For Windows 7, when the driver is installed, a Windows Security dialog may appear. Click **Install** to continue with the installation. To keep this dialog box from appearing in the future, select **Always trust software from Teradici Corporation**.
10. If prompted, restart the operating system; otherwise, skip this step. When restarted, the host driver software installation process continues when the OS boots up. Click **Install** to continue.
11. Click **Finish** to complete the installation.

## Power management cable configuration for Teradici PCoIP Portal and Host Card

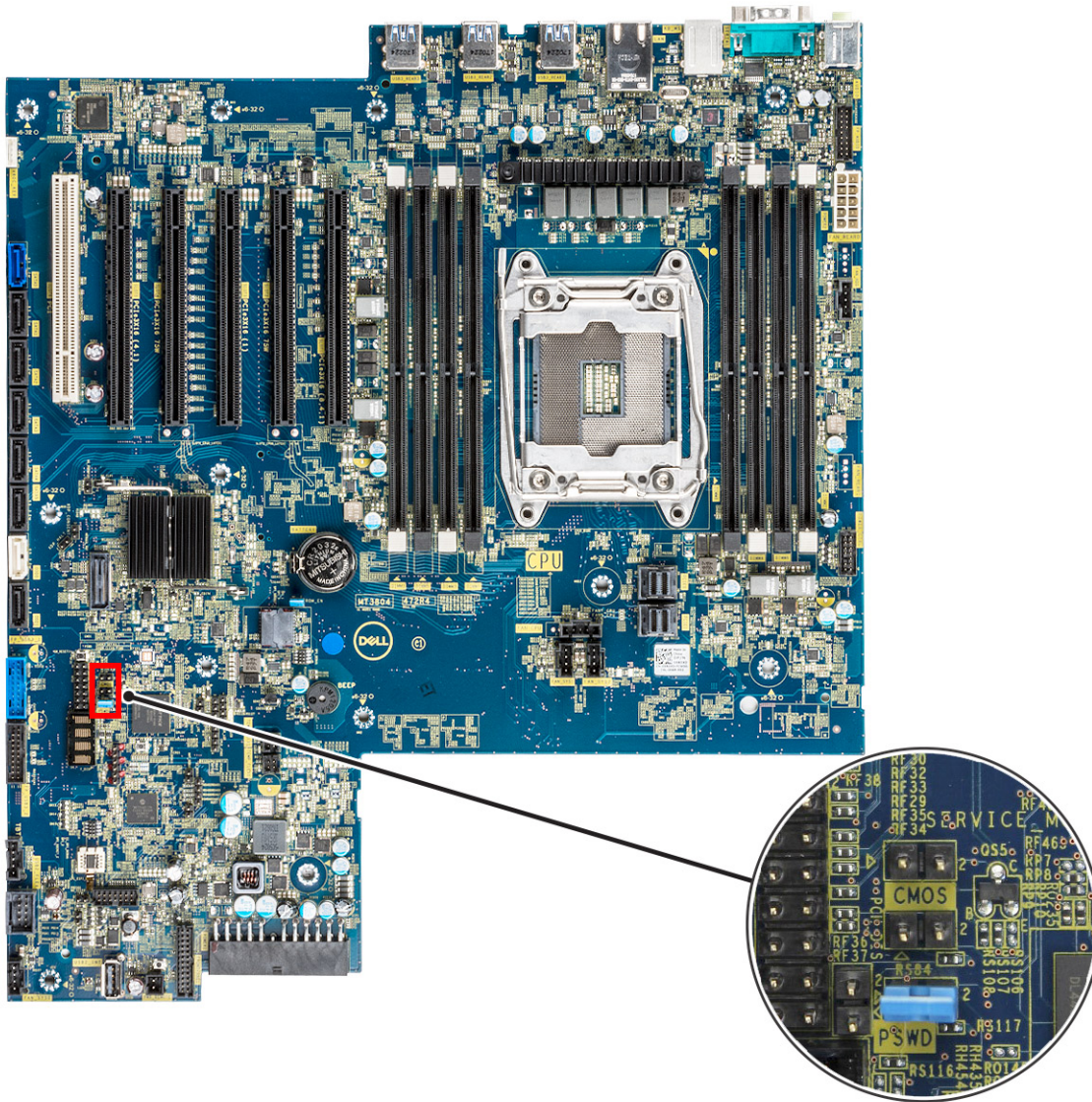
If the Dell Precision Workstation comes equipped with the optional Teradici PCoIP Portal and Host Card, make sure the power management cable on the Teradici card is connected properly on the system board. The power management cable from the Teradici card must be plugged into the correct Power remote connection on the system board.

Refer the below image for an example of the **Power remote** connector labeled 19 on the system board diagram:



Make sure the power management cable from the Teradici card is not plugged into either the two-pin Clear CMOS or Clear PSWD jumpers.





Plugging the power management cable into the Clear CMOS jumper will cause the BIOS to reset when sending a remote restart request to the Teradici card. You will then have to reset the time and BIOS settings.

If the power management cable from the Teradici card is plugged into the Clear PSWD jumper, then the BIOS password will be cleared and a new one will need to be configured.

# System specifications

## Topics:

- System specifications
- Memory specifications
- Video specifications
- Audio specifications
- Network specifications
- Card slots
- Storage specifications
- External connectors
- Power specifications
- Physical specifications
- Environmental specifications

## System specifications

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

**Table 5. Processors**

Processors	Wattage	Core count	Thread count	Speed	Cache
Intel Xeon W-2275	165 W	14	28	3.30 GHz to 4.60 GHz	19.25 MB
Intel Core i9-9820X	165 W	10	20	3.30 GHz to 4.10 GHz	16.5 MB
Intel Xeon W-2245	155 W	8	16	3.90 GHz to 4.50 GHz	16.5 MB
Intel Core i7-9800X	165 W	8	16	3.80 GHz to 4.40 GHz	16.5 MB
Intel Xeon W-2295	165 W	18	36	3.00 GHz to 4.60 GHz	24.75 MB
Intel Core i7-7800X	165 W	6	12	3.50 GHz to 4.00 GHz	8.25 MB
Intel Xeon W-2135	140 W	6	12	3.70 GHz to 4.50 GHz	8.25 MB
Intel Xeon W-2125	120 W	4	8	4.00 GHz to 4.50 GHz	8.25 MB
Intel Xeon W-2223	120 W	4	8	3.60 GHz to 3.90 GHz	8.25 MB
Intel Xeon W-2145	140 W	8	16	3.70 GHz to 4.50 GHz	11 MB
Intel Xeon W-2133	140 W	6	12	3.60 GHz to 3.90 GHz	8.25 MB
Intel Core i9-9960X	165 W	16	32	3.10 GHz to 4.40 GHz	22 MB
Intel Xeon W-2175	140 W	14	28	2.50 GHz to 4.30 GHz	19 MB
Intel Xeon W-2155	140 W	10	20	3.30 GHz to 4.50 GHz	13.75 MB
Intel Core i9-9900X	165 W	10	20	3.50 GHz to 4.40 GHz	19.25 MB
Intel Xeon W-2225	105 W	4	8	4.10 GHz to 4.60 GHz	8.25 MB
Intel Xeon W-2235	130 W	6	12	3.80 GHz to 4.60 GHz	8.25 MB
Intel Xeon W-2255	165 W	10	20	3.70 GHz to 4.50 GHz	19.25 MB

