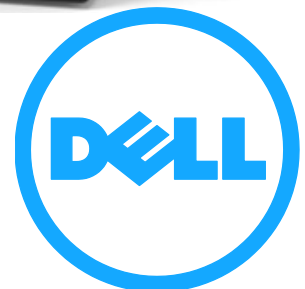


# DELL PRECISION™ TOWER 3000 SERIES- TOWER 3620, 3420



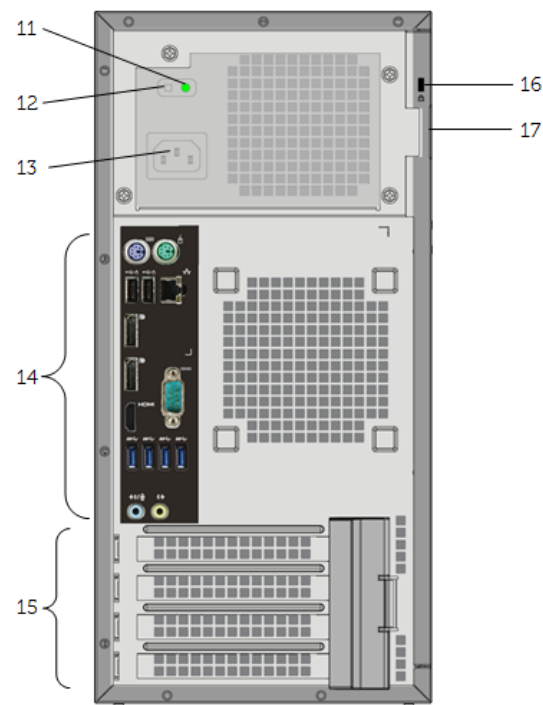
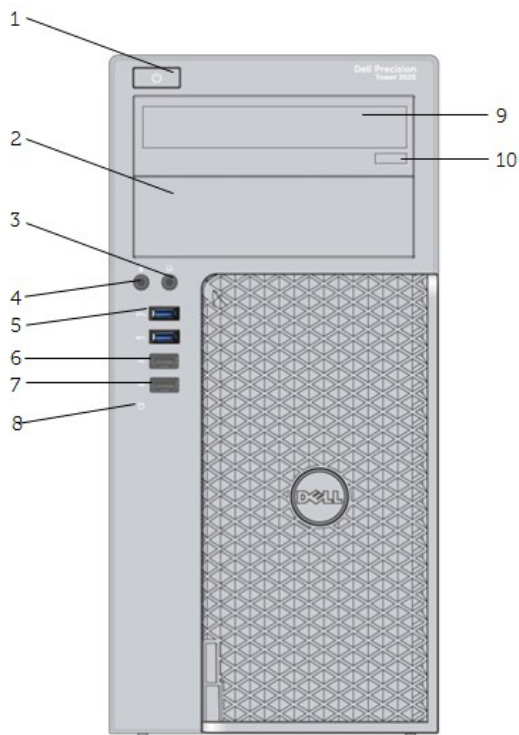
Technical  
Guidebook



## TABLE OF CONTENTS

| OVERVIEW                                                                                                           | PAGE  |
|--------------------------------------------------------------------------------------------------------------------|-------|
| Dell Precision Tower 3620 Workstation (Mini Tower) View                                                            | 3-4   |
| Dell Precision Tower 3420 Workstation (Small Form Factor) View                                                     | 5-7   |
| <b>MARKETING SYSTEM CONFIGURATIONS</b>                                                                             |       |
| Operating System, Chipset                                                                                          | 8     |
| Processor                                                                                                          | 9     |
| Memory                                                                                                             | 10    |
| Graphics/Video Controllers                                                                                         | 11    |
| Drives and Removable Storage                                                                                       | 12-14 |
| System Expansion Slots, External Ports/Connectors                                                                  | 14-15 |
| Hard Drive Controller, Communications—Network Adapter, Audio and Speakers, Keyboard and Mouse                      | 15-16 |
| Security, Service and Support, Software                                                                            | 16    |
| <b>DETAILED ENGINEERING SPECIFICATIONS</b>                                                                         |       |
| System Dimensions (Physical), System Expansion Slots                                                               | 17    |
| System Level Environmental and Operating Conditions                                                                | 18    |
| Power                                                                                                              | 19-20 |
| Audio—Integrated, Communications—Integrated LAN                                                                    | 20-22 |
| Communications—Add in Network Interface Card (NIC)                                                                 | 22    |
| Communications—Add in 1394 card, Add in Parallel / Serial Card (TOWER 3620) Add in Serial or Parallel (TOWER 3420) | 23-26 |
| Graphics/Video Controllers                                                                                         | 27-40 |
| Hard Drives                                                                                                        | 41-48 |
| Dell Ultra Speed Drive duo                                                                                         | 49-50 |
| Optical Drive                                                                                                      | 51-52 |
| Media Card Reader                                                                                                  | 53-54 |
| BIOS Defaults                                                                                                      | 55-56 |
| USB initialization sequence                                                                                        | 57-58 |
| Chassis Enclosure and Ventilation Requirements                                                                     | 59    |

EXTERNAL CHASSIS VIEWS—MINI TOWER



FRONT VIEW

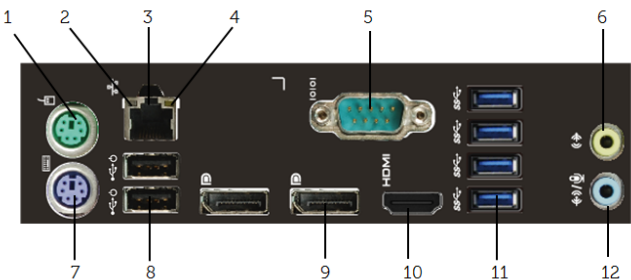
|   |                              |    |                                             |
|---|------------------------------|----|---------------------------------------------|
| 1 | Power Button, Power Light    | 6  | USB 2.0 Connector                           |
| 2 | Optical Drive Bay (optional) | 7  | USB 2.0 Connector with Power Share Function |
| 3 | Headphone Connector          | 8  | Hard Drive Activity Light                   |
| 4 | Microphone Connector         | 9  | Optical Drive (optional)                    |
| 5 | USB 3.0 Connectors (2)       | 10 | Optical Drive Eject Button                  |

BACK VIEW

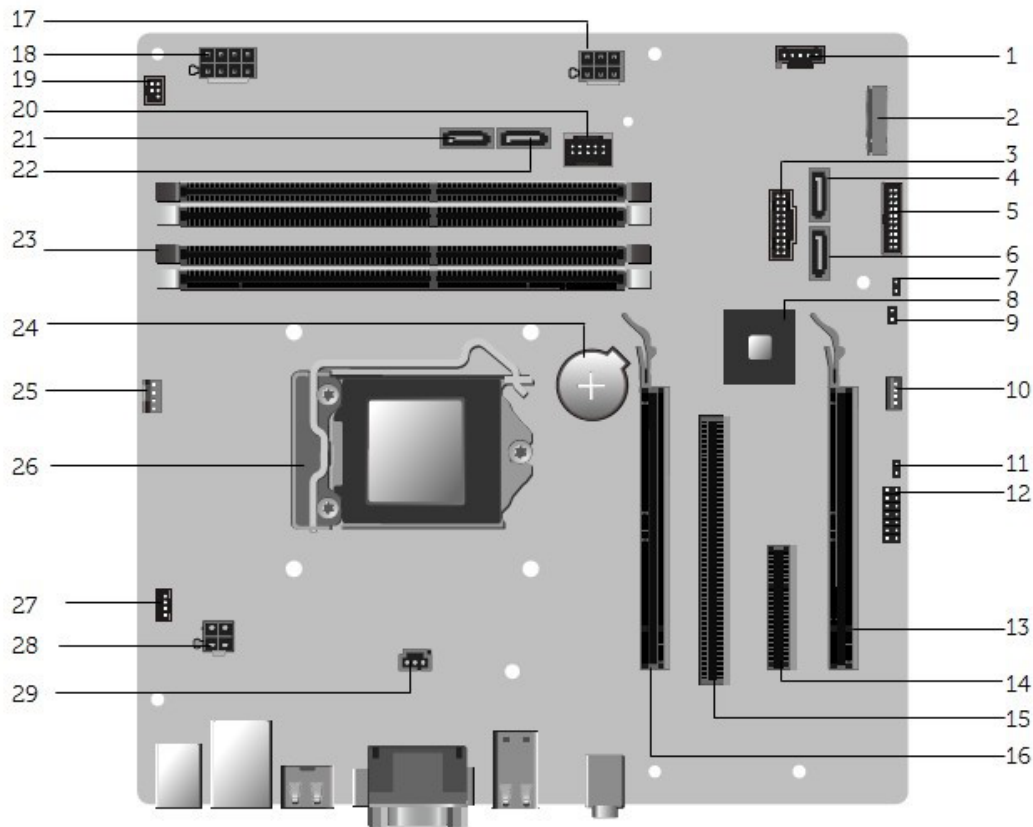
|    |                                |    |                                        |
|----|--------------------------------|----|----------------------------------------|
| 11 | Power Supply Diagnostic Light  | 15 | Expansion Card Slots (4)               |
| 12 | Power Supply Diagnostic Button | 16 | Kensington / Noble Security Cable Slot |
| 13 | Power Connector                | 17 | Padlock Ring                           |
| 14 | Back Panel Connectors          |    |                                        |

BACK PANEL CONNECTORS

|   |                        |    |                                           |
|---|------------------------|----|-------------------------------------------|
| 1 | PS2_Mouse Connector    | 7  | PS2_Keyboard Connector                    |
| 2 | Link Integrity Light   | 8  | USB2.0 Connectors (2) with Smart Power on |
| 3 | Network Connector      | 9  | DisplayPort Connector(2)                  |
| 4 | Network Activity Light | 10 | HDMI Connector                            |
| 5 | Serial Connector       | 11 | USB3.0 Connectors (4)                     |
| 6 | Line-out Connector     | 12 | Line-in/Microphone Connector              |



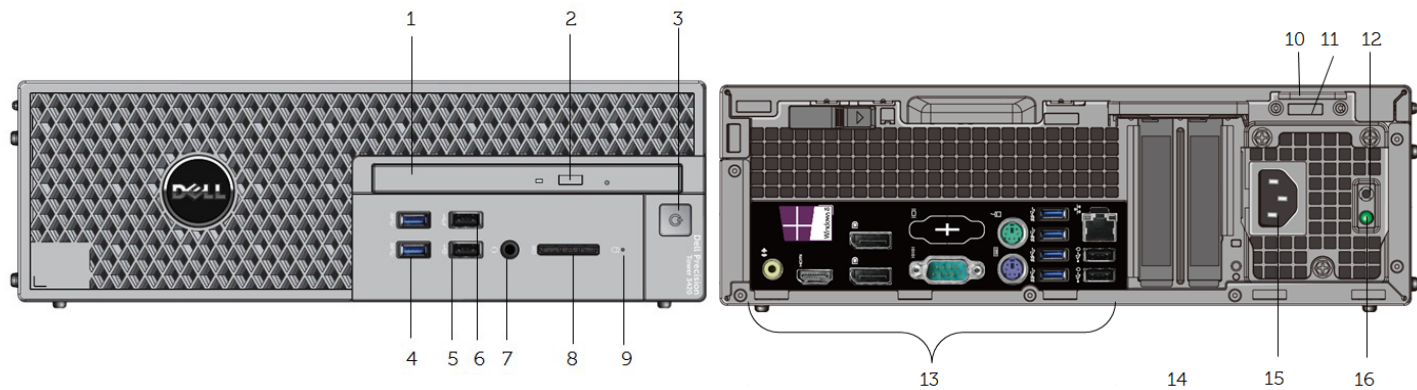
## MOTHERBOARD LAYOUT



## TOWER 3620 System Board Components

| Number | Name                                   | Number | Name                                     |
|--------|----------------------------------------|--------|------------------------------------------|
| 1      | Thunderbolt Header (TBT_HDR)           | 16     | PCI-e x16 Gen 3 Slot (SLOT1)             |
| 2      | M.2 NGFF Card Slot(M.2_SLOT2)          | 17     | HDD_ODD_Power Cable Connector (SATA_PWR) |
| 3      | Front USB3.0 Connector (F_USB3)        | 18     | P1 Power Connector (ATX_SYS_1)           |
| 4      | SATA 0 Connector (SATA0) (Blue color)  | 19     | Power Switch Connector (PWR_SW)          |
| 5      | Front IO Connector (F_PANEL2)          | 20     | Internal USB Connector (INT_USB)         |
| 6      | SATA 3 Connector (SATA3) (Black color) | 21     | SATA 1 Connector (SATA1) (White color)   |
| 7      | PSWD Jumper (PSWD)                     | 22     | SATA 2 Connector (SATA2) (Black color)   |
| 8      | PCH chip (N/A)                         | 23     | DIMM Slots (DIMM1, DIMM2, DIMM3, DIMM4)  |
| 9      | SERVICE_MODE Jumper (SERVICE_MODE)     | 24     | Coin-cell Battery (BATTERY)              |
| 10     | Internal Speaker Connector (INT_SPKR)  | 25     | CPU Fan Connector (FAN_CPU)              |
| 11     | CMCLR Jumper (CMCLR)                   | 26     | CPU Socket (XU1)                         |
| 12     | CLINK Header (CLINK)                   | 27     | System Fan Connector (FAN_SYS2)          |
| 13     | PCI-e x16 (wire x4) Slot (SLOT4)       | 28     | P2 Power Connector (ATX_CPU)             |
| 14     | PCI-e x4 Slot (SLOT3)                  | 29     | Intrusion Switch Connector (INTRUDER)    |
| 15     | PCI Slot (SLOT2)                       |        |                                          |

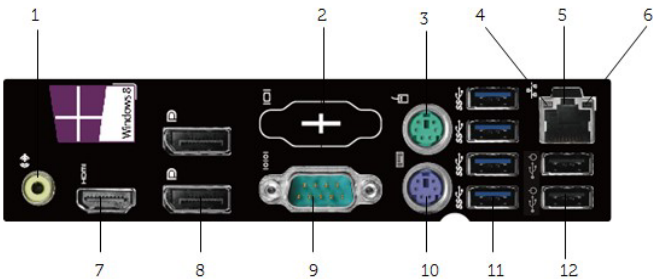
EXTERNAL CHASSIS VIEWS—SMALL FORM FACTOR



