

Dell Precision 3930 Rack

Setup and Specifications



Notes, cautions, and warnings

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

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

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

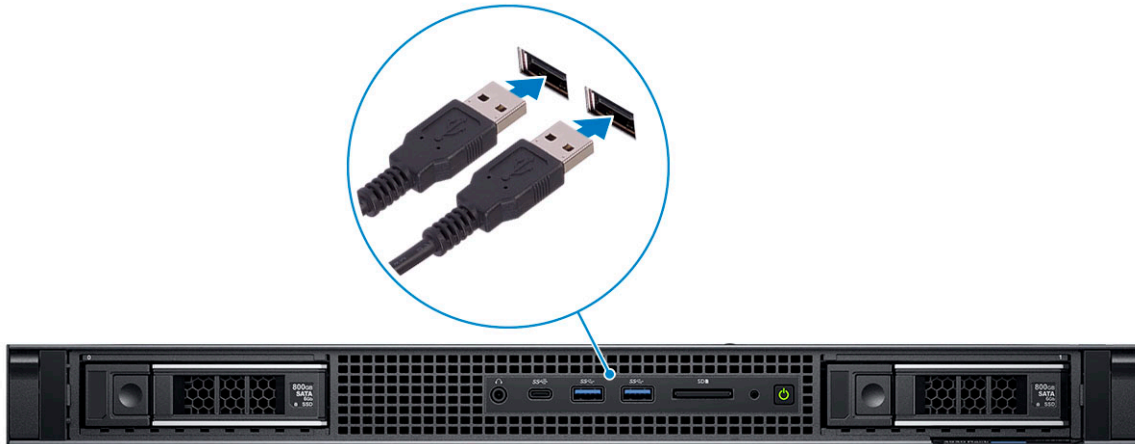
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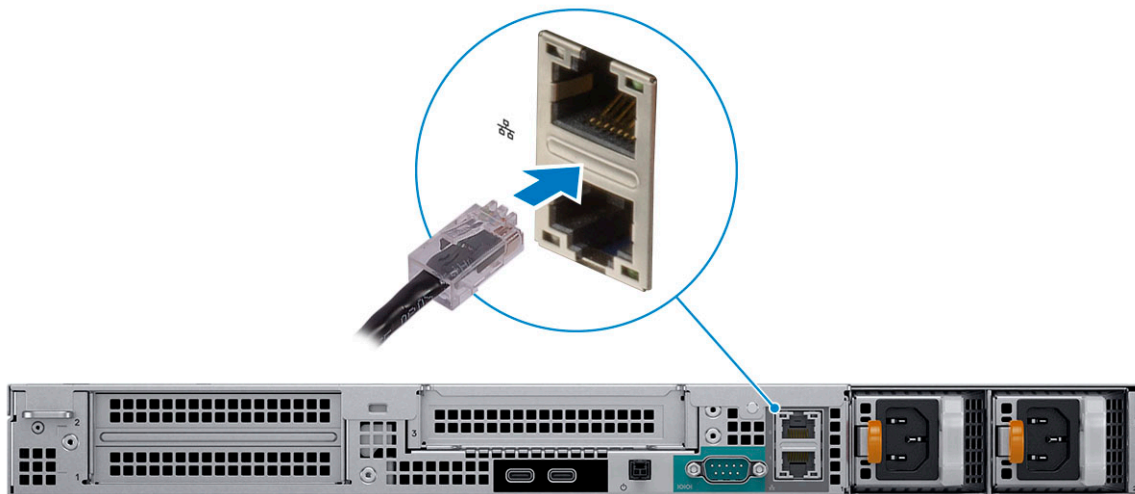
Set up your computer

Steps

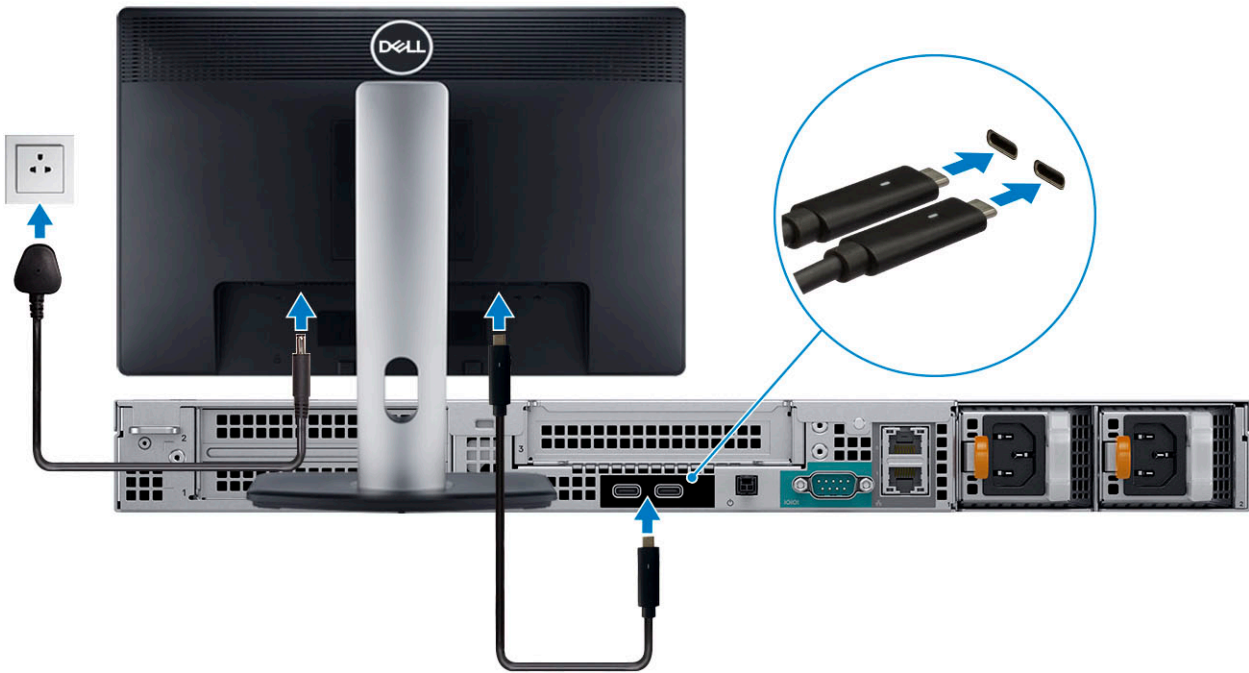
1. Connect the keyboard and mouse.



2. Connect to your network using a cable.

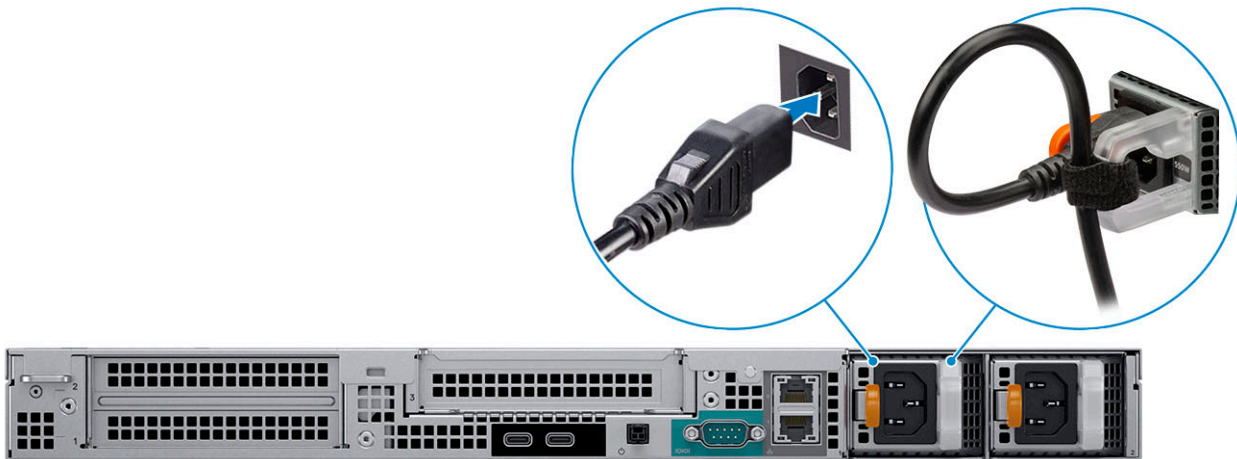


3. Connect the display.



NOTE: If you ordered your computer with discrete graphics card, the card is the primary driver for video. Connect the display to the discrete graphics card.