**Table 5. Processors (continued)**

Processors	Wattage	Core count	Thread count	Speed	Cache
Intel Xeon W-2123	120 W	4	8	3.60 GHz to 3.90 GHz	8.25 MB
Intel Core i9-9980X	165 W	18	36	3.00 GHz to 4.40 GHz	24.75 MB
Intel Core i9-9940X	165 W	14	28	3.30 GHz to 4.40 GHz	19.25 MB
Intel Core i9-7900X	140 W	10	20	3.30 GHz to 4.30 GHz	13.75 MB
Intel Xeon W-2102	120 W	4	4	2.90 GHz	8.25 MB
Intel Xeon W-2195	140 W	18	36	2.30 GHz to 4.30 GHz	24.75 MB
Intel Xeon W-2104	140 W	4	4	3.20 GHz	8.25 MB
Intel Xeon W-2265	165 W	12	24	3.50 GHz to 4.60 GHz	19.25 MB
Intel Core i9-9920X	165 W	12	24	3.50 GHz to 4.40 GHz	19.25 MB

## Memory specifications

### Features

### Specifications

#### Type

- DDR4 ECC RDIMMs - Supported only with Xeon W Series CPUs
- DDR4 Non-ECC UDIMMs supported with Core X Series CPUs

#### Speed

- 2666 MHz (Discontinued on system configurations purchased after October 2020)
- 2933 MHz
- 3200 MHz

**i** **NOTE:** 2933 MHz RDIMMs are not offered with Xenon W Skylake Series CPUs.

**i** **NOTE:** Computer configurations offered with 2933 MHz RDIMMs operating with Sky Lake processors will operate at 2666 MHz.

**i** **NOTE:** Computer configurations offered with 3200 MHz RDIMMs operating with Cascade Lake processors will operate at 2933 MHz.

#### Connectors

8 DIMM Slots

#### DIMM capacities

- 32 GB per slot 2666 MHz DDR4
- 64 GB per slot 2933 MHz DDR4
- 64 GB per slot 3200 MHz DDR4

#### Minimum memory

8 GB (1x8 GB)

#### Maximum memory

- 256 GB for Sky Lake Series CPUs
- 512 GB for Cascade Lake Series CPUs

**i** **NOTE:** The memory speed depends on the CPU in the system.

## Video specifications

### Features

### Specifications

#### Graphic card

- Radeon Pro WX 9100\*
- NVIDIA Quadro GP100\*
- NVIDIA Quadro GV100\*
- NVIDIA Quadro P6000

## Features

## Specifications

- NVIDIA Quadro P5000
- Radeon Pro WX 7100
- Radeon Pro WX 5100
- Radeon Pro WX 4100
- AMD Radeon Pro SSG\*
- NVIDIA Quadro P4000
- NVIDIA Quadro P2000
- Radeon Pro WX 3100
- Radeon Pro WX 2100
- Radeon Pro WX 4100
- Radeon Pro WX 5100
- Radeon Pro WX 7100
- Radeon Pro WX 9100
- NVIDIA Quadro P1000
- NVIDIA Quadro P600\*
- NVIDIA Quadro P620
- NVIDIA Quadro P400
- NVIDIA Quadro T400
- NVIDIA Quadro T600
- NVIDIA Quadro T1000
- NVIDIA NVS 310\*
- NVIDIA NVS 315\*
- NVIDIA Turing RTX 4000
- NVIDIA Turing RTX 5000
- NVIDIA Turing RTX 6000
- NVIDIA GEFORCE RTX 2080 B
- NVIDIA GEFORCE RTX 3080
- NVIDIA GEFORCE RTX 3090

 **NOTE:** NVIDIA GEFORCE 3080 and 3090 Graphics cards are qualified to be used on the slot 2 and 4 PCIe slot of the system board.

 **NOTE:** The Asterisk (\*): Only supported on systems with Xeon W Series CPUs.

## Audio specifications

### Features

### Specifications

<b>Type</b>	High Definition Audio Codec (2 Channel)
<b>Controller</b>	Integrated Realtek ALC3234
<b>Internal Speaker Power Rating</b>	2W
<b>Internal microphone support</b>	no

## Network specifications

### Features

### Specifications

<b>Integrated</b>	Intel i219 Gigabit Ethernet controllers with Intel Remote Wake UP, PXE and Jumbo frames support
<b>Optional</b>	<ul style="list-style-type: none"><li>• Intel i210 10/100/1000 single port PCIe (Gen 1 x 1) gigabit network card.</li></ul>

## Features

## Specifications

- Intel X550-T2 10GbE dual port PCIe (Gen 3 x 4) network card
- Aquantia AQN-108 2.5Gbit/5Gbe single port PCIe (Gen 3 x 4) network card.
- Intel X710-T2L-t 10GbE dual port PCIe (Gen 3 x8 ) network card.

 **NOTE:** Wake on LAN (WoL) is not supported on the Intel X550-T2 network card and the Intel X710-T2L-t network card.

## Card slots

### Features

### Specifications

#### Type

PCIe Gen 3

#### Slot

#### configuration for Xeon W and Core i9X CPUs

- 2 PCIe x 16
- 1 PCIe x 16 wired as x8
- 1 PCIe x 16 wired as x4
- 1 PCIe x 16 wired as x1
- 1 PCI 32/33

#### Slot

#### configuration for Core i7X CPUs

- 1x PCIe x16
- 1x PCIe x8
- 1x PCIe x4
- 1x PCIe x1
- Slot 1 is not active in this configuration.

## Storage specifications


### Features

### Specifications

#### Externally Accessible

DVD-ROM; DVD+/-RW 5.25" Bay Options: BD, DVD+/-RW

#### Internally Accessible

- M.2 NVMe PCIe SSDs — Up to 4 x 1TB drives on 1 Dell Precision Ultra-Speed Drive Quad x16 cards
- Front Flex Bay M.2 NVMe PCIe SSDs -
  - Up to 2x M.2/U.2 drives when Xeon W Series and Core X Cascade Lake CPUs are installed
    -  **NOTE:** U.2 Optane memory is available with Xeon W Cascade Lake Series CPUs only.
  - Up to 1x M.2 drive when Core X Sky Lake Series CPUs are installed
- Up to 6x 2.5" SATA drives
- Up to 5x 3.5" SATA drives
- SAS drives with optional controllers and SED are available only on systems with Xeon W CPUs

## External connectors

### Features

### Specifications

#### Audio

- Rear—1 x Audio Line in/Microphone
- Rear—1 x Audio Line out
- Front—1 x Universal Audio Jack

#### Network

Rear—1 x RJ45 Network

#### USB

- Front—4 x USB 3.1 Gen1
- Rear—6 x USB 3.1 Gen1

#### Serial port

Rear—1 x Serial port

## Features Specifications

<b>PS2</b>	<ul style="list-style-type: none"><li>• Rear—1 x Keyboard</li><li>• Rear—1 x Mouse</li></ul>
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## Power specifications

### Features Specifications

<b>Wattage</b>	<ul style="list-style-type: none"><li>• 425 W or 950 W with Xeon W Series CPUs</li><li>• 950 W with Core X Series CPUs</li></ul>
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<b>Voltage</b>	input voltage 100 VAC-240 AC
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## Physical specifications

### Features Specifications

<b>Height</b>	417.9 mm
<b>Width</b>	176.5 mm
<b>Depth</b>	<ul style="list-style-type: none"><li>• 518.3 mm</li></ul>
<b>Optional</b>	19" rackmount rail kit

