



Dell OptiPlex 3050

Technical Guidebook – Revision 01, February 7, 2017

Inside the OptiPlex 3050

Specific features / Models / Configurations / Options discussed in this document may not be available in all regions

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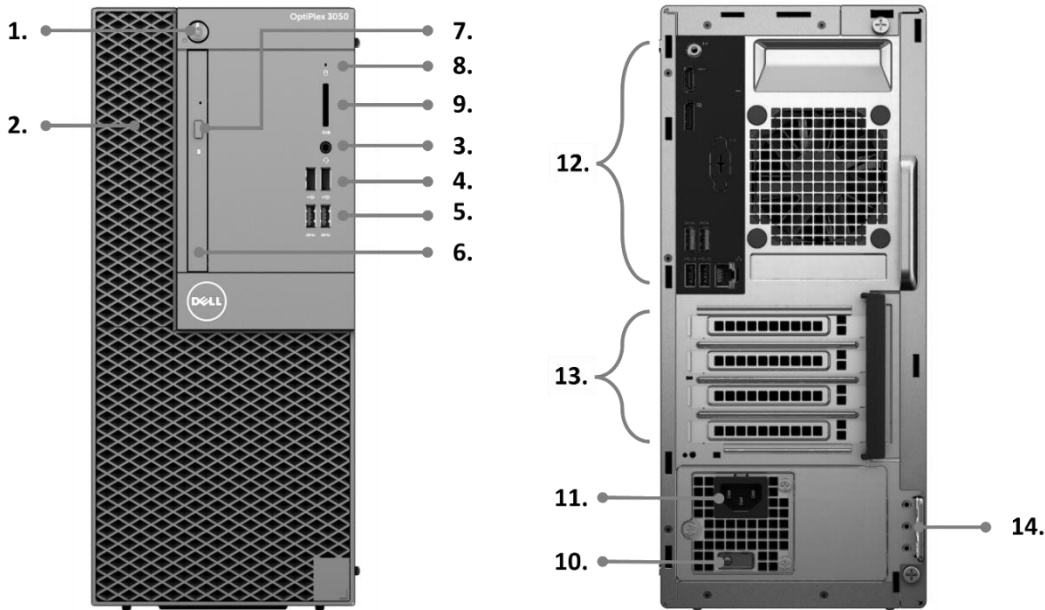
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Overview



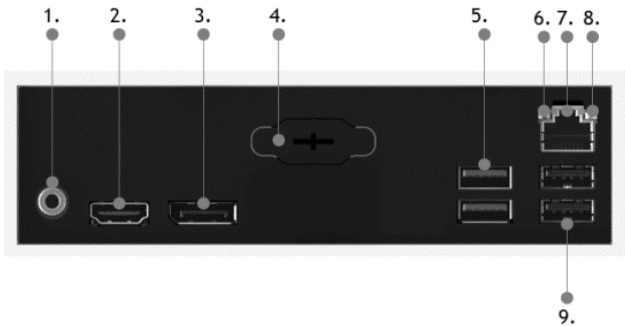
Tower Computer View



FRONT VIEW			
1	Power LED Button	6	Optical Drive (optional)
2	3.5" HDD	7	Optical Driver Eject Button
3	Universal Audio Jack Connector	8	Drive Activity Light
4	USB 2.0 Connectors (2)	9	SD Media Card Reader (optional)
5	USB 3.1 Gen 1 Connectors (2)		

REAR VIEW			
10	Power Supply Diagnostic Light	13	Expansion Card Slots (4)
11	Power Connectors	14	Kensington Security Cable Slot/Padlock Ring
12	Back Panel Connectors		

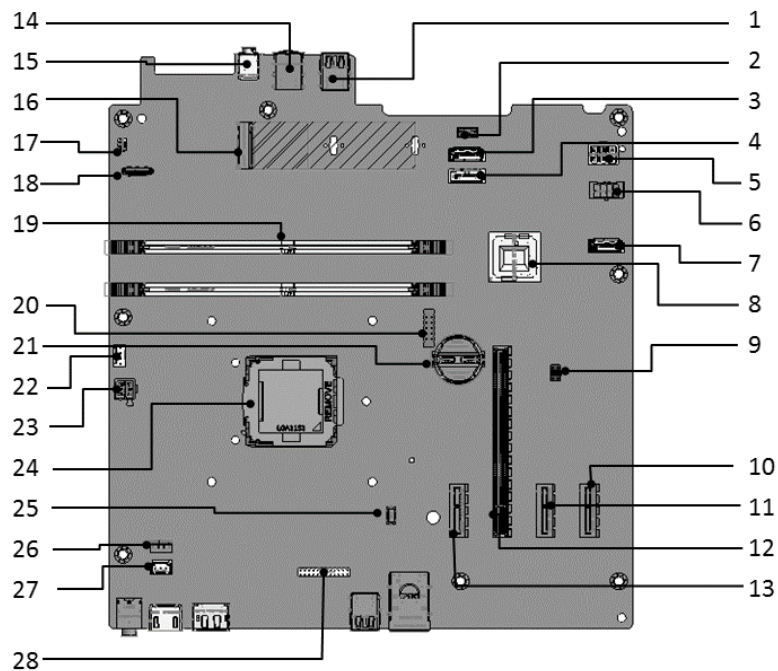
Back Panel Connectors



BACK PANEL CONNECTOR			
1	Line-Out Connector	7	Network Connector
2	HDMI Connector	8	Network Activity Light
3	Display Port Connector	9	USB 2.0 Connectors(2) Both with Smart Power On functionality
4	VGA Connector (optional)		
5	USB 3.1 Gen 1 Connectors (2)		
6	Link Integrity Light		



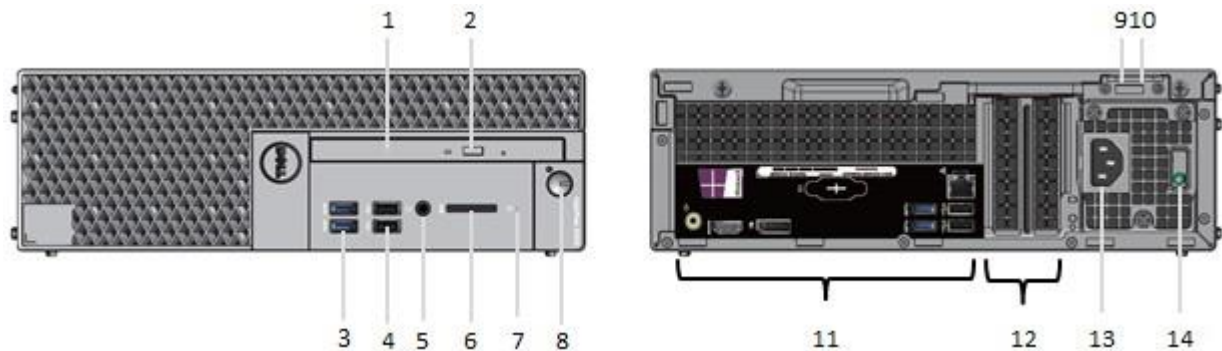
Tower Motherboard Layout



Tower System Board Components

Number	Name	Number	Name
1	Front USB 3.1 Connector (SSUSB_F)	15	Front Audio Connector (AUDIO1)
2	Internal Speaker Connector (INT_SPKR)	16	M.2 Socket 3 Connector (M.2 SSD)
3	SATA 3 Connector (Black color)	17	Power Switch Connector (PWR_SW)
4	SATA 1 Connector (White Color)	18	Card Reader Connector (Card Reader)
5	ATX Power Connector (ATX_SYS)	19	Memory Connector (DIMM1~ DIMM2)
6	HDD_ODD_Power Cable Connector (SATA PWR)	20	Internal USB Connector (WF_BT_USB)
7	SATA 0 Connector (Blue color)	21	Battery Connector (BATTERY)
8	PCH Chip	22	CPU Fan Connector (FAN_CPU)
9	CMOS_CLR/Password/Service_Mode Jumper (JMP1)	23	CPU Power Connector (ATX_CPU)
10	PCI-eX1 Connector (Slot4)	24	Processor Socket
11	PCI-eX1 Connector (Slot3)	25	VGA Daughter Board Connector (VGA)
12	PCI-eX16 Connector (Slot2)	26	Intrusion Switch Connector (INTRUDER)
13	PCI-eX1 Connector (Slot1)	27	System Fan Connector (FAN_SYS)
14	Front USB 2.0 (Front_USB)	28	PS2 KB/MS/Serial Port Header (KB_MS_SERIAL)

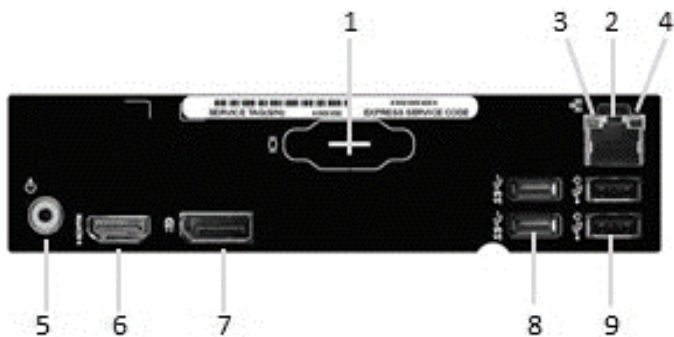
Small Form Factor Computer View



FRONT VIEW			
1	Optical Drive (Optional)	5	Universal Audio Jack Connector
2	Optical Drive Eject Button	6	SD Media Card Reader (Optional)
3	USB 3.1 Gen 1 Connectors (2)	7	Drive Activity Light
4	USB 2.0 Connectors (2)	8	Power Button, Power Light

REAR VIEW			
9	Kensington Security Cable Slot	12	Expansion Card Slots(2)
10	Padlock Security Slot	13	Power Connectors
11	Back Panel Connectors	14	Power Supply Diagnostic Light