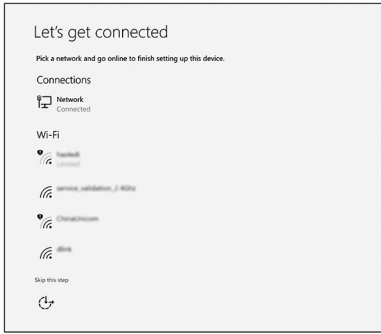
4. Connect the power cable.



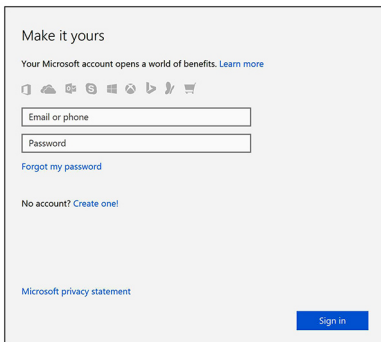
5. Press the power button.



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



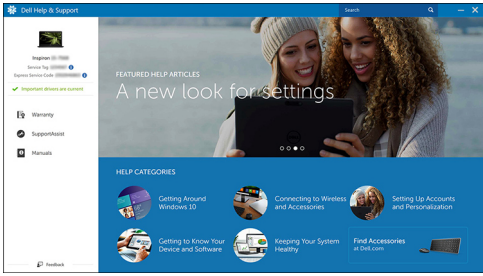



b. Sign in to your Microsoft account or create an account.



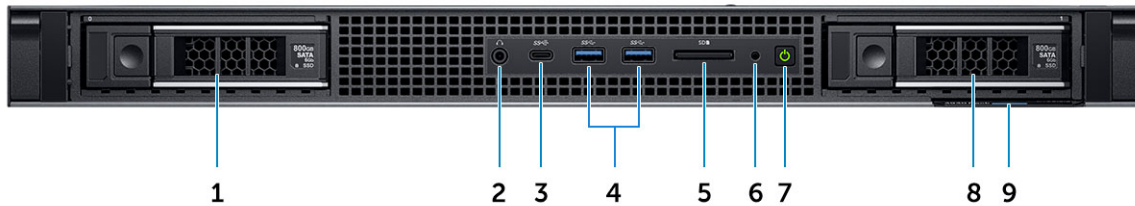
7. Locate Dell apps.

Table 1. Locate Dell apps

	<p>Register your computer</p>
	<p>Dell Help and Support</p> 
	<p>SupportAssist—Check and update your computer.</p>

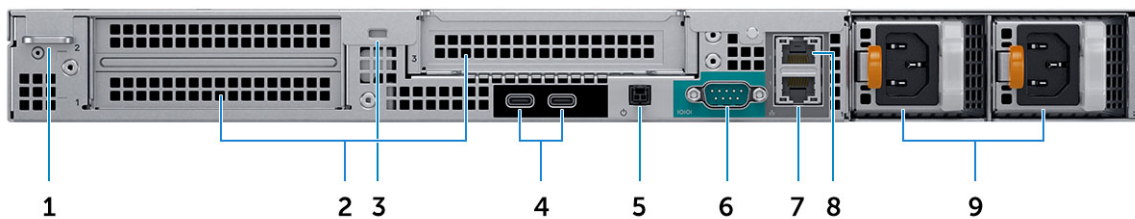
Chassis overview

Front view



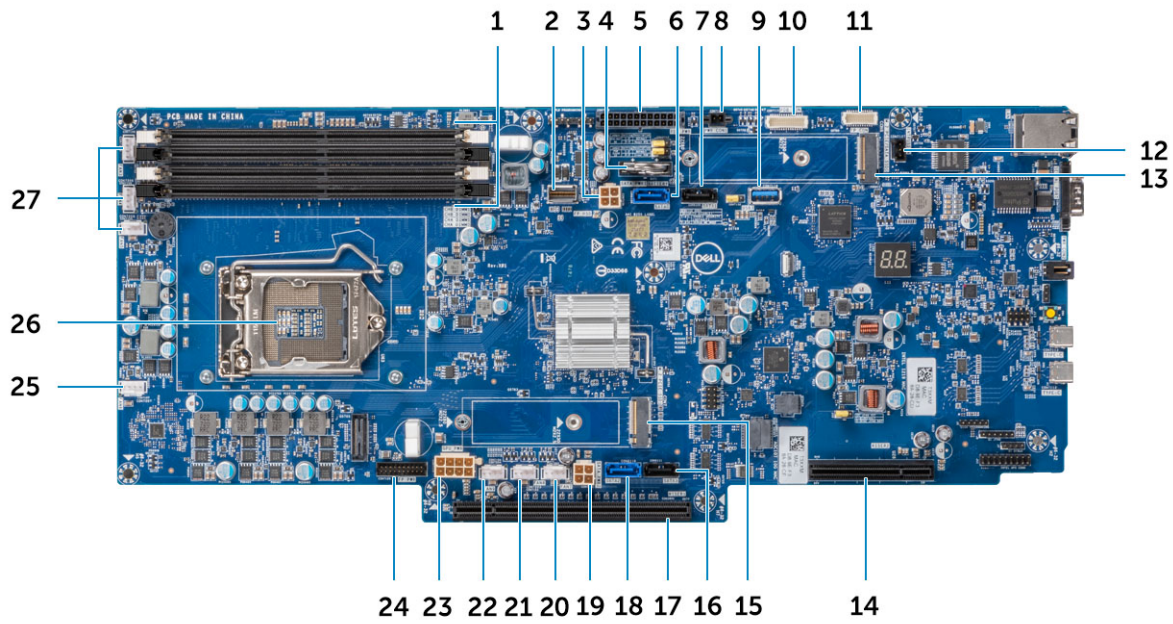
- | | |
|-----------------------------|-----------------------------|
| 1. Hard drive slot 0 | 2. Audio port |
| 3. USB Type-C 3.1 Gen2 port | 4. USB Type-A 3.1 Gen1 port |
| 5. SD card reader slot | 6. Drive activity light |
| 7. Power button | 8. Hard drive slot 1 |
| 9. Service tag | |

Back view



- | | |
|------------------------|---|
| 1. Padlock ring | 2. Expansion card slots |
| 3. Security cable slot | 4. USB Type-C 3.1 Gen2 (with UMA video support) |
| 5. Remote power switch | 6. Serial port |
| 7. 10 GB Network port | 8. 1 GB Network port |
| 9. Power supply units | |

System board layout



- | | |
|---|--|
| 1. Memory Slots | 2. Front panel HSD |
| 3. Left SATA power connector | 4. Coin cell battery |
| 5. Power distribution board power connector | 6. SATA 0 connector |
| 7. SATA 1 connector | 8. Power connector 1 |
| 9. USB Type-A 3.1 Gen1 | 10. Power distribution board connector |
| 11. Front panel connector | 12. Intrusion switch connector |
| 13. M.2 PCIe connector (SSD0) | 14. PCIe slot |
| 15. M.2 PCIe connector (SSD1) | 16. SATA 3 connector |
| 17. PCIe slot | 18. SATA 2 connector |
| 19. Right SATA power connector 2 | 20. Fan 7 power connector |
| 21. Fan 8 power connector | 22. Fan 9 power connector |
| 23. GPU power connector | 24. Front panel power connector |
| 25. Fan 6 power connector | 26. Processor |
| 27. Fan 5/4/3 power connector | |

System Information

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.