## Environmental specifications

### Temperature Specifications

<b>Operating</b>	5 °C to 35 °C (41 F to 95 °F)  <b>NOTE:</b> * Starting at 5000 ft, the maximum operating ambient temperature is derated by 1 C (1.8 F) per 1000 ft up to 10,000 ft.
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<b>Storage</b>	-40 °C to 65 °C (-40 F to 149 F)
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### Relative humidity Specifications

<b>Relative humidity (maximum)</b>	
<b>Operating</b>	8% to 85% (non-condensing)
<b>Storage</b>	5% to 95% (non-condensing)

### Maximum vibration Specifications

<b>Operating</b>	0.52 Grms, 5 to 350 Hz
<b>Storage</b>	2.0 Grms, 5 to 500 Hz

### Maximum Shock Specifications

<b>Operating</b>	40 G half-sine 2.5 ms pulse
<b>Storage</b>	105 G half-sine 2.5 ms pulse

# System Setup

## Topics:

- General options
- System configuration
- Video
- Security
- Secure boot
- Performance
- Power management
- Post behaviour
- Manageability
- Virtualization support
- Maintenance
- System logs
- Advanced configurations
- SupportAssist system resolution
- Updating the BIOS
- MegaRAID controller options
- System and setup password

## General options

**Table 6. General**



Option	Description
<b>System Information</b>	<p>This section lists the primary hardware features of your computer.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>System Information</b></li> <li>• <b>Memory Configuration</b></li> <li>• <b>Processor Information</b></li> <li>• <b>PCI Information</b></li> <li>• <b>Device Information</b></li> </ul>
<b>Boot Sequence</b>	<p>Allows you to change the order in which the computer attempts to find an operating system.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Diskette Drive</b></li> <li>• <b>USB Storage Device</b></li> <li>• <b>CD/DVD/CD-RW Drive</b></li> <li>• <b>Onboard NIC</b></li> <li>• <b>Internal HDD</b></li> </ul> <p><b>Boot List Option</b></p> <p>Allows you to change the boot list options.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Legacy</b></li> <li>• <b>UEFI</b>—Default</li> </ul>

**Table 6. General (continued)**

Option	Description
<b>Advanced Boot Options</b>	Allows you to Enable Legacy Option ROMs. The options are: <ul style="list-style-type: none"> <li>● <b>Enable Legacy Option ROMs</b>—Default</li> <li>● <b>Enable Attempt Legacy Boot</b></li> </ul>
<b>UEFI Boot Path Security</b>	Allows you to control whether the system prompts the user to enter the Admin password when booting to a UEFI boot path. Click one of the following options: <ul style="list-style-type: none"> <li>● <b>Always, Except Internal HDD</b>—Default</li> <li>● <b>Always</b></li> <li>● <b>Never</b></li> </ul>
<b>Date/Time</b>	Allows you to set the date and time. The change to the system date and time takes effect immediately.

## System configuration

**Table 7. System Configuration**

Option	Description
<b>Integrated NIC</b>	Allows you to configure the integrated network controller. Click one of the following options: <ul style="list-style-type: none"> <li>● <b>Disabled</b></li> <li>● <b>Enabled</b></li> <li>● <b>Enabled w/PXE</b>—Default</li> </ul>
<b>UEFI Network Stack</b>	Allows pre-OS and early OS networking features to use any enabled NICs. <ul style="list-style-type: none"> <li>● <b>Enabled UEFI Network Stack</b></li> </ul> This option is set by default.
<b>Serial Port</b>	Identifies and defines the serial port settings. You can set the serial port to: <ul style="list-style-type: none"> <li>● <b>Disabled</b></li> <li>● <b>COM1</b>—Default</li> <li>● <b>COM2</b></li> <li>● <b>COM3</b></li> <li>● <b>COM4</b></li> </ul> <p> <b>NOTE:</b> The operating system may allocate resources even if the setting is disabled.</p>
<b>SATA Operation</b>	
Tower 5820	Allows you to configure the operating mode of the integrated SATA hard-drive controller. Click one of the following options: <ul style="list-style-type: none"> <li>● <b>Disabled</b></li> <li>● <b>AHCI</b></li> <li>● <b>RAID On</b>—Default</li> </ul> <p> <b>NOTE:</b> SATA is configured to support RAID mode.</p>



**Table 7. System Configuration (continued)**

Option	Description
<b>Drives</b>	
Tower 5820	<p>Allows you to enable or disable various drives on board.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>MiniSAS PCIe SSD-0</b></li> <li>● <b>SATA-0</b></li> <li>● <b>SATA-2</b></li> <li>● <b>SATA-4</b></li> <li>● <b>ODD-0</b></li> <li>● <b>MiniSAS PCIe SSD-1</b></li> <li>● <b>SATA-1</b></li> <li>● <b>SATA-3</b></li> <li>● <b>SATA-5</b></li> <li>● <b>ODD-1</b></li> </ul> <p>All the options are set by default.</p>
<b>SMART Reporting</b>	<p>This field controls if the hard drive errors for the integrated drives are reported during system startup. This technology is part of the SMART(Self-Monitoring Analysis and Reporting Technology) specification.</p> <ul style="list-style-type: none"> <li>● <b>Enable SMART Reporting</b></li> </ul> <p>This option is not set by default.</p>
<b>USB Configuration</b>	<p>Allows you to enable or disable the internal USB configuration.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>Enable USB Boot Support</b></li> <li>● <b>Enable Front USB Ports</b></li> <li>● <b>Enable Internal USB Ports</b></li> <li>● <b>Enable Rear USB Ports</b></li> </ul> <p>All the options are set by default.</p>
<b>Front USB Configuration</b>	<p>Allows you to enable/disable Front USB ports.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>USB3 Type A *</b></li> <li>● <b>USB Type C port 2 (Right) *</b></li> <li>● <b>USB Type C port 1 (Right) *</b></li> </ul> <p>All the options are set by default.</p>
<b>Rear USB Configuration</b>	<p>Allows you to enable/disable Rear USB ports.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>RearPort3 Top *</b></li> <li>● <b>RearPort1 Top *</b></li> <li>● <b>RearPort2 Top *</b></li> <li>● <b>RearPort3 Bottom *</b></li> <li>● <b>RearPort1 Bottom *</b></li> <li>● <b>RearPort2 Bottom *</b></li> </ul> <p>All the options are set by default.</p>
<b>Internal USB Configuration</b>	<p>Allows you to enable/disable Internal USB ports.</p> <ul style="list-style-type: none"> <li>● <b>Internal Port 2</b></li> </ul>

