Dell Precision™ T3500
Technical Guide

Dell Precision T3500

 # 910006958

Dell Precision™ T3500 Workstation Technical Guide

The Dell Precision™ Workstations

Dell Precision workstations have been the world's leading workstation brand for the last nine years[1]. They continue to deliver value to customers by combining relevant new technologies and focussing on the core values of the product family. These are:

- **Performance**
  Providing relevant technologies design to drive applications as fast as possible
- **Application Focus**
  Working closely with the key software partners to ensure reliability and performance through certification and excellent support.
- **Scalability**
  Designing systems that can scale with your application's needs and company's needs.
- **Managed for Business**
  Building our solutions around industry standards and helping simplify your IT
- **Optimized solutions**
  Recognizing the wide range of application areas for workstations and offering the flexibility in our systems to help optimize them to suit our customers requirements

Dell partners with strategic Independent Software Vendors (ISVs) to certify system and application compatibility so that applications can run gracefully on Dell Precision workstations. Through rigorous testing, Dell also targets excellent compatibility and optimized performance in demanding work environments such as Computer Aided Design (CAD), engineering, and architecture, making the Dell Precision range a perfect platform for demanding workstation users.

The Dell Precision T3500 Workstation

The Dell Precision™ T3500 Workstation is a productivity machine with a choice of lightning-fast 64-bit dual- or quad-core Intel® Xeon® processors, impressive graphics, and exceptional memory capacity that work together in a flexible and innovative compact chassis to deliver performance, scalability, and flexibility.

Affordable Power and Performance

Your work isn't entry level, so why consider a workstation that delivers anything less than advanced levels of performance? With the Dell Precision T3500, you don't have to. Experience the power, scalability, and reliability you've been dreaming about with a system that's specifically designed for professionals as demanding as their complex applications. To provide you with exceptional flexibility and scalability, the Dell Precision T3500 comes with your choice of dual- or quad-core Intel® Xeon® processors. The T3500 builds upon the revolutionary Intel Xeon Processor X5500 Series micro-architecture to bring you a workstation with an excellent blend of relevant technologies. What's the difference? Advanced features that combine to deliver a computing experience that's incredibly rich, incredibly powerful, and incredibly fast.

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- Next-generation 45nm quad-core Intel Xeon processor X5500 Series ignites stunning levels of performance unleashed by Intel Quick Path Interconnect Technology that provides high-speed interconnects per independent processing core
- Outstanding performance for memory-intensive applications delivered with the help of processor-dedicated three-channel memory architecture, multi-level shared cache, and high-speed point-to-point interconnects
- Memory scalability up to 24GB^2 with DDR3 ECC DIMMs
- Dual-native PCIe x16 Gen 2 graphics slots for outstanding graphics performance, cost-effective quad monitor support, and GPU-based personal supercomputing
- Designed to deliver increased performance for single- and multi-threaded applications with advanced engineering and thermal design enabling extended use of Intel Turbo Boost Technology

Visual Realism with High-Performance OpenGL Graphics

Bring your graphics to the next level with our intelligent selection of ISV-certified, workstation-class graphics cards. Our ultra-high-end graphic solutions deliver outstanding visualization capabilities for whatever application you are running. Enhanced graphics are required whether you work in computer-aided design, architecture, engineering, or digital content creation. Dell Precision workstations provide superb OpenGL® 3D performance or dependable and affordable 2D performance to help make you successful in your designs, animation modeling, software development, or whatever else you use your workstation to create.

Outstanding Scalability in a Compact Chassis

In today's professional world of engineering, software development, and digital content creation, you need precision to be successful. We customize each and every Dell Precision workstation to help provide you with exceptional performance and scalability. Whatever your needs – dual core or quad core, ECC or non-ECC memory, flexible dual-orientation chassis – the Dell Precision T3500 provides a highly scalable architecture that delivers outstanding speed and reliability to the cost-conscious professional.

Imagine having the freedom to work the way you've always wanted. With Dell Precision, you can. Plus with ISV application certifications, you know your system is performance-tuned to help ensure that your applications will run smoothly.