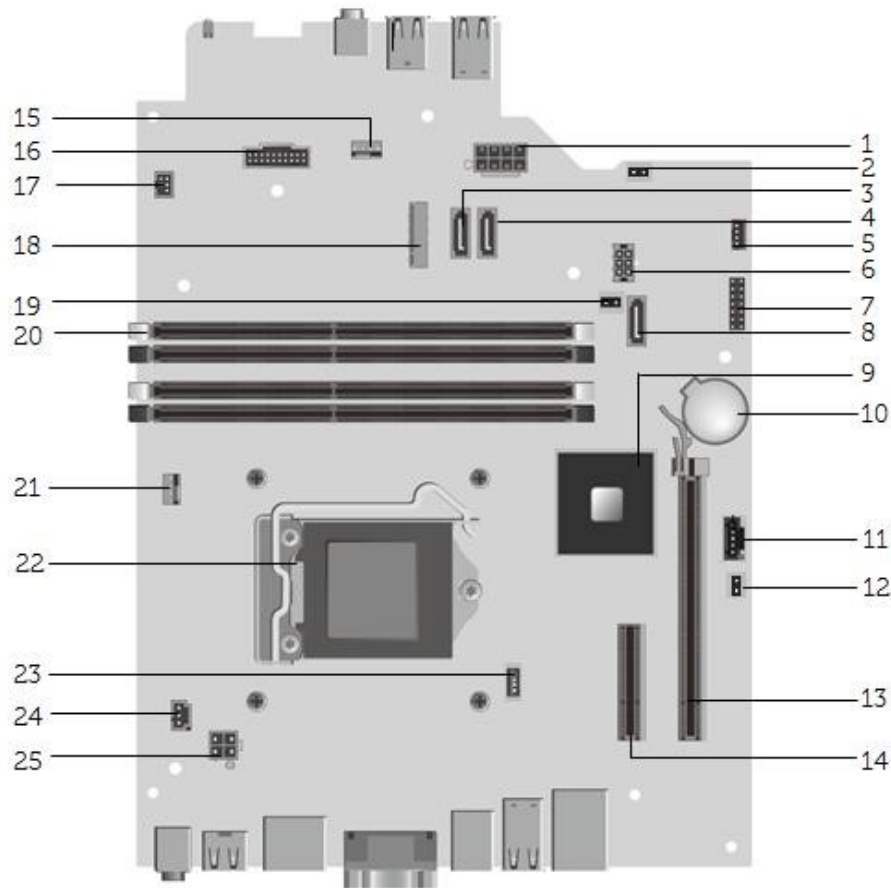
| FRONT VIEW |                            |   |                                             |
|------------|----------------------------|---|---------------------------------------------|
| 1          | Optical Drive              | 6 | USB 2.0 Connector with Power Share Function |
| 2          | Optical Drive Eject Button | 7 | Universal Audio Jack                        |
| 3          | Power Button, Power Light  | 8 | Card Reader Opening                         |
| 4          | USB 3.0 Connectors (2)     | 9 | HDD Drive Activity Light                    |
| 5          | USB 2.0 Connector          |   |                                             |

| BACK VIEW |                                        |    |                               |
|-----------|----------------------------------------|----|-------------------------------|
| 10        | Padlock Ring                           | 14 | Expansion Card Slots (2)      |
| 11        | Kensington / Noble Security Cable Slot | 15 | Power Connector               |
| 12        | Power Supply Diagnostic Button         | 16 | Power Supply Diagnostic Light |
| 13        | Back Panel Connectors                  |    |                               |

| BACK PANEL CONNECTORS |                          |    |                                           |
|-----------------------|--------------------------|----|-------------------------------------------|
| 1                     | Line-out Connector       | 7  | HDMI Connector                            |
| 2                     | VGA Connector (Optional) | 8  | Display Port Connectors(2)                |
| 3                     | PS2_Mouse Connector      | 9  | Serial Connector                          |
| 4                     | Link Integrity Light     | 10 | PS2_Keyboard Connector                    |
| 5                     | Network Connector        | 11 | USB3.0 Connectors (4)                     |
| 6                     | Network Activity Light   | 12 | USB2.0 Connectors (2) with Smart Power on |



## MOTHERBOARD LAYOUT



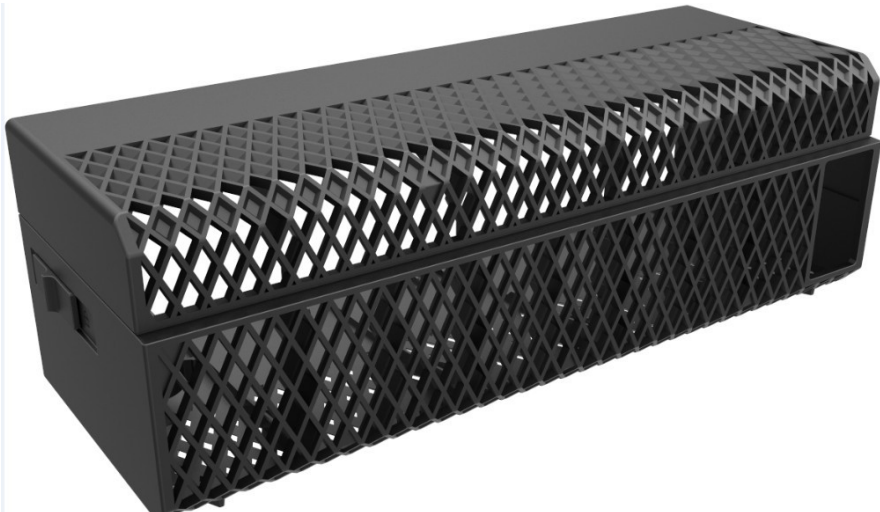
## TOWER 3420 System Board Components

| Number | Name                                      | Number | Name                                          |
|--------|-------------------------------------------|--------|-----------------------------------------------|
| 1      | P1 Power Connector (ATX_SYS)              | 14     | PCIe x4 Connector(SLOT1)                      |
| 2      | SERVICE_MODE Jumper (SERVICE_MODE)        | 15     | System Fan Connector (FAN_SYS)                |
| 3      | SATA 2 Connector (SATA2) (Black color)    | 16     | Media Card Reader Connector (MCR)             |
| 4      | SATA 0 Connector (SATA0) (Blue color)     | 17     | Power Switch Connector (PWR_SW)               |
| 5      | Internal Speaker Connector (INT_SPKR)     | 18     | M.2 NGFF Card Slot (SLOT3_M.2)                |
| 6      | HDD_ODD_Power Cable Connector (SATA_PWR)  | 19     | PWCLR Jumper (PWCLR)                          |
| 7      | Connector for WLAN Caddy card Clink cable | 20     | Memory Connectors(DIMM1, DIMM2, DIMM3, DIMM4) |
| 8      | SATA 1 Connector (SATA1) (White color)    | 21     | CPU Fan Connector (FAN_CPU)                   |
| 9      | PCH chip (N/A)                            | 22     | CPU Socket (XU1)                              |
| 10     | Battery Connector (BATTERY)               | 23     | VGA Connector (VGA)                           |
| 11     | Thunderbolt Header (TBT)                  | 24     | Intrusion Switch Connector (INTRUDER)         |
| 12     | CMCLR Jumper (CMCLR)                      | 25     | P2 Power Connector (ATX_CPU)                  |
| 13     | PCIe x16 Connector (SLOT2)                |        |                                               |

TOWER 3420 Optional Cable Cover



Cable Cover Dimension HxWxD (inches/centimeters) =  
4.13 x 3.65 x 11.42 / 10.5 x 9.26 x 29



## 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

Windows 7, Windows 8.1, RHEL 7.2, Ubuntu 14.04, Neoklylin 6 SP2 Operating Systems are only supported with 6th Gen Intel Core i3,i5,i7 & E3-1200 v5 Processors.

RHEL 7.3, Ubuntu 16.04, Neoklylin 6 SP3 are only supported with 7th Gen Intel Core I Processors

|                          |                                                                                                                                                                                                          |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Windows operating system | Microsoft® Windows 10 Pro (64 bit),<br>Microsoft® Win10 Home (64bit)<br>Microsoft® Windows 8.1 Pro (64bit)<br>Microsoft® Win8.1 Home (64bit),<br>Microsoft® Windows 7® Professional SP1 (32 and 64 bit), |
| Linux operations system  | Red Hat Enterprise Linux 7.2 / 7.3                                                                                                                                                                       |
|                          | Ubuntu 14.04 / 16.04                                                                                                                                                                                     |
|                          | NeoKylin 6 SP2 / SP3                                                                                                                                                                                     |
| OS Media Support         | Optional                                                                                                                                                                                                 |

### CHIPSET

|                                                                |                                                                        |
|----------------------------------------------------------------|------------------------------------------------------------------------|
| Chipset                                                        | Intel C236 Chipset                                                     |
| <b>Non-volatile memory on chipset</b>                          |                                                                        |
| BIOS Configuration SPI (Serial Peripheral Interface)           | 128Mbit (16MB)                                                         |
| TPM 2.0 Security Device (Trusted Platform Module) <sup>1</sup> | 24KB                                                                   |
| 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: Intel Core i3/i5/i7 processors can only be paired with Non-ECC memory.

|                                                                                                   | <b>Tower<br/>3620</b> | <b>Tower 3420</b> | <b>Integrated Graphics<br/>Support</b> |
|---------------------------------------------------------------------------------------------------|-----------------------|-------------------|----------------------------------------|
| <b>Intel® Xeon Quad Core Processors</b>                                                           |                       |                   |                                        |
| Intel® Xeon E3-1240 v5<br>3.50GHz, 3.9Ghz Turbo, 8M, 80W, HT, Turbo Boost, VT-x, VT-d, TXT, Pro™  | X                     | X                 | None                                   |
| Intel® Xeon E3-1270 v5<br>3.60GHz, 4.0Ghz Turbo, 8M, 80W, HT, Turbo Boost, VT-x, VT-d, TXT, Pro™  | X                     | X                 | None                                   |
| Intel® Xeon E3-1220 v5<br>3.00GHz, 3.5Ghz Turbo, 8M, 80W, Turbo Boost, VT-x, VT-d, TXT, vPro™     | X-GSP                 | X-GSP             | None                                   |
| Intel® Xeon E3-1225 v5<br>3.30GHz, 3.7Ghz Turbo, 8M, 80W, Turbo Boost, VT-x, VT-d, TXT, vPro™     | X-GSP                 | X-GSP             | Intel HD P530<br>Graphics              |
| Intel® Xeon E3-1245 v5<br>3.50GHz, 3.9Ghz Turbo, 8M, 80W, HT, Turbo Boost, VT-x, VT-d, TXT, vPro™ | X-GSP                 | X-GSP             | Intel HD P530<br>Graphics              |
| <b>Intel® Core Quad Core Processors</b>                                                           |                       |                   |                                        |
| Intel® Core i7-6700K <sup>1</sup><br>4.00GHz, 4.2Ghz Turbo, 8M, 91W, HT, Turbo Boost, VT-x, VT-d  | X                     |                   | Intel HD 530 Graphics                  |
| Intel® Core i7-6700<br>3.40GHz, 4.0Ghz Turbo, 8M, 65W, HT, Turbo Boost, VT-x, VT-d, TXT, vPro™    | X-GSP                 | X-GSP             | Intel HD 530 Graphics                  |
| Intel® Core i5-6600<br>3.30GHz, 3.9Ghz Turbo, 6M, 65W, Turbo Boost, VT-x, VT-d, TXT, vPro™        | X                     | X                 | Intel HD 530 Graphics                  |
| Intel® Core i5-6500<br>3.20GHz, 3.6Ghz Turbo, 6M, 65W, Turbo Boost, VT-x, VT-d, TXT, vPro™        | X-GSP                 | X-GSP             | Intel HD 530 Graphics                  |
| Intel® Core i7-7700K <sup>1</sup><br>4.20GHz, 4.5Ghz Turbo, 8M, 91W, HT, Turbo Boost, VT-x, VT-d  | X                     |                   | Intel HD 630 Graphics                  |
| Intel® Core i7-7700<br>3.50GHz, 4.1Ghz Turbo, 8M, 65W, HT, Turbo Boost, VT-x, VT-d, TXT, vPro™    | X-GSP                 | X-GSP             | Intel HD 630 Graphics                  |
| Intel® Core i5-7600<br>3.30GHz, 3.9Ghz Turbo, 6M, 65W, Turbo Boost, VT-x, VT-d, TXT, vPro™        | X                     | X                 | Intel HD 630 Graphics                  |
| Intel® Core i5-7500<br>3.40GHz, 3.8Ghz Turbo, 6M, 65W, Turbo Boost, VT-x, VT-d, TXT, vPro™        | X-GSP                 | X-GSP             | Intel HD 630 Graphics                  |
| <b>Intel® Core Dual Core Processors</b>                                                           |                       |                   |                                        |
| Intel® Core i3-6100<br>3.70GHz, 3M, 65W, HT, VT-x, VT-d                                           | X                     | X                 | Intel HD 530 Graphics                  |

<sup>1</sup> The i7-6700K \* i7700K is locked in the BIOS and cannot be overclocked.

**MEMORY**

NOTE: The Dell Precision TOWER 3620/TOWER 3420 has a dual channel memory bus architecture. Dell recommends that two memory channels be populated with DIMMS for maximum memory performance.. Please note, UDIMM ECC and NECC memory cannot be mixed.

NOTE: Not all memory options are available for Factory Installation.. Processor availability subject to change and may vary by region/country.

NOTE: Maximum memory speed is tied to processor. Intel 7th Gen Processor only supports 2400Mhz memory. 2400Mhz memory will clock down to 2133Mhz when paired with Intel 6th Gen Core I or E3-1200 v5 Processors

|                                                        | Tower 3620                       | Tower 3420 |
|--------------------------------------------------------|----------------------------------|------------|
| Memory specifications                                  |                                  |            |
| Type:                                                  | DDR4 Non-ECC UDIMM and ECC UDIMM |            |
| Max Frequency                                          | 2133 MHz / 2400MHz               |            |
| DIMM Slots                                             | 4                                |            |
| DIMM Capacities                                        | Up to 16GB                       |            |
| Minimum Memory                                         | 4GB                              |            |
| Maximum System Memory                                  | 64GB                             |            |
| Memory options                                         |                                  |            |
| ECC UDIMM Memory (only available with Xeon processors) |                                  |            |
| 64GB (4 x 16 GB) DDR4, 2133 MHz                        | X                                | X          |
| 32GB (2x 16 GB) DDR4, 2133 MHz                         | X                                | X          |
| 32GB (4 x 8 GB) DDR4, 2133 MHz                         | X                                | X          |
| 16GB (2 x 8 GB) DDR4, 2133 MHz                         | X                                | X          |
| 16GB (4 x 4 GB) DDR4, 2133 MHz                         | X                                | X          |
| 8GB (1 x 8 GB) DDR4, 2133 MHz                          | X                                | X          |
| 8GB (2 x 4 GB) DDR4, 2133 MHz                          | X                                | X          |
| 4GB <sup>1</sup> (1 x 4GB) DDR4 2133 MHz,              | X                                | X          |
| Non- ECC Memory (NECC)                                 |                                  |            |
| 64GB (4 x 16 GB) DDR4, 2133 MHz and 2400MHz            | X                                | X          |
| 32GB (2x 16 GB) DDR4, 2133 MHz and 2400MHz             | X                                | X          |
| 32GB (4 x 8 GB) DDR4, 2133 MHz and 2400MHz             | X                                | X          |
| 16GB (2 x 8 GB) DDR4, 2133 MHz and 2400MHz             | X                                | X          |
| 16GB (4 x 4 GB) DDR4, 2133 MHz and 2400MHz             | X                                | X          |
| 8GB (1 x 8 GB) DDR4, 2133 MHz and 2400MHz              | X                                | X          |
| 8GB (2 x 4 GB) DDR4, 2133 MHz and 2400MHz              | X                                | X          |
| 4GB <sup>1</sup> (1 x 4 GB) DDR4 2133 MHz, and 2400MHz | X                                | X          |

<sup>1</sup>The total amount of available memory will be less than 4GB on systems running 32-bit operating systems. The amount less depends on the actual system configuration. To fully utilize 4GB or more of memory requires a 64-bit operating system.

