DELL™ OPTIPLEX™ 390

TECHNICAL GUIDEBOOK—

INSIDE THE OPTIPLEX 390

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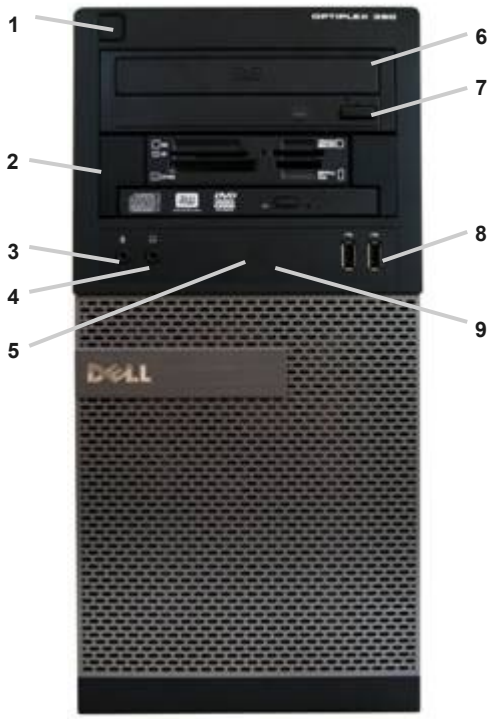
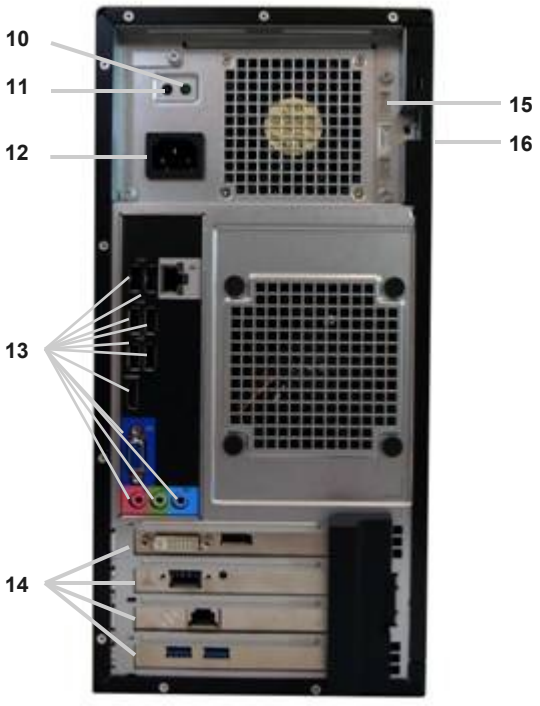
MINI TOWER COMPUTER (MT) VIEW

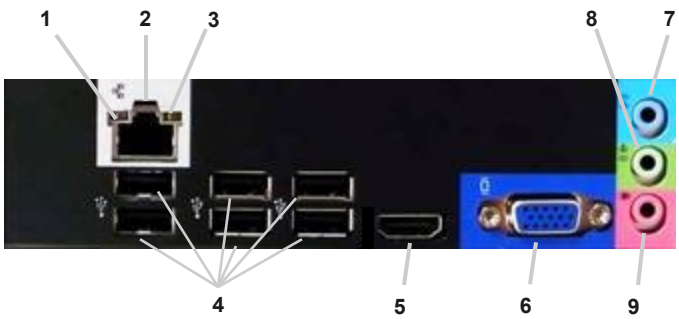


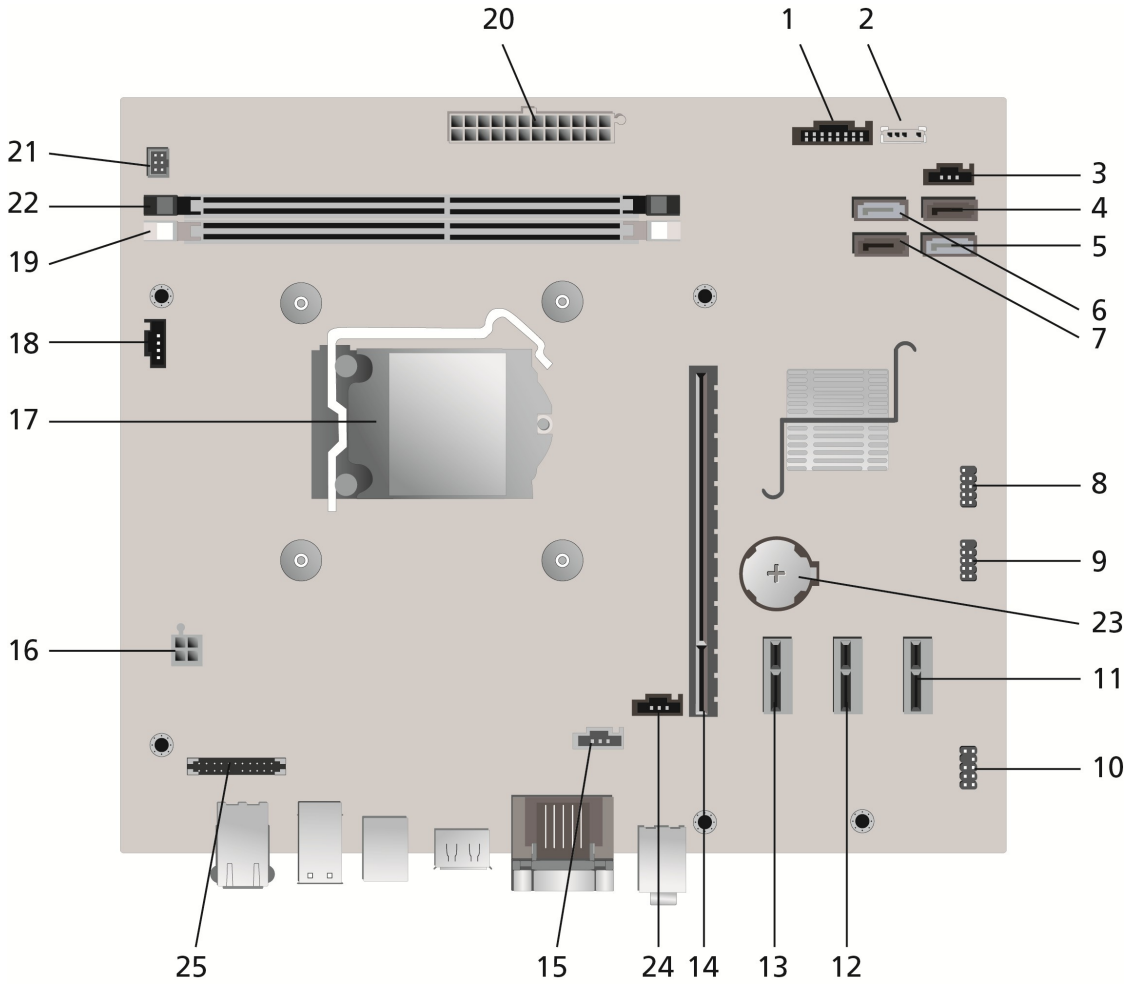


FRONT VIEW			
1	Power Button, Power Light	6	Optical Drive (optional)
2	Optical Drive Bay (optional)	7	Optical Drive Eject Button
3	Microphone Connector	8	USB 2.0 Connectors (2)
4	Headphone Connector	9	Drive Activity Light
5	Diagnostic Lights (4)		

BACK VIEW			
10	Power Supply Diagnostic Light	14	Expansion Card Slots(4)
11	Power Supply Diagnostic Button	15	Security Cable Slot
12	Power Connectors	16	Padlock Ring
13	Back Panel Connectors		

BACK PANEL CONNECTORS			
1	Link Integrity Light	6	VGA Connector
2	Network Connector	7	Line-in Connector
3	Network Activity Light	8	Line-out Connector
4	USB Connectors (6)	9	Microphone Connector
5	HDMI Connector		