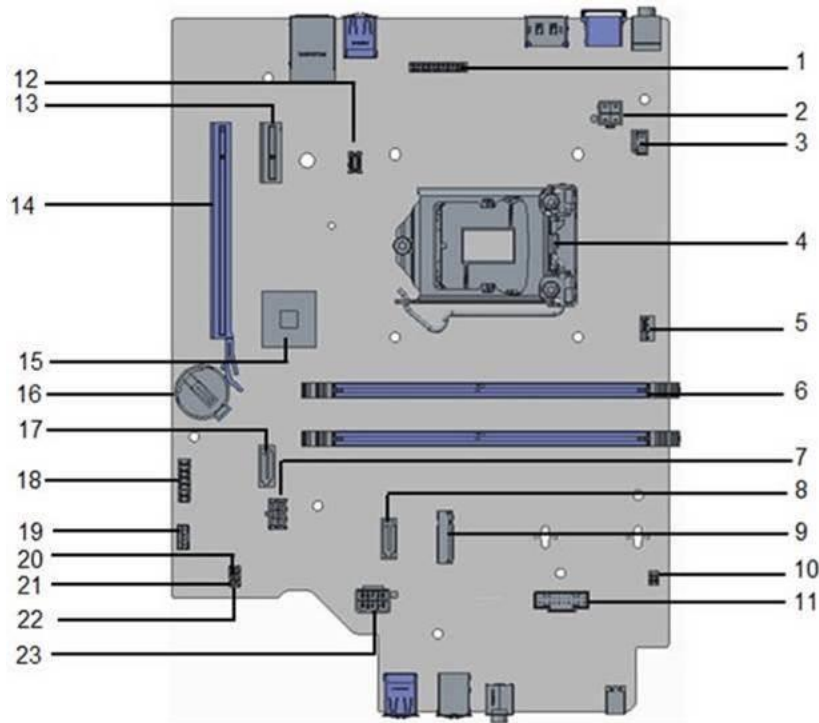
Back Panel Connectors



BACK PANEL CONNECTORS			
1	VGA Connector (Optional)	6	HDMI Connector
2	Network Connector	7	DisplayPort Connector
3	NetworkLink Integrity Light	8	USB 3.1 Gen 1 Connectors(2)
4	Network Activity Light	9	USB 2.0 Connectors(2) Both with Smart Power On functionality
5	Line-out Connector		



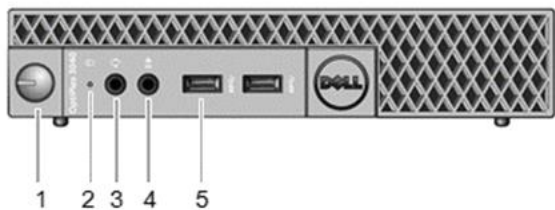
Small Form Factor Motherboard Layout



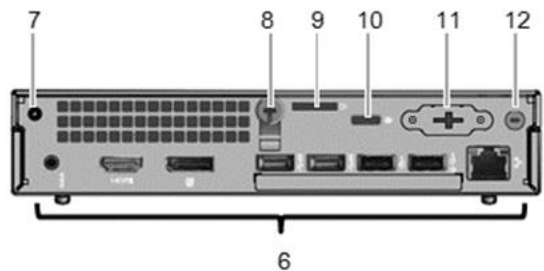
Small Form Factor Board Components

Number	Name	Number	Name
1	PS2/ Serial port Connector (KB_MS_SERIAL)	13	PCI-e x1 Connector (SLOT1)
2	CPU Power Connector (ATX_CPU)	14	PCI-e x16 Connector (SLOT2)
3	Intrusion Switch Connector (INTRUDER)	15	PCH Chipset
4	Processor Socket (CPU)	16	Battery Connector (BATTERY)
5	CPU fan Connector (FAN_CPU)	17	SATA 1 Connector White Color (SATA1)
6	Memory Connectors (DIMM1,DIMM2)	18	Internal USB Connector (WF_BT_USB)
7	HDD&ODD Power Cable Connector (SATA_PWR)	19	Internal Speaker Connector (INT_SPKR)
8	SATA0 Connector Blue Color (SATA0)	20	Clear CMOS Jumper (CMOS_CLR)
9	M.2 Slot 3 Connector (M.2_SSD)	21	Clear Password Jumper (PASSWORD_CLR)
10	Power Switch Connector (PWR_SW)	22	Service Mode Jumper (SERVICE_MODE)
11	SD Media Card Reader Connector (CARD_READER)	23	ATX Power Connector (ATX_SYS)
12	VGA Daughter Board Connector (VGA)		

Micro Computer View

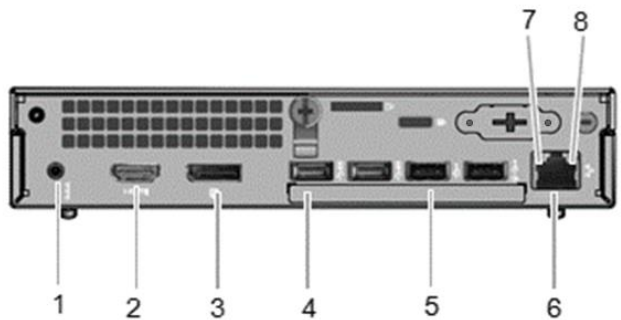


FRONT VIEW			
1	Power Button, Power Light	4	Line-out Connector
2	Drive Activity Light	5	USB3.1 Gen 1 Connectors (2)
3	Universal Audio Jack Connector		

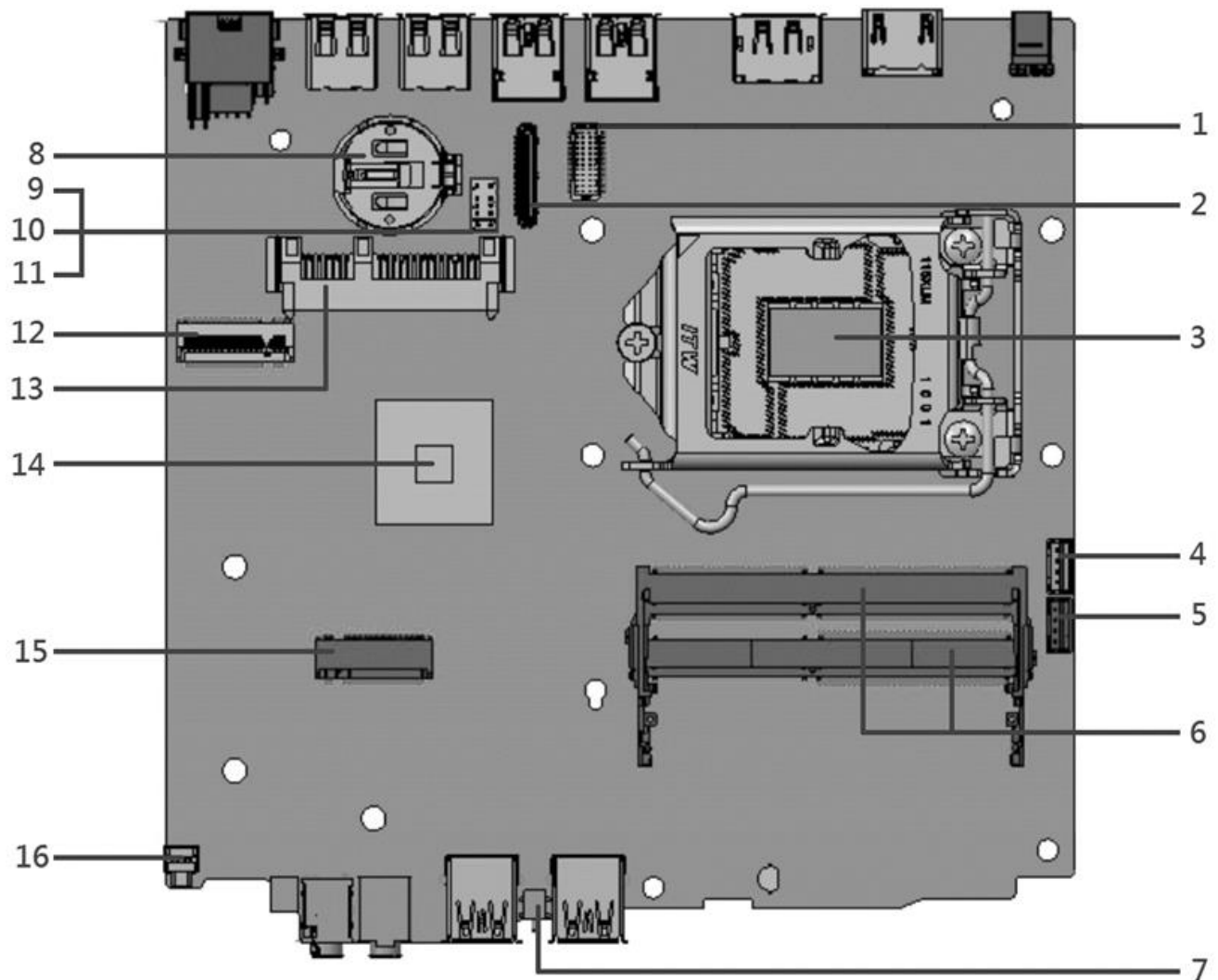


REAR VIEW			
6	Back Panel Connectors	10	Kensington Lock Slot
7	Accessory Screw Hole	11	Option IO port
8	Thumb Screw w/ power cable retention clip	12	Optional Antenna SMA Connector
9	Padlock Ring		

BACK PANEL CONNECTORS			
1	Adaptor Connector	5	USB2.0 Connectors(2) 1 with Smart Power On functionality
2	HDMI Connector	6	Network Connector
3	DP Connector	7	Link Integrity Light
4	USB3.1 Connectors(2)	8	Network Activity Light



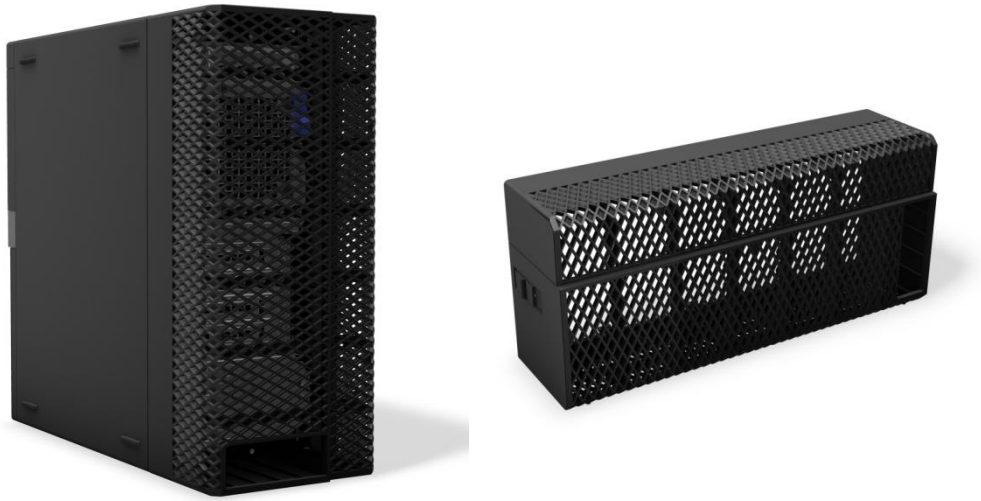
Micro Motherboard Layout



Micro Board Components

Number	Name	Number	Name
1	PS/2/ Serial Port Connector (KB_MS_SERIAL)	9	Clear CMOS Jumper (RTCRST)
2	DP/ VGA Connector (DP_VGA)	10	Clear Password Jumper (PSWD)
3	CPU Socket Connector (CPU)	11	Service Mode Jumper (SERVICE_MODE)
4	CPU Fan Connector (FAN_CPU)	12	M.2 PCIE Connector (Slot2_M.2)
5	Internal Speaker Connector (INT_SPKR)	13	HDD Connector (HDD)
6	Memory Connectors (DIMM1, DIMM2)	14	PCH Chipset
7	Intrusion Switch (INTRUDER)	15	M.2 WLAN Connector (Slot1_M.2)
8	Battery Connector (Battery)	16	Power Switch Connector (PWR_SW)

Optional Cable Cover – MT



Optional Cable Cover – SFF



Marketing System Configurations

NOTE: Offerings may vary by country; not all configurations available in all regions. For more information regarding the configuration of your computer, click Start>Help and Support and select the option to view information about your computer.