**GRAPHICS/VIDEO CONTROLLER**

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

NOTE: Dual Graphic options available on Mini Tower only where specified.

| Graphic/Video Options                                       | Tower 3620     | Tower 3420 | Included Dongle                                                 |
|-------------------------------------------------------------|----------------|------------|-----------------------------------------------------------------|
| <b>Professional 2D</b>                                      |                |            |                                                                 |
| NVIDIA NVS 510 with (4) mDP , 2GB, 33.4W                    | S, D           | S          | mDP-VGA, mDP-DP, mDP-HDMI, mDP-DVI-D                            |
| NVIDIA NVS 310 with (2) DP , 512MB, 19.5W                   | S, D           | S          | mDP-VGA, mDP-DP, mDP-HDMI, mDP-DVI-D                            |
| NVIDIA NVS 310 with (2) DP , 1GB, 19.5W                     | S, D           | S          | mDP-VGA, mDP-DP, mDP-HDMI, mDP-DVI-D                            |
| NVIDIA NVS 315 with (1) DMS-59, 1GB, 19.3W                  | S, D           | S, D       | DMS-59-Dual DVI-I, DMS-59-Dual DP, DMS-59-HDMI, DMS-59-Dual VGA |
| <b>Entry 3D</b>                                             |                |            |                                                                 |
| AMD FirePro W4100 with (4)mDP, 2GB, < 50W                   | S, D           | S          | mDP-DP                                                          |
| AMD FirePro W2100 with (2)DP, 2GB, < 50W                    | S, D           | S          | DP-DP                                                           |
| NVIDIA Quadro K620 with (1) DP and (1) DVI , 2GB, 45W       | S, D           | S          | DP-DVI, DP-DP, DVI-VGA                                          |
| NVIDIA Quadro K420 with (1) DP and (1) DVI , 2GB, 41W       | S              | S          | DP-DVI, DP-DP, DVI-VGA                                          |
| NVIDIA Quadro K1200 with (4)mDP, 4GB, 46W                   | S <sup>3</sup> | S          | mDP-DP, mDP-VGA, mDP-HDMI                                       |
| <b>Mid-range 3D</b>                                         |                |            |                                                                 |
| AMD FirePro W7100 with (4) DP, 8GB, < 150W                  | S              |            | DP-DP                                                           |
| AMD FirePro W5100 with (4) DP, 4GB, 75W                     | S              |            | DP-DP                                                           |
| 4NVIDIA Quadro K2200 with (2) DP and (1) DVI, 4GB, 67.7W    | S              |            | DP-DVI, DP-DP, DVI-VGA                                          |
| NVIDIA Quadro M2000 <sup>2</sup> with (4) DP, 4GB, 61.5W    | S              |            | DP-DP                                                           |
| NVIDIA Quadro M4000 <sup>2</sup> with (4) DP, 8GB, 120W     | S              |            | DP-DP                                                           |
| <b>Integrated Graphics<sup>1</sup></b>                      |                |            |                                                                 |
| Intel HD 530 Graphics, system ports 2DP+1HDMI (6th Gen CPU) | On board       | On board   | None included                                                   |
| Intel HD 630 Graphics, system ports 2DP+1HDMI (7th Gen CPU) | On board       | On board   | None included                                                   |

<sup>1</sup>NOTE: Intel Integrated Graphics is only available on select processors. The specific processor determines which type of Integrated graphics is available.

<sup>3</sup>Note: “S” for single, “D” for Dual” and “S,D” for single or Dual Graphics support.

## DRIVES AND REMOVABLE STORAGE

NOTE: Intel Rapid Storage Technology (RST) supported with Windows Operating System

|                                                                                     | TOWER 3620             | TOWER 3420             |
|-------------------------------------------------------------------------------------|------------------------|------------------------|
| <b>Bays:</b>                                                                        |                        |                        |
| 5.25-inch Optical Bay (External)                                                    | 2                      |                        |
| Slimline Optical Bay (External)                                                     |                        | 1                      |
| Optical Drives Supported (maximum)                                                  | 2                      | 1                      |
| Hard Drive Bay Supported (Internal)                                                 | 4 (2x 3.5" or 4x 2.5") | 2 (1x 3.5" or 2x 2.5") |
| Hard Drives Supported 3.5"/2.5" (maximum) (Excludes 1x M.2 PCIe SSD on motherboard) | 2/4                    | 1/2                    |
| <b>Interface:</b>                                                                   |                        |                        |
| SATA 3.0 (TOWER 3620/TOWER 3420 optical or 3rd/4th Hard Drive on TOWER 3620)        | 2                      | 1                      |
| SATA 3.0 (TOWER 3620/TOWER 3420 Hard Drives)                                        | 2                      | 2                      |
| <b>3.5" Hard Drives:</b>                                                            |                        |                        |
| 4TB SATA 5400 RPM HDD                                                               | X                      | X                      |
| 2TB SATA 7200 RPM HDD                                                               | X                      | X                      |
| 1TB SATA 7200 RPM HDD                                                               | X                      | X                      |
| 500GB <sup>1</sup> SATA 7200 RPM HDD                                                | X                      | X                      |
| <b>2.5" Hard Drives:</b>                                                            |                        |                        |
| 1TB SATA 7200 RPM HDD                                                               | X                      | X                      |
| 500GB <sup>1</sup> SATA 7200 RPM HDD                                                | X                      | X                      |
| 500GB <sup>1</sup> SATA 7200 RPM SED OPAL FIPS HDD                                  | X                      | X                      |
| 512GB <sup>1</sup> SATA Class 20 Solid State Drive                                  | X                      | X                      |
| 512GB <sup>1</sup> SATA Class 30 Solid State Drive                                  | X                      | X                      |
| 512GB <sup>1</sup> SATA SED Class 20 Solid State Drive                              | X                      | X                      |
| 360GB <sup>1</sup> SATA Class 20 Solid State Drive                                  | X                      | X                      |
| 256GB <sup>1</sup> SATA Class 20 Solid State Drive                                  | X                      | X                      |
| 256GB <sup>1</sup> SATA Class 30 Solid State Drive                                  | X                      | X                      |
| 128GB <sup>1</sup> SATA Class 20 Solid State Drive                                  | X                      | X                      |

<sup>1</sup> For hard drives, GB means 1 billion bytes; actual capacity varies with preloaded material and operating environment and will be less.<sup>2</sup> The M.2 SSD is installed in 2280 M.2 slot on MB.

DRIVES AND REMOVABLE STORAGE

|                                                                      | TOWER 3620 | TOWER 3420 |
|----------------------------------------------------------------------|------------|------------|
| M.2 2280 Solid State Driver                                          |            |            |
| 1TB <sup>1</sup> PCIE 2280 Class 40 Solid State Drive <sup>2</sup>   | X          | X          |
| 512GB <sup>1</sup> PCIE 2280 Class 40 Solid State Drive <sup>2</sup> | X          | X          |
| 512GB <sup>1</sup> PCIE 2280 Class 50 Solid State Drive              | X          | X          |
| 256GB <sup>1</sup> PCIE 2280 Class 40 Solid State Drive <sup>2</sup> | X          | X          |
| 256GB <sup>1</sup> PCIE 2280 Class 50 Solid State Drive              | X          | X          |

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

<sup>2</sup> The M.2 SSD is installed in 2280 M.2 slot on MB.

**DRIVES AND REMOVABLE STORAGE (CON'T)**

|                                                  | TOWER 3620 | TOWER 3420 |
|--------------------------------------------------|------------|------------|
| <b>Optical Drive:</b>                            |            |            |
| 5.25" 16X DVD+/-RW <sup>1</sup> SATA 1.5Gbit/s   | X          |            |
| 5.25" 16X DVD-ROM <sup>2</sup> SATA 1.5Gbit/s    | X          |            |
| 5.25" 8x Blu Ray Writer                          | X          |            |
| Slimline 8X DVD+/-RW <sup>1</sup> SATA 1.5Gbit/s |            | X          |
| Slimline 8X DVD-ROM <sup>2</sup> SATA 1.5Gbit/s  |            | X          |
| Slimline 6X Blu Ray Writer                       |            | X          |
| <b>Media Card Reader:</b>                        |            |            |
| Dell 19 in 1 Media Card Reader                   | X          |            |
| Media Card Reader-Integrated (SD 4.0)            |            | X          |

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

<sup>2</sup> DVD-ROM drives may have write-capable hardware that has been disabled via firmware modifications.

NOTE: Dell 19 in 1 Media Card Reader (MCR) is supported via a F5 to F3 bay converter in the 5.25" Optical Drive Bay on TOWER 3620 only.

**SYSTEM EXPANSION SLOTS**

NOTE: See Detailed Engineering Specifications for supported voltage, maximum wattage and card dimensions.

|                                                            | TOWER 3620 | TOWER 3420 |
|------------------------------------------------------------|------------|------------|
| PCIe x16 Slot Gen 3                                        | 1          | 1          |
| PCIe x16 (wired x4) Slot Gen 3                             | 1          |            |
| PCIe x4, (open ended) Slot Gen 3                           | 1          | 1          |
| PCI 32/33 Slot                                             | 1          |            |
| Serial ATA (SATA) connectors (for Hard Drives and Optical) | 4          | 3          |

**EXTERNAL PORTS/CONNECTORS**

NOTE: See chassis diagrams section for port/connector locations. External ports/ connectors at the same on TOWER 3620 & TOWER 3420.

|                                       |                                                     |
|---------------------------------------|-----------------------------------------------------|
| USB 3.0                               | 2 Front, 4 Rear                                     |
| USB 2.0                               | 2 Front, 2 Rear                                     |
| Internal USB 2.0                      | 2 Internal (Tower 3620), None (Tower 3420)          |
| Serial                                | 1 Rear (2nd via optional Add in Card)               |
| Network Connector (RJ-45)             | 1 Rear                                              |
| PS/2                                  | 2 Rear                                              |
| 1394 Controller via optional PCI card | Optional via Add in Card, Customer kit only         |
| Parallel                              | Optional via Parallel / 2nd Serial PCIE add in Card |

**EXTERNAL PORTS/CONNECTORS (CONT.)**

NOTE: See chassis diagrams section for port/connector locations. External ports/ connectors at the same

|                                     | Tower 3620      | Tower 3420 |
|-------------------------------------|-----------------|------------|
| <b>Audio:</b>                       |                 |            |
| Line in for microphone              | 1 Front         |            |
| Line in for microphone or stereo    | 1 Rear          |            |
| Line out for headphones or speakers | 1 Front, 1 Rear |            |

**HARD DRIVE CONTROLLER**

|                                                                                                                        | Tower 3620 | Tower 3420 |
|------------------------------------------------------------------------------------------------------------------------|------------|------------|
| Intel Rapid Storage Controller 12.0 supporting SATA 6Gb/s (4ports–SATA0, SATA1,SATA2,SATA3) , host based RAID 0/1/5/10 | Integrated |            |
| Intel Rapid Storage Controller 12.0 supporting SATA 6Gb/s (3 ports–SATA0, SATA1,SATA2) host based RAID 0/1             |            | Integrated |

**COMMUNICATIONS - NETWORK ADAPTER (NIC)**

|                                                             | TOWER 3620                 | TOWER 3420 |
|-------------------------------------------------------------|----------------------------|------------|
| Intel® Ethernet Connection I219-LM 10/100/1000 <sup>1</sup> | Integrated on system board |            |
| Intel 10/100/1000 PCIe Gigabit <sup>1</sup> Networking Card | Optional card              |            |

<sup>1</sup> 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.

**AUDIO AND SPEAKERS**

|                                                                          | TOWER 3620                 | TOWER 3420                 |
|--------------------------------------------------------------------------|----------------------------|----------------------------|
| Realtek ALC3861 High Definition Audio Codec plus ALC1003 Audio Amplifier | Integrated on mother board |                            |
| Realtek ALC3234-CG High Definition Audio Codec                           |                            | Integrated on mother board |
| Internal Chassis Speaker                                                 | 100%                       |                            |
| Dell 2.0 USB powerd Speakers AX210 (Rolling stones)                      | Optional                   |                            |
| Dell 2.0 USB Soundbar Speakers AC511 (Potentia)                          | Optional                   |                            |
| Dell 2.0 Multimedia Speaker AC411(Eagles)                                | Optional                   |                            |
| Dell Professional Stereo Headset UC300(Rihanna)                          | Optional                   |                            |
| Logitech C920 Webcam                                                     | Optional                   |                            |

**KEYBOARD AND MOUSE**

|                              | TOWER 3620 | TOWER 3420 |
|------------------------------|------------|------------|
| Dell USB Entry Keyboard      | Optional   |            |
| Dell Multimedia Pro Keyboard | Optional   |            |
| Dell Smartcard Keyboard      | Optional   |            |
| Dell USB Optical Mouse       | Optional   |            |
| Dell Laser Mouse             | Optional   |            |

**SECURITY**

|                                                    | TOWER 3620                 | TOWER 3420 |
|----------------------------------------------------|----------------------------|------------|
| Trusted Platform Module (TPM) 2.0                  | Integrated on system board |            |
| Chassis Intrusion Switch                           | 100%                       |            |
| Dell Smartcard Keyboard                            | Optional                   |            |
| Chassis lock slot and loop support                 | Standard                   |            |
| Dell Data Protection   Encryption Accelerator Card | Optional                   |            |

**SERVICE AND SUPPORT**

**NOTE:** For more details on Dell Service Plans please to go to: [www.dell.com/service/service\\_plans](http://www.dell.com/service/service_plans)

|                                                                             |          |
|-----------------------------------------------------------------------------|----------|
| 1 Year Warranty <sup>1</sup> Next Business Day On-site <sup>2</sup> (3-3-3) | Standard |
| ProSupport                                                                  | Optional |
| ProSupport Plus                                                             | Optional |

<sup>1</sup> 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](http://www.dell.com/warranty).

<sup>2</sup> 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**

|                                                |          |
|------------------------------------------------|----------|
| Dell Data Protection   Security Tools (DDP ST) | Standard |
| Dell Data Protection   Encryption (DDPE)       | Optional |



## DETAILED ENGINEERING SPECIFICATIONS

### SYSTEM DIMENSIONS (PHYSICAL)

NOTE: System Weight and Shipping Weight is based on max configuration and may vary based on PC configuration. Max configuration includes: full graphics card, two hard drive and two optical drive.

|                                                                          | TOWER 3620    | TOWER 3420   |
|--------------------------------------------------------------------------|---------------|--------------|
| <b>Chassis Volume (liters)</b>                                           | 27.41         | 7.84         |
| <b>Chassis Weight (pounds/kilograms)</b>                                 | 25.76 / 11.71 | 13.75 / 6.25 |
| <b>Chassis Dimensions: (HxWxD)</b>                                       |               |              |
| Height (inches/centimeters)                                              | 14.17 / 36    | 11.42 / 29   |
| Width (inches/centimeters)                                               | 6.89 / 17.5   | 3.65 / 9.26  |
| Depth (inches/centimeters)                                               | 17.12 / 43.5  | 11.50/29.2   |
| <b>Shipping Weight (pounds/kilograms - includes packaging materials)</b> | 33.81/ 15.37  | 19.36 / 8.8  |
| <b>Packaging Parameters (HxWxD)</b>                                      |               |              |
| Height (inches/centimeters)                                              | 18.75 / 47.6  | 15.50 / 39.4 |
| Width (inches/centimeters)                                               | 14.09 / 35.8  | 10.38 / 26.4 |
| Depth (inches/centimeters)                                               | 22.44 / 57.0  | 19.19 / 48.7 |

### SYSTEM EXPANSION SLOTS—MINI TOWER

| No.   | Type                | Voltage supported | Max Height (in,cm)                   | Max Length (in, cm)            | Max Wattage      | Cards supported                             |
|-------|---------------------|-------------------|--------------------------------------|--------------------------------|------------------|---------------------------------------------|
| Slot1 | PCIe x16 Gen3       | 3.3V/12V          | Standard Height<br>4.7 in / 11.94 cm | 3/4 Length<br>9.5in / 24.13cm  | 75W <sup>#</sup> | Graphics, Gigabit NIC,<br>Parallel / Serial |
| Slot2 | PCI                 | 3V/5V/12V/-12V    | Standard Height<br>4.7 in / 11.94 cm | 3/4 Length<br>9.5in / 24.13cm  | 25W              | 1394                                        |
| Slot3 | PCIe x4 Gen3        | 3.3V/12V          | Standard Height<br>4.7 in / 11.94 cm | Half Length<br>6in / 15.24 cm  | 25W              | Gigabit NIC, Parallel /<br>Serial           |
| Slot4 | PCIe x16 (x 4) Gen3 | 3.3V/12V          | Standard Height<br>4.7 in / 11.94 cm | Half Length<br>6 in / 15.24 cm | 25W <sup>*</sup> | Graphics, Gigabit NIC,<br>Parallel / Serial |

Note: Slot #1 is default for factory installed graphics card

# Supports up to 150W Graphics power in Slot 1 using optional 365W PSU that provides additional 75W using a 6 Pin power adapter. In this scenario, slot 4 is limited to 25W

\* Please note that total power consumption for both Slot 1 + Slot 4 <= 100W. If using Dual video cards, card on slot 4 can exceed 25W, as long as max. power between Slot 1 + Slot 4 <-100W

### SYSTEM EXPANSION SLOTS—SMALL FORM FACTOR

| No.   | Type          | Voltage supported | Max Height (in,cm)               | Max Length (in, cm)              | Max Wattage      | Cards supported                            |
|-------|---------------|-------------------|----------------------------------|----------------------------------|------------------|--------------------------------------------|
| Slot1 | PCIe x4 Gen3  | 3.3V/12V          | Half Height<br>3.35 in / 8.51 cm | Half Length<br>6.6 in / 16.77 cm | 25W <sup>*</sup> | Graphics, Gigabit NIC,<br>Parallel, Serial |
| Slot2 | PCIe x16 Gen3 | 3.3V/12V          | Half Height<br>3.35 in / 8.51 cm | Half Length<br>6.6 in / 16.77 cm | 50W <sup>*</sup> | Graphics, Gigabit NIC,<br>Parallel, Serial |

\* Please note that total power consumption for both slots <= 50W.