System dimensions - physical

NOTE: System Weight and Shipping Weight are based on a typical configuration and may vary based on personal computer configuration. A typical configuration includes: Integrated graphics, two hard drives.

Table 2. System dimensions (Physical)

	Tower
Chassis Weight (lb/kg)	27.38 / 12.42
Chassis Dimensions (H x W x D)	
Height (inch/cm)	1.68 / 4.28
Width (inch/cm)	18.97 / 48.2
Depth (inch/cm)	22.73 / 57.75 23.19 / 58.91 (With Bezel)
Shipping Weight (lb/kg – includes packaging materials)	42.63 / 19.34
Packaging Dimensions (H x W x D)	
Height (inch/cm)	8.38 / 21.3
Width (inch/cm)	23.42 / 59.5
Depth (inch/cm)	31.61 / 80.3

NOTE: The rails are compatible with a 4 - post EIA-310 standard compatible rack.

System information

Table 3. System information

Feature	Specification
Chipset	Intel C246 chipset
DRAM bus width	64-bit
FLASH EPROM	SPI 256 MB

Table 3. System information (continued)

Feature	Specification
PCIe bus	100 MHz
External bus frequency	DMI 3.0-8GT/s

Power supply unit

This topic lists the power supply units information.

Table 4. 550 Watts

Feature	Specifications
Power Supply Wattage	550 W
AC input Voltage Range	100–240 VAC
AC input current (low AC range/high AC range)	7.4 A / 3.7 A
AC input Frequency	50 HZ / 60 HZ.

Table 5. 3.0 V CMOS Battery

Brand	Type	Voltage	Composition	Life
PANASONIC	CR-2302L/BN	3 V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage: 1000 hours or longer
Varta	6032-101-501	3V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0V End-Voltage: 1000 hours or longer
Duracell	DL2032	3V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage: 1000 hours or longer
Maxwell	CR2032	3V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage: 1000 hours or longer

Processor


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

Table 6. Processor specifications

Type	UMA Graphics
Intel Xeon E Processor E-2288G (8 Core, 3.7 GHz, 16 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2286G (6 Core, 4.0 GHz, 12 MB Cache)	Integrated Intel UHD P630

Table 6. Processor specifications (continued)


Type	UMA Graphics
Intel Xeon E Processor E-2278G (8 Core, 3.4 GHz, 16 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2276G (6 Core, 3.8 GHz, 12 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2246G (6 Core, 3.6 GHz, 12 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2236 (6 Core, 3.4 GHz, 12 MB Cache)	Not Supported
Intel Xeon E Processor E-2226G (6 Core, 3.4 GHz, 12 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2224G (4 Core, 3.5 GHz, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2224 (4 Core, 3.4 GHz, 8 MB Cache)	Not Supported
Intel Xeon E Processor E-2186G (6 Core HT 3.8 Ghz, 4.7 GHz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2176G (6 Core HT 3.7 Ghz, 4.7 GHz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2174G (4 Core HT 3.8 Ghz, 4.7 GHz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2146G (6 Core HT 3.5 GHz, 4.5 Ghz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2136 (6 Core HT 3.3 Ghz, 4.5 Ghz Turbo, 8 MB Cache)	Not Supported
Intel Xeon E Processor E-2134 (4 Core HT 3.5 Ghz, 4.5 Ghz Turbo, 8 MB Cache)	Not Supported
Intel Xeon E Processor E-2124G (4 Core, 3.4 GHz, 4.5 Ghz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2124 (4 Core 3.4 GHz, 4.5 Ghz Turbo, 8 MB Cache)	Not Supported
Intel Core i3-8100 Processor (4 Core, 3.6 GHz, 6 MB Cache)	Integrated Intel UHD 630
Intel Core i5-8500 Processor (6 Core, 3.0 GHz up to 4.1 GHz Turbo, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-8600 Processor (6 Core, 3.1 GHz up to 4.3 GHz Turbo, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-8600K Processor (6 Core, 3.6 GHz up to 4.3 GHz Turbo, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i7-8700 Processor (6 Core, 3.2 GHz up to 4.6 GHz Turbo, 12 MB Cache)	Integrated Intel UHD 630

Table 6. Processor specifications (continued)

Type	UMA Graphics
Intel Core i7-8700K Processor (6 Core, 3.7 GHz up to 4.7 GHz Turbo, 12 MB Cache)	Integrated Intel UHD 630
Intel Core i3-9100 Processor (4 Core, 3.6 GHz, 6 MB Cache)	Integrated Intel UHD 630
Intel Core i5-9400 Processor (8 Core, 2.9 GHz, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-9500 Processor (6 Core, 3.0 GHz, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-9600 Processor (6 Core, 3.1 GHz, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i7-9700 Processor (8 Core, 3.0 GHz, 12 MB Cache)	Integrated Intel UHD 630
Intel Core i7-9700K Processor (8 Core, 3.6 GHz, 12 MB Cache)	Integrated Intel UHD 630
Intel Core i9-9900 Processor (8 Core, 3.1 GHz, 16 MB Cache)	Integrated Intel UHD 630
Intel Core i9-9900K Processor (8 Core, 3.6 GHz, 16 MB Cache)	Integrated Intel UHD 630

Memory

Table 7. Memory specifications

Feature	Specification
Minimum memory configuration	4 GB
Maximum memory configuration	128 GB
Number of slots	4
DIMM type	UDIMM
Maximum memory supported per slot	32 GB
Memory options	<ul style="list-style-type: none"> ● 4 GB - 1 x 4 GB (Non-ECC) ● 8 GB - 2 x 4 GB (Non-ECC) ● 8 GB - 1 x 8 GB (ECC) ● 16 GB - 2 x 8 GB (Non-ECC) ● 16 GB - 2 x 8 GB (ECC) ● 32 GB - 4 x 8 GB (Non-ECC) ● 32 GB - 4 x 8 GB (ECC) ● 64 GB - 2 x 32 GB (Non-ECC) ● 64 GB - 4 x 16 GB (Non-ECC) ● 64 GB - 4 x 16 GB (ECC) ● 128 GB - 4 x 32 GB (Non-ECC) <p> NOTE: ECC memory is only supported with Xeon E Processor and Core i3 Processor SKUs.</p>
Type	DDR4 UDIMM Non-ECC/ECC memory
Speed	2666 MHz

Dell Precision 3930 rack memory matrix

The Dell Precision 3930 rack memory matrix outlines an order by Channel/DIMM-number in which DIMMs are populated in the memory slots

Table 8.

					Chann el 5		Chann el 4		Chann el 3		Chann el 0		Chann el 1		Chann el 2		Chann el 5		Chann el 4		Chann el 3		Chann el 0		Chann el 1		Chann el 2	
T o t a l (G B)	C P U	D P C	M e m o r y p h y s i c a l F r e q u e n c y	S y s t e m r u n n i n g F r e q u e n c y	B6	B1 2	B5	B1 1	B4	B1 0	B7	B1	B8	B2	B9	B3	A6	A1 2	A5	A1 1	A4	A1 0	A7	A1	A8	A2	A9	A3
8	S K L	1 D P C	26 66	26 66																				8				
1 6	S K L	1 D P C	26 66	26 66																	8			8				
3 2	S K L	1 D P C	26 66	26 66															8		8			8		8		
4 8	S K L	1 D P C	26 66	26 66													8		8		8			8		8		8
6 4	S K L	2 D P C	26 66	26 66															8	8	8	8	8	8	8	8	8	
9 6	S K L	2 D P C	26 66	26 66													8	8	8	8	8	8	8	8	8	8	8	8
9 6	S K L	1 D P C	26 66	26 66													16		16		16			16		16		16
1 2 8	S K L	2 D P C	26 66	26 66															16	16	16	16	16	16	16	16		
1 9 2	S K L	2 D P C	26 66	26 66													16	16	16	16	16	16	16	16	16	16	16	16

Table 8. (continued)