Operating System

	Tower	Small Form Factor	Micro
Windows operating system	Microsoft® Windows 7 Pro (32/64-bit) with Windows 10 Pro License (requires Intel® 6th generation processors) Microsoft® Windows 7 Embedded (OEM customers only) Microsoft® Windows 10 Home (64-bit) Microsoft® Windows 10 Pro (64-bit) Microsoft® Windows 10 Embedded (OEM customers only)		
Other	Ubuntu® 16.04 LTS (64-bit) Neokylin® v6.0 (China only)		
OS Media Support	Optional		

Chipset

	Tower	Small Form Factor	Micro
Chipset	Intel B250 Chipset		
Non-volatile memory on chipset			
BIOS Configuration SPI (Serial Peripheral Interface)	128Mbit (16MB) located at SPI_FLASH on chipset		
TPM 1.2/2.0 Security Device (Trusted Platform Module) ¹	24KB located at TPM1.2/2.0 on chipset		
Non-TPM	Available in select countries		
NIC EEPROM	LOM configuration contained within LOM e-fuse – no dedicated LOM EEPROM		



Processor

NOTE: Global Standard Products (GSP) are a subset of Dell's relationship products that are managed for availability and synchronized transitions on a worldwide basis. They ensure the same platform is available for purchase globally. This allows customers to reduce the number of configurations managed on a worldwide basis, thereby reducing their costs. They also enable companies to implement global IT standards by locking in specific product configurations worldwide.

Device Guard (DG) and *Credential Guard (CG)* are the new security features that only available on Windows 10 Enterprise today. Device Guard is a combination of enterprise-related hardware and software security features that, when configured together, will lock a device down so that it can only run trusted applications. If it is not a trusted application, it cannot run. Credential Guard uses virtualization-based security to isolate secrets (credentials) so that only privileged system software can access them. Unauthorized access to these secrets can lead to credential theft attacks. Credential Guard prevents these attacks by protecting NTLM password hashes and Kerberos Ticket Granting Tickets

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

Intel® Core Processors 7 th Gen Core CPUs	Tower	Small Form Factor	Micro	GSP	DG/CG Ready
Intel® Core™ i7-7700 (QC/8MB/8T/3.6GHz/65W); supports Win 10/Linux	X	X		X	X
Intel® Core™ i5-7500 (QC/6MB/4T/3.4GHz/65W); supports Win 10/Linux	X	X		X	X
Intel® Core™ i3-7100 (DC/3MB/4T/3.9GHz/65W); supports Win 10/Linux	X	X			X
Intel® Pentium™ G4560 (DC/3MB/2T/3.5GHz/65W); supports Win 10/Linux	X	X			X
Intel® Celeron™ G3930 (DC/2MB/2T/2.9GHz/65W); supports Win 10/Linux	X	X			X
Intel® Core™ i7-7700T (QC/8MB/8T/2.9GHz/35W); supports Windows 10/Linux			X	X	X
Intel® Core™ i5-7500T (QC/6MB/4T/2.7GHz/35W); supports Win 10/Linux			X	X	X
Intel® Core™ i3-7100T (DC/3MB/4T/3.5GHz/35W); supports Win 10/Linux			X		X
Intel® Pentium™ G4560T (DC/3MB/2T/2.9GHz/35W); supports Win 10/Linux			X		X
Intel® Celeron™ G3930T (DC/2MB/2T/2.7GHz/35W); supports Win 10/Linux			X		X
6 th Gen Core CPUs					
Intel® Core™ i7-6700 (QC/8MB/8T/3.4GHz/65W); supports Win 7/8.1/10/Linux	X	X		X	X
Intel® Core™ i5-6500 (QC/6MB/4T/3.2GHz/65W); supports Win 7/8.1/10/Linux	X	X		X	X
Intel® Core™ i3-6100 (DC/3MB/4T/3.7GHz/65W); supports Win 7/8.1/10/Linux	X	X			X
Intel® Pentium™ G4400 (DC/3MB/2T/3.3GHz/65W); supports Win 7/8.1/10/Linux	X	X			X
Intel® Celeron™ G3900 (DC/2MB/2T/2.8GHz/65W); supports Win 7/8.1/10/Linux	X	X			X
Intel® Core™ i7-6700T (QC/8MB/8T/2.8GHz/35W); supports Win 7/8.1/10/Linux			X		X
Intel® Core™ i5-6500T (QC/6MB/4T/2.5GHz/35W); supports Win 7/8.1/10/Linux			X	X	X
Intel® Core™ i3-6100T (DC/3MB/4T/3.2GHz/35W); supports Win 7/8.1/10/Linux			X		X
Intel® Pentium™ G4400T (DC/3MB/2T/2.9GHz/35W); supports Win 7/8.1/10/Linux			X		X
Intel® Celeron™ G3900T (DC/2MB/2T/2.6GHz/35W); support Win 7/8.1/10/Linux			X		X



Systems Management Features

Overview: Dell commercial systems come with a number of systems management options that are included by default for In-Band management with our Dell Client Command Suite. In-Band management meaning that the Operating System is functional and the device is connected to a network so that it can be managed. The Dell Client Command Suite of tools can be leveraged individually or with a systems management console like SCCM, LANDESK, KACE, etc.

In-Band Systems Management- Dell Client Command Suite

The Dell Client Command Suite of tools is free to download at <http://dell.com/command> and can be used with all OptiPlex desktops. It contains the following components that can be used individually, or in the case of SCCM in conjunction with our integration for SCCM.

Dell Command | Deploy Driver Packs - Bundles of system specific drivers (web hosted on dell.com/command) that have been extracted and reduced to an OS consumable state for use with any OS deployment tool. Here is a link to Dell TechCenter where you can find the driver packs for each commercial client system:
<http://en.community.dell.com/techcenter/enterprise-client/w/wiki/2065.dell-command-deploy-driver-packs-for-enterprise-client-os-deployment>

Dell Command | Configure - A GUI based IT administrator tool for configuring and deploying hardware settings in either a pre-OS or post-OS environment. Example configurations include enabling TPM, restricting access to USB ports, locking the BIOS with BIOS passwords, disabling wireless/Bluetooth.

Dell Command | Monitor - A WMI (Windows Management Instrumentation) agent that provides deep hardware inventory and health monitoring along with command line and scripting capabilities that allow IT administrators to configure their hardware remotely.

Dell Command | Update - a factory-installed application that end-users, with administrative rights, may utilize to individually manage their own Dell updates. This tool leverages the Updates Catalog for scheduling and installing Dell updates (drivers, BIOS, firmware).

Dell Command | Update Catalog - Provides searchable metadata that is leveraged with Dell Command | Update and enables management consoles Dell KACE Appliances, LANDesk Management Systems and Microsoft System Center to retrieve the latest system specific updates (driver, firmware, or BIOS) for any Dell commercial client to be delivered seamlessly to end-users.

Dell Command | PowerShell Provider - Furthers the ability to standardize on this industry-leading scripting preference by enabling IT administrators to dynamically query and modify hardware settings with native PowerShell commands.

Dell Command | Power Manager - factory installed on all end-point devices with a battery (laptops, tablets) that enables modifications beyond the power options provided by the operating system.

Dell Command | Integration Suite for System Center 2012 - This suite integrates all the key components of the Client Command Suite into Microsoft System Center Configuration Manager 2012 and later.



Memory

NOTE: Memory modules should be installed in pairs of matched memory size, speed, and technology. If the memory modules are not installed in matched pairs, the computer will continue to operate, but with a slight reduction in performance. The entire memory range is available to 64-bit operating systems.

	Tower	Small Form Factor	Micro
Type: DDR4 DRAM Non-ECC Memory	2400 MHz (2133MHz on Intel® 6th generation processors)		
DIMM Slots	2	2	2 (SODIMM)
DIMM Capacities	Up to 16GB	Up to 16GB	Up to 16GB
Minimum Memory	2GB ²	2GB ²	2GB ²
Maximum System Memory	32GB	32GB	32GB
Memory configurations			
32GB ¹ DDR4, 2400MHz, (2 x 16 GB)	X	X	X
16GB ¹ DDR4, 2400MHz, (2 x 8 GB)	X	X	X
8GB ¹ DDR4, 2400MHz, (2 x 4GB)	X	X	X
8GB ¹ DDR4, 2400MHz, (1 x 8GB)	X	X	X
4GB ¹ DDR4, 2400MHz, (1 x 4GB)	X	X	X
2GB DDR4, 2400MHz, (1 x 2GB)	X	X	X

¹ The amount depends on the actual system configuration. The use of 4 GB or more of memory requires a 64-bit enabled processor and 64-bit operating system

² Linux-based OS. For Windows OS, the minimum memory requirement is 4GB



Drives and Removable Storage

	Tower	Small Form Factor	Micro
Bays:			
Optical Drives Supported	1 Slim	1 Slim	0
Hard Drive Bay Supported (Internal)	1x3.5"/2x2.5"	1x3.5" or 1x2.5"	1 x 2.5"
Hard Drives Supported 3.5"/2.5" (max)	1/2	1/1	0/1
Interface:			
SATA 2.0	1	1	0
SATA 3.0	2	1	1
M.2 Slot	1	1	1
M.2 SATA	0	0	1
3.5" Drives:			
3.5" 500GB 7200rpm HDD	X	X	
3.5" 1TB 7200rpm HDD	X	X	
3.5" 2TB 7200rpm HDD	X	X	
2.5" Drives			
2.5" 500GB 5400rpm HDD	X	X	X
2.5" 500GB 7200rpm HDD	X	X	X
2.5" 500GB 5400rpm SSHD 8GB	X	X	X
2.5" 500GB 7200rpm SED HDD	X	X	X
2.5" 1TB 7200rpm HDD	X	X	X
2.5" 2TB 5400rpm HDD	X	X	X
2.5" 128GB Class 20 SSD	X	X	X
2.5" 256GB Class 20 SSD	X	X	X
2.5" 512GB Class 20 SSD	X	X	X
m.2 Drives			
M.2 256GB PCIe Class 40 SSD	X	X	X
M.2 256GB PCIe Class 40 SED SSD	X	X	X
M.2 512GB PCIe Class 40 SSD	X	X	X
Intel® Optane™ Memory			
Intel® Optane™ Memory ready	X	X	X

¹ For hard drives, GB means 1 billion bytes; actual capacity varies with preloaded material and operating environment and will be less.