Peace of Mind Through ISV Application Certification

Dell partners with leading Independent Software Vendors (ISVs) to certify system and application compatibility to help ensure flawless compatibility and optimized performance in demanding workstation environments. And to ensure access to the latest productivity-enhancing technology solutions, Dell invests in the workstation ISV community by providing the hardware platforms needed to further multi-threaded application development. By maintaining strong relationships with software developers, Dell engineers can provide you with ongoing optimization and support should you need it.

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Users of T3500

The Dell Precision T3500 is targeted at the entry-level personal & traditional workstation markets. This market is typically comprised of the following segments: software engineering, DCC (graphic design, pre-press, digital video editing, etc), 2D & entry 3D graphics, entry CAD, AEC, SCI (Medical), expert office and GIS class of applications.

Users of this product are typically looking for maximum single CPU socket performance at a reasonable price.

Dell Precision T3500 Key Features
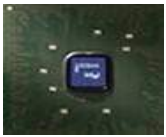
Chipset

Intel® X58 Express Chipset

Key features:

- Support for 1066 & 1333MHz DDR3 memory

- Support for up to 24GB^2 system memory and for tri-memory channels

- Turbo Boost – designed to dynamically increase the speed of some cores on demand when others are inactive, enabling high performance

- Direct Cache Access (DCA) – when cores are inactive, the cache of those cores can be accessed by those that are active

- Memory controller integrated into CPU resulting in low latency and excellent application performance

Graphics

The Dell Precision T3500 offers the following graphics cards:

NVIDIA® Quadro™ FX 4800

NVIDIA® Quadro™ FX 3800

NVIDIA® Quadro™ FX 1800

NVIDIA® Quadro™ FX 580

NVIDIA® NVS 295

ATI® FirePro V8700

ATI FirePro V5700

ATI FirePro V3750

All graphics cards support dual-monitor configurations

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Applications and ISV Certifications

To meet the needs of demanding workstation users, Dell demands that professional workstation applications are rigorously tested and certified by the ISV (Independent Software Vendor) so that customers can be assured the maximum level of performance, functionality, and reliability of their solution. With dedicated development and testing resources, Dell's stringent workstation certification requirements are designed to deliver one benefit above all others: peace of mind.

Engineering, "The Tools Used to Create Everyday Products"

Mechanical CAD (design and drafting), Mechanical CAM (Prototyping), CAE (analysis)

Mechanical CAD				**Mechanical CAM**	**CAE**		
DASSAULT SYSTEMES	PTC The PLM Company	UGS	Autodesk	Co/Create	cnc software, inc.	ANSYS	MSC SOFTWARE / Altair Engineering
CATIA V5 Enovia Delmia Simula SolidWorks	Pro\ENGINEER Wildfire Windchill	NX NX I-deas Solid Edge Teamcenter	Inventor AutoCAD AutoCAD LT	One Space Designer	MasterCAM	Classic Workbench CFX — FLUENT — Fluent CFD	Patran Nastran / Hyperworks

DCC, "The Tools Used to Entertain the Industry"

3D Modeling/Animation, Game Development, Video Editing, Image Editing, Professional Audio, Prepress and Print Production

Adobe OpenHD Alliance	Avid	Cineform Aspect HD	AJA VIDEO SYSTEMS	SiliconImaging	Autodesk Toxik
Production Studio Products	Xpress Pro Media Composer (software) NewsCutterXP MediaNet ISIS Liquid (formerly Pinnacle)			HD to Disk Video Camera	

Video Editing/Capture/Special Effects

Autodesk 3D Studio Max Toxik Studio Tools, Maya	NewTek LightWave 3D	Avid SOFTIMAGE XSI FaceRobot	Avid digidesign PRO Tools HD	cakewalk Sonar 4/64

3D Modeling/Special Effects/Animation   **Professional Audio**

Geoscience, *"The Tools Used to Explore, Drill and Maintain The Oil and Gas Industry"*

Upstream Analysis, Seismic Measuring and Interpretation, Oil Reservoir and Delivery Management

HALLIBURTON
Digital and Consulting Solutions
Landmark
GeoProbe

Schlumberger
GeoFrame
Petrel 32/64 (in process)

Paradigm
A VISION FOR ENERGY
Product Family

Upstream Exploration, Reservoir Management, Downstream Management and Maintenance