## SYSTEM LEVEL ENVIRONMENTAL AND OPERATING CONDITIONS

|                         | TOWER 3620                                                                      | TOWER 3420 |
|-------------------------|---------------------------------------------------------------------------------|------------|
| 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           | 1.37 Grms 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)    |            |
| 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 EPA power supply. Dell recommends only Universal Power Supplies (UPS) based on Sine Wave output for EPA 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.

|                                                                       | <b>TOWER 3620</b>                      |                                        | <b>TOWER 3420</b>                      |                                        |
|-----------------------------------------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| <b>Power Supply</b>                                                   | <b>EPA Bronze</b>                      | <b>EPA Gold</b>                        | <b>EPA Bronze</b>                      | <b>EPA Platinum</b>                    |
| <b>Wattage</b>                                                        | 290W High Efficiency                   | 365W High Efficiency                   | 180W High Efficiency                   | 240W High Efficiency                   |
| AC input Voltage Range                                                | 100 – 240Vac                           | 100 – 240Vac                           | 100 – 240Vac                           | 100-240Vac                             |
| AC input current (low ac range/<br>high AC range)                     | 5.4A /2.7A                             | 5.0A /2.5A                             | 3.0A /1.5A                             | 4.0A / 2.0A                            |
| AC input Frequency                                                    | 50Hz/60Hz                              | 50Hz/60Hz                              | 50Hz/60Hz                              | 50HZ/60HZ                              |
| AC holdup time (80% load)                                             | 16 mini sec                            | 16 mini sec                            | 16 mini sec                            | 16 mini sec                            |
| Average Efficiency (Energy Star<br>5.0 Compliant)                     | 82 – 85 – 82% @ 20 –<br>50 – 100% load | 87 – 90 – 87% @ 20 – 50<br>– 100% load | 82 – 85 – 82% @ 20 – 50<br>– 100% load | 90 – 92 – 89% @ 20 – 50<br>– 100% load |
| Typical Efficiency (Active PFC)                                       |                                        |                                        |                                        |                                        |
| <b>DC parameters</b>                                                  |                                        |                                        |                                        |                                        |
| +12.0v output                                                         | 12VA/14A;<br>12VB/16A                  | 12VA/14A;<br>12VB/18A;<br>12VC/11A     | 12VA/12A;<br>12VB/14A                  | 12VA/16.5A;<br>12VB/16A                |
| +12.0v auxiliary output                                               | 1.67A                                  | 1.67A                                  | 2.5A                                   | 2.5A                                   |
| Max total power                                                       | 290W                                   | 365W                                   | 180W                                   | 240W                                   |
| Max combined 12.0v power<br>(note: only if more than one 12v<br>rail) | 290W                                   | 365W                                   | 180W                                   | 240W                                   |
| BTUs/h (based on PSU max watt-<br>age)                                | 989 BTU                                | 1245 BTU                               | 614 BTU                                | 819 BTU                                |
| Power Supply Fan                                                      | 80*25mm                                | 80*25mm                                | 60*25mm                                | 60*25mm                                |
| <b>Compliance</b>                                                     |                                        |                                        |                                        |                                        |
| Erp Lot6 Tier 2 0.5watt require-<br>ment                              | Yes                                    | Yes                                    | Yes                                    | Yes                                    |
| Blue Angel Compliant                                                  | No                                     | No                                     | No                                     | No                                     |
| Climate Savers / 80Plus Compli-<br>ant                                | Yes                                    | Yes                                    | Yes                                    | Yes                                    |
| FEMP Standby Power Compliant                                          | Yes                                    | Yes                                    | Yes                                    | Yes                                    |
| CECP Compliant                                                        | No                                     | No                                     | No                                     | No                                     |

**POWER**

**NOTE:** These form factors utilize a more efficient EPA power supply. Dell recommends only Universal Power Supplies (UPS) based on Sine Wave output for EPA 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.

| <b>3.0v CMOS battery (Type and estimated battery life)</b> |             |         |             |                                                                                                                                                                                                                                                 |
|------------------------------------------------------------|-------------|---------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brand                                                      | Type        | Voltage | Composition | Life                                                                                                                                                                                                                                            |
| PANASONIC                                                  | CR-2032L/BE | 3V      | Lithium     | Continuous Discharge Under 15 kΩ Load to 2.5V End-Voltage.<br>Temperature: 20±2° C.<br>Initial life: 1183Hrs.<br>After storage 12 months life: 1133Hrs.                                                                                         |
| MITSUBISHI                                                 | CR2032      | 3V      | Lithium     | Continuous Discharge Under 15 kΩ Load to 2.0V End-Voltage.<br>Temperature: 20±2° C.<br>Initial life: 940Hrs.<br>After storage 12 months life: 910Hrs.<br>Temperature: 0±2° C.<br>Initial life: 850Hrs.<br>After storage 12 months life: 820Hrs. |

**AUDIO—INTEGRATED****Integrated Realtek ALC3861 High Definition Audio plus ALC1003 AUDIO AMPLIFIER**

|                                                         | <b>TOWER 3620</b>                          |
|---------------------------------------------------------|--------------------------------------------|
| 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                                   | 110 dB DAC outputs, 104 dB for ADC inputs  |
| Analog Audio                                            | X                                          |
| Dolby Digital                                           |                                            |
| THX                                                     |                                            |
| Digital out (S/PDIF)                                    |                                            |
| <b>Audio Jack Impedance</b>                             |                                            |
| Microphone                                              | 64K ohm                                    |
| Line-In                                                 | 64K ohm                                    |
| Line-Out                                                | 200 ohm                                    |
| Headphone                                               | 2 ohm                                      |
| Internal Speaker Power Rating (ALC1003 Audio Amplifier) | 3 Watt(rms)/4 ohm per channel output       |

**AUDIO—INTEGRATED**

| INTEGRATED REALTEK ALC3234 HIGH DEFINITION AUDIO | TOWER 3420                                 |
|--------------------------------------------------|--------------------------------------------|
| 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                                          |
| Dolby Digital                                    |                                            |
| THX                                              |                                            |
| Digital out (S/PDIF)                             |                                            |
| Audio Jack Impedance                             |                                            |
| Microphone                                       | 27K ohm (Gain=0dB)                         |
| Line-In                                          | 27K ohm (Gain=0dB)                         |
| Line-Out                                         | 200 ohm                                    |
| Headphone                                        | 1 ohm                                      |
| Internal Speaker Power Rating                    | 2Watt (rms) /4 ohm per channel output      |

**COMMUNICATIONS - INTEGRATED INTEL® I219-LM**

NOTE: TOWER 3620 supports full height (FH) cards and TOWER 3420 supports low profile (LP) cards.

| INTEGRATED INTEL® I219-LM GIGABIT <sup>1</sup><br>ETHERNET LAN 10/100/1000                                                                                                                                      | TOWER 3620                                                                     | TOWER 3420 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------|
| 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)                                                                                                                                               | 542mW (Max.)                                                                   |            |
| Power consumption (standby operation)                                                                                                                                                                           | 1000Mb/S Idle 439mW,                                                           |            |
| 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<br>10BASE-T (full-duplex) 20 Mbps<br>100BASE-TX (half-duplex) 100 Mbps<br>100BASE-TX (full-duplex) 200 Mbps<br>1000BASE-T (full-duplex) 2000 Mbps | 10 Mb (full/half-duplex)<br>100 Mb (full/half-duplex)<br>1000 Mb (full-duplex) |            |

**COMMUNICATIONS—INTEGRATED INTEL® I219-LM (CONT.)**

| INTEGRATED INTEL® I219-LM GIGABIT <sup>1</sup><br>ETHERNET LAN 10/100/1000 (CONT.) | TOWER 3620                                                    | TOWER 3420 |
|------------------------------------------------------------------------------------|---------------------------------------------------------------|------------|
| <b>Environmental</b>                                                               |                                                               |            |
| Operating temperature                                                              | 0° C to 85° C (32° F to 185° F)                               |            |
| Operating humidity                                                                 | 20% to 80% (non-condensing)                                   |            |
| Operating System Driver Support                                                    | Win7 32/64 bit, Win 8.1/10 64 bit, Linux                      |            |
| Manageability (examples WOL, PXE)                                                  | WOL, PXE 2.1                                                  |            |
| Management Capabilities Alerting                                                   | Intel® vPro support with appropriate Intel chipset components |            |

<sup>1</sup> 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 – OPTIONAL ADD IN NETWORK INTERFACE CARD**

**NOTE:** TOWER 3620 supports full height (FH) cards and TOWER 3420 supports low profile (LP) cards.

| INTEL NETXTREME 10/100/1000 PCIE GIGIBIT <sup>1</sup> NETWORKING CARD                                                                                                                                           | TOWER 3620                                                                                                                                                                                                | TOWER 3420 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Connector Type                                                                                                                                                                                                  | RJ45                                                                                                                                                                                                      |            |
| Data Rates supported                                                                                                                                                                                            | 10/100/1000 Mbps Half/Full duplex                                                                                                                                                                         |            |
| Controller Details                                                                                                                                                                                              |                                                                                                                                                                                                           |            |
| PCIe Host Interface                                                                                                                                                                                             | Support 1 channel (x1 interface); v2.0; 2.5GT/s                                                                                                                                                           |            |
| System Management                                                                                                                                                                                               | System Management Bus (SMBus) & Wake on LAN(WoL)                                                                                                                                                          |            |
| Main Power Supply                                                                                                                                                                                               | 3.3Vmain                                                                                                                                                                                                  |            |
| Power consumption (DO)                                                                                                                                                                                          | 1.2W(max)                                                                                                                                                                                                 |            |
| Support Ethernet Standards                                                                                                                                                                                      | 802.3z and 802.3x copper media conformance                                                                                                                                                                |            |
| Electro-magnetic Interference (EMI)                                                                                                                                                                             | FCC Class B                                                                                                                                                                                               |            |
| Boot ROM Support                                                                                                                                                                                                | SPI FLASH                                                                                                                                                                                                 |            |
| Network Transfer Mode (example Full Duplex, Half Duplex)                                                                                                                                                        |                                                                                                                                                                                                           |            |
| Network Transfer Rate (example 10BASE-T (half-duplex) 10 Mbps<br>10BASE-T (full-duplex) 20 Mbps<br>100BASE-TX (half-duplex) 100 Mbps<br>100BASE-TX (full-duplex) 200 Mbps<br>1000BASE-T (full-duplex) 2000 Mbps | 10BASE-T (full-duplex) 20 Mbps Max*<br>100BASE-TX (half-duplex) 100 Mbps Max*<br>100BASE-TX (full-duplex) 200 MbpsMax*<br>1000BASE-T (full-duplex) 2000 Mbps Max*<br>* Depends on the system environment. |            |

<sup>1</sup> 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.

| INTEL NETXTREME 10/100/1000 PCIE GIGABIT <sup>1</sup> NETWORKING CARD (CONT.) | TOWER 3620                              | TOWER 3420 |
|-------------------------------------------------------------------------------|-----------------------------------------|------------|
| <b>Environmental</b>                                                          |                                         |            |
| Operating temperature                                                         | 0° C to 55° C (32° F - 131° F)          |            |
| Operating humidity                                                            | 5% ~ 95% (non-condensing)               |            |
| Operating System Driver Support                                               | Win7 32/64 bit, Win8.1/10 64 bit, Linux |            |
| Manageability (examples WOL)                                                  | WOL, ACPI v1.1                          |            |
| Management Capabilities Alerting (example ASF 2.0)                            | None                                    |            |

**COMMUNICATIONS—ADD IN 1394 CARD, CUSTOMER KIT ONLY**

| 1394 FIREWIRE PCI ADD-IN CARD                      | TOWER 3620                                                  | TOWER 3420 |
|----------------------------------------------------|-------------------------------------------------------------|------------|
| Connector Type                                     | IEEE-1394ab                                                 |            |
| Controller Details                                 |                                                             |            |
| Controller bus architecture (example PCIe 1.0a x1) | Standard PCIE X1 slot                                       |            |
| Chipset                                            | TI XIO2001ZGU                                               |            |
| IO Ports                                           | Support 3 ports<br>2*1394b(800M bit/s)+1*1394a(400M bit/s)) |            |
| Power Consumption                                  | Under 30 mA                                                 |            |
| Connector                                          | 1 IEEE-1394a , 2 IEEE-1394b connectors                      |            |
| OS Support                                         | Win7 32/64 bit, Win8.1/10 64 bit, Linux                     |            |

**COMMUNICATIONS – SERIAL / PARALLEL PORT PCIE ADD-IN CARD**

**NOTE:** TOWER 3620 supports full height (FH) cards and TOWER 3420 supports low profile (LP) cards.

| SERIAL / PARALLEL PORT PCIE , OPTIONAL ADD-IN CARD | TOWER 3620                                           |
|----------------------------------------------------|------------------------------------------------------|
| Connector Type                                     | RS-232 and IEEE1284                                  |
| Data Rates supported                               | 50bps ~115.2Kbps (Serial) &Maximum 1.8MBps(Parallel) |
| Controller Details                                 |                                                      |
| Controller                                         | SUNIX SUN2212(16C950 UART Compatible)                |
| Controller bus architecture (example PCIe 1.0a x1) | PCI Express Spec2.0, Single-Lane (x1)                |
| Driver Support                                     | Win7 32/64 bit, Win8 .1/10 64bit, Linux              |
| 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)                            |

| SERIAL PORT PCIE, OPTIONAL ADD-IN CARD             | TOWER 3420                              |
|----------------------------------------------------|-----------------------------------------|
| Connector Type                                     | RS-232                                  |
| Data Rates supported                               | Up to 250Kbps                           |
| Controller Details                                 |                                         |
| Controller                                         | Pericom PI7C9X7952 PCI Express UART     |
| Controller bus architecture (example PCIe 1.0a x1) | PCI Express Spec1.1, Single-Lane (x1)   |
| Driver Support                                     | Win7 32/64 bit, Win8 .1/10 64bit, Linux |
| 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 – SERIAL / PARALLEL PORT PCIE ADD-IN CARD**

NOTE: TOWER 3620 supports full height (FH) cards and TOWER 3420 supports low profile (LP) cards.