		P C																				
1 9 2	S K L	1 D P C	26 66	26 66											32	32	32			32	32	32
2 5 6	S K L	2 D P C	26 66	26 66												32	32	32	32	32	32	32
3 8 4	S K L	2 D P C	26 66	26 66											32	32	32	32	32	32	32	32
3 8 4	S K L	1 D P C	26 66	26 66											64	64	64			64	64	64
5 1 2	S K L	2 D P C	26 66	26 66												64	64	64	64	64	64	64
7 6 8	S K L	2 D P C	26 66	26 66											64	64	64	64	64	64	64	64
7 6 8	S K L	1 D P C	26 66	26 66											12 8	12 8	12 8			12 8	12 8	12 8
1 0 2 4	S K L	2 D P C	26 66	26 66												12 8	12 8	12 8	12 8	12 8	12 8	12 8
1 5 3 6	S K L	2 D P C	26 66	26 66											12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8
6 4	S K L	1 D P C	26 66	26 66																64		
1 2 8	S K L	1 D P C	26 66	26 66																64		
3 8 4	S K L	1 D P C	26 66	26 66											64	64	64			64	64	64
5 1 2	S K L	2 D P C	26 66	26 66												64	64	64	64	64	64	64

Table 8. (continued)

768	S K L	2 D P C	26 66	26 66												64	64	64	64	64	64	64	64	64	64	64	64	64	64
128	S K L	1 D P C	26 66	26 66																									12 8
256	S K L	1 D P C	26 66	26 66																									12 8
768	S K L	1 D P C	26 66	26 66												12 8		12 8											12 8
1024	S K L	2 D P C	26 66	26 66														12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	
1536	S K L	2 D P C	26 66	26 66												12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8
16	S K L	1 D P C	26 66	26 66										8															8
32	S K L	1 D P C	26 66	26 66					8																				8
64	S K L	1 D P C	26 66	26 66			8		8																				8
96	S K L	1 D P C	26 66	26 66	8		8		8																				8
128	S K L	2 D P C	26 66	26 66			8	8	8	8	8	8	8	8	8														8
192	S K L	2 D P C	26 66	26 66	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
192	S K L	1 D P C	26 66	26 66	16		16		16					16	16														16

Table 8. (continued)

256	SKL	2DPC	2666	2666			16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16		
384	SKL	2DPC	2666	2666	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
384	SKL	1DPC	2666	2666	32		32		32		32		32	32			32	32			32		32		32
512	SKL	2DPC	2666	2666			32	32	32	32	32	32	32				32	32	32	32	32	32	32	32	
768	SKL	2DPC	2666	2666	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
768	SKL	1DPC	2666	2666	64		64		64		64		64	64			64	64			64		64		64
1024	SKL	2DPC	2666	2666			64	64	64	64	64	64	64				64	64	64	64	64	64	64	64	
1536	SKL	2DPC	2666	2666	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
1536	SKL	1DPC	2666	2666	128		128		128		128		128	128			128	128			128		128		128
2048	SKL	2DPC	2666	2666			128	128	128	128	128	128	128				128	128	128	128	128	128	128	128	
3072	SKL	2DPC	2666	2666	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
128	SKL	1DPC	2666	2666								64										64			
256	SKL	1DPC	2666	2666				64			64							64			64				

Table 8. (continued)

5 1 2	S K L	1 D P C	26 66	26 66			64		64			64	64			64	64			64	64			
7 6 8	S K L	1 D P C	26 66	26 66	64		64		64			64	64	64	64	64	64			64	64		64	
1 0 2 4	S K L	2 D P C	26 66	26 66			64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
1 5 3 6	S K L	2 D P C	26 66	26 66	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
2 5 6	S K L	1 D P C	26 66	26 66							12 8										12 8			
5 1 2	S K L	1 D P C	26 66	26 66				12 8			12 8							12 8			12 8			
1 0 2 4	S K L	1 D P C	26 66	26 66			12 8	12 8			12 8	12 8					12 8	12 8			12 8	12 8		
1 5 3 6	S K L	1 D P C	26 66	26 66	12 8		12 8	12 8			12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	
2 0 4 8	S K L	2 D P C	26 66	26 66			12 8	12 8	12 8	12 8	12 8	12 8	12 8				12 8	12 8	12 8	12 8	12 8	12 8	12 8	
3 0 7 2	S K L	2 D P C	26 66	26 66	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	
8	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6																	8			
1 6	C L X / S	1 D P C	29 33	C LX : 2 93 3/ S																	8			

Table 8. (continued)

	K			S KL: :2 66 6																		
3 2	C L X / S K L	1 D P C	29 33	C L X : : 93 3/ S K L : : 66 6										8	8			8		8		
4 8	C L X / S K L	1 D P C	29 33	C L X : : 93 3/ S K L : : 66 6								8	8		8			8		8		8
6 4	C L X / S K L	2 D P C	29 33	C L X : : 93 3/ S K L : : 66 6										8	8	8	8	8	8	8		
9 6	C L X / S K L	2 D P C	29 33	C L X : : 93 3/ S K L : : 66 6								8	8	8	8	8	8	8	8	8	8	8
9 6	C L X / S K L	1 D P C	29 33	C L X : : 93 3/ S K L : : 66 6								16	16		16			16		16		16
1 2 8	C L X / S K L	2 D P C	29 33	C L X : : 93										16	16	16	16	16	16	16		

Table 8. (continued)

	S K L			3/ S KL :2 66 6																							
1 9 2	C L X / S K L	2 D P C	29 33	C LX :2 93 3/ S KL :2 66 6											16	16	16	16	16	16	16	16	16	16	16	16	16
1 9 2	C L X / S K L	1 D P C	29 33	C LX :2 93 3/ S KL :2 66 6											32		32		32			32		32		32	
2 5 6	C L X / S K L	2 D P C	29 33	C LX :2 93 3/ S KL :2 66 6													32	32	32	32	32	32	32	32	32		
3 8 4	C L X / S K L	2 D P C	29 33	C LX :2 93 3/ S KL :2 66 6											32	32	32	32	32	32	32	32	32	32	32	32	32
3 8 4	C L X	1 D P C	29 33	C LX :2 93 3											64		64		64			64		64		64	
5 1 2	C L X	2 D P C	29 33	C LX :2 93 3													64	64	64	64	64	64	64	64	64		

Table 8. (continued)

7 6 8	C L X	2 D P C	29 33	C LX : 2 93 3														64	64	64	64	64	64	64	64	64	64	64	64			
6 4	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6																										64		
1 2 8	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6																										64	64	
1 6	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6							8																			8		
3 2	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6				8			8																			8	8	
6 4	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6			8	8			8	8																		8	8	
9 6	C L X / P C	1 D P C	29 33	C LX : 2 93	8	8	8				8	8																		8	8	8

Table 8. (continued)

	S K L			3/ S KL :2 66 6																															
1 2 8	C L X / S K L	2 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8						
1 9 2	C L X / S K L	2 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
1 9 2	C L X / S K L	1 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6	16		16		16			16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
2 5 6	C L X / S K L	2 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6			16	16	16	16	16	16	16	16	16			16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
3 8 4	C L X / S K L	2 D P C	29 33	C LX : 2 93 3/ S KL : 2 66 6	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
3 8 4	C L X	1 D	29 33	C LX : 2	32		32		32			32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32

Table 8. (continued)

	/ S K L	P C	93 3/ S KL :2 66 6																							
5 1 2	C L X / S K L	2 D P C	29 33 C LX :2 93 3/ S KL :2 66 6			32	32	32	32	32	32	32	32					32	32	32	32	32	32	32	32	32
7 6 8	C L X / S K L	2 D P C	29 33 C LX :2 93 3/ S KL :2 66 6	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
7 6 8	C L X	1 D P C	29 33 C LX :2 93 3	64		64		64			64		64		64	64			64		64		64		64	
1 0 2 4	C L X	2 D P C	29 33 C LX :2 93 3			64	64	64	64	64	64	64	64					64	64	64	64	64	64	64	64	
1 5 3 6	C L X	2 D P C	29 33 C LX :2 93 3	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
1 2 8	C L X	1 D P C	29 33 C LX :2 93 3									64										64				
2 5 6	C L X	1 D P C	29 33 C LX :2 93 3					64			64									64		64				
5 1 2	C L X	1 D P C	29 33 C LX :2 93 3			64		64			64	64							64		64		64		64	