System Board Connectors

NOTE: See Detailed Engineering Specifications for maximum card dimensions.

	Tower	Small Form Factor	Micro
PCIe x16 Slot(s) ¹	1	1	
PCIe x1 Slot(s)	3	1	
Serial ATA (SATA) ²	3	2	1
M.2 Socket 3 ³ (for SSD)	1 - 2280/2242	1 – 2280/2242	1 – 2280/2242
M.2 Socket 1 ⁴ (for WiFi/BT card)			1 – 2230

¹ PCIe x16 Slot (Support Standard Rev 3.0)

² Serial ATA (2 ports Support Standard Rev 3.0, the rest of ports Support Standard Rev 2.0)

³ M.2 Socket3: Support SATA & PCIe interface for 7050/5050 and PCIe only for 3050

⁴ M.2 Socket1: Support both USB2.0 and PCIe



Graphics / Video Controller

NOTE: Tower supports full height (FH) cards and Small Form Factor supports low profile (LP) cards.

	Tower	Small Form Factor	Micro
Intel HD 630 Graphics [with Intel 7 th Generation Core i3/i5/i7 CPU-GPU combo] Intel HD 610 Graphics [with Intel 7 th Generation Celeron, Pentium CPU-GPU combo] Intel HD 530 Graphics [with Intel 6 th Generation Core i3/i5/i7 CPU-GPU combo] Intel HD 510 Graphics [with Intel 6 th Generation Celeron, Pentium CPU-GPU combo]	Integrated on CPU		
Enhanced Graphic/Video Options			
1GB AMD Radeon™ R5 430	Optional		
2GB AMD Radeon™ R5 430	Optional		
4GB AMD Radeon™ R7 450	Optional		



External Ports / Connectors

NOTE: Tower supports full height (FH) cards and Small Form Factor supports low profile (LP) cards. See chassis diagrams section for port/connector locations

	Tower	Small Form Factor	Micro
USB 2.0 (Front/Rear/Internal)	2/2/2	2/2/2	0/2/0
USB 3.1 Gen 1 (Front/Rear/Internal)	2/2/0	2/2/0	2/2/0
Serial	Optional		
Network Connector (RJ-45)	1 Rear		
PS/2	Optional		
Video :			
VGA	Optional		
DisplayPort 1.2	1 Rear		1
2nd DisplayPort 1.2			1 Rear (Optional)
HDMI Port 1.4	1 Rear		1
Audio:			
Line out for headphones or speakers	1 Rear		1 Front
Universal Audio jack	1 Front		1 Front



Communications –Integrated Realtek RTL8111HSD

NOTE: MT supports full height (FH) cards and SFF supports low profile (LP) cards.

	Tower	Small Form Factor	Micro
Realtek RTL8111HSD-CG Gigabit Ethernet LAN 10/100/1000 controller combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, PCI Express bus controller, and embedded memory.	Integrated on system board		

Communications – Wireless

NOTE: MT supports full height (FH) cards and SFF supports low profile (LP) cards.

	Tower	Small Form Factor	Micro
Intel® Dual-Band Wireless-AC 8265 Wi-Fi + BT 4.2 Wireless Card (2x2), MU-MIMO	Optional		
Intel® Dual-Band Wireless-AC 3165 Wi-Fi + BT 4.2 Wireless Card (1x1)	Optional		

Audio and Speakers

	Tower	Small Form Factor	Micro
Realtek ALC3234 High Definition Audio Codec	Integrated on System Board		
Internal speaker (mono)	Integrated		
Dell AX210CR USB Stereo speakers	Optional		
AC411 External Speakers	Optional		
AC511 Sound Bar	Optional		



Keyboards and Mouse

	Tower	Small Form Factor	Micro
Dell Wired Keyboard/Mouse	Optional		
Dell Wireless Keyboard/Mouse	Optional		
Dell Multimedia Keyboard/Mouse	Optional		
Dell SmartCard Keyboard	Optional		
Dell Laser Mouse	Optional		

Security

	Tower	Small Form Factor	Micro
Trusted Platform Module (TPM) 1.2/2.0 ¹	Integrated on system board		
Cable Cover	Optional		
Chassis Intrusion Switch	Optional		Standard
Dell Smartcard Keyboard	Optional		
Chassis lock slot and loop support	Standard		

¹TPM is not available in all countries.

Software

	Tower	Small Form Factor	Micro
Dell Data Protection Encryption (DDPE)	Optional		

For detail on Dell's Data Protection security offerings, please see
<http://www.dell.com/en-us/work/learn/software-security-data-security>



Environmental

NOTE: For more details on Environmental features, please go to Product Safety, EMC and Environmental Datasheets page:

<http://www.dell.com/learn/us/en/vn/product-info-datasheets-safety-emc-environmental>

	Tower	Small Form Factor	Micro
Recyclable packaging	X	X	X
MultiPack packaging	Optional, US only		
Energy Efficient Power Supply	Optional		Standard

Service and Support

NOTE: For more details on Dell Service Plans please go to:

<https://www.dell.com/learn/us/en/19/services/warranty-support-services>

	Tower	Small Form Factor	Micro
1 or 3 Year Warranty ¹ Next Business Day On-site ²	Standard in all regions		
ProSupport	Optional		

1 For a copy of our guarantees or limited warranties, please write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, TX 78682. For more information, visit <https://www.dell.com/warranty>

2 Service may be provided by third-party. Technician will be dispatched if necessary following phone-based troubleshooting. Subject to parts availability, geographical restrictions and terms of service contract. Service timing dependent upon time of day call placed to Dell. U.S. only.



Mounting Options

Micro Form Factor

Product
Dell OptiPlex Micro Vertical Stand
Dell OptiPlex Micro VESA Mount
Dell OptiPlex Micro Dual VESA Mount
Dell OptiPlex Micro E-Series VESA Mount
Dell OptiPlex Micro DVD+/-RW Enclosure
Dell OptiPlex Micro All-in-One Stand

Dell OptiPlex Micro Vertical Stand	Dell OptiPlex Micro VESA Mount	Dell OptiPlex Micro Dual VESA Mount
		
Dell OptiPlex Micro E-Series VESA Mount	Dell OptiPlex Micro All-in-One Stand	Dell OptiPlex Micro DVD+/-RW Enclosure
		

Small Form Factor

Product
OptiPlex Small Form Factor All-in-One Stand

Supports most 19"-27" monitors



Detailed Engineering Specifications

System Dimensions (Physical)

NOTE: System Weight and Shipping Weight is based on a typical configuration and may vary based on PC configuration. A typical configuration includes: integrated graphics, one hard drive, one optical drive.

	Tower	Small Form Factor	Micro
Chassis Volume (liters)	14.77	7.8	1.16
Chassis Weight (lb / kg)	17.49/7.93	11.31/5.14	2.60/1.18
Chassis Dimensions (H x W x D)			
Height (in / cm)	13.8/35	11.42/29	7.2/18.2
Width (in / cm)	6.1/ 15.4	3.65/9.26	1.4/3.6
Depth (in / cm)	10.8 /27.4	11.50/29.2	7/17.8
Shipping Weight (lb/ kg—includes packaging materials)	20.96/9.43	14.19/6.45	5.91/2.68
Packaging Parameters (H x W x D)			
Height (inches / centimeters)	13.19/ 33.5	10.38/26.4	5.2 / 13.3
Width (inches / centimeters)	19.4/ 49.4	19.2/48.7	9.4 / 23.8
Depth (inches / centimeters)	15.5/ 39.4	15.5/39.4	19.6 / 49.8

Micro Mounting Dimensions (Physical)

	Vertical Stand	VESA Mount	Dual VESA Mount	E-Series VESA Mount	Micro All-in-One Stand	DVD+/-RW Enclosure
Volume (liters)	0.23	1.6	1.9	1.6	29.6	2.37
Weight (lb / kg)	0.10 / 0.05	1.36 / 0.62	2.62 / 1.19	1.36 / 0.62	7.04 / 3.2	1.63 / 0.74
Dimensions (H x W x D)						
Height (in / cm)	6.61/16.8	7.47 / 18.99	7.52 / 19.12	7.47/18.99	17.7/45	2.67 / 6.78
Width (in / cm)	0.69/ 1.75	1.93 / 4.92	2.35 / 5.97	1.93 / 4.92	11.5 / 29.2	7.41 / 18.82
Depth (in / cm)	3.07/ 7.8	6.75 / 17.17	6.77 / 17.22	6.75 / 17.17	8.9/ 22.5	7.32 / 18.6
Shipping Weight (includes packaging materials)						
Lb/kg	0.69	0.69	1.29	0.66	5.10	2.31 / 1.05
Packaging Parameters (H x W x D)						
Height (in / cm)	8.54/ 21.7	8.54/ 21.7	10.86/ 27.6	9.8/24.9	11.26/ 28.6	9.45/24
Width (in / cm)	7.87 / 20	7.87 / 20	8.03 / 20.4	8.03 / 20.4	19.6 / 49.8	9.1 / 22.3
Depth (in / cm)	2.52 / 6.4	2.52 / 6.4	2.72 / 6.9	2.32 / 5.9	9.96 / 25.3	3.27 / 8.3