Medical Imaging/Scanning, Tools Used by Doctors and Scientists To Enhance Patient Care

CT/MRI Scanning, Gray and Color Scale Diagnostic Displays, Visual Medical Software

BARCO
Display Products
Certification

PLANAR
Display Products
Certification

EMAGEON
RadSuite
CardSuite

EDA (Electronic Design and Automation)
GIS (Geographic Information Systems)
AEC (Architectural, Engineering and Construction)

Circuitry and PCB Engineering, Mapping and Geo Exploration, Building and Infrustructure Design

Mentor Graphics
BoardStation EX Flow 2006
Expedition Flow 2005 SPac1
DMS 2005 SPac2
Pads Flow 2007

Autodesk
AutoCAD
AutoCAD LT

BENTLEY
MicroStation

ESRI
Arc/INFO
Arc/VIEW

Finance

Stock Trading, Market, Risk Analyses

Bloomberg	Murex	Intex Solutions
BrokerTec	Market Axess	Reuters
Global Trade Tech	Thomson Financial	...others

Dell Precision Customers drive these applications and others in the Finance World. Whether as a Trader's Station or computing risk analysis in the background, the strength of Dell Precision is necessary. These companies have no formal Cerification process.

Power Efficiency & Productivity in Proven Reliable Designs

Through intuitive design and performance-driven technology, the new Dell Precision workstations are designed to deliver outstanding capabilities in the most efficient design possible. In addition, we pack every system with business-relevant features built on direct feedback from customers just like you. The result? High productivity and outstanding effectiveness, across the board.

EnergyStar

What is Energy Star?

Energy Star 5.0 is a configurable option on the new Dell Precision T3500 workstation.

ENERGY STAR® qualified products and practices help you save money and can reduce greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy. You can help reduce electricity usage and its environmental impact by power managing or turning off your product when it is not in use for extended periods of time, particularly at night and on weekends.

85% Efficient Power Supply[5]

The 85% efficient power supply not only operates more efficiently than a traditional power supply but it is also wide-ranging meaning no matter what the power source at the wall the power supply will detect the wattage and adjust accordingly avoiding power supply failures.

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1. Source: IDC WW Quarterly Workstation Tracker, May 2009

2. A 64-bit operating system is required to support 4GB or more of system memory.

3. Significant system memory may be used to support graphics, depending on system memory size and other factors.

4. GB means 1 billion bytes and TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less.

5. The T3500 uses a very efficient Active Power Factor Correction (APFC) power supply. Dell recommends only Universal Power Supplies (UPS) based on Sine Wave output for APFC PSUs, not an approximation of a Sine Wave, Square Wave or quasi-Square Wave (see UPS Technical Specifications). If you have questions, please contact the manufacturer to confirm the output type.

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Detailed Technical Overview
and
Configuration Specifications

T3500 Front View
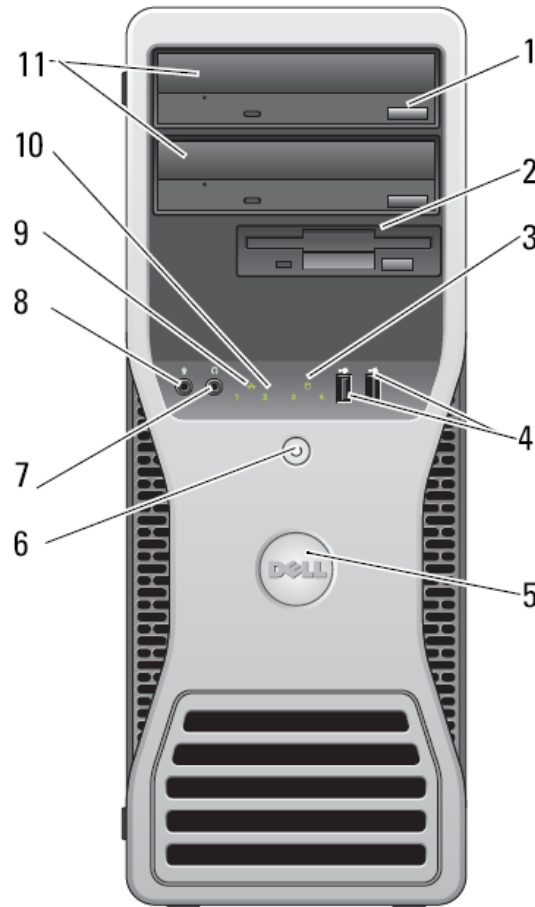
1	optical drive eject button	2	Flexbay
3	drive activity light	4	USB 2.0 connectors
5	Dell rotatable badge	6	power button, power light
7	headphone connector	8	microphone connector
9	network link light	10	diagnostic lights (4)
11	optical drives (2)		