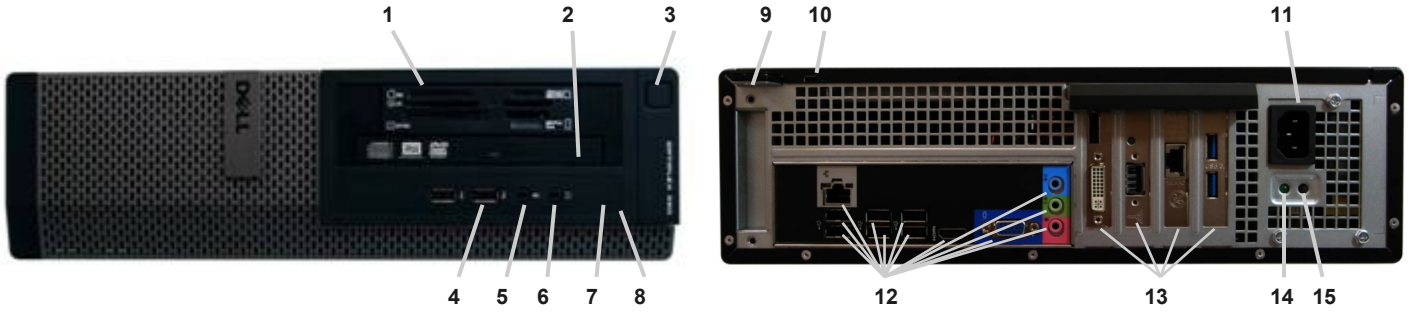




MT System Board Components

Number	Name	Number	Name
1	Front IO connector (FRONTPANEL))	14	PCI-e 16x Connector (SLOT1)
2	Internal Speaker Connector (INT_SPKR)	15	System fan Connector (FAN_SYS2)
3	System fan Connector (FAN_SYS1)	16	P2 Power Connector(ATX12V)
4	SATA 1 Connector(SATA1)	17	CPU Socket Connector (U27CPU)
5	SATA 0 Connector(SATA0)	18	CPU fan Connector (FAN_CPU)
6	SATA 2 Connector(SATA2)	19	Memory Connector(DIMM1)
7	SATA 3 Connector(SATA3)	20	P1 power Connector (ATX)
8	Internal USB Connector (USBF1)	21	Power Switch Connector (PWRSW1)
9	Internal USB Connector (USBF1)	22	Memory Connector(DIMM2)
10	Internal Audio Connector (AUDIOF1)	23	Battery Connector (BT1)
11	PCI-e 1x Connector (SLOT4)	24	Intrusion Switch Connector (Intruder)
12	PCI-e 1x Connector (SLOT3)	25	KB/MS COM Connector (KBMSCOM1)
13	PCI-e 1x Connector (SLOT2)		

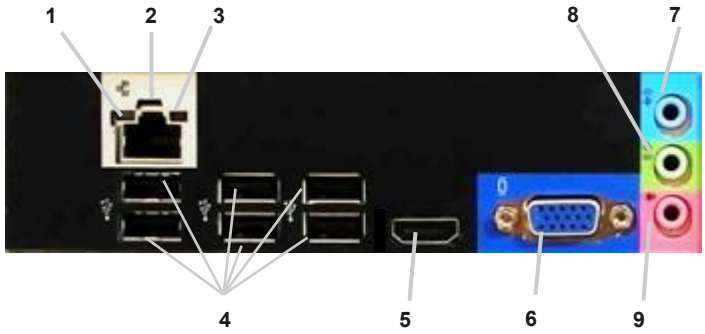
DESKTOP COMPUTER (DT) VIEW

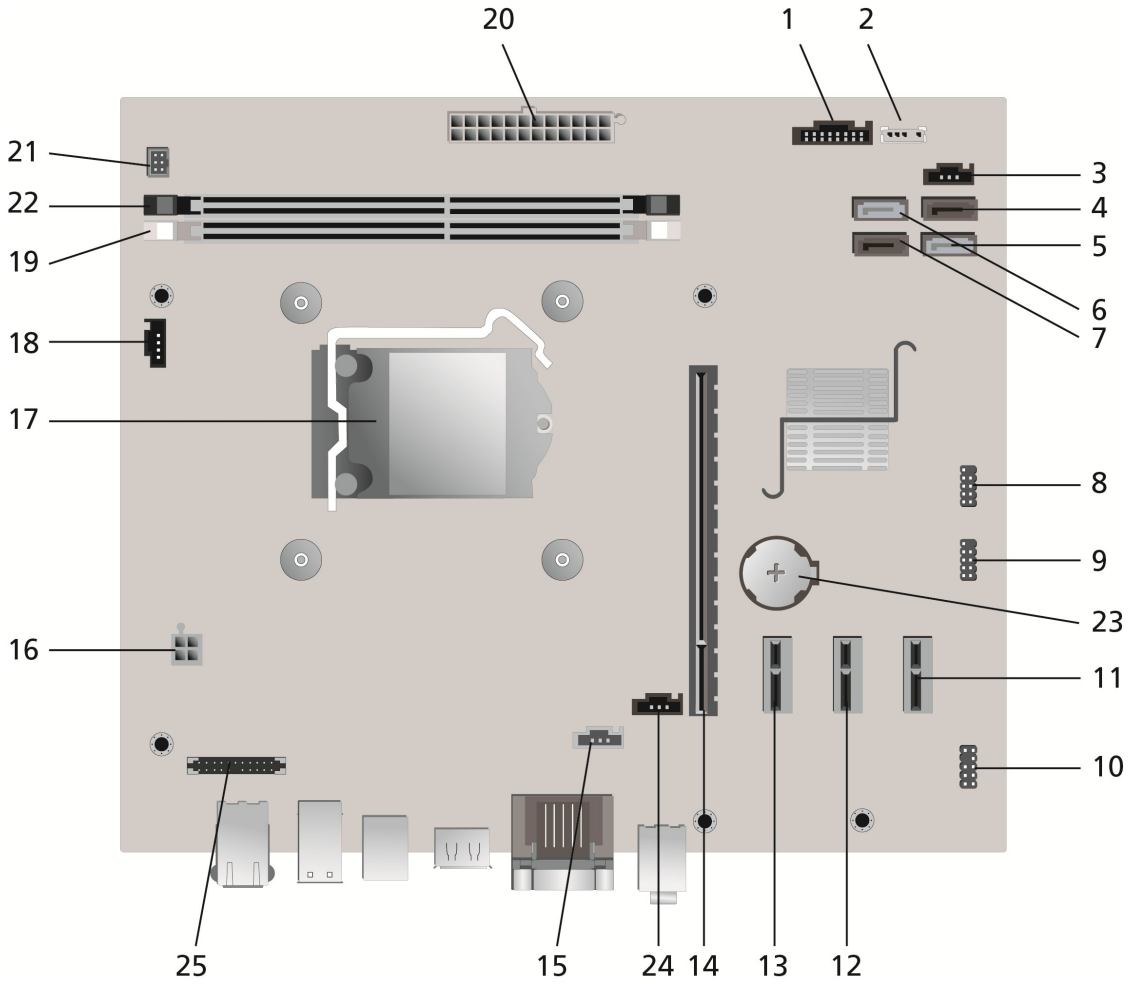


FRONT VIEW			
1	Optical Drive	5	Microphone Connector
2	Optical Drive Eject Button	6	Headphone Connector
3	Power Button, Power Light	7	Drive Activity Light
4	USB Connectors (2)	8	Diagnostic Lights (4)

BACK VIEW			
9	Padlock Ring	13	Expansion Card Slots(4)
10	Security Cable Slot	14	Power Supply Diagnostic Light
11	Power Connectors	15	Power Supply Diagnostic Button
12	Back Panel Connectors		

BACK PANEL CONNECTORS			
1	Link Integrity Light	6	VGA Connector
2	Network Connector	7	Line-in Connector
3	Network Activity Light	8	Line-out Connector
4	USB Connectors (6)	9	Microphone Connector
5	HDMI Connector		