| PARALLEL PORT PCIE, OPTIONAL ADD-IN CARD           | TOWER 3420                              |
|----------------------------------------------------|-----------------------------------------|
| Connector Type                                     | IEEE1284                                |
| Data Rates supported                               | Maximum 1.8MBps                         |
| Controller Details                                 |                                         |
| Controller                                         | SUNIX SUN2212                           |
| Controller bus architecture (example PCIe 1.0a x1) | PCI Express Spec2.0, Single-Lane (x1)   |
| Driver Support                                     | Win7 32/64 bit, Win8 .1/10 64bit, Linux |
| 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)               |

| THUNDERBOLT PCIE, OPTIONAL ADD-IN CARD     | TOWER 3620                     | TOWER 3420 |
|--------------------------------------------|--------------------------------|------------|
| Interface type                             | PCIe Gen2 X4                   |            |
| Chipset type (marketing name and R&D code) | Faclon Ridge 2C (Thunderbolt)  |            |
| Controller Details                         |                                |            |
| HDCP support                               | Yes                            |            |
| Bus frequency (Mhz)                        | 10.3125Gb/s per Channel        |            |
| Max board power consumption                | 4.08W                          |            |
| Voltage spec                               | 12V+5%, 3.3V+-5% on PCI_E Slot |            |
| 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)      |            |

**WIRELESS OPTION**

| <b>WIERLESS 8260AC (802.11AC)</b>        | <b>TOWER 3420</b>                                                                                                                    |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Connector Type                           | Custom WLAN Antenna Connector (2x2)                                                                                                  |
| Controller Bus Architecture              | Electrically compatible with the PCI Express Base Specification v1.1 (x1 lane) and PCIe v2.1                                         |
| WLAN Standards Supported                 | 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac                                                                                         |
| 802.11a Data Rates Supported             | 54, 48, 36, 24, 18, 12, 9, 6 Mbps                                                                                                    |
| 802.11b Data Rates Supported             | 11, 5.5, 2, 1 Mbps                                                                                                                   |
| 802.11g Data Rates Supported             | 54, 48, 36, 24, 18, 12, 11, 9, 6 Mbps                                                                                                |
| 802.11n Data Rates Supported             | 270, 240, 180, 135, 130, 121.5, 120, 117, 108, 104, 90, 81, 78, 65, 60, 58.5, 54, 52, 40.5, 39, 30, 27, 26, 19.5, 13.5, 13, 6.5 Mbps |
| 802.11ac Data Rates Supported (GI 800ns) | 13,26,39,52,58.5,104,117,130,156,175.5,234,351,468,526.5,585,702,780 Mbps                                                            |
| Encryption                               | WEP 64-bit and 128-bit, TKIP, AES-CCMP 128-bit                                                                                       |
| Bluetooth Standards Supported            | N/A                                                                                                                                  |
| Operating Temperature                    | 0 °C – 80 °C                                                                                                                         |
| Operating Humidity                       | N/A                                                                                                                                  |
| Operating System Driver Support          | Win7 32/64bits, Win8.1 64bits, Windows 10 64bits 6.6 x 3.35 / 16.764 x 8.5                                                           |

NOTE: On Dell Precision Tower 3000 Series, Intel Wireless 8260AC will not support Bluetooth functionality

## GRAPHICS/VIDEO CONTROLLER

| NVIDIA NVS 510                                                  | TOWER 3620                                                                                                                                                                                                                                                                                                                              | TOWER 3420                |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                                                                                                                                                                                                                                 |                           |
| GPU core clock                                                  | 797MHz                                                                                                                                                                                                                                                                                                                                  |                           |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 2GB DDR3, 28.5GB/sec                                                                                                                                                                                                                                                                                                                    |                           |
| Maximum power consumption                                       | 33.4W                                                                                                                                                                                                                                                                                                                                   |                           |
| Maximum Color Depth                                             | 24 bit RGB (True Color)                                                                                                                                                                                                                                                                                                                 |                           |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 60Hz digital                                                                                                                                                                                                                                                                                                               |                           |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                                                                                                                                                                                                                                                                                                                       |                           |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                                                                                                                                                                                                 |                           |
| Max Supported Resolution                                        | DisplayPort Max 4 digital displays at up to 3840 X 2160 @60Hz, Max 4 monitor up 1920x1200 @60 Hz; Single-link DVI Max: 4 digital displays up to 1920 x 1200 @ 60Hz; Dual-link DVI Max : 4 digital up to 2560x1600 @ 60 Hz; VGA Max 4 analog displays up to : 1920 x 1200 @ 60Hz; HDMI Max: 4 high definition up to: 1920 x 1080P @60 Hz |                           |
| External connectors                                             | mDP 1.2 x4                                                                                                                                                                                                                                                                                                                              |                           |
| DisplayPort Audio Support                                       | Yes                                                                                                                                                                                                                                                                                                                                     |                           |
| 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 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                                                                                                                                                                                                                         |                           |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                                                                                                                                                                                                                           |                           |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                                                                                                                                                                                                                            |                           |
| Altitude Range                                                  | Not specified                                                                                                                                                                                                                                                                                                                           |                           |

GRAPHICS/VIDEO CONTROLLER

Note: Tower 3620 support full height (FH) cards and Tower 3420 supports low profile (LP) cards

| INTEGRATED INTEL HD 530 GRAPHICS*                       | MT                               | SFF |
|---------------------------------------------------------|----------------------------------|-----|
| Bus Type (example integrated or PCIe x16)               | Integrated                       |     |
| GPU core clock                                          | 350 MHz                          |     |
| Frame Buffer Memory (onboard and shared) Size and Speed | Dynamically shared system memory |     |
| Maximum power consumption                               | N/A, see processor TDP           |     |
| External connectors                                     | (2) DP, (1) HDMI, (1) Serial     |     |
| DisplayPort                                             |                                  |     |
| Bus Type                                                | DDPC                             |     |
| DisplayPort Audio Support                               | Yes                              |     |
| HDMI                                                    |                                  |     |
| Bus Type                                                | DDPD                             |     |
| Maximum supported resolution                            | Up to 2560x1600 @ 60Hz           |     |
| Maximum power consumption                               | N/A                              |     |
| External connectors                                     | HDMI                             |     |

\*Only available on select Intel Skylake-S processors

## GRAPHICS/VIDEO CONTROLLER

| NVIDIA NVS 310                                                  | TOWER 3620                                                                                                                                                                                                                                                                                                                                                                                          | TOWER 3420                |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                                                                                                                                                                                                                                                                                             |                           |
| GPU core clock                                                  | 523 MHz                                                                                                                                                                                                                                                                                                                                                                                             |                           |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 1G DDR3 , 14GB/sec                                                                                                                                                                                                                                                                                                                                                                                  |                           |
| Maximum power consumption                                       | 19.5W                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| Maximum Color Depth                                             | 24 bit RGB (True Color)                                                                                                                                                                                                                                                                                                                                                                             |                           |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 60Hz digital                                                                                                                                                                                                                                                                                                                                                                           |                           |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 2                                                                                                                                                                                                                                                                                                                                                                                                   |                           |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                                                                                                                                                                                                                                                             |                           |
| Max Supported Resolution                                        | DisplayPort Max 2 digital displays at up to 2560 X 1600 @60Hz, Max 2 monitor up to 1920x1200 @ 60Hz; Single-link DVI Max: 2 digital displays up to 1920 x 1200@ 60Hz, Dual-link DVI Max: 2 digital displays up to 2560 x 1600 @ 60Hz; VGA Max 2 analog displays up to : 1920 x 1200 @ 60Hz using DisplayPort to VGA cable adaptors; HDMI two high definition panels driver up to: 1920x1080P @ 60Hz |                           |
| External connectors                                             | DP 1.2 x2                                                                                                                                                                                                                                                                                                                                                                                           |                           |
| DisplayPort Audio Support                                       | Yes                                                                                                                                                                                                                                                                                                                                                                                                 |                           |
| 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 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                                                                                                                                                                                                                                                                                     |                           |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                                                                                                                                                                                                                                                                                       |                           |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                                                                                                                                                                                                                                                                                        |                           |
| Altitude Range                                                  | Not specified                                                                                                                                                                                                                                                                                                                                                                                       |                           |

## GRAPHICS/VIDEO CONTROLLER

| NVIDIA NVS 315                                              | TOWER 3620                                                                                                                                                                                                                                 |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus Type (example integrated or PCIe x16)                   | PCIEx16                                                                                                                                                                                                                                    |
| GPU core clock                                              | 523MHz                                                                                                                                                                                                                                     |
| Frame Buffer Memory (dedicated) Size and bandwidth          | 1GB DDR3, 14GB/sec                                                                                                                                                                                                                         |
| Maximum power consumption                                   | 19.5W                                                                                                                                                                                                                                      |
| Maximum Color Depth                                         | 24 bit RGB (True Color)                                                                                                                                                                                                                    |
| Maximum Vertical Refresh Rate                               | 85Hz analog, 60Hz digital                                                                                                                                                                                                                  |
| Multiple Display Support - Directly connected               | 2                                                                                                                                                                                                                                          |
| Operating Systems Graphics/ Video API Support               | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                                                                                                    |
| Max Supported Resolution                                    | DisplayPort Max 2 digital displays at up to 2560 X 1600 @60Hz, Single-link DVI Max: 2 digital displays up to 1920 x 1200 @ 60Hz; VGA Max 2 analog displays up to : 2048 x 1536 @ 85Hz; HDMI Max 2 high definition up to 1920x1080P @ 60 Hz |
| External connectors                                         | DMS-59                                                                                                                                                                                                                                     |
| DisplayPort Audio Support                                   | Yes                                                                                                                                                                                                                                        |
| Dimensions of full height card inches/centimeters (L x H)   | 6 x 4.7 / 152.4 x 12.0                                                                                                                                                                                                                     |
| <b>Environmental Operating Conditions (Non-Condensing):</b> |                                                                                                                                                                                                                                            |
| Operating Temperature Range                                 | 0 °C to 55 °C                                                                                                                                                                                                                              |
| Relative Humidity Range                                     | 5% to 90% RH                                                                                                                                                                                                                               |
| Altitude Range                                              | Not specified                                                                                                                                                                                                                              |

**GRAPHICS/VIDEO CONTROLLER**

| AMD FIREPRO W4100                                               | TOWER 3620                               | TOWER 3420                |
|-----------------------------------------------------------------|------------------------------------------|---------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                  |                           |
| GPU core clock                                                  | 630MHz                                   |                           |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 2GB GDDR5, 72GB/sec                      |                           |
| Maximum power consumption                                       | 50W                                      |                           |
| Maximum Color Depth                                             | 32 bpp                                   |                           |
| Maximum Vertical Refresh Rate                                   | 120 Hz                                   |                           |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                        |                           |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux  |                           |
| Max Supported Resolution                                        | DispalyPort Max: 4096x2160 @ 60Hz, 30bpp |                           |
| External connectors                                             | Mini DisplayPort 1.2 x4                  |                           |
| DisplayPort Audio Support                                       | Yes                                      |                           |
| 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 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                          |                           |
| Operating Temperature Range                                     | 0 °C to 55 °C                            |                           |
| Relative Humidity Range                                         | 5% to 90% RH                             |                           |
| Altitude Range                                                  | Not specified                            |                           |

**GRAPHICS/VIDEO CONTROLLER**

| <b>AMD FIREPRO W2100</b>                                        | <b>TOWER 3620</b>                        | <b>TOWER 3420</b>         |
|-----------------------------------------------------------------|------------------------------------------|---------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                  |                           |
| GPU core clock                                                  | 630MHz                                   |                           |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 2GB DDR3, 29GB/sec                       |                           |
| Maximum power consumption                                       | 26W                                      |                           |
| Maximum Color Depth                                             | 32bpp                                    |                           |
| Maximum Vertical Refresh Rate                                   | 120Hz                                    |                           |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 2                                        |                           |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux  |                           |
| Max Supported Resolution                                        | DispalyPort Max: 4096x2160 @ 60Hz, 30bpp |                           |
| External connectors                                             | DisplayPort 1.2 x2                       |                           |
| DisplayPort Audio Support                                       | NA                                       |                           |
| 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 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                          |                           |
| Operating Temperature Range                                     | 0 °C to 55 °C                            |                           |
| Relative Humidity Range                                         | 5% to 90% RH                             |                           |
| Altitude Range                                                  | Not specified                            |                           |



**GRAPHICS/VIDEO CONTROLLER**

| <b>NVIDIA QUADRO K620</b>                                       | <b>TOWER 3620</b>                                                                                                                                                                            | <b>TOWER 3420</b>         |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                                                                                      |                           |
| GPU core clock                                                  | 1059MHz                                                                                                                                                                                      |                           |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 2GB DDR3, 29GB/sec                                                                                                                                                                           |                           |
| Maximum power consumption                                       | 45W                                                                                                                                                                                          |                           |
| Maximum Color Depth                                             | 32bpp                                                                                                                                                                                        |                           |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 120Hz digital                                                                                                                                                                   |                           |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 2                                                                                                                                                                                            |                           |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                                                      |                           |
| Max Supported Resolution                                        | DisplayPort Max 2 digital displays at up to 3840 X 2160 @60Hz 30bpp, Dual-link DVI Max: 2560x1600 @60Hz 32bpp: Single-link DVI Max: 1920x1200 @60Hz 32bpp, VGA Max: 2048 x 1536 @ 85Hz 32bpp |                           |
| External connectors                                             | 1 Dual-link DVI, 1 DisplayPort 1.2                                                                                                                                                           |                           |
| DisplayPort Audio Support                                       | Yes                                                                                                                                                                                          |                           |
| 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 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                                                                              |                           |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                                                                                |                           |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                                                                                 |                           |
| Altitude Range                                                  | Not specified                                                                                                                                                                                |                           |

**GRAPHICS/VIDEO CONTROLLER**

| <b>NVIDIA QUADRO K420</b>                                       | <b>TOWER 3620</b>                                                                                                                                                                             | <b>TOWER 3420</b>         |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                                                                                       |                           |
| GPU core clock                                                  | 875 MHz                                                                                                                                                                                       |                           |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 1GB DDR3, 29GB/sec                                                                                                                                                                            |                           |
| Maximum power consumption                                       | 41W                                                                                                                                                                                           |                           |
| Maximum Color Depth                                             | 32 bpp                                                                                                                                                                                        |                           |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 60Hz digital                                                                                                                                                                     |                           |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 2                                                                                                                                                                                             |                           |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                                                       |                           |
| Max Supported Resolution                                        | DisplayPort Max 2 digital displays at up to 3840 X 2160x30bpp @60Hz, Dual-link DVI Max: 2560x1600x32 bpp @60Hz: Single-link DVI Max: 1920x1200x32bpp @60Hz, VGA Max: 2048 x 1536x32bpp @ 85Hz |                           |
| External connectors                                             | DL DVI-I+DP 1.2                                                                                                                                                                               |                           |
| DisplayPort Audio Support                                       | Yes                                                                                                                                                                                           |                           |
| 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 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                                                                               |                           |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                                                                                 |                           |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                                                                                  |                           |
| Altitude Range                                                  | Not specified                                                                                                                                                                                 |                           |

## GRAPHICS/VIDEO CONTROLLER

| NVIDIA QUADRO K1200                                             | TOWER 3620                                                                                                                      | TOWER 3420             |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                         |                        |
| GPU core clock                                                  | 954 MHz                                                                                                                         |                        |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 4GB GDDR5, 80GB/sec                                                                                                             |                        |
| Maximum power consumption                                       | 46W                                                                                                                             |                        |
| Maximum Color Depth                                             | 32 bpp                                                                                                                          |                        |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 120Hz digital                                                                                                      |                        |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                                                                                                               |                        |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                         |                        |
| Max Supported Resolution                                        | Display Port max: 4096x2160 @60Hz 30bpp;VGA Max displays up to: 2048x1586 @85 Hz 32bpp; HDMI Max up to 1920x1080P @ 60 Hz 32bpp |                        |
| External connectors                                             | Mini Display Port 1.2 x4                                                                                                        |                        |
| DisplayPort Audio Support                                       | Yes                                                                                                                             |                        |
| Dimensions of full height card inches/centimeters (L x H)       | 7 x 4.7 / 17.78 x 12.0                                                                                                          |                        |
| Dimensions of low profile card inches/centimeters (L x H)       |                                                                                                                                 | 7 x 3.35 / 17.78 x 8.5 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                 |                        |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                   |                        |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                    |                        |
| Altitude Range                                                  | Not specified                                                                                                                   |                        |