T3500 Rear View
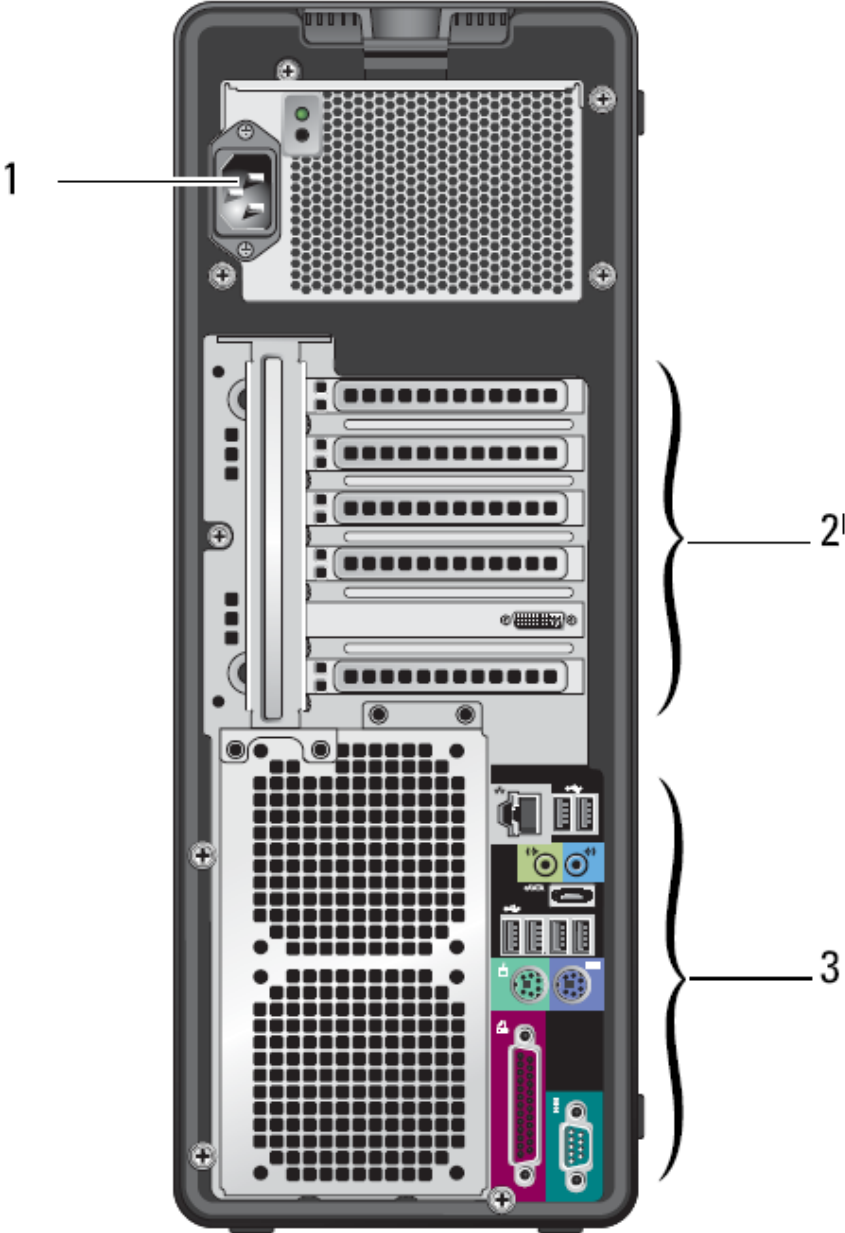
1	power connector	2	expansion card slots (5)
3	back panel connectors		

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System Configurations

Operating System

NOTE: One of the following Operating Systems will be preinstalled.