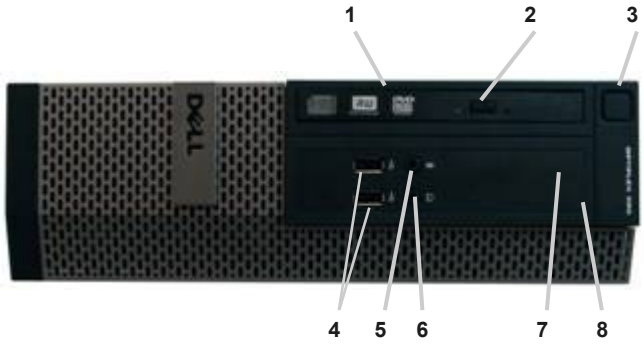


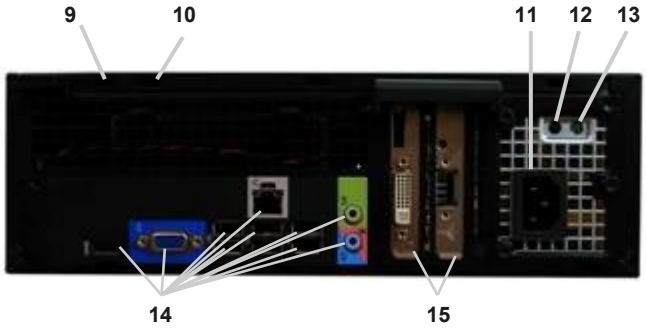


DT System Board Components

Number	Name	Number	Name
1	Front IO connector (FRONTPANEL))	14	PCI-e 16x Connector (SLOT1)
2	Internal Speaker Connector (INT_SPKR)	15	System fan Connector (FAN_SYS2)
3	System fan Connector (FAN_SYS1)	16	P2 Power Connector(ATX12V)
4	SATA 1 Connector(SATA1)	17	CPU Socket Connector (U27CPU)
5	SATA 0 Connector(SATA0)	18	CPU fan Connector (FAN_CPU)
6	SATA 2 Connector(SATA2)	19	Memory Connector(DIMM1)
7	SATA 3 Connector(SATA3)	20	P1 power Connector (ATX)
8	Internal USB Connector (USBF1)	21	Power Switch Connector (PWRSW1)
9	Internal USB Connector (USBF1)	22	Memory Connector(DIMM2)
10	Internal Audio Connector (AUDIOF1)	23	Battery Connector (BT1)
11	PCI-e 1x Connector (SLOT4)	24	Intrusion Switch Connector (Intruder)
12	PCI-e 1x Connector (SLOT3)	25	KB/MS COM Connector (KBMSCOM1)
13	PCI-e 1x Connector (SLOT2)		

SMALL FORM FACTOR COMPUTER (SFF) VIEW

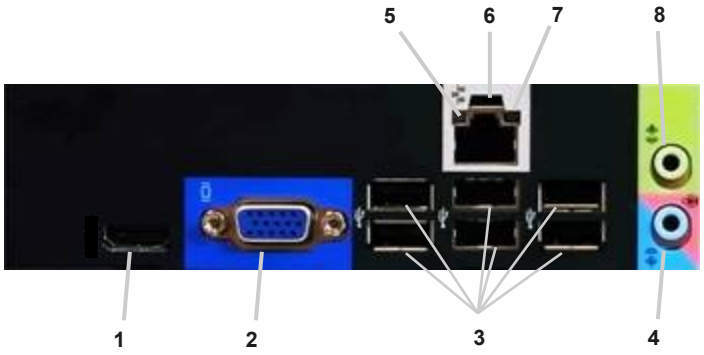


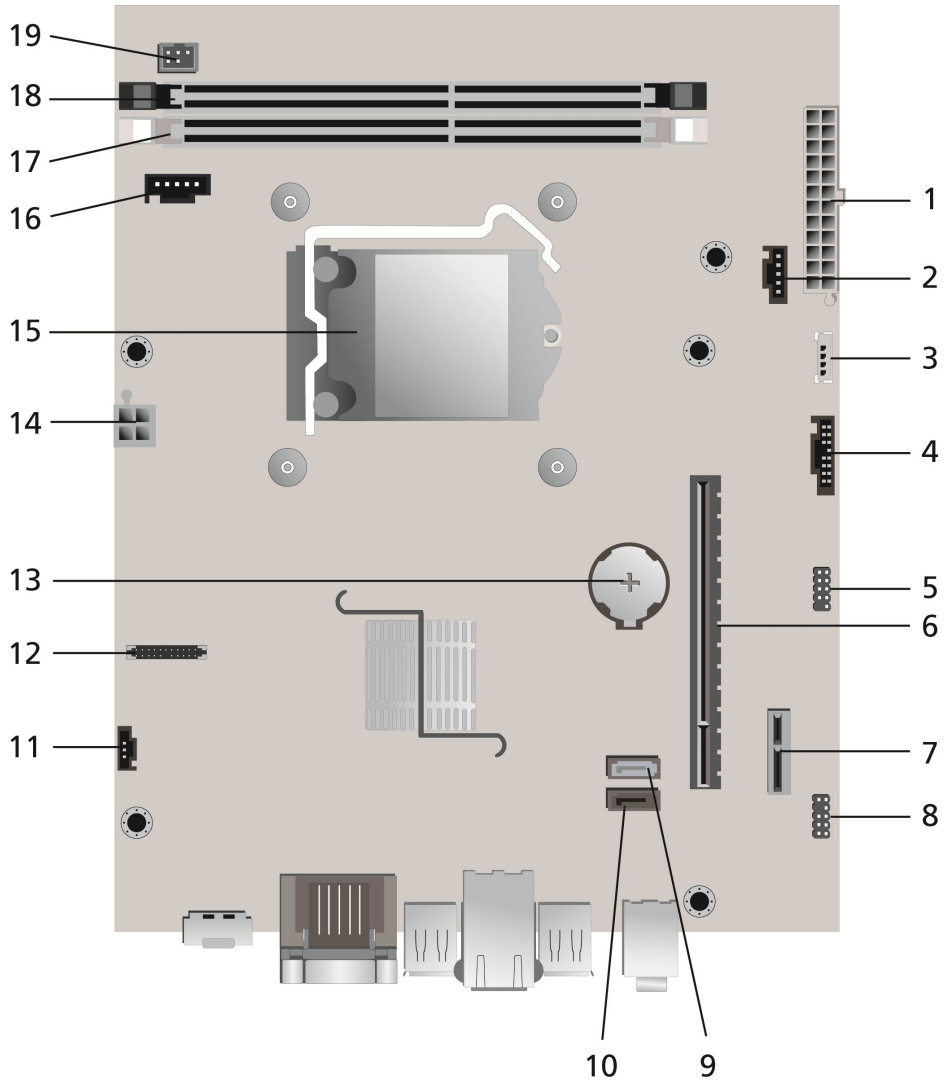


FRONT VIEW			
1	Optical Drive	5	Microphone Connector
2	Optical Drive Eject Button	6	Headphone Connector
3	Power Button, Power Light	7	Diagnostic Lights (4)
4	USB 2.0 Connectors (2)	8	Drive Activity Light

BACK VIEW			
9	Padlock Ring	13	Power Supply Diagnostic Light
10	Security Cable Slot	14	Back Panel Connectors
11	Power Connectors	15	Expansion Card Slots(2)
12	Power Supply Diagnostic Button		

BACK PANEL CONNECTORS			
1	HDMI Connector	5	Link Integrity Light
2	VGA Connector	6	Network Connector
3	USB Connectors (6)	7	Network Activity Light
4	Line-in/Microphone Connector	8	Line-out Connector





SFF System Board Components

Number	Name	Number	Name
1	P1 power Connector (ATX)	12	KB/MS COM Connector (KBMSCOM1)
2	System fan Connector (FAN_SYS)	13	Battery Connector (BT1)
3	Internal Speaker Connector (INT_SPKR)	14	P2 Power Connector(ATX12V)
4	Front IO connector (FRONTPANEL)	15	CPU Socket Connector (U27CPU)
5	Internal USB Connector (USBF1)	16	CPU fan Connector (FAN_CPU)
6	PCI-e 16x Connector (SLOT1)	17	Memory Connector(DIMM1)
7	PCI-e 1x Connector (SLOT2)	18	Memory Connector(DIMM2)
8	Internal Audio Connector (AUDIOF1)	19	Power Switch Connector (PWRSW1)
9	SATA 0 Connector(SATA0)		
10	SATA 1 Connector (SATA1)		
11	Intrusion Switch Connector (Intruder)		

MARKETING SYSTEM CONFIGURATIONS

NOTE: Offerings may vary by country. 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

	MT	DT	SFF
Windows 7® operating system	Microsoft® Windows 7® Home Basic SP1 (32 and 64 bit), Microsoft® Windows 7® Home Premium SP1 (32 and 64 bit), Microsoft® Windows 7® Professional SP1 (32 and 64 bit), Microsoft® Windows 7® Ultimate SP1 (32 and 64 bit),		
Windows Vista® operating system	Windows Vista® Home Basic SP2 (32 bits), Windows Vista® Business SP2 (32 and 64 bit), Windows Vista® Ultimate SP2 (32 bit)		
Windows XP® operating system	Basic Driver support only via Dell.com		
Other	FreeDOS for (N-series), Ubuntu® Linux version 10.10 (China only)		
OS Media Support (optional)	X	X	X

CHIPSET

	MT	DT	SFF
Chipset	Intel H61 Express Chipset		
Non-volatile memory on chipset			
BIOS Configuration SPI (Serial Peripheral Interface)	32Mbit (4MB) located at SPI_FLASH on chipset		
NIC EEPROM	LOM configuration contained within SPI_FLASH – 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. The following GSP processors identified below will be made available to Dell customers.