**Table 7. System Configuration (continued)**

Option	Description
	This option is set by default.
<b>Dell Type-C Dock Configuration</b>	Allows you to connect to Dell WD and TB family of docks. <b>Always Allows Dell Docks</b> This option is set by default.
<b>Thunderbolt Adapter Configuration</b>	Allows you to enable or disable the Thunderbolt device support capability. The options are: <ul style="list-style-type: none"> <li>● <b>Enabled Thunderbolt Technology Support</b></li> <li>● <b>Enabled Thunderbolt Adapter Pre-boot Modules</b></li> <li>● <b>Enabled Thunderbolt Adapter Boot Support</b>—Default</li> </ul> <b>NOTE:</b> The security level configures the Thunderbolt adapter security settings within the operating system.
<b>USB PowerShare</b>	Allows you to configure the USB PowerShare feature behavior. <ul style="list-style-type: none"> <li>● <b>Enable USB PowerShare</b></li> </ul> This option is not set by default.
<b>Audio</b>	Allows you to enable or disable the integrated audio controller. <ul style="list-style-type: none"> <li>● <b>Enable Audio</b></li> </ul> This option is set by default.
<b>Memory Map IO above 4GB</b>	Allows you to enable or disable 64-bit capable PCI devices to be decoded in above 4 GB address space(only if the system supports 64-bit PCI decoding). <ul style="list-style-type: none"> <li>● <b>Memory Map IO above 4GB</b></li> </ul> This option is not set by default.
<b>HDD Fans</b>	Allows you to control the HDD fans. The options are: <ul style="list-style-type: none"> <li>● <b>HDD1 Fan Enable</b></li> <li>● <b>HDD2 Fan Enable</b></li> <li>● <b>HDD3 Fan Enable</b></li> </ul> All the options are not set by default.
<b>Miscellaneous devices</b>	Allows you to enable or disable various on board devices. The options are: <ul style="list-style-type: none"> <li>● <b>Enable PCI Slot</b>—Default</li> <li>● <b>Secure Digital (SD) Card Boot</b></li> <li>● <b>Enable Secure Digital (SD) Card</b>—Default</li> <li>● <b>Secure Digital (SD) Card Read-Only Mode</b></li> </ul>




# Video

Table 8. Video


Option	Description
Primary Video Slot	<p>Allows you to configure primary boot video device.</p> <p>Click any one of the following options:</p> <ul style="list-style-type: none"> <li>● <b>Auto</b>—Default</li> <li>● <b>SLOT 1</b></li> <li>● <b>SLOT 2: VGA Compatible</b></li> <li>● <b>SLOT 2</b></li> <li>● <b>SLOT 3</b></li> <li>● <b>SLOT 5</b></li> <li>● <b>SLOT 6</b></li> </ul>

# Security


Table 9. Security

Option	Description
Admin Password	<p>Allows you to set, change, or delete the administrator(admin) password.</p> <p>The entries to set password are:</p> <ul style="list-style-type: none"> <li>● <b>Enter the old password:</b></li> <li>● <b>Enter the new password:</b></li> <li>● <b>Confirm new password:</b></li> </ul> <p>Click <b>OK</b> once you set the password.</p> <p> <b>NOTE:</b> For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.</p>
System Password	<p>Allows you to set, change, or delete the System password.</p> <p>The entries to set password are:</p> <ul style="list-style-type: none"> <li>● <b>Enter the old password:</b></li> <li>● <b>Enter the new password:</b></li> <li>● <b>Confirm new password:</b></li> </ul> <p>Click <b>OK</b> once you set the password.</p> <p> <b>NOTE:</b> For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.</p>
Internal HDD-0 Password	<p>Allows you to set, change, or delete the password on the system's internal hard disk drive (HDD).</p> <p>The entries to set password are:</p> <ul style="list-style-type: none"> <li>● <b>Enter the old password:</b></li> <li>● <b>Enter the new password:</b></li> <li>● <b>Confirm new password:</b></li> </ul> <p>Click <b>OK</b> once you set the password.</p> <p> <b>NOTE:</b> For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.</p>

**Table 9. Security (continued)**

Option	Description
<b>Strong Password</b>	Allows you to enforce the option to always set strong password. <ul style="list-style-type: none"> <li>● <b>Enable Strong Password</b></li> </ul> This option is not set by default.
<b>Password Configuration</b>	You can define the length of your password. Min = 4, Max = 32
<b>Password Bypass</b>	Allows you to bypass the System password and the Internal HDD password, when it is set, during a system restart. <p>Click one of the options:</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b>—Default</li> <li>● <b>Reboot bypass</b></li> </ul>
<b>Password Change</b>	Allows you to change the System password when the administrator password is set. <ul style="list-style-type: none"> <li>● <b>Allow Non-Admin Password Changes</b></li> </ul> This option is set by default.
<b>UEFI Capsule Firmware Updates</b>	Allows you to update the system BIOS via UEFI capsule update packages. <ul style="list-style-type: none"> <li>● <b>Enable UEFI Capsule Firmware Updates</b></li> </ul> This option is set by default.
<b>TPM 1.2 Security</b>	Allows you to enable or disable the Trusted Platform Module (TPM) during POST. <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>TPM On</b>(Default)</li> <li>● <b>Clear</b></li> <li>● <b>PPI Bypass for Enable Commands</b></li> <li>● <b>PPI Bypass for Disable Commands</b></li> </ul> <p>Click any one of the following:</p> <ul style="list-style-type: none"> <li>● <b>Enabled</b>—Default</li> <li>● <b>Disabled</b></li> </ul> <p> <b>NOTE:</b> Systems shipped with Cascade Lake CPU supports TPM 2.0 which cannot be downgraded to TPM 1.2.</p>
<b>Computrace (R)</b>	Allows you to activate or disable the optional Computrace software. <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>Deactivate</b>—Default</li> <li>● <b>Disable</b></li> <li>● <b>Activate</b></li> </ul>
<b>Chassis Intrusion</b>	Allows you to control the chassis intrusion feature. <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b>—Default</li> <li>● <b>Enabled</b></li> <li>● <b>On-Silent</b></li> </ul>
<b>CPU XD Support</b>	Allows you to enable the Execute Disable mode of the processor. <ul style="list-style-type: none"> <li>● <b>Enable CPU XD Support</b></li> </ul> This option is set by default.
<b>OROM Keyboard Access</b>	Allows you to determine whether users are able to enter the Option ROM Configuration screens via hotkeys during boot. The options are:

**Table 9. Security (continued)**

Option	Description
	<p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>● <b>Enabled</b>—Default</li> <li>● <b>One Time Enable</b></li> <li>● <b>Disabled</b></li> </ul>
<b>Admin Setup Lockout</b>	<p>Allows you to prevent users from entering Setup when an administrator password is set.</p> <ul style="list-style-type: none"> <li>● <b>Enable Admin Setup Lockout</b></li> </ul> <p>This option is not set by default.</p>
<b>Master Password Lockout</b>	<p>Allows you to disable master password support.</p> <ul style="list-style-type: none"> <li>● <b>Enable Master Password Lockout</b></li> </ul> <p>This option is not set by default.</p> <p> <b>NOTE:</b> Hard Disk password should be cleared before the settings can be changed.</p>


## Secure boot

**Table 10. Secure Boot**

Option	Description
<b>Secure Boot Enable</b>	<p>Allows you to enable or disable the Secure Boot Feature.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b>—Default</li> <li>● <b>Enabled</b></li> </ul>
<b>Expert Key Management</b>	<p>Allows you to enable or disable Expert Key Management.</p> <ul style="list-style-type: none"> <li>● <b>Enable Custom Mode</b></li> </ul> <p>This option is not set by default.</p> <p>The Custom Mode Key Management options are:</p> <ul style="list-style-type: none"> <li>● <b>PK(Default)</b></li> <li>● <b>KEK</b></li> <li>● <b>db</b></li> <li>● <b>dbx</b></li> </ul>

## Performance

**Table 11. Performance**


Option	Description
<b>Multi Core Support</b>	<p>This field specifies whether the processor has one or all cores enabled. The performance of some applications improves with the additional cores.</p> <ul style="list-style-type: none"> <li>● <b>Active Processor Cores</b></li> </ul> <p>Choose any number from 01–08:</p> <p> <b>NOTE:</b> To enable Trusted Execution mode, all the cores must be enabled.</p>