Table 8. (continued)

				66 6																						
9 6	C L X / S K L	1 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6									16	16	16			16	16	16						
1 2 8	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6											16	16	16	16	16	16	16	16				
1 9 2	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6									16	16	16	16	16	16	16	16	16	16	16	16	16	16
1 9 2	C L X / S K L	1 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6									32	32	32			32	32	32						
2 5 6	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6											32	32	32	32	32	32	32	32				
3 8 4	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL									32	32	32	32	32	32	32	32	32	32	32	32	32	32

Table 8. (continued)

				:2 66 6																			
3 8 4	C L X	1 D P C	32 00	C LX : 2 93 3										64	64	64			64	64	64		
5 1 2	C L X	2 D P C	32 00	C LX : 2 93 3											64	64	64	64	64	64	64	64	64
7 6 8	C L X	2 D P C	32 00	C LX : 2 93 3										64	64	64	64	64	64	64	64	64	64
7 6 8	C L X / S K L	1 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6										12 8	12 8	12 8			12 8	12 8	12 8	12 8	
1 0 2 4	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6											12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	
1 5 3 6	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6										12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8
1 6	C L X / S K L	1 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6						8									8				

Table 8. (continued)

32	C L X / S K L	1 D P C	32 00	C L X : 2 93 3/ S K L : 2 66 6					8									8			8				
64	C L X / S K L	1 D P C	32 00	C L X : 2 93 3/ S K L : 2 66 6			8		8			8		8				8		8			8		8
96	C L X / S K L	1 D P C	32 00	C L X : 2 93 3/ S K L : 2 66 6	8		8		8			8		8		8	8		8			8		8	8
128	C L X / S K L	2 D P C	32 00	C L X : 2 93 3/ S K L : 2 66 6			8	8	8	8	8	8	8	8				8	8	8	8	8	8	8	8
192	C L X / S K L	2 D P C	32 00	C L X : 2 93 3/ S K L : 2 66 6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
192	C L X / S K L	1 D P C	32 00	C L X : 2 93 3/ S K L : 2	16		16		16			16		16		16	16		16			16		16	16

Table 8. (continued)

				66 6																								
2 5 6	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6		16	16	16	16	16	16	16	16				16	16	16	16	16	16	16	16	16	16		
3 8 4	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
3 8 4	C L X / S K L	1 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6	32		32		32		32	32	32	32	32	32	32	32	32			32		32	32		32	
5 1 2	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6			32	32	32	32	32	32	32				32	32	32	32	32	32	32	32	32	32		
7 6 8	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
7 6 8	C L X	1 D P C	32 00	C LX : 2 93 3	64		64		64		64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64

Table 8. (continued)

1 0 2 4	C L X	2 D P C	32 00	C LX : 2 93 3			64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64		
1 5 3 6	C L X	2 D P C	32 00	C LX : 2 93 3	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
1 5 3 6	C L X / S K L	1 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6	12 8		12 8		12 8			12 8	12 8		12 8	12 8				12 8		12 8		12 8		
2 0 4 8	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6			12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8				12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	
3 0 7 2	C L X / S K L	2 D P C	32 00	C LX : 2 93 3/ S KL : 2 66 6	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8
6 4	C L X	1 D P C	32 00	C LX : 2 93 3																		64				
1 2 8	C L X	1 D P C	32 00	C LX : 2 93 3															64			64				
1 2 8	C L X	1 D P C	32 00	C LX : 2 93 3							64											64				

Table 8. (continued)

256	CLXC	1DPC	3200	CLX:2933				64		64							64		64			
512	CLXC	1DPC	3200	CLX:2933			64	64		64	64					64	64		64	64		
128	CLXC	1DPC	3200	CLX:2933															128			
256	CLXC	1DPC	3200	CLX:2933													128		128			
768	CLXC	1DPC	3200	CLX:2933								128	128	128	128	128			128	128	128	128
1024	CLXC	2DPC	3200	CLX:2933									128	128	128	128	128	128	128	128	128	128
1536	CLXC	2DPC	3200	CLX:2933								128	128	128	128	128	128	128	128	128	128	128
256	CLXC	1DPC	3200	CLX:2933						128									128			
512	CLXC	1DPC	3200	CLX:2933				128		128							128		128			
1024	CLXC	1DPC	3200	CLX:2933			128	128		128	128				128	128			128	128		
1536	CLXC	1DPC	3200	CLX:2933	128	128	128			128	128	128	128	128	128	128			128	128	128	128

Table 8. (continued)

2 0 4 8	C L X P C	2 D P C	32 00	C LX :2 93 3			12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8		
3 0 7 2	C L X P C	2 D P C	32 00	C LX :2 93 3	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8	12 8

NOTE: To achieve optimized memory performance a single DIMM needs to be populated in both Channels A and Channel B regardless of the DIMM-number. Mixing of memory DIMM sizes is not supported.

Storage

Table 9. Storage specifications

Type	Form factor	Interface	Security option	Capacity
Four 2.5 inches Front load Hard-Disk Drives (HDD)	Approximately (2.76 x 3.959 x 0.276 inches)	Up to 6Gb/s (SATA 3.0)	OPAL /SED FIPS	Up to 8 TB
Two 3.5 inches Front load Hard-Disk Drives (HDD)	Approximately (5.79 x 4 x 1)	Up to 6Gb/s (SATA 3.0)	NA	Up to 16 TB
Two solid state drives (SSD)	M.2 2280	2x PCIe x4 NVMe on the system board (not in a bay), Up to 32 Gbps 2x M.2 PCIe x4 NVMe on Dell Ultraspeed Drive Duo Card (populated in PCIe slot 2 on Riser 1A)	SED/OPAL	Up to 4 TB

NOTE: Your computer will either support two 3.5 inch hard-drives or four 2.5 inch hard-drives, depending on the configuration.

NOTE: Front Load Hard-Disk Drives are not hot swappable.

Audio

Table 10. Audio specifications

Feature	Specification
Controller	Waves MaxxAudio ProSupport
Type	Two-channel high-definition audio
Interface	<ul style="list-style-type: none"> Universal audio jack Stereo headset

Video card

Table 11. Video card specifications

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 630	UMA	<ul style="list-style-type: none"> Intel Core i3 - 8100/9100 Intel Core i5 - 8600/8500 / 9400/9500 /9600 Intel Core i7 - 8700/9700 /9700K Intel Core i9 - 9900/9900 K 	Integrated	Shared system memory	DisplayPort supported through Rear USB Type-C port DP/HDMI/VGA/DVI supported through Rear USB Type-C port	4096 x 2304
Intel UHD Graphics P630	UMA	<ul style="list-style-type: none"> Intel Xeon G 	Integrated	Shared system memory	DP/HDMI/VGA/DVI supported through Rear USB Type-C port	4096 x 2304
NVIDIA Quadro P400	Discrete	N/A	GDDR5	2 GB	eDP/mDP/HDMI/ supported through Rear USB Type-C portType-C	7680 x 4320
NVIDIA Quadro P620	Discrete	N/A	GDDR5	2 GB	mDP	2560 x 1600 x 32 bpp at 60 Hz
NVIDIA Quadro P1000	Discrete	N/A	GDDR5	4 GB	mDP	1920 x 1200 x 32 bpp at 60 Hz
NVIDIA Quadro P2000	Discrete	N/A	GDDR5	5 GB	mDP/DisplayPort	5120 x 2880
NVIDIA Quadro P4000	Discrete	N/A	GDDR5	8 GB	DisplayPort	5120 x 2880
NVIDIA RTX4000	Discrete	N/A	GDDR5	8 GB	DisplayPort / Type-C	Display port <ul style="list-style-type: none"> 7680 x 4320 x 24bpp at 120 Hz 7680 x 4320 x 36bpp at 60 Hz 5120 x 2880 x 24bpp at 60 Hz USB type-C <ul style="list-style-type: none"> 7680 x 4320 x 24bpp at 120 Hz