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

	MT	DT	SFF
Intel® Quad Core Processors			
Intel® Core™ i5 2400 / 3.10GHz, 6M, **VT-x,** 95W	X-GSP	X-GSP	X-GSP
Intel® Dual Core Processors			
Intel® Core™ i3 2120 / 3.30GHz, 3M, VT-x, 65W	X	X	X
Intel® Core™ i3 2100 / 3.10GHz, 3M, VT-x, 65W	X	X	X

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 8GB memory range is available to 64-bit operating systems.

	MT	DT	SFF
Type: DDR3 Synch DRAM Non-ECC Memory	1333MHz		
DIMM Slots	2	2	2
DIMM Capacities	Up to 4GB	Up to 4GB	Up to 4GB
Minimum Memory	1GB	1GB	1GB
Maximum System Memory	8GB[1]	8GB[1]	8GB[1]
Memory configurations			
8GB[1] DDR3, 1333MHz, (2 DIMM)	X	X	X
4GB[1] DDR3, 1333MHz, (1 DIMM)	X	X	X
3GB DDR3, 1333MHz, (2 DIMM)	X	X	X
2GB DDR3, 1333MHz, (1 DIMM)	X	X	X
1GB DDR3, 1333MHz, (1 DIMM)	X	X	X

[1]The total amount of available memory will be less than 4GB. The amount less depends on the actual system configuration. To fully utilize 4GB or more of memory requires a 64-bit enabled processor and 64-bit operating system.

HARD DRIVES

	MT	DT	SFF
Bays:			
5.25-inch Optical Bay Supported (External)	2	1	1
Optical Drives Supported (maximum)	2	1	1 (slim-line)
Hard Drive Bay Supported (Internal)	2	1	1
Hard Drives Supported 3.5"(maximum)	2	1	1
Interface:			
SATA 2.0	4	4	2
SATA 3.0 (chipset does not support)			
3.5" Hard Drives:			
1TB[1] SATA 7200 RPM HDD	X	X	X
500GB[1] SATA 7200 RPM HDD	X	X	X
320GB[1] SATA 7200 RPM HDD	X	X	X
250GB[1] SATA 7200 RPM HDD	X	X	X

REMOVABLE STORAGE

	MT	DT	SFF
Optical Drive: (SFF require slim-line optical drive)			
DVD+/-RW[2] SATA 1.5Gbit/s	X	X	X
DVD-ROM[3] SATA 1.5Gbit/s	X	X	X
Media Card Reader: (requires slim line optical)			
Dell 19 in 1 Media Card Reader	X	X	

NOTE: Dell 19 in 1 Media Card Reader (MCR) is supported via a F5 to F3 bay converter on the MT and DT and may require a slim line optical drive depending on selectable configuration. MCR is not available on the SFF.

SYSTEM EXPANSION SLOTS

NOTE: See Detailed Engineering Specifications for maximum card dimensions.

NOTE: Add in card location and priority: PCIe x16: GFX, USB 3.0, Serial, Parallel/Serial, NIC, Wireless; PCIe x1: USB 3.0, Serial, Parallel/Serial, NIC, Wireless

	MT	DT	SFF
PCIe x16 Slot	1	1	1
PCIe x1 Slot	3	3	1
Serial ATA (SATA) connectors	4	4	2

GRAPHICS/VIDEO CONTROLLER

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

	MT	DT	SFF
Intel HD Graphics [with Celeron/Pentium class CPU-GPU combo] Intel HD Graphics 2000[with iCore Dual/Quad core class CPU-GPU combo]	Integrated on CPU		
Enhanced Graphic/Video Options			
1GB AMD RADEON HD 6450 with DP and DVI	Optional card		
512MB AMD RADEON HD 6350 with dual DVI or dual VGA (adapters convert DMS-59 connector to dual DVI or dual VGA)	Optional card		

EXTERNAL PORTS/CONNECTORS

NOTE: MT supports full height (FH) cards and DT and SFF supports low profile (LP) cards. See chassis diagrams section for port/ connector locations

	MT	DT	SFF
USB 2.0 (1 internal on MT and DT)	2 Front, 6 Rear		
Parallel and Serial via optional PCIex1 card	Optional FH card		
Serial and PS/2 via optional dongle	Optional FH card	Optional LP card	
Network Connector (RJ-45)	1 Rear		
USB 3.0 via optional PCIex1 card	Optional FH card	Optional LP card	
Video:			
VGA	1 Rear		
HDMI	1 Rear		
Audio:			
Line in for microphone	1 Front, 1 Rear		
Line in for stereo	1 Rear		
Line out for headphones or speakers	1 Front, 1 Rear		

COMMUNICATIONS - NETWORK ADAPTER (NIC)

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

	MT	DT	SFF
Integrated Realtek LOM	Integrated on system board		
Broadcom NetXtreme 10/100/1000 PCIe Gigabit Networking Card	Optional card		

[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 – WIRELESS

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

	MT	DT	SFF
Dell Wireless 1520 PCIe WLAN card (802.11n)	Optional card		

AUDIO AND SPEAKERS

	MT	DT	SFF
Conexant CX20641 High Definition Audio Codec	Integrated on system board		
Internal Dell Business Audio Speaker	Optional		
Dell AX210 2.0 Desktop Speakers	Optional		
Dell AX510/AX510PA Flat Panel Soundbar Speakers	Optional		

	MT	DT	SFF
Dell USB Entry Keyboard with optional palmrest	Optional		
Dell Multimedia Pro Keyboard	Optional		
Dell USB Optical Mouse	Optional		
Dell Laser Mouse	Optional		

SECURITY

	MT	DT	SFF
Chassis Intrusion Switch	Optional		
Chassis lock slot and loop support	Standard		

SERVICE AND SUPPORT

NOTE: For more details on Dell Service Plans please to go to: www.dell.com/service/service_plans

	MT	DT	SFF
3 Year Warranty[1] Next Business Day On-site[2] (3-3-3)	Standard		
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 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.

SOFTWARE

	MT	DT	SFF
Dell Client Manager	Available via Dell.com		
Dell Data Protection/Access (DDPA)	Standard		

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.

	MT	DT	SFF
Chassis Volume (liters)	26.27	15.06	8.38
Chassis Weight (pounds/kilograms)	19.55 / 8.87	16.67 / 7.56	12.57 / 5.70
Chassis Dimensions: (HxWxD)			
Height (inches/centimeters)	14.17 / 36	14.17 / 36	11.42 / 29
Width (inches/centimeters)	6.89 / 17.5	4.02 / 10.2	3.65 / 9.26
Depth (inches/centimeters)	16.42 / 41.7	16.14 / 41	12.28/31.2
Shipping Weight (pounds/kilograms - includes packaging materials)	23.45 / 10.64	20.03 / 9.09	15.2 / 6.89
Packaging Parameters (HxWxD)			
Height (inches/centimeters)	21.31/54.13	21.31 / 54.13	19.25/48.90
Width (inches/centimeters)	18.75/47.63	18.75/47.63	15.81/40.16
Depth (inches/centimeters)	14.09 / 35.79	10.84/27.53	10.19/25.88

SYSTEM EXPANSION SLOTS

	MT	DT	SFF
PCIe x16 Slots (Voltage supported 3.3V/12V)	1	1	1
Height (inches/centimeters)	4.376 / 11.115	2.731 /6.89	2.731 /6.89
Length (inches/centimeters)	7.4 / 24.13*	6.6 /16.765	6.6/16.765
Maximum Wattage	75W	25W	25W
PCIe x1 Slots (Voltage supported 3.3V/12V)	3	3	1
Height (inches/centimeters)	4.376 / 11.115	2.731 / 6.89	2.731 / 6.89
Length (inches/centimeters)	7.4 / 24.13*	6.6 /16.765	6.6 /16.765
Maximum Wattage	25W	10W	10W

* Card length can be longer than standard Half-Length Card but cannot be a Full-Length Card.