**Table 11. Performance (continued)**

Option	Description
<b>Intel SpeedStep</b>	<p>Allows you to enable or disable the Intel SpeedStep mode of processor.</p> <ul style="list-style-type: none"> <li>● <b>Enable Intel SpeedStep</b></li> </ul> <p>This option is set by default.</p>
<b>C-States Control</b>	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"> <li>● <b>C states</b></li> </ul> <p>This option is set by default.</p>
<b>Limit CUID Value</b>	<p>This field limits the maximum value the processor Standard CUID Function supports.</p> <ul style="list-style-type: none"> <li>● <b>Enable CUID Limit</b></li> </ul> <p>This option is not set by default.</p>
<b>Cache Prefetch</b>	<p>Allows you to turn on the MLC streamer prefetcher and MLC spatial prefetcher.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>● <b>Hardware Prefetcher</b></li> <li>● <b>Adjacent Cache Prefetch</b></li> </ul> <p>All the options are set by default.</p>
<b>Intel TurboBoost</b>	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"> <li>● <b>Enable Intel TurboBoost</b></li> </ul> <p>This option is set by default.</p>
<b>Hyper-Thread Control</b>	<p>Allows you to enable or disable the HyperThreading in the processor.</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b></li> <li>● <b>Enabled</b>—Default</li> </ul>
<b>Dell Reliable Memory Technology (RMT)</b>	<p>Allows you to identify and isolate memory errors in system RAM.</p> <ul style="list-style-type: none"> <li>● <b>Enable Dell RMT</b>—Default</li> <li>● <b>Clear Dell RMT</b></li> </ul>
<b>System Isochronous Mode</b>	<p>Allows you to enable or disable this mode to reduce latency of memory transactions at the expense of bandwidth. :</p> <p>Click one of the options:</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b>(Default)</li> <li>● <b>Enabled</b></li> </ul>
<b>RAS Support</b>	<p>Allows you to report or log errors caused by memory failures, the PCIe failures, CPU failures. The options are:</p> <ul style="list-style-type: none"> <li>● <b>Enable on Memory modules</b></li> <li>● <b>Enable on PCIe modules</b></li> <li>● <b>Enable on CPU modules</b></li> </ul> <p>The options are not set by default.</p>

# Power management

Table 12. Power Management

Option	Description
<b>AC Recovery</b>	<p>Specifies how the computer will respond when AC power is applied after an AC power loss.</p> <p>You can set the AC Recovery to:</p> <ul style="list-style-type: none"> <li>● <b>Power Off</b>—Default</li> <li>● <b>Power On</b></li> <li>● <b>Last Power State</b></li> </ul>
<b>Auto On Time</b>	<p>Allows you to set the time at which the computer must turn on automatically.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> <li>● Disabled—Default</li> <li>● <b>Every Day</b></li> <li>● <b>Weekdays</b></li> <li>● <b>Select Days</b></li> </ul>
<b>Deep Sleep Control</b>	<p>Allows you to define the controls when Deep Sleep is enabled.</p> <p>Click one of the options:</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b>—Default</li> <li>● <b>Enabled in S5 only</b></li> <li>● <b>Enabled in S4 and S5</b></li> </ul>
<b>Fan Speed Control</b>	<p>Allows you to control the speed of the system fan.</p> <p>Click one of the options:</p> <ul style="list-style-type: none"> <li>● <b>Low</b></li> <li>● <b>Auto</b>—Default</li> </ul> <p> <b>NOTE:</b> Low = Fans run low and quiet. System performance may decrease. Auto = Fans run at optimal speed based on environmental data. System performance is maximized.</p>
<b>USB Wake Support</b>	<p>Allows you to enable USB devices to wake the system from standby.</p> <ul style="list-style-type: none"> <li>● <b>Enable USB Wake Support</b></li> </ul> <p>This option is set by default.</p>
<b>Wake on LAN</b>	<p>This option allows the computer to power up from the off state when triggered by a special LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. This feature only works when the computer is connected to AC power supply.</p> <ul style="list-style-type: none"> <li>● <b>Disabled</b> - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN.</li> <li>● <b>LAN Only</b> - Allows the system to be powered on by special LAN signals.</li> <li>● <b>LAN with PXE Boot</b> - Allows the system to power on and immediately boot to PXE when it receives a wake-up packet sent to the system in either the S4 or S5 state.</li> </ul> <p>All the options are not set by default.</p>
<b>Block Sleep</b>	<p>Allows you to block entering to sleep(S3 state) in OS Environment.</p> <p>This option is not set by default.</p>

# Post behaviour

Table 13. POST Behavior

Option	Description
<b>Numlock LED</b>	Specifies if the NumLock function can be enabled when the system boots. This option is set by default.
<b>Keyboard Errors</b>	Specifies whether keyboard related errors are reported when it boots. This option is set by default.
<b>Extend BIOS POST Time</b>	Allows you to create additional pre-boot delay and see POST status messages. Click one of the following options: <ul style="list-style-type: none"> <li>● <b>0 seconds</b>(Default)</li> <li>● <b>5 seconds</b></li> <li>● <b>10 seconds</b></li> </ul>
<b>Security Audit Display Disable</b>	Allows you to disable the display of the Security Audit results during POST. <ul style="list-style-type: none"> <li>● <b>Disable Display Of Security Audit Display</b></li> </ul> This option is not set by default.
<b>Full Screen Logo</b>	Allows you to display full screen logo, if your image matches screen resolution. <ul style="list-style-type: none"> <li>● <b>Enable Full Screen Logo</b></li> </ul> This option is not set by default.
<b>Warnings and Errors</b>	Allows you to select different options to either stop, prompt and wait for user input, continue when warnings are detected but pause on errors, or continue when either warnings or errors are detected during the POST process. Click one of the following options: <ul style="list-style-type: none"> <li>● <b>Prompt on Warnings and Errors</b>—Default</li> <li>● <b>Continue on Warnings</b></li> <li>● <b>Continue on Warnings and Errors</b></li> </ul>

# Manageability

Table 14. Manageability

Option	Description
<b>USB Provision</b>	Allows you to provision Intel AMT using the local provisioning file via a USB storage device. <ul style="list-style-type: none"> <li>● <b>Enable USB Provision</b></li> </ul> <p><b>NOTE:</b> When disabled, provisioning Intel AMT from a USB storage device is blocked.</p> This option is not set by default.
<b>MEBx Hotkey</b>	Allows you to specify if the MEBx Hotkey function should be enabled when the system boots This option is set by default.