**GRAPHICS/VIDEO CONTROLLER**

| <b>AMD FIREPRO W7100</b>                                        | <b>TOWER 3620</b>                        |
|-----------------------------------------------------------------|------------------------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                  |
| GPU core clock                                                  | 27MHz                                    |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 8GB GDDR5, 160GB/sec                     |
| Maximum power consumption                                       | 150W                                     |
| Maximum Color Depth                                             | 32 bpp                                   |
| Maximum Vertical Refresh Rate                                   | 120 Hz                                   |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                        |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux  |
| Max Supported Resolution                                        | DisplayPort Max: 4096x2160 @ 60Hz, 30bpp |
| External connectors                                             | DisplayPort 1.2 x4                       |
| DisplayPort Audio Support                                       | Yes                                      |
| Dimensions of full height card inches/centimeters (F X H)       | 9.5 x 4.7 / 24.13 x 12.0                 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                          |
| Operating Temperature Range                                     | 0 °C to 55 °C                            |
| Relative Humidity Range                                         | 5% to 90% RH                             |
| Altitude Range                                                  | Not specified                            |

**GRAPHICS/VIDEO CONTROLLER**

| <b>AMD FIREPRO W5100</b>                                        | <b>TOWER 3620</b>                        |
|-----------------------------------------------------------------|------------------------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                  |
| GPU core clock                                                  | 800 MHz                                  |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 4GB GDDR5, 96GB/sec                      |
| Maximum power consumption                                       | 75W                                      |
| Maximum Color Depth                                             | 32 bpp                                   |
| Maximum Vertical Refresh Rate                                   | 120 Hz                                   |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                        |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux  |
| SMax Supported Resolution                                       | DisplayPort Max: 4096x2160 @ 60Hz, 30bpp |
| External connectors                                             | DisplayPort 1.2 x4                       |
| DisplayPort Audio Support                                       | Yes                                      |
| Dimensions of full height card inches/centimeters (L x H)       | 6.6 x 4.7 / 16.764 x 12.0                |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                          |
| Operating Temperature Range                                     | 0 °C to 55 °C                            |
| Relative Humidity Range                                         | 5% to 90% RH                             |
| Altitude Range                                                  | Not specified                            |

**GRAPHICS/VIDEO CONTROLLER**

| <b>NVIDIA QUADRO K2200</b>                                      | <b>TOWER 3620</b>                                                                                                                                                 |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                                                           |
| GPU core clock                                                  | 1045 MHz                                                                                                                                                          |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 4GB GDDR5, 80GB/sec                                                                                                                                               |
| Maximum power consumption                                       | 67.7W                                                                                                                                                             |
| Maximum Color Depth                                             | 32bpp                                                                                                                                                             |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 120Hz digital                                                                                                                                        |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 3                                                                                                                                                                 |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                           |
| Max Supported Resolution                                        | DisplayPort Max: 4096x2160 @60Hz 30bpp Dual-link DVI Max: 2560 X 1600 @60Hz 32bpp, Single-link DVI Max: 1920 X 1200 @60Hz 32bpp, VGA Max: 2048 × 1536 @85Hz 32bpp |
| External connectors                                             | 1 Dual-link DVI, 2 DisplayPort 1.2                                                                                                                                |
| DisplayPort Audio Support                                       | Yes                                                                                                                                                               |
| Dimensions of full height card inches/centimeters (L x H)       | 8 x 4.7 / 20.32 x 12.0                                                                                                                                            |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                                                   |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                                                     |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                                                      |
| Altitude Range                                                  | Not specified                                                                                                                                                     |

GRAPHICS/VIDEO CONTROLLER

| NVIDIA QUADRO M2000                                             | TOWER 3620                              |
|-----------------------------------------------------------------|-----------------------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                 |
| GPU core clock                                                  | 796 MHz                                 |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 8GB GDDR5, 105.7GB/sec                  |
| Maximum power consumption                                       | 61. 5W                                  |
| Maximum Color Depth                                             | 30bpp                                   |
| Maximum Vertical Refresh Rate                                   | 120Hz                                   |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                       |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux |
| Max Supported Resolution                                        | DisplayPort max: 4096x2160 @60Hz 30bpp, |
| External connectors                                             | 4 DisplayPort 1.2                       |
| DisplayPort Audio Support                                       | Yes                                     |
| Dimensions of full height card inches/centimeters               | 6.6 x 4.7 / 16.764 x 12.0               |
| Environmental Operating Conditions (Non-Condensing):            |                                         |
| Operating Temperature Range                                     | 0 °C to 55 °C                           |
| Relative Humidity Range                                         | 5% to 90% RH                            |
| Altitude Range                                                  | Not specified                           |

**GRAPHICS/VIDEO CONTROLLER**

| <b>NVIDIA QUADRO M4000</b>                                      | <b>TOWER 3620</b>                                                                                                                                                  |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus Type (example integrated or PCIe x16)                       | PCIEx16                                                                                                                                                            |
| GPU core clock                                                  | 773 MHz                                                                                                                                                            |
| Frame Buffer Memory (dedicated) Size and bandwidth              | 8GB GDDR5, 192GB/sec                                                                                                                                               |
| Maximum power consumption                                       | 120W                                                                                                                                                               |
| Maximum Color Depth                                             | 32bpp                                                                                                                                                              |
| Maximum Vertical Refresh Rate                                   | 85Hz analog, 120Hz digital                                                                                                                                         |
| Multiple Display Support - Directly connected (with DP 1.2 MST) | 4                                                                                                                                                                  |
| Operating Systems Graphics/ Video API Support                   | Win7 32/64 bit, Win8 .1/10 64bit, Linux                                                                                                                            |
| Max Supported Resolution                                        | DisplayPort max: 4096x2160 @60Hz 30bpp, Dual-link DVI Max: 2560 x 1600 @60Hz 32bpp, Single-link DVI Max: 1920 x 1200 @60Hz 32bpp, VGA Max: 2560 x 1536 @85Hz 32bpp |
| External connectors                                             | 4 DisplayPort 1.2                                                                                                                                                  |
| DisplayPort Audio Support                                       | Yes                                                                                                                                                                |
| Dimensions of full height card inches/centimeters               | 9.5 x 4.376 / 24.13 x 12.0                                                                                                                                         |
| <b>Environmental Operating Conditions (Non-Condensing):</b>     |                                                                                                                                                                    |
| Operating Temperature Range                                     | 0 °C to 55 °C                                                                                                                                                      |
| Relative Humidity Range                                         | 5% to 90% RH                                                                                                                                                       |
| Altitude Range                                                  | Not specified                                                                                                                                                      |



**HARD DRIVES<sup>1</sup>**

| 3.5" 4TB SATA 5400 RPM HDD                               | TOWER 3620                                  | TOWER 3420 |
|----------------------------------------------------------|---------------------------------------------|------------|
| Capacity (bytes)                                         | 4,000,000,000,000                           |            |
| Dimensions inches (W x D x H)                            | Approximately (4.00 x 5.787 x 1.028 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                            |            |
| Internal buffer size                                     | 64 MB NCQ                                   |            |
| Rotational Speed                                         | 5400 RPM                                    |            |
| Logical Blocks                                           | 4,000,797,868,032                           |            |
| Power Source                                             |                                             |            |
| Power Consumption (reference only)                       | Idle 5.0W, Active 10.0W                     |            |
| Spin Up Current (reference only)                         | 5V (1A) ,12V (2A)                           |            |
| Environmental Operating Conditions (Non-Condensing):     |                                             |            |
| Temperature Range                                        | 5°C to 60°C                                 |            |
| Relative Humidity Range                                  | 5% to 90% RH non-condensing                 |            |
| Maximum Wet Bulb Temperature                             | 37.7°C                                      |            |
| Altitude Range                                           | -1000 ft to 10000 ft(-305M to 3050M)        |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                             |            |
| Temperature Range                                        | -40°C to 65°C                               |            |
| Relative Humidity Range                                  | 5% to 95% RH non-condensing                 |            |
| Maximum Wet Bulb Temperature                             | 33°C                                        |            |
| Altitude Range                                           | -1000 ft to 40000 ft(-305M to 12200M)       |            |

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

**HARD DRIVES<sup>1</sup>**

| 3.5" 2TB SATA 7200 RPM HDD                               | TOWER 3620                                  | TOWER 3420 |
|----------------------------------------------------------|---------------------------------------------|------------|
| Capacity (bytes)                                         | 2,000,000,000,000                           |            |
| Dimensions inches (W x D x H)                            | Approximately (4.00 x 5.787 x 1.028 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                            |            |
| Internal buffer size                                     | 64 MB NCQ                                   |            |
| Rotational Speed                                         | 7200 RPM                                    |            |
| Logical Blocks                                           | 2,000,398,934,016                           |            |
| Power Source                                             |                                             |            |
| Power Consumption (reference only)                       | Idle 5.0W, Active 10.0W                     |            |
| Spin Up Current (reference only)                         | 5V (1A) ,12V (2A )                          |            |
| Environmental Operating Conditions (Non-Condensing):     |                                             |            |
| Temperature Range                                        | 5°C to 60°C                                 |            |
| Relative Humidity Range                                  | 5% to 90% non-condensing                    |            |
| Maximum Wet Bulb Temperature                             | 37.7°C                                      |            |
| Altitude Range                                           | -1000 ft to 10000+ ft                       |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                             |            |
| Temperature Range                                        | -40°C to 65°C                               |            |
| Relative Humidity Range                                  | 5% to 95% non-condensing                    |            |
| Maximum Wet Bulb Temperature                             | 40°C                                        |            |
| Altitude Range                                           | -1000ft to 40000 +ft                        |            |

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

**HARD DRIVES<sup>1</sup> (CONT)**

| 3.5" 1TB SATA 7200 RPM HDD                               | TOWER 3620                                  | TOWER 3420 |
|----------------------------------------------------------|---------------------------------------------|------------|
| Capacity (bytes)                                         | 1,000,000,000,000                           |            |
| Dimensions inches (W x D x H)                            | Approximately (4.00 x 5.787 x 1.028 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                            |            |
| Internal buffer size                                     | 32 MB NCQ                                   |            |
| Rotational Speed                                         | 7200 RPM                                    |            |
| Logical Blocks                                           | 1,000,204,886,016                           |            |
| Power Source                                             |                                             |            |
| Power Consumption (reference only)                       | Idle 5.0W, Active 10.0W                     |            |
| Spin Up Current (reference only)                         | 5V (1A) ,12V (2A)                           |            |
| Environmental Operating Conditions (Non-Condensing):     |                                             |            |
| Temperature Range                                        | 5 <sup>0</sup> C to 60 <sup>0</sup> C       |            |
| Relative Humidity Range                                  | 5% to 90% non-condensing                    |            |
| Maximum Wet Bulb Temperature                             | 37.7 <sup>0</sup> C                         |            |
| Altitude Range                                           | -1000 ft to 10000 ft                        |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                             |            |
| Temperature Range                                        | -40 <sup>0</sup> C to 65 <sup>0</sup> C     |            |
| Relative Humidity Range                                  | 5% to 95% non-condensing                    |            |
| Maximum Wet Bulb Temperature                             | 40 <sup>0</sup> C                           |            |
| Altitude Range                                           | -1000 ft to 40000 ft                        |            |

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

**HARD DRIVES<sup>1</sup> (CONT.)**

| 2.5" 500GB SATA 7200 RPM SED OPAL FIPS HDD               | TOWER 3620                                | TOWER 3420 |
|----------------------------------------------------------|-------------------------------------------|------------|
| Capacity (bytes)                                         | 500,000,000,000                           |            |
| Dimensions inches (W x D x H)                            | Approximately (2.75 x 3.94 x 0.27 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                          |            |
| Internal buffer size                                     | 32 MB NCQ                                 |            |
| Rotational Speed                                         | 7200 RPM                                  |            |
| Logical Blocks                                           | 500,107,862,016                           |            |
| Power Source                                             |                                           |            |
| Power Consumption (reference only)                       | Idle low 0.65W, Active 0.9W               |            |
| Spin Up Current (reference only)                         | 5V (1000 mA)                              |            |
| Environmental Operating Conditions (Non-Condensing):     |                                           |            |
| Temperature Range                                        | 5°C to 60°C                               |            |
| Relative Humidity Range                                  | 5% to 90% non-condensing                  |            |
| Maximum Wet Bulb Temperature                             | 29.4°C                                    |            |
| Altitude Range                                           | -1000 ft to 10000 ft                      |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                           |            |
| Temperature Range                                        | -40°C to 65°C                             |            |
| Relative Humidity Range                                  | 5% to 95% non-condensing                  |            |
| Maximum Wet Bulb Temperature                             | 40°C                                      |            |
| Altitude Range                                           | -1000 ft to 40000 ft                      |            |

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

**HARD DRIVES<sup>1</sup> (CONT.)**

| 3.5" 500GB SATA 7200 RPM HDD                             | TOWER 3620                                  | TOWER 3420 |
|----------------------------------------------------------|---------------------------------------------|------------|
| Capacity (bytes)                                         | 500,000,000,000                             |            |
| Dimensions inches (W x D x H)                            | Approximately (4.00 x 5.787 x 1.028 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                            |            |
| Internal buffer size                                     | 16 MB NCQ                                   |            |
| Rotational Speed                                         | 7200 RPM                                    |            |
| Logical Blocks                                           | 500,107,862,016                             |            |
| Power Source                                             |                                             |            |
| Power Consumption (reference only)                       | Idle 5.0W, Active 10.0W                     |            |
| Spin Up Current (reference only)                         | 5V (1A) ,12V (2A)                           |            |
| Environmental Operating Conditions (Non-Condensing):     |                                             |            |
| Temperature Range                                        | 5°C to 60°C                                 |            |
| Relative Humidity Range                                  | 5% to 90% non-condensing                    |            |
| Maximum Wet Bulb Temperature                             | 37.7°C                                      |            |
| Altitude Range                                           | -1000 ft to 10000 ft                        |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                             |            |
| Temperature Range                                        | -40°C to 65°C                               |            |
| Relative Humidity Range                                  | 5% to 95% non-condensing                    |            |
| Maximum Wet Bulb Temperature                             | 40°C                                        |            |
| Altitude Range                                           | -1000 ft to 40000 ft                        |            |

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

**HARD DRIVES<sup>1</sup> (CONT.)**

| 2.5" 1TB SATA 7200 RPM HDD                               | TOWER 3620                                 | TOWER 3420 |
|----------------------------------------------------------|--------------------------------------------|------------|
| Capacity (bytes)                                         | 1,000,000,000,000                          |            |
| Dimensions inches (W x D x H)                            | Approximately (2.75 x 3.94 x 0.374 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                           |            |
| Internal buffer size                                     | 16 MB NCQ                                  |            |
| Rotational Speed                                         | 7200 RPM                                   |            |
| Logical Blocks                                           | 1,000,204,886,016                          |            |
| Power Source                                             |                                            |            |
| Power Consumption (reference only)                       | Idle 0.70W, Active 3.25W                   |            |
| Spin Up Current (reference only)                         | 5V (1000 mA)                               |            |
| Environmental Operating Conditions (Non-Condensing):     |                                            |            |
| Temperature Range                                        | 5°C to 60°C                                |            |
| Relative Humidity Range                                  | 5% to 90% non-condensing                   |            |
| Maximum Wet Bulb Temperature                             | 29.4°C                                     |            |
| Altitude Range                                           | -1000 ft to 10000 ft                       |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                            |            |
| Temperature Range                                        | -40°C to 65°C                              |            |
| Relative Humidity Range                                  | 5% to 95% non-condensing                   |            |
| Maximum Wet Bulb Temperature                             | 40°C                                       |            |
| Altitude Range                                           | -1000 ft to 40000 ft                       |            |

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

**HARD DRIVES<sup>1</sup> (CONT.)**

| 2.5" 500GB SATA 7200 RPM HDD                             | TOWER 3620                                | TOWER 3420 |
|----------------------------------------------------------|-------------------------------------------|------------|
| Capacity (bytes)                                         | 500,000,000,000                           |            |
| Dimensions inches (W x D x H)                            | Approximately (2.75 x 3.94 x 0.27 inches) |            |
| Interface type and Maximum speed                         | SATA Up to 6Gb/s                          |            |
| Internal buffer size                                     | 32 MB NCQ                                 |            |
| Rotational Speed                                         | 7200 RPM                                  |            |
| Logical Blocks                                           | 500,107,862,016                           |            |
| Power Source                                             |                                           |            |
| Power Consumption (reference only)                       | Idle 0.70W, Active 3.25W                  |            |
| Spin Up Current (reference only)                         | 5V (1000 mA)                              |            |
| Environmental Operating Conditions (Non-Condensing):     |                                           |            |
| Temperature Range                                        | 5°C to 60°C                               |            |
| Relative Humidity Range                                  | 5% to 90% non-condensing                  |            |
| Maximum Wet Bulb Temperature                             | 29.4°C                                    |            |
| Altitude Range                                           | -1000 ft to 10000 ft                      |            |
| Environmental Non-Operating Conditions (Non-Condensing): |                                           |            |
| Temperature Range                                        | -40°C to 65°C                             |            |
| Relative Humidity Range                                  | 5% to 95% non-condensing                  |            |
| Maximum Wet Bulb Temperature                             | 40°C                                      |            |
| Altitude Range                                           | -1000 ft to 40000 ft                      |            |

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

HARD DRIVES<sup>1</sup> (CONT.)