System Board Connector Maximum Add-in Card Allowable Dimensions

	Tower	Small Form Factor	Micro
PCI Connector (Voltage supported 3.3V/5V/12V/-12V)			
Height (inches / centimeters)			
Length (inches / centimeters)			
Maximum Wattage			
PCIe x16 Connector (BLUE) (Voltage supported 3.3V/12V)	1	1	
Height (inches / centimeters)	4.38 / 11.12	2.73 / 6.89	
Length (inches / centimeters)	6.6 / 16.77	6.6 / 16.77	
Maximum Wattage	75W	50W	
PCIe x16 or x4 Connector (BLACK) (Voltage supported 3.3/12V)	1	1 – x4 open ended (supports x16 cards)	
Height (inches / centimeters)	4.38 / 11.12		
Length (inches / centimeters)	6.6 / 16.77		
Maximum Wattage	25W		
PCIe x1 Connector (Voltage supported 3.3V/12V)	2		
Height (inches / centimeters)	4.38 / 11.12	2.73 / 6.89	
Length (inches / centimeters)	4.5 / 11.44	6.6 / 16.77	
Maximum Wattage	10W	25W	

System Level Environmental and Operating Conditions

	Tower	Small Form Factor	Micro
Temperature			
Operating	5° to 35° C (41° to 95° F)		
Non-Operating (Storage)	-40° to 65° C (-40° to 149° F)		
Relative Humidity	20% to 80% (non-condensing)		
Maximum Vibration			
Operating	0.26Grms random at 5 to 350 Hz		
Non-Operating	1.37Grms random at 5 to 500 Hz		
Maximum Shock			
Operating	Bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 inches/sec)		
Non-Operating	105G half-sine pulse with a change in velocity of 133cm/sec (52.5inches/sec)		



Power

NOTE: These form factors utilize a more efficient Active Power Factor Correction (APFC) power supply. Dell recommends only Universal Power Supplies (UPS) based on Sine Wave output for APFC PSUs, not an approximation of a Sine Wave, Square Wave, or quasi-Square Wave. If you have questions, please contact the manufacturer to confirm the output type.

	Tower			Small Form Factor			Micro
Power Supply	APFC	EPA Bronze	EPA Platinum	APFC	EPA Bronze	EPA Platinum	EPS Level V
Wattage	240W			180W			65W
AC input voltage range	90-264Vac			90-264Vac			90-264Vac
AC input current (low ac range / high ac range)	4A/2A			3A/1.5A			1.7A / 1.0A
AC input frequency	47HZ/63HZ			47HZ/63HZ			47HZ / 63HZ
AC holdup time (80% load)	16mS			16mS			NA
Average efficiency (ESTAR 6.1 compliant)		82-85-82% @ 20-50-100% load	90-92-89% @ 20-50-100% load		82-85-82% @ 20-50-100% load	90-92-89% @ 20-50-100% load	87%
Typical Efficiency (APFC)	70%			70%			
DC Parameters							
+12.0v output	12VA/16.5A; 12VB/16A			12VA/12A; 12VB/14A			
+19.5v output							19.5V/3.3 4A
+12.0v auxiliary output	2.5A			2.5A			
Max total power	240W			180W			
Max combined 12.0v power (note: only if more than one 12v rail)	240W			180W			
BTUs/h (based on PSU max WT)	819 BTU			614 BTU			222 BTU
Power Supply Fan	60mm*25mm			60mm*25mm			
Compliance							
ErP Lot6 Tier 2 0.5watt requirement	Yes	Yes	Yes	Yes	Yes	Yes	
80Plus Certified	No	Yes	Yes	No	Yes	Yes	No
FEMP Standby Power Compliant	Yes	Yes	Yes	Yes	Yes	Yes	No
3.0v CMOS battery (Type and estimated battery life)							
Brand	Type	Voltage	Composition	Life			
JHIH HONG	CR2032	3V	Lithium	Continuous Discharge Under 15 kΩ Load to 2.5V End-Voltage. 20°C±2°C: 940Hrs or longer; 910Hrs or longer after 12 mo.			
PANASONIC	CR2032	3V	Lithium	Continuous Discharge Under 15 kΩ Load to 2.5V End-Voltage. 20°C±2°C.1183Hrs. or Longer.1133Hrs.or Longer after 12 mo.			
MITSUBISHI	CR2032	3V	Lithium	Continuous Discharge Under 15 kΩ Load to 2.0V End-Voltage. 20°C±2°C 940Hrs. or Longer.910Hrs.or Longer after 12 mo.			
SHUNWO & KTS	CR2032	3V	Lithium	Continuous Discharge Under 15 kΩ Load to 2.5V End-Voltage. 20°C±2°C.1183Hrs. or Longer.1133Hrs.or Longer after 12 mo.			



Audio

	Tower	Small Form Factor	Micro
Integrated Realtek ALC3234 High Definition Audio	X		
High Definition Stereo Support	X		
Number of channels	2		
Number of Bits / Audio resolution	16, 20 and 24-bit resolution		
Sampling rate (recording / playback)	Support 44.1K/48K/96K/192 kHz sample rates		
Signal to Noise Ratio	95 dB DAC outputs,88 dB for ADC inputs		
Analog Audio	X		
Audio Jack Impedance			
Microphone	40K ohm~60K ohm		
Line-in	40K ohm~60K ohm		
Line-out	100~150 ohm		
Headphone	1~4 ohm		
Internal Speaker Power Rating	2.5Watt (peak) 4 Ohm / 2Watt (average) 4Ohm		



Communications –Integrated Realtek RTL8111HSD-CG

INTEGRATED Realtek RTL8111HSD GIGABIT1 ETHERNET LAN 10/100/1000	Tower / Small Form Factor / Micro
External Connector Type	RJ45
Data Rates Supported	10/100/1000 Mbps 1
Controller Details	
Controller Bus Architecture	PCI Express Base Specification Revision 1.1
Integrated Memory	Yes(OTP memory)
Data Transfer Mode (example: Bus-Master DMA)	Yes(DMA MODE)
Power Consumption (full operation per data rate connection speed)	320.73mW(1000M, TX/RX, >30m)
Power Consumption (standby operation)	152.86mW(1000M, idle, >30m)
IEEE Standards Compliance	Fully compliant with: IEEE 802.3, IEEE 802.3u, IEEE 802.3ab Supports IEEE 802.1P layer 2 priority encoding Supports IEEE 802.1Q VLAN tagging Supports IEEE 802.3az-2010(EEE) Supports full duplex flow control(IEEE 802.3x)
Hardware Certifications	N/A
Boot ROM Support	Yes(EFUSE)
Network Transfer Mode	
Network Transfer Rate 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps	10 Mb (full/half-duplex) 100 Mb (full/half-duplex) 1000 Mb (full-duplex)
Environmental	
Operating Temperature	0° C to 70° C
Operating Humidity	N/A
Operating System Driver Support	Windows 10 64-bit, Windows 8.1 32-bit/64-bit, Windows 7 32-bit/64-bit , Ubuntu, NeoKylin)
Manageability	N/A
Management Capabilities Alerting	N/A

1 This term does not connote an actual operating speed of 1 Gb/sec. For high speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.



Communications – Intel Wireless-AC 8265 2x2

	Tower	Small Form Factor	Micro
Intel® Dual-Band Wireless-AC 8265 Wi-Fi + BT 4.2 Wireless Card (2x2), MU-MIMO	Custom WLAN Antenna Connector on Add-In Card		Standard M.2 Connector (U.FL)
Controller Details			
Host interface	M.2 2230 and 1216-soldered form factor (WiFi – PCIe, Bluetooth – USB)		
Network standard	IEEE 802.11a/b/g/n/ac MU-MIMO RX		
Wi-Fi Alliance Certifications	802.11a/b/g/n/ac, WPA, WPA2, WMM, WPS, Wi-Fi Direct		
Operating Frequency Bands	2.4 GHz and 5 GHz		
Dual Stream N	Support for two transmit and receive antennas enable better wireless at the same distance when compared to older 802.11a/b/g solutions.		
Data Rate	Up to 867 Mbps		
Power Consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity		
Authentication Protocols Encryption Product Safety	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2 64-bit and 128-bit WEP, 128-bit AES-CCMP UL, C-UL, CB (IEC60950-1)		
Management Capabilities Alerting	Support for Intel® AMT 11.x on Kaby Lake		
Government Compliance	FIPS, FISMA		
Client Utility	Intel® PRO/Set Wireless Software v19.0 and later.		
Software Support	Microsoft Windows 7, Windows 8.1, Windows® 10; Linux		
Radio On/Off	Supported		
LED output	Supported		
Roaming	Supports seamless roaming between respective access points (802.11b, 802.11g, 802.11a/b/g, and 802.11a/b/g/n/ac)		
Wake On Wireless	Supported when vPro/AMT is activated, or Windows® 8.1/10 without Intel AMT		
Wireless Display	Native Miracast support by Windows 8.1 and 10		
Country Restrictions	N/A (please refer to the data from RCE team)		
Wireless PAN Standard	Dual Mode Bluetooth 4.2, BLE		
Bluetooth Data rates	Up to 3Mbps		
Bluetooth Operating Frequency Bands	2.4GHz		
Bluetooth Profiles Supported	For Windows 7, includes DID, HID, PAN, HCRP, SPP, HFP, HSP DUN, OPP, FTP, BIP, BPP, SYNCH, A2DP(source/sink), AVRCP (target/controller), HOGP (LE HID) Support for Microsoft Inbox Bluetooth profiles in Windows 8.1 and future OS versions.		
Bluetooth Data Encryption	128-bit encryption		
Bluetooth Output Power	Power class 1		