# Virtualization support

Table 15. Virtualization Support

Option	Description
<b>Virtualization</b>	<p>This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by the Intel Virtualization technology.</p> <ul style="list-style-type: none"> <li>• <b>Enable Intel Virtualization Technology</b></li> </ul> <p>This option is set by default.</p>
<b>VT for Direct I/O</b>	<p>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by the Intel Virtualization technology for direct I/O.</p> <ul style="list-style-type: none"> <li>• <b>Enable VT for Direct I/O</b></li> </ul> <p>This option is set by default.</p>
<b>Trusted Execution</b>	<p>Allows you to specify whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by the Intel Trusted Execution Program.</p> <ul style="list-style-type: none"> <li>• <b>Trusted Execution</b></li> </ul> <p>This option is not set by default.</p>

# Maintenance

Table 16. Maintenance

Option	Description
<b>Service Tag</b>	Displays the service tag of your computer.
<b>Asset Tag</b>	<p>Allows you to create a system asset tag if an asset tag is not already set.</p> <p>This option is not set by default.</p>
<b>SERR Messages</b>	<p>Controls the SERR message mechanism. Some graphics cards require that the SERR message mechanism be disabled.</p> <p>This option is not set by default.</p>
<b>BIOS Downgrade</b>	<p>Allows you to flash previous revisions of the system firmware.</p> <ul style="list-style-type: none"> <li>• <b>Allow BIOS Downgrade</b></li> </ul> <p>This option is set by default.</p>
<b>Data Wipe</b>	<p>Allows you to securely erase data from all internal storage devices.</p> <ul style="list-style-type: none"> <li>• <b>Wipe on Next Boot</b></li> </ul> <p>This option is not set by default.</p>
<b>Bios Recovery</b>	<p><b>BIOS Recovery from Hard Drive</b>—This option is set by default. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB key.</p> <p><b>BIOS Auto-Recovery</b>— Allows you to recover the BIOS automatically.</p> <p> <b>NOTE: BIOS Recovery from Hard Drive</b> field should be enabled.</p> <p><b>Always Perform Integrity Check</b>—Performs integrity check on every boot.</p>

# System logs

Table 17. System Logs

Option	Description
BIOS events	Displays the system event log and allows you to clear the log. <ul style="list-style-type: none"><li>• <b>Clear Log</b></li></ul> This option is not set by default.

# Advanced configurations

Table 18. Advanced configurations

Option	Description
Pcie LinkSpeed	Allows you to choose the Pcie linkspeed. Click one of the following options: <ul style="list-style-type: none"><li>• <b>Auto</b>—Default</li><li>• <b>Gen1</b></li><li>• <b>Gen2</b></li></ul>


# SupportAssist system resolution

Table 19. SupportAssit System Resolution

Option	Description
Auto OS Recovery Threshold	The <b>Auto OS Recovery Threshold</b> setup option controls the automatic boot flow for Support Assist System Resolution Console and Dell OS Recovery tool. Click one of the following options: <ul style="list-style-type: none"><li>• <b>OFF</b></li><li>• <b>1</b></li><li>• <b>2</b>—Default</li><li>• <b>3</b></li></ul>

# Updating the BIOS

## Updating the BIOS in Windows

1. Go to [www.dell.com/support](http://www.dell.com/support).
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.  
 **NOTE:** If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.

For more information, see knowledge base article [000124211](https://www.dell.com/support/article/000124211) at [www.dell.com/support](https://www.dell.com/support).

## Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the knowledge base article [000131486](https://www.dell.com/support/article/000131486) at [www.dell.com/support](https://www.dell.com/support).

## Updating the BIOS using the USB drive in Windows

1. Follow the procedure from step 1 to step 6 in [Updating the BIOS in Windows](#) to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, see the knowledge base article [000145519](https://www.dell.com/support/article/000145519) at [www.dell.com/support](https://www.dell.com/support).
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12**.
6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.  
The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.


## Updating the BIOS from the F12 One-Time boot menu

Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 One-Time boot menu.

### BIOS Update

You can run the BIOS update file from Windows using a bootable USB drive or you can also update the BIOS from the F12 One-Time boot menu on the computer.

Most of the Dell computers built after 2012 have this capability, and you can confirm by booting your computer to the F12 One-Time Boot Menu to see if BIOS FLASH UPDATE is listed as a boot option for your computer. If the option is listed, then the BIOS supports this BIOS update option.

 **NOTE:** Only computers with BIOS Flash Update option in the F12 One-Time boot menu can use this function.

### Updating from the One-Time boot menu

To update your BIOS from the F12 One-Time boot menu, you need the following:

- USB drive formatted to the FAT32 file system (key does not have to be bootable)
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB drive
- AC power adapter that is connected to the computer
- Functional computer battery to flash the BIOS

Perform the following steps to perform the BIOS update flash process from the F12 menu:

 **CAUTION: Do not turn off the computer during the BIOS update process. The computer may not boot if you turn off your computer.**


1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.
2. Turn on the computer and press F12 to access the One-Time Boot Menu, select BIOS Update using the mouse or arrow keys then press Enter.  
The flash BIOS menu is displayed.
3. Click **Flash from file**.
4. Select external USB device.
5. Select the file and double-click the flash target file, and then click **Submit**.
6. Click **Update BIOS**. The computer restarts to flash the BIOS.
7. The computer will restart after the BIOS update is completed.

# MegaRAID controller options

During bootup, press <Ctrl> + <R> when prompted by the BIOS screen to get to the BIOS configuration utility.

**Table 20. MegaRAID configuration utility**

Option	Description
<b>VD Mgmt (Virtual Device Management)</b>	<p>This option is used to import the existing configuration to the RAID controller or clear the existing configuration. The right-hand panel of the screen lists attributes of the virtual drive or other device selected in the left panel.</p> <ul style="list-style-type: none"> <li>• Virtual Drives</li> <li>• Drives</li> <li>• Available size</li> <li>• Hot spare drives</li> </ul>
<b>PD Mgmt (Physical Drive Management)</b>	<p>This screen displays basic information about existing physical drives connected to the selected controller, including drive ID, vendor, size, type, and state and allows you to manage physical drives.</p> <p>Press F2 to show the context menu:</p> <ul style="list-style-type: none"> <li>• Rebuild</li> <li>• Copyback</li> <li>• Locate</li> <li>• Place Drive online</li> <li>• Place drive offline</li> <li>• Make Global HS</li> <li>• Remove Hot Spare drive</li> <li>• Make JBOD</li> <li>• Make unconfigured good</li> <li>• Prepare for Removal</li> </ul>
<b>Ctrl Mgmt (Control Management)</b>	<p>This screen allows you to change the settings for controller options such as Enable Controller BIOS, Enable BIOS Stop on Error and others. It also allows you to select a bootable virtual drive, restore default controller settings.</p>
<b>Properties</b>	<p>The Properties screen displays the controller properties like current versions of the controller BIOS, the MegaRAID firmware the Configuration Utility and the Boot block.</p>

 **NOTE:** Press <Ctrl> + <N> to move to the next screen and Press <Ctrl> + <P> to go back to the previous screen.


# System and setup password

**Table 21. 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 reboot.

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 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 Setup password, confirm the deletion when prompted.
5. Press **Esc** and a message prompts you to save the changes.
6. Press **Y** to save the changes and exit from System Setup.  
The computer restarts.

# Software

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


## Topics:

- [Operating system](#)
- [Downloading drivers](#)
- [Chipset drivers](#)
- [Graphics controller driver](#)
- [Ports](#)
- [USB drivers](#)
- [Network driver](#)
- [Audio drivers](#)
- [Storage controller drivers](#)
- [Other drivers](#)

## Operating system


Your Precision 5820 Tower supports the following operating systems:

- Windows 11 Pro, 64-bit
- Windows 11 Pro National Academic, 64-bit
- Windows 11 Pro for Workstations, 64-bit
- Windows 10 Pro, 64-bit
- Windows 10 Pro National Academic, 64-bit
- Windows 10 Enterprise, 64-bit \*
- Windows 10 Pro for Workstation, 64-bit
- RHEL 8.4
- Ubuntu 20.04 LTS, 64-bit
- Neokylin 10

 **NOTE:** Asterisk(\*): means that "Only supported on systems with Xeon W Series CPUs."

## Downloading drivers

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

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

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

# Chipset drivers

Verify if the Intel chipset and Intel Management Engine Interface drivers are already installed in the computer.