Dell SSD classifications

|      | Class               | Sequential*<br>Read/Write | Random**<br>Read/Write | Interface                                                             |
|------|---------------------|---------------------------|------------------------|-----------------------------------------------------------------------|
| SATA | 10<br>"value"       | 520K/320K                 | 30K/10K                | SATA interface reduced features e.g. dram-less<br>Consumer Offering   |
|      | 20<br>"mainstream"  | 500K/300K                 | 80K/60K                | SATA Interface full feature set<br>Consumer, Commercial               |
|      | 30<br>"performance" | 550K/350K                 | 90K/75K                | Best in class SATA<br>Precision Only                                  |
| PCIe | 40<br>"performance" | 1500/350K                 | 200K/80K               | PCIe interface NVMe host protocol<br>Consumer, Commercial Performance |
|      | 50<br>"performance" | 2100K/1200K               | 300K/100K              | Best in class PCIe<br>Precision Only                                  |

Based on Dell internal testing, January 2016, using IOMeter.  
Actual performance will vary with configuration, usage and manufacturing variability.\*

Note: Capacity 256GB, typical values, results may vary

\*Sequential = boot, hibernate, daily power up and power down functions

\*\*Random = random tasks such as file search



Storage Reliability & Endurance Summary

| Category                          | Capacity | SATA HDD | SATA Value, Mainstream<br>Class 10,Class 20 | SATA Performance<br>Class 30 | PCIe NVMe<br>Mainstream<br>Class 40 | PCIe NVMe<br>Performance<br>Class 50 |
|-----------------------------------|----------|----------|---------------------------------------------|------------------------------|-------------------------------------|--------------------------------------|
| SSD<br><br>Endurance<br><br>(TBW) | 128GB    |          | 72                                          |                              |                                     |                                      |
|                                   | 256GB    |          | 72                                          | 150                          | 72                                  | 150                                  |
|                                   | 360GB    |          | 72                                          |                              |                                     |                                      |
|                                   | 512GB    |          | 72                                          | 292                          | 72                                  | 292                                  |
|                                   | 1TB      |          | 72                                          |                              | 72                                  |                                      |
| Reliability<br><br>(MTBF hours)   | All SSD  |          | 800,000                                     | 1,200,000                    | 800,000                             | 1,200,000                            |
|                                   | ALL HDD  | 550,000  |                                             |                              |                                     |                                      |

Endurance is a measure of SSD life , how much data can be written for how long – measured in Terabytes Written, TBW, our SSD's are specified for TBW over a 5 year lifecycle

Reliability is measured in Mean Time Between Failures , MTBF units = hours

Values shown are minimum required – Dell Internal Engineering Specification.



DELL PRECISION ULTRA-SPEED DRIVE

| DELL PRECISION ULTRA-SPEED DRIVE                          | TOWER 3620                              | TOWER 320                |
|-----------------------------------------------------------|-----------------------------------------|--------------------------|
| Bus Type (example integrated or PCIe x16)                 | PCIEx8 <sup>1</sup>                     |                          |
| Operating System Support                                  | Win7 32/64 bit, Win8 .1/10 64bit, Linux |                          |
| Connectors                                                | M.2 x2                                  |                          |
| Dimensions of full height card inches/centimeters (L X H) | 6.6 x 4.7 / 16.764x 12.0                |                          |
| Dimensions of low profile card inches/centimeters (L X H) |                                         | 6.6 x 3.35 / 16.764x 8.5 |
| Environmental Operating Conditions (Non-Condensing):      |                                         |                          |
| Operating Temperature Range                               | 0 °C to 55 °C                           |                          |
| Relative Humidity Range                                   | 5% to 90% RH                            |                          |
| Altitude Range                                            | Not specified                           |                          |

<sup>1</sup> Dell Precision Ultra-speed drive is a x8 card, but installed in PCIe x4 slot, hence supports 1x PCIe M.2 SSD (in addition to 1x PCIe M.2 SSD drive on Motherboard slot

## DELL PRECISION ULTRA -SPEED DUO DRIVES

## Duo

**Configuration:**

|                      |                   |
|----------------------|-------------------|
| On-board M.2 Slots   | 2                 |
| M.2 Capacity Options | 256GB, 512GB, 1TB |
| Maximum Capacity     | 2x 1TB            |

**System Requirements:**

|                         |                                       |
|-------------------------|---------------------------------------|
| System Board Connection | PCIe Gen3 X8                          |
| OS                      | Win 7, 8.1, 10; RHEL,<br>Ubuntu 14.04 |

**Performance\***

|                                 |               |
|---------------------------------|---------------|
| Sequential Reads                | At least 1500 |
| Sequential Writes               | At least 350K |
| SPECwpc Storage General<br>Ops. | Up to 123     |

**Endurance**

|                         |               |
|-------------------------|---------------|
| Terabytes Written (TBW) | Up to 72      |
| MTBF                    | 800,000 Hours |

**Physical**

|                                  |                  |
|----------------------------------|------------------|
| Weight (Single M.2<br>Populated) | .242 lbs. (110g) |
| Operating Temperature<br>Range   | 50-95F (10-35C)  |
| Airflow                          | 3.5 CFM          |

|                       |              |
|-----------------------|--------------|
| <b>Certifications</b> | UL, CE, RoHS |
|-----------------------|--------------|



## Dell SSD classifications

| Class               | Sequential* Read/<br>Write | Random** Read/<br>Write | Interface                         |
|---------------------|----------------------------|-------------------------|-----------------------------------|
| 40<br>"performance" | 1500/350K                  | 200K/80K                | PCIe interface NVMe host protocol |
| 50<br>"performance" | 2100K/1200K                | 300K/100K               | Best in class PCIe                |

Based on Dell internal testing, January 2016, using IOMeter.  
Actual performance will vary with configuration, usage and  
manufacturing variability."

\*Sequential = boot, hibernate, daily power up and power down  
functions

\*\*Random = random tasks such as file search

## OPTICAL DRIVES

|                                                                              | TOWER 3420                                             |                                                        |                                                        |
|------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
|                                                                              | 8x Slimline DVD-ROM                                    | 8x Slimline DVD +/- R/W <sup>1</sup>                   | 6X Slimline BD-RE                                      |
| <b>External Dimensions</b> inches/centimeters<br>(Without Bezel – W x H x D) | 128.0 mm (5.04 in)/ 9.5mm (0.37 in)/ 126.1mm (4.97 in) | 128.0 mm (5.04 in)/ 9.5mm (0.37 in)/ 126.1mm (4.97 in) | 128.0 mm (5.04 in)/ 9.5mm (0.37 in)/ 126.1mm (4.97 in) |
| <b>Weight (max)</b> pounds/kilograms                                         | 140g                                                   | 140g                                                   | 140g                                                   |
| <b>Interface type and speed</b>                                              | SATA 1.5Gbit/s                                         | SATA 1.5Gbit/s                                         | SATA 1.5Gbit/s                                         |
| <b>Disc Capacity</b>                                                         | Standard                                               | Standard                                               | Standard                                               |
| <b>Internal buffer size</b>                                                  | 0.5MB                                                  | 0.5MB                                                  | 4MB                                                    |
| <b>Access Times (typical)</b>                                                | supplier dependent                                     | supplier dependent                                     | supplier dependent                                     |
| <b>Maximum Data Transfer Rates</b>                                           |                                                        |                                                        |                                                        |
| Writes                                                                       | NA                                                     | 8x DVD/ 24x CD                                         | 6X BD/ 16x DVD/48x CD                                  |
| Reads                                                                        | 8x DVD/ 24x CD                                         | 8x DVD/ 24x CD                                         | 6X BD/ 16x DVD/48x CD                                  |
| <b>Power Source</b>                                                          |                                                        |                                                        |                                                        |
| DC Power Requirements                                                        | 5V                                                     | 5V                                                     | 5V                                                     |
| DC Current                                                                   | 1300mA                                                 | 1300mA                                                 | 1300mA                                                 |
| <b>Environmental Operating Conditions (Non-Condensing):</b>                  |                                                        |                                                        |                                                        |
| Operating Temperature Range                                                  | 5C to 50C                                              | 5C to 50C                                              | 5C to 50C                                              |
| Relative Humidity Range                                                      | 10% to 90% RH                                          | 10% to 90% RH                                          | 10% to 90% RH                                          |
| Maximum Wet Bulb Temperature                                                 | 29C                                                    | 29C                                                    | 29C                                                    |
| Altitude Range                                                               | 0 to 3048m                                             | 0 to 3048m                                             | 0 to 3048m                                             |
| <b>Environmental Non-Operating Conditions (Non-Condensing):</b>              |                                                        |                                                        |                                                        |
| 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                                                               | 0 to 10600m                                            | 0 to 10600m                                            | 0 to 10600m                                            |

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

## OPTICAL DRIVES (CONTINUED)

|                                                                              | TOWER 3620                           |                                          |                                      |
|------------------------------------------------------------------------------|--------------------------------------|------------------------------------------|--------------------------------------|
|                                                                              | 16x Half Height DVD-ROM              | 16x Half Height DVD +/- R/W <sup>1</sup> | 8X Half Height BD-RE                 |
| <b>External Dimensions</b> inches/centimeters<br>(Without Bezel – W x H x D) | 148.2mm(6 in)/42mm (2 in)/ 171 (max) | 148.2mm(6 in)/42mm (2 in)/ 171 (max)     | 148.2mm(6 in)/42mm (2 in)/ 171 (max) |
| <b>Weight (max)</b> pounds/kilograms                                         | 700g                                 | 700g                                     | 730g                                 |
| <b>Interface type and speed</b>                                              | SATA 1.5Gbit/s                       | SATA 1.5Gbit/s                           | SATA 1.5Gbit/s                       |
| <b>Disc Capacity</b>                                                         | Standard                             | Standard                                 | Standard                             |
| <b>Internal buffer size</b>                                                  | 0.5MB                                | 0.5MB                                    | 4MB                                  |
| <b>Access Times (typical)</b>                                                | supplier dependent                   | supplier dependent                       | supplier dependent                   |
| <b>Maximum Data Transfer Rates</b>                                           |                                      |                                          |                                      |
| Writes                                                                       | NA                                   | 16x DVD/48x CD                           | 8X BD/ 16x DVD/48x CD                |
| Reads                                                                        | 16x DVD/48x CD                       | 16x DVD/48x CD                           | 8X BD/ 16x DVD/48x CD                |
| <b>Power Source</b>                                                          |                                      |                                          |                                      |
| DC Power Requirements                                                        | 12V, 5V                              | 12V, 5V                                  | 12V, 5V                              |
| DC Current                                                                   | 1.5A (12V)/ 1A (5V)                  | 1.5A (12V)/ 1A (5V)                      | 1.5A (12V)/ 1A (5V)                  |
| <b>Environmental Operating Conditions (Non-Condensing):</b>                  |                                      |                                          |                                      |
| 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                                                               | -200m to 3048m                       | -200m to 3048m                           | -200m to 3048m                       |
| <b>Environmental Non-Operating Conditions (Non-Condensing):</b>              |                                      |                                          |                                      |
| 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                                                               | -200m to 10600m                      | -200m to 10600m                          | -200m to 10600m                      |

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

**MEDIA CARD READER (MCR)**

NOTE: Dell 19 in 1 Media Card Reader (MCR) is supported via an optional bracket. MCR is only available on Mini Tower.

| 19 IN 1 MEDIA CARD READER                                                           | TOWER 3620                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>External Dimensions</b> inches/(centimeters)<br>(With Bezel – W x H)             | 3.99/(10.13cm)/1.0/(2.54cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Weight (max)</b> pounds/kilograms                                                | ~151g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Interface type and speed</b>                                                     | USB 2.0, 480Mb/s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Media Supported</b> ( maximum capacity supported will vary by Flash Media Types) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Media Supported                                                                     | CF<br>Micro Drive (MD)<br>Secure Digital (SD)<br>SDHC<br>SDXC<br>Mini Secure Digital (mini-SD)<br>Micro Secure Digital (Micro-SD) (with adapter)<br>Multi Media Card (MMC)<br>RS Multi Media Card (RS-MMC)<br>Multi Media Card plus (MMC plus)<br>RS Multi Media Card plus (RS-MMC plus)<br>Multi Media Card Micro (MMC Micro) (with adapter)<br>Memory Stick (MS)<br>Memory Stick Pro (MS Pro)<br>Memory Stick Pro Duo (MS Pro Duo)<br>Memory Stick Duo (MS-Duo)<br>Memory Stick Micro (MS Micro)(M2) (with adapter)<br>Smart Media (SM)<br>xD |
| Support Specification Versions:                                                     | Compact Flash type I/II Version 4.0<br>Smart Media (SM) Specification 2003<br>Multi Media Card (MMC) Specification 4.2<br>Secure Digital (SD) 2.0<br>Memory Stick Pro (MS-PRO) Specification 1.02<br>Memory Stick (MS) Specification 1.43<br>xD Specification 1.2                                                                                                                                                                                                                                                                               |
| <b>Power Source</b>                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Max Power Requirements                                                              | 2.5W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Supply Voltage Range                                                                | 4.75V ~ 5.25V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Power Consumption:                                                                  | Standby less than 0.5mA @ 5.0VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Environmental Operating Conditions (Non-Condensing):</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating Temperature Range                                                         | 5C to 50C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Relative Humidity Range                                                             | 10% to 90% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Environmental Non-Operating Conditions (Non-Condensing):</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating Temperature Range                                                         | -40C to 65C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Relative Humidity Range                                                             | 5% to 95% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