Windows Vista® operating system	Windows Vista® Ultimate (32 and 64-bit), Windows Vista® Business (32 and 64-bit)
Windows XP® support via a Vista downgrade	Windows® XP Professional SP3 (32 and 64-bit)
Other	Red Hat Enterprise Linux 5.3 64-bit Factory Installed, Suse SLED Linux (China only), FreeDOS
OS Media Support	Yes

Chipset

Intel® X58 Express Chipset

Processors

NOTE: Processor numbers are not a measure of performance.

Processor (speed, GT/s, wattage, cache)

Intel® Xeon® Processor X5570 2.93GHz, 6.4GT/s, 95 watts, 8MB L3 cache
Intel® Xeon® Processor X5550 2.66GHz, 6.4GT/s, 95 watts, 8MB L3 cache
Intel® Xeon® Processor E5540 2.53GHz, 5.86GT/s, 80 watts, 8MB L3 cache
Intel® Xeon® Processor E5530 2.40GHz, 5.86GT/s, 80 watts, 8MB L3 cache
Intel® Xeon® Processor E5520 2.26GHz, 5.86GT/s, 80 watts, 8MB L3 cache
Intel® Xeon® Processor E5506 2.13GHz, 4.8GT/s, 80 watts, 4MB L3 cache
Intel® Xeon® Processor W3570 3.20GHz, 6.4GT/s, 130 watts, 8MB L3 cache
Intel® Xeon® Processor W3540 2.93GHz, 4.8GT/s, 130 watts, 8MB L3 cache
Intel® Xeon® Processor W3520 2.66GHz, 4.8GT/s, 130 watts, 8MB L3 cache
Intel® Xeon® Processor W3505 2.53GHz, 4.8GT/s, 130 watts, 4MB L3 cache
Intel® Xeon® Processor W3503 2.40GHz, 4.8GT/s, 130 watts, 4MB L3 cache

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Memory

Your computer supports a maximum of 24GB of memory; however, 32-bit operating systems, such as the 32-bit version of Microsoft® Windows® Vista, can only use a maximum of 4GB of address space. Moreover, certain components within the computer require address space in the 4GB range. Any address space reserved for these components cannot be used by computer memory; therefore, the amount of memory available to a 32-bit operating system is less than 4GB.

NOTE: A 64-bit operating system is required to support 4GB or more of system memory..

Memory modules should be installed in pairs of matched memory size, speed, and technology. If the memory modules are not installed in matched pairs, the computer will continue to operate but performance may be compromised.

Memory Type	DDR3, 1066 and 1333, ECC and Non-ECC
DIMM Slots	6
DIMM Capacities	Up to 4GB[4]
Minimum Memory Configuration	1GB
Maximum Memory	24GB[2]
Configurations:	
1066MHz DDR3 Non-ECC Memory Configurations	
1GB[4] (1x1GB DIMM)	
2GB[4] (2x1GB DIMM)	
3GB[4] (3x1GB DIMM)	
4GB[4] (4x1GB DIMM)	
4GB[4] (2x2GB DIMM)	
1066MHz DDR3 ECC Memory Configurations	
1GB[4] (1x1GB DIMM)	
2GB[4] (2x1GB DIMM)	
3GB[4] (3x1GB DIMM)	
4GB[4] (4x1GB DIMM)	
4GB[4] (2x2GB DIMM)	
6GB[4] (6x1GB DIMM)	
6GB[4] (3x2GB DIMM)	

1333MHz DDR3 Non-ECC Memory Configurations
1GB[4] (1x1GB DIMM)
2GB[4] (2x1GB DIMM)
3GB[4] (3x1GB DIMM)

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4GB[4] (4x1GB DIMM)
4GB[4] (2x2GB DIMM)
6GB[4] (6x1GB DIMM)
6GB[4] (3x2GB DIMM)
12GB[4] (6x2GB DIMM)
12GB[4] (3x4GB DIMM)
1333MHz DDR3 ECC Memory Configurations
4GB[4] (4x1GB DIMM)
4GB[4] (2x2GB DIMM)
6GB[4] (6x1GB DIMM)
6GB[1] (3x2GB DIMM)
12GB[4] (6x2GB DIMM)
12GB[4] (3x4GB DIMM)
24GB[4] (6x4GB DIMM)

NOTE: The total amount of available memory will be less than 4GB for 32bit Operating Systems. The amount less depends on the actual system configuration. To fully utilize 4GB or more of memory requires a 64-bit enabled processor and 64-bit operating system.