- System devices
  - ACPI Fixed Feature Button
  - ACPI Module Device
  - Advanced programmable interrupt controller
  - Composite Bus Enumerator
  - Direct memory access controller
  - High Definition Audio Controller
  - High Definition Audio Controller
  - Intel(R) C620 series chipset CSME: IDE Redirection - A1BC
  - Intel(R) C620 series chipset LPC Controller - A1C1
  - Intel(R) C620 series chipset MROM 0 - A1EC
  - Intel(R) C620 series chipset MROM 1 - A1ED
  - Intel(R) C620 series chipset PCI Express Root Port #1 - A190
  - Intel(R) C620 series chipset PCI Express Root Port #8 - A197
  - Intel(R) C620 series chipset PMC - A1A1
  - Intel(R) C620 series chipset SMBus - A1A3
  - Intel(R) C620 series chipset SPI Controller - A1A4
  - Intel(R) C620 series chipset Thermal Subsystem - A1B1
  - Intel(R) Management Engine Interface
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CBDMA Registers - 2021
  - Intel(R) Xeon(R) processor P family/Core i7 CHA Registers - 2057
  - Intel(R) Xeon(R) processor P family/Core i7 CHA Registers - 2054
  - Intel(R) Xeon(R) processor P family/Core i7 CHA Registers - 2056
  - Intel(R) Xeon(R) processor P family/Core i7 CHA Registers - 2055
  - Intel(R) Xeon(R) processor P family/Core i7 CHA Registers - 208E

# Graphics controller driver

Verify if the graphics controller driver is already installed in the computer.

- Display adapters
  - NVIDIA NVS 310

# Ports

Verify if the drivers for the ports are already installed in the computer.

- Ports (COM & LPT)
  - Communications Port (COM1)
  - Intel(R) Active Management Technology - SOL (COM3)

## USB drivers

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

- Universal Serial Bus controllers
  - Generic SuperSpeed USB Hub
  - Generic USB Hub
  - Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
  - USB Composite Device
  - USB Mass Storage Device
  - USB Root Hub (xHCI)

## Network driver

The driver is labeled as Intel I219-LM Ethernet Driver.

- Network adapters
  - Intel(R) Ethernet Connection (3) I219-LM

## Audio drivers

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

- Sound, video and game controllers
  - NVIDIA High Definition Audio
  - Realtek Audio
- Audio inputs and outputs
  - Speakers / Headphones (Realtek Audio)

## Storage controller drivers

Verify if the storage controller drivers are already installed in the computer.

- Storage controllers
  - Intel(R) C600+/C220+ series chipset SATA RAID Controller
  - Microsoft Storage Spaces Controller




## Other drivers

This section lists different driver details for all the other components in the Device Manager.



### Security device drivers

Verify if the security device drivers are already installed in the computer.

- ▼  Security devices
  -  Trusted Platform Module 1.2



### Software device drivers

Verify if the software device drivers are already installed in the computer.

- ▼  Software devices
  -  Microsoft Device Association Root Enumerator
  -  Microsoft GS Wavetable Synth



### Human Interface Device drivers

Verify if the human interface device drivers are already installed in the computer.

- ▼  Human Interface Devices
  -  USB Input Device

### Firmware

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

- ▼  Firmware
  -  System Firmware

# Troubleshooting

The following section describes common troubleshooting steps that can be performed to resolve certain problems on your computer.

## Topics:

- [Dell Enhanced Pre-Boot System Assessment — ePSA Diagnostic 3.0](#)
- [Preboot blinking power button codes](#)
- [Hard drive indicator codes](#)
- [PCIe slots](#)

## Dell Enhanced Pre-Boot System Assessment — ePSA Diagnostic 3.0

You can invoke the ePSA diagnostics by either of the following ways :

- Press the F12 key when the system posts and choose **ePSA or Diagnostics** option on One Time Boot Menu.
- Press and hold Fn(Function key on keyboard) and **Power On** (PWR) the system.

### Running the ePSA Diagnostics

Invoke diagnostics boot by either of the methods that are suggested below:

1. Power on the computer.
2. As the computer boots, press the F12 key when the Dell logo is displayed.
3. In the boot menu screen, use Up/Down arrow key to select the **Diagnostics** option and then press **Enter**.
  - NOTE:** The **Enhanced Pre-boot System Assessment** window displays, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. Press the arrow in the lower-right corner to go to the page listing. The detected items are listed and tested.
5. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
6. Select the device from the left pane and click **Run Tests**.
7. If there are any issues, error codes are displayed. Note the error code and contact Dell.

## Preboot blinking power button codes

**Table 22. Power button LED state**

Power Button LED State	Description
Off	Power is Off. LED is blank.
Blinking Amber	Initial State of LED at power up. See the table below for Blinking Amber pattern diagnostic suggestions and possible failures.
Blinking White	System is in a low power state, either S1 or S3. This does not indicate a fault condition.

**Table 22. Power button LED state (continued)**

Power Button LED State	Description
Solid Amber	The second state of the LED at power up, indicates that the POWER_GOOD signal is active and it is probable that the power supply is fine.
Solid White	System is in S0 state. This is the normal power states of a functioning machine. The BIOS will turn the LED to this states to indicate it has started fetching op-codes.

**Table 23. Diagnostic LED behavior**

Blinking pattern		Problem description	Suggested resolution
Amber	White		
1	1	Faulty System board	To troubleshoot the issue with system board, contact Tech support.
1	2	Bad Power_Ctrl Cable, System Board or, PSU	<ul style="list-style-type: none"> <li>• Make sure Power_Ctrl Cable is connected.</li> <li>• Remove PSU and test BIST button outside of the system first, if failed, replace PSU. If not, install back the PSU and test the BIST button again.</li> <li>• If nothing works, contact Tech Support for system board replacement</li> </ul>
1	3	Bad system board, Memory or Processor	<ul style="list-style-type: none"> <li>• If you can assist to troubleshoot, narrow down the issue by reseating memory and swapping a known good memory if available.</li> <li>• If nothing works, contact Tech Support</li> </ul>
2	1	Bad Processor	<ul style="list-style-type: none"> <li>• CPU configuration activity is in progress or a CPU failure was detected.</li> <li>• Contact Tech Support</li> </ul>
2	2	Motherboard: BIOS ROM failure	<ul style="list-style-type: none"> <li>• System is in Recovery Mode.</li> <li>• Flash latest BIOS version. If problem persists, contact Tech Support</li> </ul>
2	3	No Memory	<ul style="list-style-type: none"> <li>• If customer can assist to troubleshoot, narrow down the issue by removing the memory module one by one to determine which one failed and swapping to a known good memory if available to confirm.</li> <li>• Contact Tech Support</li> </ul>
2	4	Memory/RAM failure	<ul style="list-style-type: none"> <li>• If customer can assist to troubleshoot, narrow</li> </ul>