SYSTEM LEVEL ENVIRONMENTAL AND OPERATING CONDITIONS

	MT	DT	SFF
Temperature			
Operating	10° to 35° C (50° to 95° F)		
Non-Operating (Storage)	-40° to 65° C (-40° to 149° F)		
Relative Humidity	20% to 80% (non-condensing)		
Maximum vibration			
Operating	0.25 G at 3 to 200 Hz at 0.5 octave/min		
Non-Operating	0.5 G at 3 to 200 Hz at 1 octave/min		
Maximum Shock			
Operating	Bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 inches/sec)		
Non-Operating	27-G faired square wave with a velocity change of 508 cm/sec (200 inches/sec)		
Maximum Altitude			
Operating	–15.2 to 3048 m (–50 to 10,000 ft)		
Non-Operating	–15.2 to 10,668 m (–50 to 35,000 ft)		

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 manufacture to confirm the output type.

	MT		DT		SFF	
	APFC	EPA	APFC	EPA	APFC	EPA
Power Supply Wattage	265W	265W High Efficiency	250W	250W High Efficiency	240W	240W High Efficiency
AC input Voltage Range	90 – 264Vac	90 – 264Vac	90 – 264Vac	90 – 264Vac	90 – 264Vac	90 – 264Vac
AC input current (low ac range/high AC range)	5.0A / 2.5A	5.0A / 2.5A	4.4A / 2.2A	4.4A / 2.2A	4.0A / 2.0A	4.0A / 2.0A
AC input Frequency	47HZ/63HZ	47HZ/63HZ	47HZ/63HZ	47HZ/63HZ	47HZ/63HZ	47HZ/63HZ
AC holdup time (80% load)	16MSEC	16MSEC	16MSEC	16MSEC	16MSEC	16MSEC
Average Efficiency (Energy Star 5.0 Compliant)		87 – 90 – 87% @ 20 – 50 – 100% load		87 – 90 – 87% @ 20 – 50 – 100% load		87 – 90 – 87% @ 20 – 50 – 100% load
Typical Efficiency (Active PFC)	65%		65%		65%	
DC parameters						
+3.3v output	10.0A	10.0A	7.0 A	7.0 A	3.5A	3.5A
+5.0v output	13A	13A	15A	15A	11A	11A
+12.0v output	12VA/17A; 12VB/9A	12VA/17A; 12VB/9A	17.8A	17.8A	17A	17A
+5.0v auxiliary output	4.0A	4.0A	4.0	4.0	4.0A	4.0A
-12.0v output	0.5A	0.5A	0.5A	0.5A	0.5A	0.5A
Max total power	265W	265W	255W	255W	235W	235W
Max combined +3.3v / +5.0v power	90W	90W	90W	90W	60W	60W
Max combined 12.0v power (note: only if more than one 12v rail)	240W	240W	N/A	N/A	N/A	N/A
BTUs/h (based on PSU max wattage)	904 BTU	904 BTU	853 BTU	853 BTU	819 BTU	819 BTU
Power Supply Fan	80*25mm	80*25mm	80*20/25mm	80*20/25mm	60*25mm	60*25mm
Compliance:						
1watt requirement	Yes	Yes	Yes	Yes	Yes	Yes
Blue Angel Compliant	Yes	Yes	Yes	Yes	Yes	Yes
Climate Savers / 80Plus Compliant	No	Yes	No	Yes	No	Yes
FEMP (CECP) Standby Power Compliant	Yes	Yes	Yes	Yes	Yes	Yes

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 manufacture to confirm the output type.

3.0v CMOS battery (Type and estimated battery life)				
Brand	Type	Voltage	Composition	Life
JHT	CR-2302L/ BE	3V	Lithium	Continuous Discharge Under 15 kΩ Load to 2.0V End-Voltage. 20℃±2℃.940Hrs. or Longer.910Hrs.or Longer after 12 months.
MITSUBISHI	CR2302	3V	Lithium	Continuous Discharge Under 15 kΩ Load to 2.0V End-Voltage. 20℃±2℃.940Hrs. or Longer.910Hrs.or Longer after 12 months. 0℃±2℃. 850Hrs. or Longer.820Hrs.or Longer after 12 months.

AUDIO

INTEGRATED CONEXANT CX20641 HIGH DEFINITION AUDIO	MT	DT	SFF
High Definition Stereo support	X	X	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	98 dB DAC outputs, 90 dB for ADC inputs		
Analog Audio	X	X	X
Dolby Digital			
THX			
Digital out (S/PDIF)			
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	2Watt (peak) / 1Watt (average)		

COMMUNICATIONS - NETWORK ADAPTER (NIC)

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

INTEGRATED REALTEK® RTL8111E-VL ETHERNET LAN 10/100/1000	MT	DT	SFF
External Connector Type	RJ45		
Data Rates supported	10/100/1000 Mbps		
Controller Details			
Controller bus architecture	PCIe-based interface for S0 state, SMBus for Sx low power state		
Integrated memory	N/A		
Data transfer mode (example Bus-Master DMA)	N/A		
Power consumption (full operation per data rate connection speed)	448.8mW (Max.)		
Power consumption (standby operation)	389.4mW (Max.)		
IEEE standards compliance (example 802.1P)	802.3		
Hardware Certifications (example FCC, B, GS mark…)	N/A		
Boot ROM Support	EEPROM (located in SPI)		
Network Transfer Mode (example Full Duplex, Half Duplex)			
Network Transfer Rate (example 10BASE-T (half-duplex) 10 Mbps 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)		

COMMUNICATIONS - NETWORK ADAPTER (NIC) (CONT.)

INTEGRATED REALTEK® RTL8111E-VL ETHERNET LAN 10/100/1000	MT	DT	SFF
Environmental			
Operating temperature	0° C to 70° C (32° F to 158° F)		
Operating humidity	20% to 80% (non-condensing)		
Operating System Driver Support	Windows 7 32/64, Windows XP 32/64, Vista 32/64		
Manageability (examples WOL, PXE)	WOL, PXE 2.1		

[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 – INTEGRATED LAN

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

Broadcom NetXtreme 10/100/1000 PCIe Gigabit[1] Networking Card	MT	DT	SFF
Connector Type	RJ45		
Data Rates supported	10/100/1000 Mbps Half/Full duplex		
Controller Details			
Controller bus architecture (example PCIe 1.0a x1)	PCIe c1.0a x1		
Integrated memory	64KBytes RX, 8KBytes TX		
Data transfer mode (example Bus-Master DMA)	Bus-Master DMA		
Power consumption (full operation per data rate connection speed)	2.84W (860mA @ +3.3V)		
Power consumption (standby operation)	Less than 300mW		
IEEE standards compliance (example 802.1P)	802.3, 802.2, 802.3x, 802.1p		
Hardware Certifications (example FCC, B, GS mark…)	FCC B, VCCI B, CE		
Boot ROM Support	No		
Network Transfer Mode (example Full Duplex, Half Duplex)			
Network Transfer Rate (example 10BASE-T (half-duplex) 10 Mbps 10BASE-T (full-duplex) 20 Mbps 100BASE-TX (half-duplex) 100 Mbps 100BASE-TX (full-duplex) 200 Mbps 1000BASE-T (full-duplex) 2000 Mbps	10BASE-T (full-duplex) 20 Mbps Max* 100BASE-TX (half-duplex) 100 Mbps Max* 100BASE-TX (full-duplex) 200 MbpsMax* 1000BASE-T (full-duplex) 2000 Mbps Max* * Depends on the system environment.		

[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 – INTEGRATED LAN (CONT.)

BROADCOM NETXTREME 10/100/1000 PCIE GIGABIT[1] NETWORKING CARD (CONT.)	MT	DT	SFF
Environmental			
Operating temperature	0° C to 55° C (32° F - 131° F)		
Operating humidity	5% ~ 85% (non-condensing)		
Operating System Driver Support	Windows® 7, Windows® XP, Windows Vista® Ultimate, Windows Vista® Business 32 bit/64 bit, Windows Vista Home Basic, Linux		
Manageability (examples WOL, PXE)	WOL, PXE2.1, ACPI		
Management Capabilities Alerting (example ASF 2.0)	None		

[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

COMMUNICATIONS – WIRELESS

DELL WIRELESS 1520 PCIE WLAN CARD (MT, DT, SFF) 802.11N	MT	DT	SFF
External Connector Type	Custom WLAN Antenna Connector		
Controller Details			
Controller bus architecture	Electrically compatible with the PCI Express Base Specification v1.1 (x1 lane) and PCIe v1.0a.		
WLAN standards supported	802.11a, 802.11b, 802.11g, 802.11n		
802.11b Data Rates supported	11, 5.5, 2, 1 Mbps		
802.11a Data Rates supported	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
802.11g Data Rates supported	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
802.11n Data Rates supported	300, 270, 243, 240, 180, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps		
Encryption	WEP 64-bit and 128-bit, TKIP, AES-CCMP 128-bit		
Operating temperature	0 to +70 °C		
Operating humidity	Max Operating Humidity 85 %		
Operating System Driver Support	Windows 7 32/64, Windows XP 32/64, Vista 32/64		

COMMUNICATIONS – USB 3.0 ADD-IN CARD

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

USB 3.0 PORT PCIE ADD-IN CARD	MT	DT	SFF
Connector Type	PCI Express Gen. 2.0 X1		
Controller Details			
Controller bus architecture (example PCIe 1.0a x1)	PCI Express one lane (x1)		
Chipset	NEC µPD720200		
IO Ports	2 * USB3.0 port		
Power Consumption	Under 30 mA		
Connector	USB 3.0 A Type		
Full height USB3.0 add-in card	Optional		
Half height USB3.0 add-in card		Optional	
OS Support	Win XP, Win Vista and Win 7		

COMMUNICATIONS – SERIAL / PARALLEL PORT PCIE ADD-IN CARD

NOTE: MT supports full height (FH) card.