Communications – Intel Wireless-AC 3165 1x1

	Tower	Small Form Factor	Micro
Intel® Dual-Band Wireless-AC 3165 Wi-Fi + BT 4.2 Wireless Card (1x1), MU-MIMO	Custom WLAN Antenna Connector on Add-In Card		Standard M.2 Connector (U.FL)
Controller Details			
Host interface	M.2 2230 and 1216-soldered form factor (Wi-Fi – PCIe, Bluetooth – USB)		
Network standard	IEEE 802.11a/b/g/n/ac		
Wi-Fi Alliance Certifications	802.11a/b/g/n/ac, WPA, WPA2, WMM, WPS, Wi-Fi Direct		
Operating Frequency Bands	2.4 GHz and 5 GHz		
Dual Diversity Antenna Switching	Dual diversity antenna switching for systems designed with main and auxiliary antennas		
Data Rate	Up to 433 Mbps		
Power Consumption	Optimized power modes (sleep states) reduce power consumption during periods of inactivity		
Authentication Authentication Protocols Encryption Product Safety	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2 64-bit and 128-bit WEP, 128-bit AES-CCMP UL, C-UL, CB (IEC60950-1)		
Government Compliance	FIPS, FISMA		
Client Utility	Intel® PRO/Set Wireless Software v19.0 and later.		
Software Support	Microsoft Windows 7, Windows 8.1, Windows® 10; Linux		
Radio On/Off	Supported		
LED output	Supported		
Roaming	Supports seamless roaming between respective access points (802.11b, 802.11g, 802.11a/b/g, and 802.11a/b/g/n/ac)		
Wake On Wireless	Supported when vPro/AMT is activated, or Windows® 8.1/10 without Intel AMT		
Wireless Display	Native Miracast support by Windows 8.1 and 10		
Country Restrictions	N/A (please refer to the data from RCE team)		
Wireless PAN Standard	Dual Mode Bluetooth 4.1, BLE		
Bluetooth Data rates	Up to 3Mbps		
Bluetooth Operating Frequency Bands	2.4GHz		
Bluetooth Profiles Supported	For Windows 7, includes DID, HID, PAN, HCRP, SPP, HFP, HSP DUN, OPP, FTP, BIP, BPP, SYNCH, A2DP(source/sink), AVRCP (target/controller), HOGP (LE HID) Support for Microsoft Inbox Bluetooth profiles in Windows 8.1 and future OS versions.		
Bluetooth Data Encryption	128-bit encryption		
Bluetooth Output Power	Power class 1		



Communications – Serial/Parallel Port PCIe Add-In Card

	Tower
Connector Type	RS-232 and IEEE1284
Data Rates Supported	50bps ~115.2Kbps(Serial)&Maximum 1.8MBp(Parallel)
Controller Details	
Controller	SUNIX SUN2212 (16C950 UART Compatible)
Controller Bus Architecture	PCI Express Spec 2.0, Single-Lane (x1)
Driver Support	Microsoft Client 7/8/8.1 (X86/X64) Microsoft Server 2000/2003/2008/2008R2/2012/2012 R2 (X86/X64) Linux 2.4.x/2.6.x/3.x; DOS
FH Serial/Parallel add-in dongle	Optional
Environmental	
Operating Temperature	0 to 60°C (32 to 140°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-20 to 85°C (-4 to 185°F)

Communications – Parallel Port PCIe Add-In Card


	Small Form Factor
Connector Type	IEEE1284
Data Rates Supported	Maximum 1.8MBps
Controller Details	
Controller	SUNIX SUN2212
Controller Bus Architecture	PCI Express Spec 2.0, Single-Lane (x1)
Driver Support	Microsoft Client 7/8 (X86/X64); Microsoft Server 2000/2003/2008/2008 R2 (X86/X64); Linux 2.4.x/2.6.x/3.x; DOS
Environmental	
Operating Temperature	0 to 60°C (32 to 140°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-20 to 85°C (-4 to 185°F)

Communications – Serial Port PCIe Add-In Card

	Tower	Small Form Factor
Connector Type	RS-232	
Data Rates Supported	50bps ~115.2Kbps	
Controller Details		
Controller	SUNIX SUN2212 (16C950 UART Compatible)	
Controller Bus Architecture	PCI Express Spec 2.0, Single-Lane (x1)	
Driver Support	Microsoft Client 7/8 (X86/X64) Microsoft Server 2000/2003/2008/2008 R2 (X86/X64) Microsoft Embedded XP Embedded/POS Ready 2009/ Embedded System Linux 2.4.x/2.6.x/3.x; DOS	
FH Serial add-in dongle	Optional	
LP Serial add-in dongle		Optional
Environmental		
Operating Temperature	0 to 60°C (32 to 140°F)	
Operating Humidity	5 to 95% RH	
Storage Temperature	-20 to 85°C (-4 to 185°F)	



USB 3.1 Gen 2 Type-C PCIe Add-In Card

	Tower	Small Form Factor
Bus	PCI Express Spec 3.0, Single-Lane (x1)	
Controller	PCI Express USB3.1 Host Controller, Asmedia ASM1142	
USB Standard	eXtensible Host Controller Interface 9xHCI) Rev1.1	
IRQ & IO	Assigned by System	
USB Communication		
Host interface	Universal Serial Bus 3.1 Gen 2 / 3.1 Gen 1 (formerly 3.0) / 2.0 / 1.1	
Speed	Super Speed+ (10Gpbs), Super Speed (5Gpbs), High Speed (480Mbps), Full Speed (12Mbps) and Low Speed (1.5Mbps)	
No. of Port	2 –Ports (1 support Data only and 1 support Full Feature)	
USB Connector	USB 3.1 Type-C port (Downstream Facing Port)	
Protection	+/-15KV IEC61000-4-2 Air Discharge +/-8KV IEC61000-4-2 Contact Discharge	
Video Input Interface	Standard Display Port Female, DisplayPort Ver1.2/1.1 Requires 1xDP cable 240mm length	
		
Power source	PCI Express Bus Power	
Output Power Capacity	USB Type-C Port +5VDC/1.5A/each port	
Over Current Protection	+5VDC/1.5A/each port/power switch	
Power consumption	3.0W @3.3V (Board only without power output to USB device)	
OS Supported	Win7, Win8.1, Win10 and Ubuntu	
Operating Temperature	0-60oC	
Operating Humidity	5-95% RH	
Storage temperature	-20 to 70oC	
EMC	EUR:CE, EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3 US:FCC Part 15 Class B Japan:VCCI Taiwan:BSMI: CNS13438 AS/NZS:C-Tick:CISPR22	



Graphics / Video Controller

Onboard Graphics – Intel® HD 610/630

	Tower	Small Form Factor	Micro
Bus Type	Integrated		
GPU core clock	1000Mhz/1100Mhz/1150Mhz		
Frame Buffer Memory (onboard and shared) Size and Speed	Depends on available system memory (Up to 1.7GB with 4GB system Memory)		
Overlay Planes	Yes		
Maximum Color Depth	24bits		
Maximum Vertical Refresh Rate	85Hz		
Multiple Display Support	Yes		
Operating System Graphics / API Support	Direct3D* 2015, Direct3D 11.2, Direct3D 11.1, Direct3D 9, Direct3D 10, Direct2D OpenGL* 5.0 OpenCL* 2.1, OpenCL 2.0, OpenCL 1.2		
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 4096x2304 @ 60Hz, 24, 30, 36 bpp(DP 1.2) Up to 4096x2160 @ 24Hz, 24, 36 bpp (HDMI 1.4) Up to 1920x1200 @ 60Hz, 24-bit color depth(VGA optional card)		
For Multi Stream Transport (MST)	Single Display - 4096x2304@60Hz Dual MST - 2880x1800@60Hz Triple MST - 2304x1800@60Hz		
External Connectors	DisplayPort 1.2; HDMI 1.4; optional VGA		

Onboard Graphics – Intel® HD 510/530

	Tower	Small Form Factor	Micro
Bus Type	Integrated		
GPU core clock	510/530@950Mhz/1150Mhz		
Frame Buffer Memory (onboard and shared) Size and Speed	Depends on available system memory (Up to 1.7GB with 4GB system Memory)		
Overlay Planes	Yes		
Maximum Color Depth	24bits		
Maximum Vertical Refresh Rate	85Hz		
Multiple Display Support	Yes		
Operating System Graphics / API Support	Direct3D* 2015, Direct3D 11.2, Direct3D 11.1, Direct3D 9, Direct3D 10, Direct2D OpenGL* 5.0 OpenCL* 2.1, OpenCL 2.0, OpenCL 1.2		
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 4096x2304 @ 60Hz, 24bpp(DP 1.2) Up to 4096x2160 @ 24Hz, 24bpp (HDMI 1.4) Up to 1920x1200 @ 60Hz, 24-bit color depth(VGA optional card)		
For Multi Stream Transport (MST)	Single Display - 4096x2304 @ 60Hz Dual MST - 2880x1800 @ 60Hz Triple MST - 2304x1800 @ 60Hz		
External Connectors	DisplayPort 1.2; HDMI 1.4; optional VGA		



Discreet Graphics

NOTE: Tower supports full height (FH) cards and Small Form Factor supports low profile (LP) cards.

4GB AMD Radeon™ R7 450

Bus Type	PCIEx16
GPU core clock	925MHz
Frame Buffer Memory (onboard and shared) Size and Speed	4GB / 1125MHz
Maximum Power Consumption	< 50W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	60Hz (4096x2160)
Multiple Display Support	Yes
Operating System Graphics / API Support	HD3D / OpenGL4.4 / OpenCLv1.2 / DirectX12
Supported Resolutions & Max Refresh Rates (Hz) (Analog and/or digital)	2 x DisplayPort: 4096 x 2160 @ 60Hz
External Connectors	2 x DisplayPort 1.2 (for LP) 2 x DisplayPort 1.2 + DVI-I (for Full Height)
Dimensions of Low Profile Card, cm(L x H)	14.48 x 6.89
Environmental Operating Conditions (Non-Condensing)	
Operating Temperature Range	10°C-55° C
Relative Humidity Range	5-90% RH
Altitude Range	0-20,000 ft.

2GB AMD Radeon™ R5 430

Bus Type	PCIEx8
GPU core clock	780MHz
Frame Buffer Memory (onboard and shared) Size and Speed	2GB / 1150MHz
Maximum Power Consumption	35W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	60Hz (4096x2160)
Multiple Display Support	Yes
Operating System Graphics / API Support	HD3D / OpenGL4.4 / OpenCLv1.2 / DirectX12
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Single-Link DVI-I: 1920 x 1200 @ 60Hz DisplayPort: 4096 x 2160 @ 60Hz
External Connectors	DisplayPort 1.2, SL-DVI-I
Dimensions	14.48 x 6.89 centimeter
Environmental Operating Conditions (Non-Condensing)	
Operating Temperature Range	10°C-55° C
Relative Humidity Range	5-90% RH
Altitude Range	0-20,000 ft.



1GB AMD Radeon™ R5 430

Bus Type	PCIe3.0x8
GPU core clock	780MHz
Frame Buffer Memory (onboard and shared) Size and Speed	1GB / 1150MHz
Maximum Power Consumption	< 35W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	60Hz (4096x2160)
Multiple Display Support	Yes
Operating System Graphics / API Support	HD3D / OpenGL4.4 / OpenCLv1.2 / DirectX12
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	VGA: 1920 x 1200 @ 60Hz DisplayPort: 4096 x 2160 @ 60Hz
External Connectors	DisplayPort 1.2, VGA
Dimensions	14.48 x 6.89 centimeter
Environmental Operating Conditions (Non-Condensing)	
Operating Temperature Range	10°C-55° C
Relative Humidity Range	5-90% RH
Altitude Range	0-20,000 ft.