Table 11. Video card specifications (continued)

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
						<ul style="list-style-type: none"> 7680 x 4320 x 36bpp at 60 Hz 5120 x 2880 x 24bpp at 60 Hz
NVIDIA Quadro P5000	Discrete	N/A	GDDR5X	16 GB	DVI-D/DisplayPort	5120 x 2880
NVIDIA RTX5000	Discrete	N/A	GDDR6	16 GB	DisplayPort / Type-C	Display port <ul style="list-style-type: none"> 7680 x 4320 x 24bpp at 120 Hz 7680 x 4320 x 36bpp at 60 Hz 5120 x 2880 x 24bpp at 60Hz USB type-C <ul style="list-style-type: none"> 7680 x 4320 x 24bpp at 120 Hz 7680 x 4320 x 36bpp at 60 Hz 5120 x 2880 x 24bpp at 60 Hz
NVIDIA Quadro P6000	Discrete	N/A	GDDR5X	24 GB	DVI-D/DisplayPort	5120 x 2880
NVIDIA RTX6000	Discrete	N/A	GDDR6	24 GB	DisplayPort / Type-C	Display port <ul style="list-style-type: none"> 7680 x 4320 x 24bpp at 120 Hz 7680 x 4320 x 36bpp at 60 Hz 5120 x 2880 x 24bpp at 60 Hz USB type-C <ul style="list-style-type: none"> 7680 x 4320 x 24bpp at 120 Hz 7680 x 4320 x 36bpp at 60 Hz 5120 x 2880 x 24bpp at 60 Hz
NVIDIA RTX2080B	Discrete	N/A	GDDR6	8 GB	DisplayPort / HDMI	Single DP 1.4a <ul style="list-style-type: none"> 7680 x 4320 (8K) at 60 Hz Dual DP 1.4a <ul style="list-style-type: none"> 7680 x 4320 (8K) at 120 Hz HDMI 2.0b <ul style="list-style-type: none"> 4096x2160 (4K) at 60 Hz

Table 11. Video card specifications (continued)

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
NVIDIA T400	Discrete	N/A	GDDR6	2 GB	mDP	<ul style="list-style-type: none"> • 3840 x 2160 at 120 Hz • 5120 x 2880 at 60 Hz
NVIDIA T600	Discrete	N/A	GDDR6	4 GB	mDP	<ul style="list-style-type: none"> • 3840 x 2160 at 120 Hz • 5120 x 2880 at 60 Hz • 7680 x 4320 at 60 Hz
NVIDIA T1000	Discrete	N/A	GDDR6	4 GB	mDP	<ul style="list-style-type: none"> • 3840 x 2160 at 120 Hz • 5120 x 2880 at 60 Hz • 7680 x 4320 at 60 Hz
AMD WX3200	Discrete	N/A	GDDR5	4 GB	mDP	1 port <ul style="list-style-type: none"> • 7680 x 4320 at 60 Hz 2 ports <ul style="list-style-type: none"> • 5120 x 2880 at 60 Hz 4 ports <ul style="list-style-type: none"> • 3840 x 2160 at 60 Hz • 1920 x 1080 at 60 Hz
AMD Radeon Pro WX4100	Discrete	N/A	GDDR5	4 GB	mDP/DisplayPort	5120 x 2880

NOTE: Please see the processor specification section for Xeon G SKU.

NOTE: Xeon SKUs with "G" suffix support Intel UHD Graphics.

NOTE: If the graphics card power rating exceeds 75 Watts, then connect the graphics card power cable to the graphics card power connector on the system board. (Dual RTX4000, RTX5000 and RTX6000 will need dual power supply).

Communication

Table 12. Communication specifications

Feature	Specification
Network adapter	Integrated Intel 10/100/1000 Mb/s Ethernet (RJ45) Integrated Aquantia 10 GB/s Ethernet (RJ45)

Media card-reader

Table 13. Media card-reader specifications

Feature	Specification
Type	One SD-card slot
Supported cards	<ul style="list-style-type: none">• SD• SDHC• SDXC

System board connectors

Table 14. System board connectors

Feature	Specification
M.2 Connectors	Two (2280 Key-M)
Serial ATA (SATA) connector	Four
Riser 1A	
PCIe X16 slot	Slot 1 (bottom): Full Height Double width PCIe16 Gen 3 or Single Width PCIe8 Gen 3
PCIe X8 slot	Slot 2 (top): Full Height Single Width PCIe8 Gen 3
Riser 1B	
PCIe-32 bit	Slot 1 (bottom): Full Height PCI 32/33 Slot 2 (top): Full Height PCI 32/33
Riser 2	
PCIe X4 slot	Fixed Riser for Slot 3 (on all chassis): Full Height Single Width PCIeX4 Gen 3

Ports and connectors

Table 15. Front ports and connectors

Feature	Specification
Memory card reader	SD 4.0 memory card reader
USB	<ul style="list-style-type: none">• One USB 3.1 Gen2 Type-C port• Two USB 3.1 Gen 1 Type-A ports
Audio	Universal audio jack.

Table 16. Rear ports and connectors

Feature	Specification
USB	Two USB 3.1 Gen2 Type-C ports (with UMA video support)
Network adapter	<ul style="list-style-type: none"> One 1 Gb RJ45 One 10 Gb RJ45
Serial port	One serial port

Operating system

Your Precision 3930 Rack supports the following operating systems:

- Windows 11 Home, 64-bit
- 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 for Workstations, 64-bit
- RHEL 8.4
- Ubuntu 20.04 LTS, 64-bit

Operating conditions

For information on Product Safety, EMC and Environmental data sheets <https://www.dell.com/learn/product-info-datasheets-safety-emc-environmental>

Table 17. Operating conditions

Test	Condition
Temperature range	<ul style="list-style-type: none"> • Operating: 10–35°C (50°F–95°F) for all system configurations • Operating: 10–45°C (50°F–113°F) for specific system configurations (<=80W processors, SSDs and Enterprise HDDs, GPU=Nvidia Quadro P400, P2000, P4000) • Storage: -40°C to 65°C (-40°F to 149°F)
Relative humidity	<ul style="list-style-type: none"> • Operating: 10% to 85% (Max dew point temperature = 40°C) (noncondensing). • Storage: 10% to 90% (Max dew point temperature = 60°C) (noncondensing).
Airborne contaminant level	G1 as defined by ISA-S71.04-1985.
Vibration	(maximum)*: operating=0.26 GRMS; Storage=2.0 GRMS.
Shock	(maximum): operating=10 G‡; Storage=71 G‡.

NOTE:

*Measured using a random vibration spectrum that simulates user environment. † Measured using a 2-microsecond half-sine pulse when the hard drive is in use.

‡ Measured using a 2-microsecond half-sine pulse when the hard drive head is in parked position.

Service and support

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

Table 18. Warranty

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

Table 19. Accidental damage services

Accidental Damage Services
1 Year Accidental Damage Service
2 Years Accidental Damage Service
3 Years Accidental Damage Service
4 Years Accidental Damage Service
5 Years Accidental Damage Service

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

BIOS overview

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

- Get information on the hardware installed on your computer, such as the amount of RAM and the size of the hard drive.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enabling or disabling base devices.

Boot menu

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


The options are:

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

Navigation keys

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

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.



Keys	Navigation
Enter	Selects 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.
Tab	Moves to the next focus area.  NOTE: For the standard graphics browser only.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

Boot sequence

Boot sequence allows 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 is displayed, you can:


- Access system setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable drive (if available)
- STXXXX drive
 **NOTE:** XXX denotes the SATA drive number.
- Optical drive (if available)
- SATA hard drive (if available)
- Diagnostics
 **NOTE:** Choosing **Diagnostics**, will display the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the system setup screen.