Graphics Cards

1.5GB[3] PCIe x16 nVidia® Quadro® FX 4800, 2DP+1DVI
1GB[3] PCIe x16 nVidia® Quadro® FX 3800, 2DP+1DVI
768MB[3] PCIe x16 nVidia® Quadro® FX 1800, 2DP+1DVI
512MB[3] PCIe x16 nVidia® Quadro® FX 580, 2DP+1DVI
256MB[3] PCIe x16 nVidia® NVS 295, 2DP
1GB[3] PCIe x16 ATI® FirePro® V8700, 2DP+1DVI
512MB[3] PCIe x16 ATI® FirePro® V5700, 2DP+1DVI
256MB[3] PCIe x16 ATI® FirePro® V3750, 2DP+1DVI

NVIDIA Quadro FX 4800

Bus Type	PCIe x16
GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	1.5GB[3] GDDR3 with memory bandwidth up to 76.8GB/sec

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NVIDIA Quadro FX 4800

Frame buffer bus width	64-bit
Maximum Power Consumption	150W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 2.1 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital-DP)
External connectors	2 DP + 1 DVI

NVIDIA Quadro FX 3800

Bus Type	PCIe x16
GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	1GB[3] GDDR3 with memory bandwidth up to 51.2 GB/sec
Frame buffer bus width	64-bit
Maximum Power Consumption	107W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 3.0 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital)
External connectors	2 DP + 1 DVI

Nvidia Quadro FX 1800

Bus Type	PCIe X16
GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	768MB[3] GDDR3 with memory bandwidth up to 38.4 GB/sec

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Nvidia Quadro FX 1800

Frame buffer bus width	64-bit
Maximum Power Consumption	59W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 3.0 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital)
External connectors	2 DP + 1 DVI

Nvidia Quadro FX 580

Bus Type	PCIe x16
GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	512MB[3] GDDR3 with memory bandwidth up to 25.6GB/sec
Frame buffer bus width	64-bit
Maximum Power Consumption	40W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 3.0 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital)
External connectors	2 DP + 1 DVI

Nvidia NVS 295

Bus Type	PCIe X16
GPU Core Clock	

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Nvidia NVS 295

Frame Buffer Memory (onboard and shared) Size and Speed	256MB[3] DDR3 with memory bandwidth up to 11.2 GB/sec
Frame buffer bus width	64-bit
Maximum Power Consumption	23W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 3.0 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital-DP)
External connectors	2 DP

ATI FirePro V8700

Bus Type	PCIe X16
GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	1GB[3] GDDR3 with memory bandwidth up to 108.8 GB/sec
Frame buffer bus width	64-bit
Maximum Power Consumption	160W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 2.1 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital)
External connectors	2 DP + 1 DVI

ATI FirePro V5700

Bus Type	PCIe X16

PLEASE SEE IMPORTANT INFORMATION ON PAGE 8

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ATI FirePro V5700

GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	512MB[3] GDDR3 with memory bandwidth up to 28.8 GB/sec
Frame buffer bus width	64-bit
Maximum Power Consumption	58W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 2.1 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital)
External connectors	2 DP + 1 DVI

ATI FirePro V3750

Bus Type	PCIe X16
GPU Core Clock	
Frame Buffer Memory (onboard and shared) Size and Speed	256MB GDDR3[3] with memory bandwidth up to 24.4 GB/sec
Frame buffer bus width	64-bit
Maximum Power Consumption	47W
Overlay Planes	Yes
Maximum Color Depth	32-bit
Maximum Vertical Refresh Rate	85 Hz
Multiple Display Support	Yes
Operating Systems Graphics/ Video API Support	OpenGL® 2.1 & DirectX® 10
Supported Resolutions and Max Refresh Rates (Hz) (Note: Analog and/or digital)	Up to 2560x1600 (Digital)
External connectors	2 DP + 1 DVI