**Table 23. Diagnostic LED behavior (continued)**

Blinking pattern		Problem description	Suggested resolution
Amber	White		
			<p>down the issue by removing the memory module one by one to determine which one failed and swapping to a known good memory if available to confirm.</p> <ul style="list-style-type: none"> <li>• Contact Tech Support</li> </ul>
2	5	Invalid memory installed	<ul style="list-style-type: none"> <li>• Memory subsystem configuration activity is in progress. Memory modules have been detected but appear to be incompatible or in an invalid configuration.</li> <li>• If customer can assist to troubleshoot, narrow down the issue by removing one by one the memory on motherboard to determine which one failed.</li> <li>• Contact Tech Support.</li> </ul>
2	6	Motherboard: Chipset	<ul style="list-style-type: none"> <li>• Fatal system board failure detected.</li> <li>• If customer can assist to troubleshoot, narrow down the issue by removing one by one the component on motherboard to determine which one failed.</li> <li>• If you identified any of the components failed, replace the Component.</li> <li>• Contact Tech Support.</li> </ul>
3	2	PCI Device or Video	<ul style="list-style-type: none"> <li>• PCI device configuration activity is in progress or PCI device failure was detected.</li> <li>• If you can assist to troubleshoot, narrow down the issue by reseating PCI card and removing one by one to determine which card failed.</li> <li>• Contact Tech Support.</li> </ul>
3	3	BIOS Recovery 1	<ul style="list-style-type: none"> <li>• System is in Recovery Mode.</li> <li>• Flash latest BIOS version. If problem persists, contact Tech Support</li> </ul>
3	4	BIOS Recovery 2	<ul style="list-style-type: none"> <li>• System is in Recovery Mode.</li> </ul>

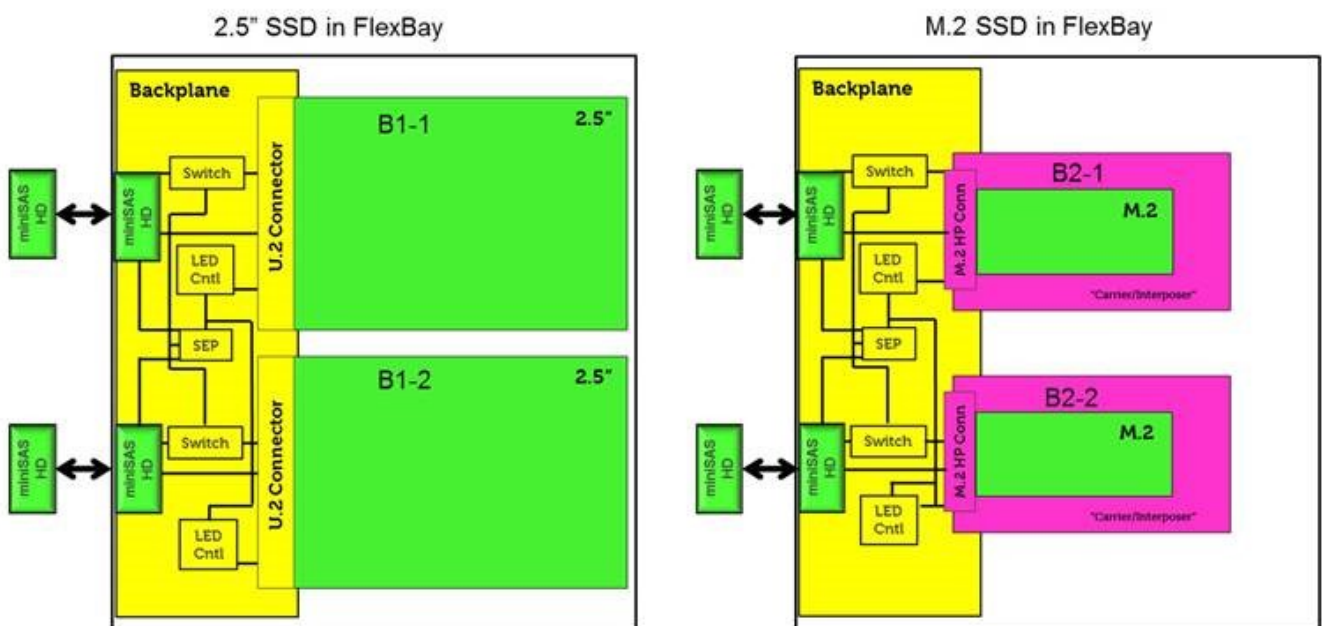
**Table 23. Diagnostic LED behavior (continued)**

Blinking pattern		Problem description	Suggested resolution
Amber	White		
			<ul style="list-style-type: none"> <li>Flash latest BIOS version. If problem persists, contact Tech Support</li> </ul>
4	4	Riser board issue	<ul style="list-style-type: none"> <li>Power issue on Riser second CPU board</li> </ul>
4	6	RAID Volume degraded	<ul style="list-style-type: none"> <li>RAID volume is degraded.</li> <li>If you can assist to troubleshoot, us F12 menu to enter Device Configuration tab. Rebuild the RAID volume if possible</li> <li>Contact Tech Support.</li> </ul>
4	7	System Side cover is missing	<ul style="list-style-type: none"> <li>System side cover (either left or right) is missing.</li> <li>Unplug power, Install back all side covers back to the chassis and plug in power.</li> <li>Contact Tech Support.</li> </ul>

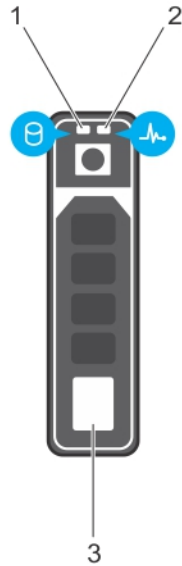
## Hard drive indicator codes

Each hard drive carrier has an activity LED indicator and a status LED indicator. The indicators provide information about the current status of the hard drive. The activity LED indicator indicates whether the hard drive is currently in use or not. The status LED indicator indicates the power condition of the drive.

### Hard drive indicators



**NOTE:** LED status or activity indicators will only work with a backplane with each carriers shown below.



**Figure 1. Hard drive indicators**

1. hard drive activity LED indicator
2. hard drive status LED indicator
3. hard drive

**NOTE:** If the hard drive is in the Advanced Host Controller Interface (AHCI) mode, the status LED indicator does not turn on.

**NOTE:** Drive status indicator behavior is managed by Storage Spaces Direct. Not all drive status indicators may be used.

**Table 24. Hard drive indicator codes**

Hard drive status indicator code	Condition
Flashes green twice per second	Identifying drive or preparing for removal.
Off	Drive ready for removal. <b>NOTE:</b> The drive status indicator remains off until all drives are initialized after the system is turned on. Drives are not ready for removal during this time.
Flashes green, amber, and then turns off	Predicted drive failure.
Flashes amber four times per second	Drive failed.
Flashes green slowly	Drive rebuilding.
Solid green	Drive online.
Flashes green for three seconds, amber for three seconds, and then turns off after six seconds	Rebuild stopped.

## PCIe slots

The PCIe slots on Precision 5820 have a different functionality depending on the processor installed. Core i7-78xx has a limit of 28 lanes.

This results in a reduced PCIe lane count to the slots 1 and 4 as shown in the following table:


- Slot 1 is closest to CPU/memory complex.

**Table 25. PCIe slots**

	<b>Core i9-79xx/Xeon</b>	<b>Core i7-78xx</b>
Slot 1	PCIe x850W	Nonfunctional
Slot 2	PCIex16 300 W*	PCIex16 300 W
Slot 3	PCIex125W-PCH	PCIex1 25W-PCH
Slot 4	PCIex16 300 W*	PCIex8 150 W
Slot 5	PCIex4 25W-PCH	PCIex4 25W-PCH
Slot 6	PCI 32 bit 25 W	PCI 32 bit 25 W

**i NOTE:** All slots are Gen3(8GTs) from processor root hub unless otherwise indicated xX indicates the number of lanes that are connected to the slot. FH=Full Height, FL=Full Length, DW=Double Wide as defined by PCIe CEM spec \*Slots are 300 W capable. Limited to 250 W per slot when more than one MEGA is installed.

# 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.