System setup options

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

General options

Table 20. 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 Tag, Ownership Date, Manufacture Date, and the Express Service Code. • Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, Memory Technology, DIMM A Size, DIMM B Size, DIMM C Size, DIMM D Size. • PCI Information: Displays Slot1, Slot2, Slot3. • 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, M.2 PCIe SSD-0, M.2 PCIe SSD-1, LOM MAC address, LOM2 MAC address, Video Controller, Audio 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.

Table 20. General (continued)

Option	Description
Advanced Boot Options	Allows you to select the Enable Legacy Option ROMs option, when in UEFI boot mode. By default, this option is selected. <ul style="list-style-type: none"> • Enable Legacy Option ROMs • Enable Attempt Legacy Boot • Default— None Selected
UEFI Boot Path Security	This option controls if the system will prompt the user to enter the Admin password when booting a UEFI boot path from the F12 Boot Menu. <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.

System information

Table 21. System Configuration

Option	Description
Integrated NIC	Allows you to control the onboard LAN controller. The option 'Enable UEFI Network Stack' is not selected by default. The options are: <ul style="list-style-type: none"> • Disabled • Enabled • Enabled w/PXE (default)
Integrated NIC2	Allows you to control the onboard LAN controller. The option 'Enable UEFI Network Stack' is not selected by default. The options are: <ul style="list-style-type: none"> • Disabled • Enabled (default) • Enabled w/PXE
UEFI Network Stack	Allows pre-OS and early OS networking features to use any enabled NICs. This may be used without PXE turned on. <ul style="list-style-type: none"> • Enable UEFI Network Stack • Default - (Disabled)
Serial Port	Determines how the built-in serial port operates. Choose any one option: <ul style="list-style-type: none"> • Disabled • COM1 (selected by default) • COM2 • COM3 • COM4
SATA Operation	Allows you to configure the operating mode of the integrated hard drive controller. <ul style="list-style-type: none"> • Disabled = The SATA controllers are hidden • AHCI = SATA is configured for AHCI mode • RAID ON = SATA is configured to support RAID mode (selected by default)
Drives	Allows you to enable or disable the various drives onboard: <ul style="list-style-type: none"> • SATA-0 (enabled by default) • SATA-1 (enabled by default) • SATA-2 (enabled by default)

Table 21. System Configuration (continued)

Option	Description
	<ul style="list-style-type: none"> ● SATA-3 (enabled by default) ● M.2 PCIe SSD-0 (enabled by default) ● M.2 PCIe SSD-1 (enabled by default)
Smart Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. The Enable Smart Reporting option is disabled by default.
USB Configuration	Allows you to enable or disable the integrated USB controller for: <ul style="list-style-type: none"> ● Enable USB Boot Support ● Enable Front USB Ports ● Enable Rear USB Ports ● Enable Internal USB Port All the options are enabled by default.
Front USB Configuration	Allows you to enable or disable the front USB ports. All the ports are enabled by default. <ul style="list-style-type: none"> ● Front Port 1 (Left) ● Front Port 2 (Center) ● Front Port 3 (Right)* All the options are enabled by default.
Rear USB Configuration	Allows you to enable or disable the back USB ports. All the ports are enabled by default. <ul style="list-style-type: none"> ● Rear Port 1 (Left)* ● Rear Port 2 (Right)* All the options are enabled by default.
Internal USB Configuration	Allows you to enable or disable the Internal USB port. The port is enabled by default. <ul style="list-style-type: none"> ● Internal Port 1
Thunderbolt Adapter Configuration	When enabled the Thunderbolt technology feature and associated ports and adapters are enabled. This option is enabled by default. <ul style="list-style-type: none"> ● Enable Thunderbolt Technology Support (Default) ● Security Level - No Security ● Security Level -User Authorization (Default) ● Security Level - Secure connect ● Security Level - DisplayPort Only
Audio	Allows you to enable or disable the integrated audio controller. The option Enable Audio is selected by default. <ul style="list-style-type: none"> ● Enable Microphone (Default)
Dust Filter Maintenance	Allows you to enable or disable BIOS messages for maintaining the optional dust filter that is installed on your computer. BIOS will generate a preboot reminder to clean or replace the dust filter based on the interval set. The option Disabled is selected by default. <ul style="list-style-type: none"> ● Disabled ● 15 days ● 30 days ● 60 days ● 90 days ● 120 days ● 150 days ● 180 days
Miscellaneous devices	Allows you to enable or disable various on board devices. The option Enable Secure Digital (SD) Card is selected by default. <ul style="list-style-type: none"> ● Enable Secure Digital (SD) Card ● Secure Digital (SD) Card Boot ● Secure Digital (SD) Card Read-Only Mode

Table 21. System Configuration (continued)

Option	Description
Front power button	Allows you to enable or disable the power button on the front panel. The option Enable Front Power button is selected by default. <ul style="list-style-type: none"> • Enable Front power button • Disabled Front power button

Video screen options

Table 22. Video

Option	Description
Multi-Display	Allows you to enable or disable Multi-Display. It has to be enabled for Windows 7 or later. <ul style="list-style-type: none"> • Enable Multi-Display (default) <p>NOTE: This feature is not applicable to other operating systems.</p>
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 • ATI Radeon HD Graphics <p>NOTE: If you do not select Auto, the onboard graphics device will be present and enabled.</p>

Security

Table 23. Security

Option	Description
Admin Password	Allows you to set, change, and delete the admin password.
System Password	Allows you to set, change, and delete the system password.
Internal HDD-0 Password	Allows you to set, change, and delete the computer’s internal HDD.
Strong Password	This option lets you enable or disable strong passwords for the system.
Password Configuration	Allows you to control the minimum and maximum number of characters that are allowed for an administrative password and the system password. The range of characters is 4 and 32.
Password Bypass	This option lets you bypass the System (Boot) Password and the internal HDD password prompts during a system restart. <ul style="list-style-type: none"> • Disabled—Always prompt for the system and internal HDD password when they are set. This option is disabled by default. • Reboot Bypass—Bypass the password prompts on restarts (warm boots). <p>NOTE: The system will always prompt for the system and internal HDD passwords when powered on from the off state (a cold boot). Also, the system will always prompt for passwords on any module bay HDDs that may be present.</p>
Password Change	This option lets you determine whether changes to the System and HDD passwords are permitted when an administrator password is set. <p>Allow Non-Admin Password Changes - This option is enabled by default.</p>
UEFI Capsule Firmware Updates	This option controls whether this system allows BIOS updates via UEFI capsule update packages. This option is selected by default. Disabling this option blocks BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS)

Table 23. Security (continued)

Option	Description
TPM 2.0 Security	<p>Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system.</p> <ul style="list-style-type: none"> • TPM On (default) • Clear • PPI Bypass for Enable Commands • PPI Bypass for Disable Commands • PPI Bypass for Clear Commands • Attestation Enable (default) • Key Storage Enable (default) • SHA - 256 (default) <p>Choose any one option:</p> <ul style="list-style-type: none"> • Disabled • Enabled (default)
Computrace	<p>This field lets you Activate or Disable the BIOS module interface of the optional Computrace Service from Absolute Software. Enables or disables the optional Computrace service that is designed for asset management.</p> <ul style="list-style-type: none"> • Deactivate - This option is selected by default. • Disable • Activate
Chassis Intrusion	<p>This field controls the chassis intrusion feature.</p> <p>Choose any one of the options:</p> <ul style="list-style-type: none"> • Disabled (default) • Enabled • On-Silent
OROM Keyboard Access	<p>This option determines whether users can enter Option ROM Configuration screens via hotkeys during boot.</p> <ul style="list-style-type: none"> • Enabled (Default) • Disabled • One Time Enable
Admin Setup Lockout	<p>Allows you to prevent users from entering Setup when Admin password is set. This option is not set by default.</p>
Master Password Lockout	<p>Allows you to disable master password support. Hard Disk passwords need to be cleared before the settings can be changed. This option is not set by default.</p>
SMM Security Mitigation	<p>Allows you to enable or disable additional UEFI SMM Security Mitigation protections. This option is not set by default.</p>