SERIAL / PARALLEL PORT PCIE ADD-IN CARD	MT	DT	SFF
Connector Type	RS-232 and IEEE1284		
Data Rates supported	50bps ~115.2Kbps (Serial) &Maximum 1.8MBp (Parallel)		
Controller Details			
Controller bus architecture (example PCIe 1.0a x1)	PCI Express one lane (x1)		
Driver Support	Microsoft Client XP/Vista/7 (X86/X64) Microsoft Server 2000/2003/2008 (X86/X64) Microsoft Embedded XP Embedded/POS Ready 2009/ Embedded System 2009 Linux Linux 2.4.x/2.6.x DOS DOS		
Full height Serial / Parallel add-in card	Optional		
Environment			
Operation Temperature	0 to 60°C (32 to 140°F)		
Operation Humidity	5 to 95% RH		
Storage Temperature	-20 to 85°C (-4 to 185°F)		

COMMUNICATIONS—PS2/SERIAL ADD IN DONGLE

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

PS2/SERIAL ADD IN DONGLE	MT	DT	SFF
Connector type	RS232 and PS2		
Controller Details			
Interface type	24 pins header connect to MB directly		
IO Ports	1 Serial, 2 PS2		
Full height PS2/Serial add in dongle	Optional		
Half height PS2/Serial add in dongle		Optional	
Environment			
Operation Temperature	0° C to 70° C (32° F to 158° F)		
Operation Humidity	20% to 80% (non-condensing)		
Storage Temperature	-20 to 85°C (-4 to 185°F)		

GRAPHICS/VIDEO CONTROLLER

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

Onboard Graphics. 1. Intel HD Graphics [with Celeron/Pentium class CPU-GPU combo] 2. Intel HD Graphics 2000 [with iCore Dual/Quad core class CPU-GPU combo]	**MT**	**DT**	**SFF**
Bus Type	Integrated		
GPU core clock	Gen6 Core Intel® HD Graphics /HD Graphics 2000 @ 850MHz		
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	32 bit		
Maximum Vertical Refresh Rate	75 Hz		
Multiple Display Support	Yes		
Operating Systems Graphics/ Video API Support	OpenGL 3.0/DirectX 10.1		
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 1920x1200 @ 60Hz (HDMI) Up to 2048x1536 @ 75Hz (VGA)		
External Connectors	VGA, HDMI		
HDMI			
Bus Type	DDPD		
Maximum supported resolution	Up to 1920x1200 @ 60Hz		
Maximum power consumption	N/A		
Audio Support	Yes (Only for native HDMI Output)		
External connectors	HDMI		

[1] Up to 1.7 GB of system memory may be allocated to support integrated graphics, depending on operating system, system memory size and other factors.
[2] DVI and VGA can be used concurrently for multi-monitor display in DOS. The DisplayPort controller does not support multi-monitor display in DOS

GRAPHICS/VIDEO CONTROLLER (CONT.)

1GB AMD RADEON™ HD6450	MT	DT	SFF
Bus Type (example integrated or PCIe x16)	PCIEx16		
GPU core clock	625Mhz		
Frame Buffer Memory (onboard and shared) Size and Speed	800Mhz		
Maximum power consumption	20W		
Overlay Planes	Yes		
Maximum Color Depth	32-bit		
Maximum Vertical Refresh Rate	85Hz		
Multiple Display Support	Yes		
Operating Systems Graphics/ Video API Support	D3D and OpenGL		
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Dual-Link DVI Max: 2560 x 1600/32bpp @ 75Hz DispalyPort Max: 2560 x 1600/32bpp @ 75Hz VGA Max : 1920x1440/32bpp @ 75Hz Min : 640x480/8bpp @ 60Hz		
External connectors	1 DVI-I and 1 DP or 1 VGA + 1 DP		
Audio Support	Yes (For native DP). Able to support audio for DP to HDMI dongle that supports audio pass through.		
Dimensions of full height card inches/centimeters (L x H)	6.6 x 4.7 / 16.764 x 12.0		
Dimensions of low profile card inches/centimeters (L x H)		6.6 x 3.35 / 16.764 x 8.5	
Environmental Operating Conditions (Non-Condensing):			
Operating Temperature Range	10°-50° C		
Relative Humidity Range	5-90% RH		
Altitude Range	0-20,000 ft.		

512MB AMD RADEON™ HD6350	MT	DT	SFF
Bus Type (example integrated or PCIe x16)	PCIEx16		
GPU core clock	650Mhz		
Frame Buffer Memory (onboard and shared) Size and Speed	800Mhz		
Maximum power consumption	20W		
Overlay Planes	Yes		
Maximum Color Depth	32-bit		
Maximum Vertical Refresh Rate	85Hz		
Multiple Display Support	Yes		
Operating Systems Graphics/ Video API Support	D3D and OpenGL		
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	DVI Max : 1920x1200/32bpp @ 75Hz VGA Max: 1920x1440/32bpp @ 75Hz Min : 640x480/8bpp @ 60Hz		
External connectors	1 DMS59 (DVI x2 or VGA x2)		
Audio Support	No		
Dimensions of full height card inches/centimeters (L x H)	6.6 x 2.731 / 16.764 x 6.936		
Dimensions of low profile card inches/centimeters (L x H)		6.6 x 2.731 / 16.764 x 6.936	
Environmental Operating Conditions (Non-Condensing):			
Operating Temperature Range	10°-50° C		
Relative Humidity Range	5-90% RH		
Altitude Range	0-20,000 ft.		

HARD DRIVES[1]

3.5" 1TB SATA 7200 RPM HDD	
Capacity (bytes)	1,000,204,886,016
Dimensions inches (W x D x H)	5.87 x 4 x 1
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0) Up to 3Gb/s (SATA 2.0)
Internal buffer size	32 MB
Average Seek Time	8.5 ms
Rotational Speed	7200 rpm
Logical Blocks	1,953,525,168
Power Source	
Power Consumption (reference only)	Idle 5.0W, Active 10.0W(running IOmeter utility)
Spin Up Current (reference only)	5V (1A) ,12V (2A)
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	5^0C to 60^0C
Relative Humidity Range	20% to 80% non-condensing
Maximum Wet Bulb Temperature	29^0C
Altitude Range	-50 ft to 10000 ft
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40^0C to 65^0C
Relative Humidity Range	10% to 90% non-condensing
Maximum Wet Bulb Temperature	38^0C
Altitude Range	-50 ft to 35000 ft

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

HARD DRIVES[1] (CONT.)

3.5" 500GB SATA 7200 RPM HDD	
Capacity (bytes)	500,107,862,016
Dimensions inches (W x D x H)	5.87 x 4 x 1
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0) Up to 3Gb/s (SATA 2.0)
Internal buffer size	16 MB
Average Seek Time	8.5 ms
Rotational Speed	7200 rpm
Logical Blocks	976,773,168
Power Source	
Power Consumption (reference only)	Idle 5.0W, Active 10.0W(running IOmeter utility)
Spin Up Current (reference only)	5V (1A) ,12V (2A)
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	5^0C to 60^0C
Relative Humidity Range	20% to 80% non-condensing
Maximum Wet Bulb Temperature	29^0C
Altitude Range	-50 ft to 10000 ft
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40^0C to 65^0C
Relative Humidity Range	10% to 90% non-condensing
Maximum Wet Bulb Temperature	38^0C
Altitude Range	-50 ft to 35000 ft

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

HARD DRIVES[1] (CONT.)