MEDIA CARD READER (MCR)

|                                                                              |                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                              | Tower 3420                                                                                                                                                                                                                                                                          |
| External Dimensions inches/(centimeters)                                     | 2.38/(6.04cm)*1.34/(3.41cm)*1.11/(2.827)                                                                                                                                                                                                                                            |
| Weight (max) pounds/kilograms                                                | ~0.04lb/0.018kg                                                                                                                                                                                                                                                                     |
| Interface type and speed                                                     | PCIe Gen II 5GT/s                                                                                                                                                                                                                                                                   |
| Media Supported ( maximum capacity supported will vary by Flash Media Types) |                                                                                                                                                                                                                                                                                     |
| Media Supported                                                              | Secure Digital (SD), SDXC, SDHC<br><br>(With adapter) Mini-SD, Micro-SD (T-flash)<br><br>SDXC up to 2TB<br><br>Support SD4.0 UHS-II FD/HD mode. Up to 312 MB/spec<br><br>Support SD3.0 UHS-I SDR-104 (208MHz SD clock), SDR-50<br><br>(100MHz SD clock) and DDR 50 (50MHz SD clock) |

## BIOS DEFAULTS

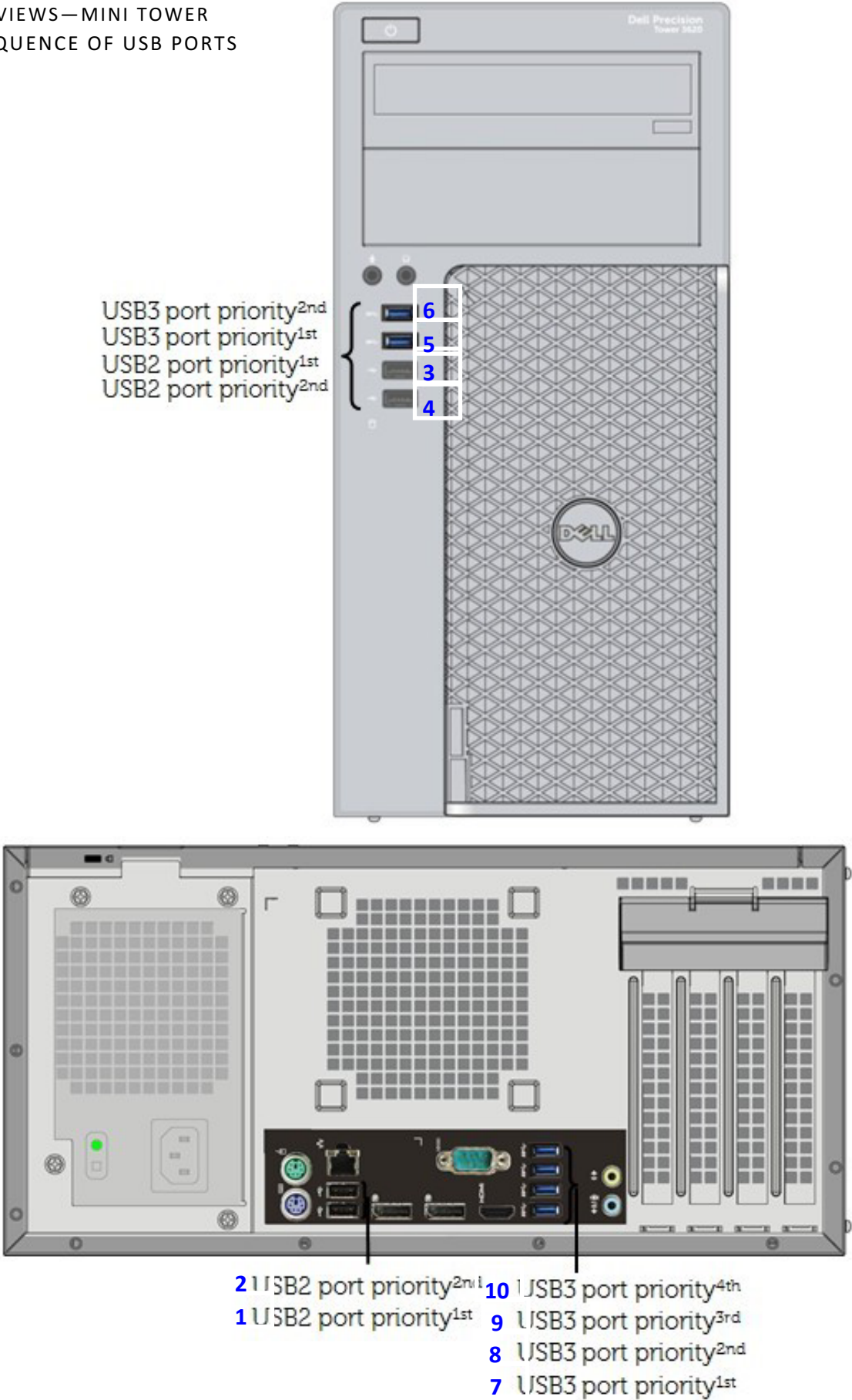
|                      |                               |                                                                                                  |
|----------------------|-------------------------------|--------------------------------------------------------------------------------------------------|
|                      |                               |                                                                                                  |
| System Configuration | Integrated NIC:               | Enable w/PXE                                                                                     |
|                      | Serial Port:                  | COM1                                                                                             |
|                      | SATA Operation:               | RAID On                                                                                          |
|                      | Drives:                       | Enable (SATA-0, SATA-1, SATA-2, SATA-3, SATA-4, M.2 PCIe SSD-0)                                  |
|                      | SMART Reporting:              | Disabled                                                                                         |
|                      | USB Configuration:            | Enable (Boot Support, Front USB Ports, Rear USB Ports)                                           |
|                      | Front USB Configuration:      | Enable (Front Port 1, Front Port 2, Front Port 3, Front Port 4)                                  |
|                      | Rear USB Configuration        | Enable (Rear Port 1, Rear Port 2, Rear Port 3, Rear Port 4, Rear Port 5, Rear Port 6)            |
|                      | Thunderbolt                   | Enabled (User Configuration)                                                                     |
|                      | USB PowerShare                | Disable                                                                                          |
|                      | Audio                         | Enable (Microphone, Internal Speaker)                                                            |
|                      | Miscellaneous Devices:        | Enable (PCI Slot)                                                                                |
|                      |                               |                                                                                                  |
| Video                | Primary display:              | Auto                                                                                             |
|                      |                               |                                                                                                  |
| Security             | Strong Password:              | Disabled                                                                                         |
|                      | Password Configuration:       | Admin Password Min 4<br>Admin Password Max 32<br>System Password Min 4<br>System Password Max 32 |
|                      | Password Bypass               | Disabled                                                                                         |
|                      | Password Changes:             | Allow Non-Admin Password Changes                                                                 |
|                      | UEFI Capsule Firmware Updates | Enable UEFI Capsule Firmware Updates                                                             |
|                      | TPM Security:                 | TPM On/Enabled                                                                                   |
|                      | Computrace®:                  | Deactivate                                                                                       |
|                      | CPU XD Support:               | Enable CPU XD Support                                                                            |
|                      | OROM Keyboard Access          | Enabled                                                                                          |
|                      | Admin Setup Lockout           | Disabled                                                                                         |
|                      |                               |                                                                                                  |
| Secure Boot          | Secure Boot Enable            | Disabled                                                                                         |
|                      | Expert Key Management         | Disabled                                                                                         |

**BIOS DEFAULTS**

|                               |                        |                                         |
|-------------------------------|------------------------|-----------------------------------------|
|                               |                        |                                         |
| <b>Performance</b>            | Multiple Core Support: | All                                     |
|                               | Intel® SpeedStep™:     | Enabled                                 |
|                               | C-States Control:      | Enabled                                 |
|                               | Limit CPUID Value:     | Disabled                                |
|                               | Intel® Turbo Boost     | Enabled                                 |
|                               | HyperThread control:   | Enabled                                 |
|                               |                        |                                         |
| <b>Power Management</b>       | AC Recovery:           | Power Off                               |
|                               | Auto On Time:          | Disabled                                |
|                               | Deep Sleep Control:    | Disabled                                |
|                               | Fan Control Override   | Disabled                                |
|                               | USB Wake Support:      | Enabled                                 |
|                               | Wake on LAN/WLAN:      | Disabled                                |
|                               | Block sleep            | Disabled                                |
|                               | Intel Ready Mode       | Disabled                                |
|                               |                        |                                         |
| <b>POST Behavior</b>          | Numlock LED:           | Enabled                                 |
|                               | MEBx Hotkey:           | Enabled                                 |
|                               | Keyboard Errors:       | Enabled                                 |
|                               |                        |                                         |
| <b>Virtualization Support</b> | Virtualization         | Enabled                                 |
|                               | VT for Direct I/O      | Enabled                                 |
|                               | Trusted Execution      | Disabled                                |
|                               |                        |                                         |
| <b>Maintenance</b>            | Service Tag:           | Set by the factory                      |
|                               | Asset Tag:             | Optional User Entry                     |
|                               | SERR Message:          | Enabled                                 |
|                               | Allow BIOS downgrade   | Enabled                                 |
|                               | Data Wipe              | Disabled                                |
|                               | BIOS Recovery          | Enabled (BIOS Recovery from Hard Drive) |

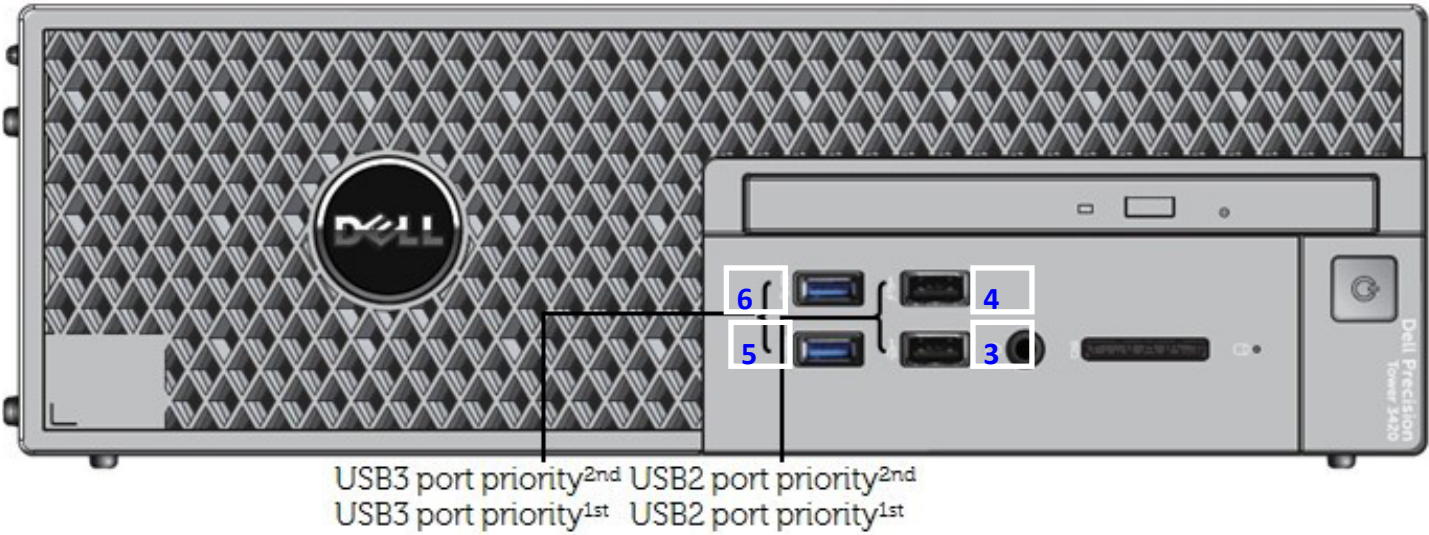


EXTERNAL CHASSIS VIEWS—MINI TOWER  
BIOS INITIALIZE SEQUENCE OF USB PORTS

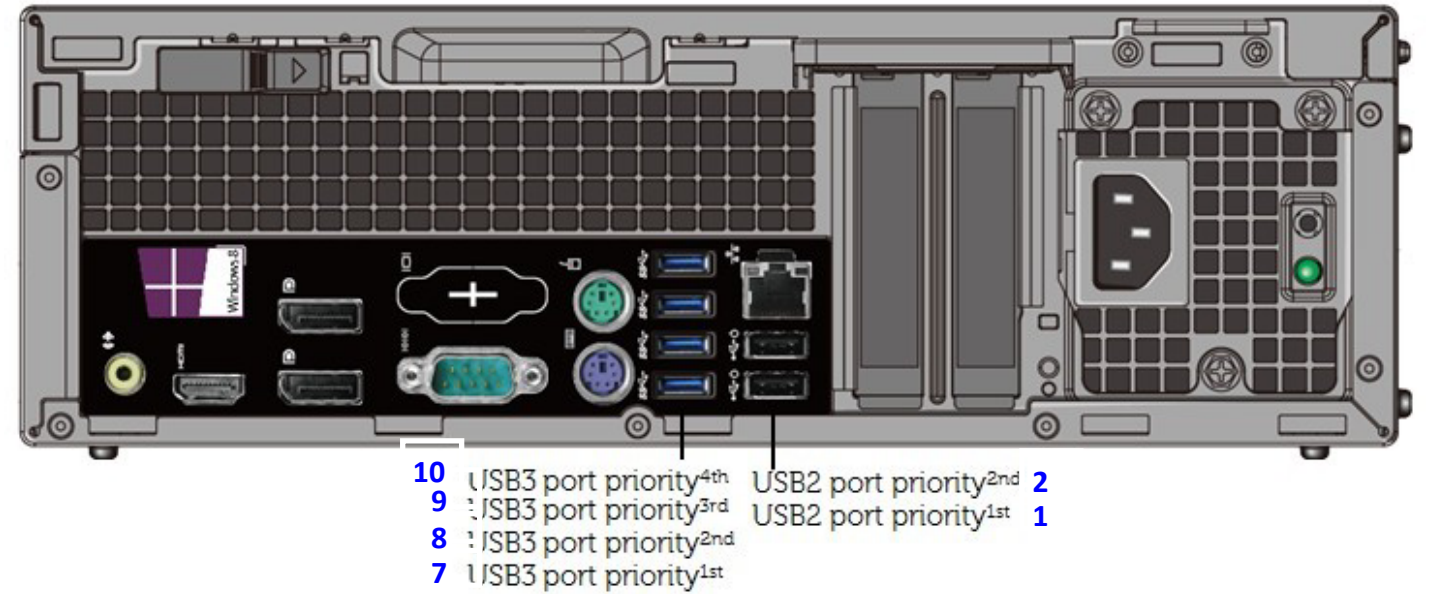


EXTERNAL CHASSIS VIEWS—SMALL FORM FACTOR  
BIOS INITIALIZE SEQUENCE OF USB PORTS

FRONT I/O



REAR I/O



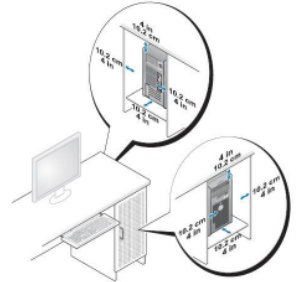
## CHASSIS ENCLOSURE & VENTILATION REQUIREMENTS

### 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.



### ENCLOSURE DOOR AREA

The intake and exhaust door areas should be, at a minimum, the same size as the system intake and exhaust areas.

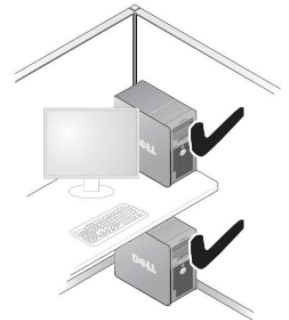
### RECOMMENDED ENCLOSURE

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](http://www.dell.com/regulatory_compliance). The Regulatory Datasheet for this product is located at [http://www.dell.com/regulatory\\_compliance](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](http://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.