Secure boot options

Table 24. Secure Boot

Option	Description
Secure Boot Enable	<p>Allows you to enable or disable Secure Boot feature</p> <ul style="list-style-type: none"> • Secure Boot Enable <p>This option is selected by default.</p>
Secure Boot Mode	<p>Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures.</p> <ul style="list-style-type: none"> • Deployed Mode (default) • Audit Mode

Table 24. Secure Boot (continued)

Option	Description
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 that are made will be erased, and the keys will restore to default settings.</p>

Intel software guard extensions options

Table 25. Intel software guard extensions

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

Performance

Table 26. Performance

Option	Description
Multi Core Support	<p>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.</p> <ul style="list-style-type: none"> ● All—Default ● 1 ● 2 ● 3

Table 26. Performance (continued)

Option	Description
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of processor. <ul style="list-style-type: none"> ● Enable Intel SpeedStep This option is set by default.
C-States Control	Allows you to enable or disable the additional processor sleep states. <ul style="list-style-type: none"> ● C states This option is set by default.
Cache Prefetch	Allows you to enable or disable the MLC streamer and MLC spatial prefetcher of the processor <ul style="list-style-type: none"> ● Hardware Prefetcher ● Adjacent Cache Prefetcher Both options are enabled by default.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. <ul style="list-style-type: none"> ● Enable Intel TurboBoost This option is set by default.
HyperThread Control	Allows you to enable or disable HyperThreading in the processor. <ul style="list-style-type: none"> ● Disabled ● Enabled (Default)

Power management

Table 27. Power Management





Option	Description
AC Recovery	Determines how the system responds when AC power is reapplied after a power loss. You can set the AC Recovery to: <ul style="list-style-type: none"> ● Power Off—Default ● Power On ● Last Power State This option is Power Off by default.
Enable Intel Speed Shift Technology	Allows you to enable or disable Intel Speed Shift Technology support. The option Enable Intel Speed Shift Technology is set by default.
Auto On Time	Sets time to automatically turn on the computer. Time is kept in standard 12-hour format (hour:minutes:seconds). Change the startup time by typing the values in the time and AM/PM fields. ⓘ 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 .
Wake on LAN	This option allows the computer to power up from the off state when triggered by a special LAN signal. This feature only works when the computer is connected to AC power supply. <ul style="list-style-type: none"> ● Disabled - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN. ● LAN - Allows the system to be powered on by special LAN.

Table 27. Power Management (continued)

Option	Description
	<ul style="list-style-type: none"> ● LAN Only - Allows the system to be powered on by special LAN signals. ● LAN with PXE Boot - A wakeup packet sent to the system in either the S4 or S5 state, that will cause the system to wake up and immediately boot to PXE. This option is Disabled by default.
Block Sleep	Allows you to block entering to sleep in OS environment. This option is disabled by default.

Thermal configuration

Table 28. Thermal configuration

Option	Description
Thermal Mode	Allows you to determine the speed of the system fans. This option is enabled by default. <ul style="list-style-type: none"> ● Low ● Auto (Default) This option is set to Auto by default.  NOTE: This setting applies to all the Zone
CPU Zone	Allows you to control the minimum and maximum fan speed in the CPU Zone. The range of characters is between 0 and 100.  NOTE: When Thermal Mode is set in auto, Zero is the optimal speed level.
PSU Zone	Allows you to control the minimum and maximum fan speed in the PSU Zone. The range of characters is between 0 and 100.  NOTE: When Thermal Mode is set in auto, Zero is the optimal speed level.
PCIe Zone	Allows you to control the minimum and maximum fan speed in the PCIe Zone. The range of characters is between 0 and 100.  NOTE: When Thermal Mode is set in auto, Zero is the optimal speed level.

Post behavior

Table 29. 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. The option EnableKeyboard Error Detection is enabled by default.
Extend BIOS POST Time	This option creates an additional preboot delay. <ul style="list-style-type: none"> ● 0 seconds (default) ● 5 seconds ● 10 seconds
Full Screen Logo	This option will display full screen logo if your image match screen resolution. The option Enable Full Screen Logo is not set by default.
Warnings and Errors	This option causes the boot process to only pause when warning or errors are detected. Choose any one of the options: <ul style="list-style-type: none"> ● Prompt on Warnings and Errors—Default ● Continue on Warnings ● Continue on Warnings and Errors

Manageability

Table 30. Manageability

Option	Description
USB provision	This option is not selected by default.
MEBx Hotkey	This option is selected by default.

Virtualization support

Table 31. Virtualization Support


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

Maintenance

Table 32. Maintenance

Option	Description
Service Tag	Displays the service tag of your computer.
Asset Tag	<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>
SERR Messages	Controls the SERR message mechanism. This option is set by default. Some graphics cards require that the SERR message mechanism be disabled.
BIOS Downgrade	<p>Allows you to flash previous revisions of the system firmware.</p> <ul style="list-style-type: none">• Allow BIOS Downgrade <p>This option is set by default.</p>
Data Wipe	<p>Allows you to securely erase data from all internal storage devices.</p> <ul style="list-style-type: none">• Wipe on Next Boot <p>This option is not set by default.</p>
BIOS Recovery	BIOS Recovery from Hard Drive —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.

Table 32. Maintenance (continued)

Option	Description
	BIOS Auto-Recovery — Allows you to recover the BIOS automatically.  NOTE: BIOS Recovery from Hard Drive field should be enabled. Always Perform Integrity Check —Performs integrity check on every boot.
First Power On Date	Allows you the set Ownership date. The option Set Ownership Date is not set by default.

System logs

Table 33. System Logs

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

Advanced configuration

Table 34. Advanced configuration

Option	Description
ASPM	Allows you to set the ASPM level. <ul style="list-style-type: none">• Auto (default) - There is handshaking between the device and PCI Express hub to determine the best ASPM mode supported by the device• Disabled - ASPM power management is turned off at all time• L1 Only - ASPM power management is set to use L1
PCIe LinkSpeed	Allows the user to select the max PCIe link speed. <ul style="list-style-type: none">• Auto (Default)• Gen 1• Gen 2

Updating the BIOS

Updating the BIOS in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: <https://www.dell.com/support/article/sln153694>

Steps

1. Go to 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.

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.

Updating the BIOS using the USB drive in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: <https://www.dell.com/support/article/sln153694>

Steps


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.
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.


About this task

 **CAUTION:** If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: <https://www.dell.com/support/article/sln153694>

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.

Steps

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.


System and setup password

Table 35. 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 password and setup password

Prerequisites

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

About this task

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

Steps

- In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
The **Security** screen is displayed.
- Select **System 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, ("), (+), (.), (-), (.), (/), (:), ([), (\), (]), (`).
- Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
- Press Esc and a message prompts you to save the changes.
- Press Y to save the changes.
The computer reboots.

Deleting or changing an existing system setup password


Prerequisites

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

About this task

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

Steps



1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press Enter or Tab.
4. Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.
 **NOTE:** If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.
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.

Getting help and contacting Dell

Self-help resources


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


Table 36. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell	
Tips	
Contact Support	In Windows search, type Contact Support , and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Dell knowledge base articles for a variety of computer concerns.	<ol style="list-style-type: none"> 1. Go to https://www.dell.com/support/home/?app=knowledgebase. 2. Type the subject or keyword in the Search box. 3. Click Search to retrieve the related articles.
Learn and know the following information about your product: <ul style="list-style-type: none"> • Product specifications • Operating system • Setting up and using your product • Data backup • Troubleshooting and diagnostics • Factory and system restore • BIOS information 	See <i>Me and My Dell</i> at www.dell.com/support/manuals . To locate the <i>Me and My Dell</i> relevant to your product, identify your product through one of the following: <ul style="list-style-type: none"> • Select Detect Product. • Locate your product through the drop-down menu under View Products. • Enter the Service Tag number or Product ID in the search bar.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

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

 **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.