3.5" 320GB SATA 7200 RPM HDD	
Capacity (bytes)	320,072,933,376
Dimensions inches (W x D x H)	5.87 x 4 x 1
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0) Up to 3Gb/s (SATA 2.0)
Internal buffer size	16 MB
Average Seek Time	8.5 ms
Rotational Speed	7200 rpm
Logical Blocks	625,142,448
Power Source	
Power Consumption (reference only)	Idle 5.0W, Active 10.0W(running IOmeter utility)
Spin Up Current (reference only)	5V (1A) ,12V (2A)
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	5^0C to 60^0C
Relative Humidity Range	20% to 80% non-condensing
Maximum Wet Bulb Temperature	29^0C
Altitude Range	-50 ft to 10000 ft
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40^0C to 65^0C
Relative Humidity Range	10% to 90% non-condensing
Maximum Wet Bulb Temperature	38^0C
Altitude Range	-50 ft to 35000 ft

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

HARD DRIVES[1] (CONT.)

3.5" 250GB SATA 7200 RPM HDD	
Capacity (bytes)	250,059,350,016
Dimensions inches (W x D x H)	5.87 x 4 x 1
Interface type and Maximum speed	Up to 6Gb/s (SATA 3.0) Up to 3Gb/s (SATA 2.0)
Internal buffer size	8 MB
Average Seek Time	8.5 ms
Rotational Speed	7200 rpm
Logical Blocks	488,397,168
Power Source	
Power Consumption (reference only)	Idle 5.0W, Active 10.0W(running IOmeter utility)
Spin Up Current (reference only)	5V (1A) ,12V (2A)
Environmental Operating Conditions (Non-Condensing):	
Temperature Range	5^0C to 60^0C
Relative Humidity Range	20% to 80% non-condensing
Maximum Wet Bulb Temperature	29^0C
Altitude Range	-50 ft to 10000 ft
Environmental Non-Operating Conditions (Non-Condensing):	
Temperature Range	-40^0C to 65^0C
Relative Humidity Range	10% to 90% non-condensing
Maximum Wet Bulb Temperature	38^0C
Altitude Range	-50 ft to 35000 ft

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

OPTICAL DRIVES

DVD +/- RW[1]	MT	DT	SFF
External Dimensions inches/ centimeters (Without Bezel – W x H x D)	148.2mm(6in)/42mm (2in)/ 190.5 (max)	148.2mm(6in)/42mm (2in)/ 190.5 (max)	128.0 mm (5.04)/ 12.7mm (0.5 in)/ 126.1mm (4.97in)
Weight (max) pounds/kilograms	800g	800g	170g
Interface type and speed	SATA 1.5Gbit/s	SATA 1.5Gbit/s	SATA 1.5Gbit/s
Disc Capacity	Standard	Standard	Standard
Internal buffer size	supplier dependent	supplier dependent	supplier dependent
Access Times (typical)	supplier dependent	supplier dependent	supplier dependent
Maximum Data Transfer Rates			
Writes	16x DVD/48x CD	16x DVD/48x CD	8x DVD/ 24x CD
Reads	16x DVD/48x CD	16x DVD/48x CD	8x DVD/ 24x CD
Power Source			
DC Power Requirements	12V, 5V	12V, 5V	5V
DC Current	1200mA (12V)/ 900mA (5V)	1200mA (12V)/ 900mA (5V)	1000mA
Environmental Operating Conditions (Non-Condensing):			
Operating Temperature Range	5C to 50C	5C to 50C	5C to 50C
Relative Humidity Range	20% to 80% RH	20% to 80% RH	20% to 80% RH
Maximum Wet Bulb Temperature	29C	29C	29C
Altitude Range	-200 to 3048	-200 to 3048	-200 to 3048
Environmental Non-Operating Conditions (Non-Condensing):			
Operating Temperature Range	-40C to 65C	-40C to 65C	-40C to 65C
Relative Humidity Range	5% to 95% RH	5% to 95% RH	5% to 95% RH
Maximum Wet Bulb Temperature	38C	38C	38C
Altitude Range	-200 to 10600m	-200 to 10600m	-200 to 10600m

[1] Discs burned with this drive may not be compatible with some existing drives and players; using DVD+R media provides maximum compatibility.

DVD-ROM	MT	DT	SFF
External Dimensions inches/ centimeters (Without Bezel – W x H x D)	148.2mm(6in)/42mm (2in)/ 190.5 (max)	148.2mm(6in)/42mm (2in)/ 190.5 (max)	128.0 mm (5.04)/ 12.7mm (0.5 in)/ 126.1mm (4.97in)
Weight (max) pounds/kilograms	750g	750g	165g
Interface type and speed	SATA 1.5Gbit/s	SATA 1.5Gbit/s	SATA 1.5Gbit/s
Disc Capacity	Standard	Standard	Standard
Internal buffer size	supplier dependent	supplier dependent	supplier dependent
Access Times (typical)	supplier dependent	supplier dependent	supplier dependent
Maximum Data Transfer Rates			
Writes	N/A	N/A	N/A
Reads	16x DVD/48x CD	16x DVD/48x CD	8x DVD/ 24x CD

OPTICAL DRIVES (CONT.)

DVD-ROM (CONT.)	MT	DT	SFF	USFF
Power Source				
DC Power Requirements	12V, 5V	12V, 5V	5V	5V
DC Current	1200mA (12V)/ 900mA (5V)	1200mA (12V)/ 900mA (5V)	800mA	800mA
Environmental Operating Conditions (Non-Condensing):				
Operating Temperature Range	5C to 50C	5C to 50C	5C to 50C	5C to 50C
Relative Humidity Range	20% to 80% RH	20% to 80% RH	20% to 80% RH	20% to 80% RH
Maximum Wet Bulb Temperature	29C	29C	29C	29C
Altitude Range	-200 to 3048m	-200 to 3048m	-200 to 3048m	-200 to 3048m
Environmental Non-Operating Conditions (Non-Condensing):				
Operating Temperature Range	-40C to 65C	-40C to 65C	-40C to 65C	-40C to 65C
Relative Humidity Range	5% to 95% RH	5% to 95% RH	5% to 95% RH	5% to 95% RH
Maximum Wet Bulb Temperature	38C	38C	38C	38C
Altitude Range	-200 to 10600m	-200 to 10600m	-200 to 10600m	-200 to 10600m

MEDIA CARD READER (MCR)

NOTE: Dell 19 in 1 Media Card Reader (MCR) is supported via a F5 to F3 bay converter on the MT and DT and may require a slim line optical drive depending on selectable configuration. MCR is not available on the SFF and USFF chassis.

19 IN 1 MEDIA CARD READER	MT/DT
External Dimensions inches/(centimeters) (With Bezel – W x H)	3.99/(10.13cm)/1.0/(2.54cm)
Weight (max) pounds/kilograms	~155g
Interface type and speed	USB 2.0, 480Mb/s
Media Supported (maximum capacity supported will vary by Flash Media Types)	
Media Supported	CF I CF II Micro Drive (MD) Secure Digital (SD) SDHC Mini Secure Digital (mini-SD) Micro Secure Digital (Micro-SD)(with adapter) Multi Media Card (MMC) RS Multi Media Card (RS-MMC) Multi Media Card plus (MMC plus) RS Multi Media Card plus (RS-MMC plus) Multi Media Card Micro(MMC Micro) (with adapter) Memory Stick (MS) Memory Stick Pro(MS Pro) Memory Stick Pro Duo (MS Pro Duo) Memory Stick Duo (MS-Duo) Memory Stick Micro(MS Micro)(M2) (with adapter) Smart Media (SM) xD
Support Specification Versions:	Compact Flash type I/II Version 4.0 Smart Media (SM) Specification 2003 Multi Media Card (MMC) Specification 4.2 Secure Digital (SD) 2.0 Memory Stick Pro (MS-PRO) Specification 1.02 Memory Stick (MS) Specification 1.43 xD Specification 1.2
Power Source	
Max Power Requirements	2.5W
Supply Voltage Range	4.75V ~ 5.25V
Power Consumption:	Standby less than 0.5mA @ 5.0VDC
Environmental Operating Conditions (Non-Condensing):	
Operating Temperature Range	5C to 50C
Relative Humidity Range	10% to 90% RH
Environmental Non-Operating Conditions (Non-Condensing):	
Operating Temperature Range	-40C to 65C
Relative Humidity Range	5% to 95% RH