Video Port and Resolution Matrix

Port Type		Optional VGA	DP 1.2	HDMI 1.4
Max Resolution	Single Display	1920x1200 at reduced blanking	4096x2304	2560x1600; 4096x2304 @ 24Hz
	Dual MST		2560x1600; 3440x1440	
	Triple MST		2560x1080	
<p>The integrated AIO display counts as one display. Dual or Triple MST count as 2 or 3 displays, respectively. All resolutions shown at 24bpp and unless specifically stated are @ 60Hz refresh Note: MST = Multi-stream Technology, aka – display daisy chaining.</p>				



Storage

NOTE: For hard drives, GB means 1 billion bytes; actual capacity varies with preloaded material and operating environment and will be less.

3.5" 500GB SATA3 7200 RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	500GB HDD 7200RPM		
Dimensions (inches) (W x D x H)	5.79 x 4 x 1		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	976,773,168		
Power Source			
Power Consumption (reference only)	Idle 5W, Active 10 W		
Environmental Operating Conditions (Non-Condensing):			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	65G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		

3.5" 1TB SATA3 7200 RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	1TB HDD 7200RPM		
Dimensions (inches) (W x D x H)	5.79 x 4 x 1		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	1,953,525,168		
Power Source			
Power Consumption (reference only)	Idle 5W, Active 10 W		
Environmental Operating Conditions (Non-Condensing):			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	65G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		



3.5" 2TB SATA3 7200 RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	2TB HDD 7200RPM		
Dimensions (inches) (W x D x H)	5.79 x 4 x 1		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	3,907,029,168		
Power Source			
Power Consumption (reference only)	Idle 5W, Active 10 W		
Environmental Operating Conditions (Non-Condensing):			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	65G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		

2.5" 500GB SATA3 5400 RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	500GB HDD 5400 RPM		
Dimensions (inches) (W x D x H)	2.760 x 3.959 x 0.276		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	976,773,168		
Power Source			
Power Consumption (reference only)	Idle 0.7W, Active 3.10 W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	350G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		



2.5" 500GB SATA3 7200 RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	500GB HDD 7200 RPM		
Dimensions (inches) (W x D x H)	2.760 x 3.959 x 0.276		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	976,773,168		
Power Source			
Power Consumption (reference only)	Idle 0.7W, Active 3.10 W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	350G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		

2.5" 500GB SATA3 7200 RPM Self-Encrypting Drive (OPAL v2.0 compliant)

	Tower	Small Form Factor	Micro
Capacity (GB)	500GB HDD 7200 RPM OPAL SED FIPS		
Dimensions (inches) (W x D x H)	2.75 x 3.937 x 0.276		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	976,773,168		
Power Source			
Power Consumption (reference only)	Idle 0.7W, Active 3.10 W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	350G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		



2.5" 500GB SATA3 5400 RPM Solid State Hybrid Drive w/8GB Flash

	Tower	Small Form Factor	Micro
Capacity (GB)	500GB HDD 5400 RPM HYBRID 8GB		
Dimensions (inches) (W x D x H)	2.760 x 3.959 x 0.276		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	976,773,168		
Power Source			
Power Consumption (reference only)	Idle 0.7W, Active 3.10 W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	350G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		

2.5" 1TB SATA3 7200RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	1TB HDD 7200 RPM		
Dimensions (inches) (W x D x H)	2.760 x 3.959 x 0.374		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	1,953,525,168		
Power Source			
Power Consumption (reference only)	Idle 0.7W, Active 3.10 W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	350G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		



2.5" 2TB SATA3 5400 RPM Hard Disk Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	2TB HDD 5400 RPM		
Dimensions (inches) (W x D x H)	2.75 x 3.937 x 0.276		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	550,000 hours		
Logical Blocks	3,907,029,168		
Power Source			
Power Consumption (reference only)	Idle 0.7W, Active 3.60 W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	5°C to 60°C		
Relative Humidity Range	5 to 90%		
Op Shock (@2ms)	350G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 65°C		
Relative Humidity Range	5 to 95%		

2.5" 128GB SATA3 Class 20 Solid State Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	128GB		
Dimensions (inches) (W x D x H)	2.75 x 3.94 x 0.268		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	800K hours		
Logical Blocks	250,069,680		
Power Source			
Power Consumption (reference only)	Idle 0.5W, Active 2.5W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	0°C to 70°C		
Relative Humidity Range	10 to 90%		
Op Shock (@2ms)	1,000G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 70°C		
Relative Humidity Range	5 to 95%		



2.5" 256GB SATA Class 20 Solid State Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	256GB		
Dimensions (inches) (W x D x H)	2.75 x 3.94 x 0.268		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	800K hours		
Logical Blocks	500,118,192		
Power Source			
Power Consumption (reference only)	Idle 0.5W, Active 2.5W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	0°C to 70°C		
Relative Humidity Range	10 to 90%		
Op Shock (@2ms)	1,000G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 70°C		
Relative Humidity Range	5 to 95%		

2.5" 512GB SATA3 Class 20 Solid State Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	512GB		
Dimensions (inches) (W x D x H)	2.75 x 3.94 x 0.268		
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0)		
MTBF	800K hours		
Logical Blocks	1,000,215,216		
Power Source			
Power Consumption (reference only)	Idle 0.5W, Active 2.5W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	0°C to 70°C		
Relative Humidity Range	10 to 90%		
Op Shock (@2ms)	1,500G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 70°C		
Relative Humidity Range	5 to 95%		



M.2 256GB PCIe NVMe Class 40 Self-Encrypting Solid State Drive (OPAL v2.0 compliant)

	Tower	Small Form Factor	Micro
Capacity (GB)	256GB		
Dimensions (mm) (W x D x H)	22 x 80 x 2.38		
Interface type and Maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)		
MTBF	800k hours		
Logical Blocks	500,118,192		
Power Source			
Power Consumption (reference only)	Idle 1.7W, Active 4.5W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	0°C to 70°C		
Relative Humidity Range	10 to 90%		
Op Shock (@2ms)	1,000G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 70°C		
Relative Humidity Range	5 to 95%		

M.2 256GB PCIe NVMe Class 40 Solid State Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	256GB		
Dimensions (mm) (W x D x H)	22 x 80 x 2.38		
Interface type and Maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)		
MTBF	800k hours		
Logical Blocks	500,118,192		
Power Source			
Power Consumption (reference only)	Idle 1.7W, Active 4.5W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	0°C to 70°C		
Relative Humidity Range	10 to 90%		
Op Shock (@2ms)	1,000G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 70°C		
Relative Humidity Range	5 to 95%		



M.2 512GB PCIe NVMe Class 40 Solid State Drive

	Tower	Small Form Factor	Micro
Capacity (GB)	512GB		
Dimensions (mm) (W x D x H)	22 x 80 x 2.38		
Interface type and Maximum speed	PCIe Gen3 8Gb/s (up to 4 lanes)		
MTBF	800k hours		
Logical Blocks	1,000,215,216		
Power Source			
Power Consumption (reference only)	Idle 1.7W, Active 4.5W		
Environmental Operating Conditions (Non-Condensing)			
Temperature Range	0°C to 70°C		
Relative Humidity Range	10 to 90%		
Op Shock (@2ms)	1,000G		
Environmental Non-Operating Conditions (Non-Condensing):			
Temperature Range	-40°C to 70°C		
Relative Humidity Range	5 to 95%		



Removable Media

9.5 mm DVD-ROM

	Tower	Small Form Factor	Micro
External Dimensions (in) W x H x D	5.04 / 0.37 / 4.97		
External Dimensions (mm) W x H x D	128.0 / 9.5 / 126.1		
Weight (max) pounds/kilograms	140 g		
Interface type and speed	SATA 1.5Gbit/s		
Disc Capacity	Standard		
Internal buffer size	Supplier dependent		
Access Times (typical)	Supplier dependent		
Maximum Data Transfer Rates			
Writes	N/A		
Reads	8x DVD/ 24x CD		
Power Source			
DC Power Requirements	5V		
DC Current	1300 mA		
Environmental Operating Conditions (Non-Condensing):			
Operating Temperature Range	5C to 50C		
Relative Humidity Range	10% to 90% RH		
Maximum Wet Bulb Temperature	29C		
Altitude Range	-200 to 3048m		
Environmental Non-Operating Conditions (Non-Condensing):			
Operating Temperature Range	-40C to 65C		
Relative Humidity Range	5% to 95% RH		
Maximum Wet Bulb Temperature	38C		
Altitude Range	-200 to 10600m		



9.5 mm DVD+/-RW

	Tower	Small Form Factor	Micro
External Dimensions (in) W x H x D	5.04 / 0.37 / 4.97		
External Dimensions (mm) W x H x D	128.0 / 9.5 / 126.1		
Weight (max) pounds/kilograms	140g		
Interface type and speed	SATA 1.5Gbit/s		
Disc Capacity	Standard		
Internal buffer size	supplier dependent		
Access Times (typical)	supplier dependent		
Maximum Data Transfer Rates			
Writes	8x DVD/ 24x CD		
Reads	8x DVD/ 24x CD		
Power Source			
DC Power Requirements	5V		
DC Current	1300 mA		
Environmental Operating Conditions (Non-Condensing):			
Operating Temperature Range	5C to 50C		
Relative Humidity Range	10% to 90% RH		
Maximum Wet Bulb Temperature	29C		
Altitude Range	-200 to 3048m		
Environmental Non-Operating Conditions (Non-Condensing):			
Operating Temperature Range	-40C to 65C		
Relative Humidity Range	5% to 95% RH		
Maximum Wet Bulb Temperature	38C		
Altitude Range	-200 to 10600m		



SD 4.0 Media Card Reader

	Tower	Small Form Factor
External Dimensions (in) W x H x D	2.38 / 1.34 / 2.827	
External Dimensions (mm) W x H x D		
Weight (max) pounds/kilograms	~ 0.056/0.0256	
Interface type and speed	PCIe Gen II, 5GT/s	
Media Supported (maximum capacity supported will vary by Flash Media Types)		
Media Supported	<div>-Secure Digital (SD), SDXC, SDHC, Multi-Media Card (MMC), -(With adapter) Mini-SD, Micro-SD (T-flash),RS-MMC, Mobile-MMC and MMC-micro</div> <div>-MMC 4-bit date mode</div> <div>-SDXC up to 2TB</div> <div>-Support SD4.0 UHS-II FD/HD mode, up to 312MB/sec</div> <div>-Support SD3.0 UHS-I SDR-104 (208MHz SD clock), SDR-50 (100MHz SD clock) and DDR 50 (50MHz SD clock)</div>	



BIOS Defaults

*Win7 ships in Legacy mode, Win 8.1/Win10 ships in UEFI mode.