BIOS DEFAULTS

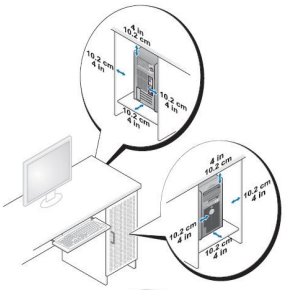
System Configuration	Integrated NIC:	Enabled
	SATA Operation:	ATA
	Drives:	Enable (SATA-0, SATA-1, SATA-2, SATA-3)
	SMART Reporting:	Disable
	USB Configuration:	Enable (Boot Support, Front USB, Rear Dual USB, Rear Quad USB)
	Miscellaneous Devices:	
Video	Multi-Display:	Disable
Performance	Multiple Core Support:	All
	Intel® SpeedStep™:	Enable
	C States Control:	Enable
	HyperThread control:	Enable
	HDD Protection Support	Disable
Virtualization Support	Virtualization:	Enable
	VT for Direct I/O:	Enable
Security	Strong Password:	Disable
	Password Configuration:	Min/Max: 4/32
	Password Bypass:	Disable
	Password Changes:	Enable
	Computrace®:	Deactivate
	Chassis Intrusion:	Disable
	CPU XD Support:	Enable

Power Management	AC Recovery:	Power Off
	Auto On Time:	Disable
	Deep Sleep Control:	Disable
	Fan Control Override:	Disable
	Wake on LAN:	Disable
Maintenance	Service Tag:	Set by the factory
	Asset Tag:	Optional User Entry
	SERR Message:	Enable
POST Behavior	Numlock LED:	Enable
	Keyboard Errors:	Enable
	POST HotKeys:	Enable
	Fast Boot:	Thorough

CHASSIS ENCLOSURE & 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).

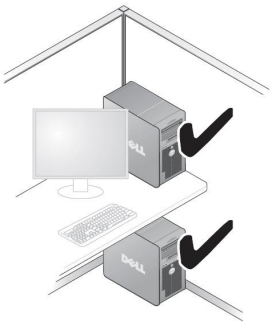


ENCLOSURE MINIMUM CLEARANCE

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 COMPLIANCE AND ENVIRONMENTAL

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.

ACOUSTIC NOISE EMISSION INFORMATION

OPTIPLEX 390 MT

Component	Typical Configuration	High-end Configuration
CPU	Intel i5,3.1GHZ,4c SNB 95W	Intel i5,3.1GHZ,4c SNB 95W
Memory	4GB DDR3 1333MHz	4GB DDR3 1333MHz
HDD (#, capacity)	1TB 7200RPM SATA3	1TB 7200RPM SATA3(x2)
RMSD	16X DVD SATA HH 8X DVD+/-RW SATA 12.7	16X DVD SATA HH 8X DVD+/-RW SATA 12.7
Graphics Adapter	Intel® HD Graphics Family	ATI Radeon HD 6450

The Declared Noise Emission in accordance with ISO 9296 for the Dell OptiPlex 390 MT is as follows:
(all values L_{WAd} expressed in bels; 1 bel=10 decibels, re 10^{-12} Watts)

Operating Mode	Typical Configuration Declared Sound Power (L_{WAd})	High-end Configuration Declared Sound Power (L_{WAd})
Idle	3.4	3.5
HDD Operating	3.6	3.5
90% CPU	3.6	3.5
ODD Operating	5.2	5.2

The Declared A-weighted Sound Pressure Level in decibels (re $2x10^{-5}$ Pa), at Operator, Bystander, and Desk Side 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[1]:

Operating Mode	Typical Configuration Declared Sound Pressure (LpA)				High-end Configuration Declared Sound Pressure (LpA)			
	Table-Top		Floor-Standing		Table-Top		Floor- Standing	
	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)
Idle	23.7	20.2	18.8	19.1	22.9	19.1	18.0	18.8
HDD Operating	24.1	20.5	19.0	19.3	23.3	19.7	18.1	18.9
90% CPU	23.8	20.6	19.3	19.8	24.0	20.2	18.4	18.9
ODD Operating	43.3	36.5	35.2	35.4	43.6	36.8	36.6	35.3

[1] All tests are conducted according to ISO 7779 and declared according to ISO 9296 except 90% CPU. For this mode, the system CPU was stressed at 90% utilization with no other peripheral device actively seeking. 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

ACOUSTIC NOISE EMISSION INFORMATION

OPTIPLEX 390 DT

Component	Typical Configuration	High-end Configuration
CPU	Intel i5,3.1GHZ,4c SNB 95W	Intel i5,3.1GHZ,4c SNB 95W
Memory	4GB DDR3 1333MHz	4GB DDR3 1333MHz
HDD (#, capacity)	1TB 7200RPM SATA3	1TB 7200RPM SATA3
RMSD	16X DVD+/-RW SATA HH	16X DVD+/-RW SATA HH
Graphics Adapter	Intel® HD Graphics Family	ATI Radeon HD 6450

The Declared Noise Emission in accordance with ISO 9296 for the Dell OptiPlex 390 DT is as follows:
(all values L_{WAd} expressed in bels; 1 bel=10 decibels, re 10^{-12} Watts)

Operating Mode	Typical Configuration Declared Sound Power (L_{WAd})	High-end Configuration Declared Sound Power (L_{WAd})
Idle	3.4	3.4
HDD Operating	3.4	3.4
90% CPU	4.0	4.1
ODD Operating	5.2	5.2

The Declared A-weighted Sound Pressure Level in decibels (re $2x10^{-5}$ Pa), at Operator, Bystander, and Desk Side 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[1]:

Operating Mode	Typical Configuration Declared Sound Pressure (LpA)				High-end Configuration Declared Sound Pressure (LpA)			
	Table-Top		Floor-Standing		Table-Top		Floor- Standing	
	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)
Idle	24.5	18.4	18.0	19.7	23.8	19.3	18.6	18.6
HDD Operating	24.5	18.4	18.2	19.6	24.1	19.4	18.6	18.7
90% CPU	31.1	22.6	24.0	26.2	32.9	28.0	23.9	22.4
ODD Operating	43.6	34.8	36.0	38.3	43.8	38.4	35.3	34.5

[1] All tests are conducted according to ISO 7779 and declared according to ISO 9296 except 90% CPU. For this mode, the system CPU was stressed at 90% utilization with no other peripheral device actively seeking. 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

ACOUSTIC NOISE EMISSION INFORMATION

OPTIPLEX 390 SFF

Component	Typical Configuration	High-end Configuration
CPU	Intel i5,3.1GHZ,4c SNB 95W	Intel i5,3.1GHZ,4c SNB 95W
Memory	4GB DDR3 1333MHz	4GB DDR3 1333MHz
HDD (#, capacity)	1TB 7200RPM SATA3	1TB 7200RPM SATA3
RMSD	8X DVD+/-RW SATA 12.7	8X DVD+/-RW SATA 12.7
Graphics Adapter	Intel® HD Graphics Family	ATI Radeon HD 6450

The Declared Noise Emission in accordance with ISO 9296 for the Dell OptiPlex 390 SFF is as follows:
(all values L_{WAd} expressed in bels; 1 bel=10 decibels, re 10^{-12} Watts)

Operating Mode	Typical Configuration Declared Sound Power (L_{WAd})	High-end Configuration Declared Sound Power (L_{WAd})
Idle	3.7	3.7
HDD Operating	3.7	3.7
90% CPU	4.5	4.5
ODD Operating	4.6	4.6

The Declared A-weighted Sound Pressure Level in decibels (re $2x10^{-5}$ Pa), at Operator, Bystander, and Desk Side 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

Operating Mode	Typical Configuration Declared Sound Pressure (LpA)				High-end Configuration Declared Sound Pressure (LpA)			
	Table-Top		Floor-Standing		Table-Top		Floor- Standing	
	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)	Operator Position (LpA)	Bystander Position (LpA)
Idle	26.1	22.7	19.0	19.2	25.9	22.6	18.8	19.1
HDD Operating	26.0	22.7	19.0	19.4	25.8	22.4	18.8	19.1
90% CPU	33.2	29.7	26.0	25.7	33.4	29.9	24.9	25.3
ODD Operating	36.6	31.1	29.7	28.4	36.7	31.1	29.3	28.6

[1] All tests are conducted according to ISO 7779 and declared according to ISO 9296 except 90% CPU. For this mode, the system CPU was stressed at 90% utilization with no other peripheral device actively seeking. 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