	Tower	Small Form Factor	Micro
System Configuration			
Integrated NIC:	Enable w/PXE		Enable w/PXE
Serial Port:	COM1		N/A
SATA Operation:	RAID On		RAID On
Drives:	Enable (SATA-0 SATA-1 SATA-2 M.2 PCIe SSD-0)	Enable (SATA-0 SATA-1 M.2 PCIe SSD-0)	Enable(SATA-0) (M.2 PCIe SSD-0)
SMART Reporting:	Disable		Disable
USB Configuration:	Enable (Boot Support, Front USB Ports, Rear USB Ports)		Enable (Boot Support, Front USB Ports, Rear USB Ports)
Miscellaneous Devices:	Secure Digital (SD) card		N/A
Audio:	Enable		Enable
Video			
Multi-display:	Enable		N/A
Primary Display	Auto		Auto
Performance			
Multiple Core Support:	All		All
Intel® SpeedStep™:	Enable		Enable
C States Control:	Enable		Enable
Limit CPUID Value:	Disable		Disable
Intel TurboBoost	Enable		Enable
HyperThread control:	Enable		Enable
Virtualization Support			
Virtualization:	Enable		Enable



	Tower	Small Form Factor	Micro
Security			
Internal HDD Password	Not Set		Not Set
Strong Password:	Disable		Disable
Password Configuration:	4~32		4~32
Password Bypass	Disable		Disable
Password Changes:	Enable		Enable
TPM Security:	Enable		Enable
Computrace®:	Deactivate		Deactivate
Chassis Intrusion	Disable		Disable
CPU XD Support:	Enable		Enable
Admin Setup Lockout	Disable		Disable
OROM Keyboard Access	N/A		N/A
HDD Protection Support	Disable		Disable
Power Management			
AC Recovery:	Power Off		Power Off
Auto On Time:	Disable		Disable
Deep Sleep Control:	Enable in S4 & S5		Enable in S4 & S5
Fan Control Override:	Disable		N/A
USB Wake Support**	Enable USB Wake Support From Standby (S3) Disable USB Wake Support From Hibernation, Power Off (S4 & S5)		
Wake on LAN/WLAN:	Disable		Disable
Block sleep	Disable		Disable
Intel Ready Mode	Disable		Disable
<p>** With USB Wake Support from Standby (S3) – Enables both the Keyboard and Mouse to wake the system, no matter which USB ports are used.</p> <p>To enable Smart Power On and the ability to wake a system from S3, S4, and S5 sleep states with a move of a mouse or press of a key on the keyboard, please follow these steps:</p> <ul style="list-style-type: none"> • Make sure the following BIOS settings are set correctly: In “Power Management” please Enable “USB Wake Support” and Disable “Deep Sleep Control” • Connect a keyboard, mouse, or wireless USB dongle to the Smart Power On USB port(s) on the back of the OptiPlex • Disable Fast Startup in the Operating System: <ul style="list-style-type: none"> ○ Search for and open “Power options” in the Start Menu. ○ Click “Choose what the power buttons do” on the left side of the window ○ Click “Change settings that are currently unavailable.” ○ Under “Shutdown settings” make sure “Turn on fast startup” is disabled. <p>Reboot your system so the changes can take effect. The next time your system goes to sleep or is shut down, any use of the mouse or keyboard will wake it up.</p>			



	Tower	Small Form Factor	Micro
Maintenance			
Service Tag:	Set by the factory		Set by the factory
Asset Tag:	Optional User Entry		Optional User Entry
SERR Message:	Enable		Enable
BIOS Downgrade	Enable		Enable
Data Wipe	Disable		Disable
BIOS Recovery	Enable		Enable
POST Behavior			
Adapter Warnings	N/A		Enable
Numlock LED:	Enable		Enable
Keyboard Errors:	Enable		Enable
Fastboot	Thorough		Thorough
Wireless			
Wireless Device Enable	N/A		Enable (WLAN/WiGig Bluetooth)
Advanced configurations			
ASPM	Auto		Auto



Chassis Enclosure and Ventilation Requirements

Enclosure ventilation

If your enclosure has doors, they need to be of a type that allows at least 30% airflow through the enclosure (front and back).

Enclosure minimum clearance

Leave a 10.2 cm (4 in.) minimum clearance on all vented sides of the computer to permit the airflow required for proper ventilation.

Recommended enclosure

Do not install your computer in an enclosure that does not allow airflow. This restricts the airflow and impacts your computer's performance, possibly causing it to overheat.

Open desk minimum clearance

If your computer is installed in a corner, on a desk, or under a desk, leave at least 5.1 cm (2 in.) clearance from the back of the computer to the wall to permit the airflow required for proper ventilation.



Regulatory and Environmental Compliance

Product related conformity assessment and regulatory authorizations including Product Safety, Electromagnetic Compatibility (EMC), Ergonomics, and Communication Devices relevant to this product may be viewed at www.dell.com/regulatory_compliance . The Regulatory Datasheet for this product is located at http://www.dell.com/regulatory_compliance .

Details of Dell's environmental stewardship program to conserve product energy consumption, reduce or eliminate materials for disposal, prolong product life span and provide effective and convenient equipment recovery solutions may be viewed at www.dell.com/environment . Product related conformity assessment, regulatory authorizations, and information encompassing Environmental, Energy Consumption, Noise Emissions, Product Materials Information, Packaging, Batteries, and Recycling relevant to this product may be viewed by clicking the Design for Environment link on the webpage.

The Dell OptiPlex 3050 is TCO certified.



Acoustic Noise Emission Information

OptiPlex 3050 Tower

Component	Test Configuration
CPU	Intel® Core™ i7-7700
Memory	16 GB
HDD (#, capacity)	2.5" 2TB 7200 rpm
Optical	DVD+/-RW
Graphics Adapter	Radeon R7-450

Declared Sound Power (LWAd)

The Declared Noise Emission in accordance with ISO 9296 for the OptiPlex 3050 MT is as follows: (all values LWAd expressed in bels; 1 bel=10 decibels, re 10-12 Watts)

Operating Mode	Declared Sound Power(LWAd)
Idle	3.6
HDD Operating	3.7
CPU Stressed	3.9
ODD Operating	3.8

A-Weighted Sound Pressure Level (dB)

The Declared A-weighted Sound Pressure Level in decibels (re 2x10⁻⁵ Pa), at Operator and Bystander Positions are measured in accordance with ISO 7779 7.6.1, 7.6.2, and C.15.2 and declared in accordance with ISO 9296 for this product is as follows¹:

Declared Sound Pressure (LpA)				
Operating Mode	Tabletop System		Floor Standing System	
	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	25.4	n/a	n/a	n/a
CPU Stressed	26.3	n/a	n/a	n/a

1 All tests are conducted according to ISO 7779 and declared according to ISO 9296 except CPU Stressed. This test mode is not specified in ISO 7779, but was measured using the same microphone distances and measurement techniques defined for the other reported operating modes.

2 Declared Sound Power rounded to nearest tenth of a bel per ISO 9296 section 4.4.2



OptiPlex 3050 Small Form Factor

Component	Test Configuration
CPU	Intel® Core™ i7-7700 (QC/8MB/8T/3.6GHz/65W)
Memory	4GB
HDD (#, capacity)	3.5" 2TB 7200rpm
Optical	DVD+/-RW
Graphics Adapter	Radeon R5-430

Declared Sound Power (LWAd)

The Declared Noise Emission in accordance with ISO 9296 for the OptiPlex 3050 SFF is as follows: (all values LWAd expressed in bels; 1 bel=10 decibels, re 10-12 Watts)

Operating Mode	Declared Sound Power(LWAd)
Idle	2.80
HDD Operating	2.86
CPU Stressed	3.23
ODD Operating	4.44

A-Weighted Sound Pressure Level (dB)

The Declared A-weighted Sound Pressure Level in decibels (re 2x10⁻⁵ Pa), at Operator and Bystander Positions are measured in accordance with ISO 7779 7.6.1, 7.6.2, and C.15.2 and declared in accordance with ISO 9296 for this product is as follows¹:

Declared Sound Pressure (LpA)				
Operating Mode	Tabletop System		Floor Standing System	
	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	24.1	18.1	17.7	16.7
HDD Operating	24.4	18.5	17.9	16.8
CPU Stressed	27.1	20.9	18.1	17.3
ODD Operating	39.9	32.8	30.6	29.5

1 All tests are conducted according to ISO 7779 and declared according to ISO 9296 except CPU Stressed. This test mode is not specified in ISO 7779, but was measured using the same microphone distances and measurement techniques defined for the other reported operating modes.

2 Declared Sound Power rounded to nearest tenth of a bel per ISO 9296 section 4.4.2



OptiPlex 3050 Micro

Component	Test Configuration
CPU	Intel® Core™ i7-7700T
Memory	16 GB
HDD (#, capacity)	2.5" 2TB 5400 rpm
Optical	N/A

Declared Sound Power (LWAd)

The Declared Noise Emission in accordance with ISO 9296 for the OptiPlex 3020 Micro is as follows: (all values LWAd expressed in bels; 1 bel=10 decibels, re 10-12 Watts)

Operating Mode	Declared Sound Power(LWAd)
Idle	2.9
HDD Operating	3.2
ODD Operating	N/A

A-Weighted Sound Pressure Level (dB)

The Declared A-weighted Sound Pressure Level in decibels (re 2x10⁻⁵ Pa), at Operator and Bystander Positions are measured in accordance with ISO 7779 7.6.1, 7.6.2, and C.15.2 and declared in accordance with ISO 9296 for this product is as follows:

Declared Sound Pressure (LpA)				
Operating Mode	Tabletop System		Floor Standing System	
	Operator Position	Bystander Position	Operator Position	Bystander Position
Idle	17.9	16.5	n/a	n/a
HDD Operating	22.5	19.2	n/a	n/a
ODD Operating	n/a	n/a	n/a	n/a

1 All tests are conducted according to ISO 7779 and declared according to ISO 9296 except CPU Stressed. This test mode is not specified in ISO 7779, but was measured using the same microphone distances and measurement techniques defined for the other reported operating modes.

2 Declared Sound Power rounded to nearest tenth of a bel per ISO 9296 section 4.4.2