PLEASE SEE IMPORTANT INFORMATION ON PAGE 8

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Hard Drives and Removable Storage

Hard Drive: Size, type, speed
80GB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 8MB DataBurst Cache™
160GB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 8MB DataBurst Cache™
250GB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 8MB DataBurst Cache™
320GB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 8MB DataBurst Cache™
500GB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 16MB DataBurst Cache™
750GB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 16MB DataBurst Cache™
1TB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 16MB DataBurst Cache™
1.5TB[4] SATA 3.0Gb/s, 7200 RPM Hard Drive with 16MB DataBurst Cache™
80GB[4] SATA 3.0Gb/s 10K RPM Hard Drive 2.5 inch with DataBurst Cache™
160GB[4] SATA 3.0Gb/s 10K RPM Hard Drive 2.5 inch with DataBurst Cache™
300GB[4] SATA 3.0Gb/s 10K RPM Hard Drive 2.5 inch with 16MB DataBurst Cache™
146GB[4] SAS 15K RPM Hard Drive
300GB[4] SAS 15K RPM Hard Drive
450GB[4] SAS 15K RPM Hard Drive
Optical Drives:
BluRay Disc
DVD+/-RW
DVD-ROM
Floppy Diskette Drive:
Floppy Drive
Media Card Reader:
Dell 19 in 1 Media Card Reader

External System I/O Ports

See chassis diagrams section for port/connector locations

USB 2.0	11 (2 front, 3 internal on motherboard, 6 rear)
Ethernet Network (RJ45)	1
eSATA	1
Microphone and Headphone Jacks	2 front and 2 rear
1394	Optional via add-in card
Parallel	1
Serial	1
PS2	2

Security

Software	Trusted Platform Module 1.2 (TPM 1.2), Optional Chassis Intrusion, Setup/BIOS Password
Hardware	Kensington Lock, Loop Lock, Internal front panel chassis lock

Communications

Network Adapter	Integrated BroadCom® 5761 Gigabit Ethernet controller with Remote Wake UP and PXE support
Modem	Dell 56K v.92 Data/Fax PCI Modem

Broadcom® 5761 Gigabit Ethernet Controller

External Connector Type	RJ45
Data Rates supported	10/100/1000 Mbps
Controller Details	
Controller bus architecture (example PCIe 1.0a x1)	PCI-e V1.1x1
Integrated memory	N/A
Data transfer mode (example Bus-Master DMA)	N/A
Power consumption (full operation per data rate connection speed)	1000 Mbps: 680 mW 100 Mbps: 238 mW 10 Mbps: 221 mW
Power consumption (standby operation)	No Link (low power mode): 55mW No Link (w/ WOL): TBD 10 Mbps Idle (w/ WOL): 141 mW 100 Mbps Idle (w/ WOL): 238 mW

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Broadcom® 5761 Gigabit Ethernet Controller

IEEE standards compliance (example 802.1P)	802.3, 802.3ab, 802.3u
Hardware Certifications (example FCC, B, GS mark…)	N/A
Boot ROM Support	PXE, RPL
Network Transfer Mode	
Network Transfer Rate	Full duplex at 10, 100, or 1000 Mbps and half duplex at 10 or 100 Mbps.
Environmental	
Operating temperature	-20° C to 70° C (-4° F to 158° F)
Operating humidity	20% to 80% (non-condensing)
Manageability (examples WOL, PXE..)	WOL, PXE
Management Capabilities Alerting (examples ASF 2.0 AM2400…)	ASF2.0

V.92 Data/Fax Modem

Bus	PCI
External Connector	RJ-11

Audio

Integrated High Definition Audio

High Definition Stereo support	X
Number of Channels	2
Number of Bits / Audio resolution	
Sampling Rate (recording/playback)	
Signal to Noise Ratio	
Analog Audio	
Audio Jack Impedance	
Microphone	150 kΩ
Line-In	150 kΩ
Line-Out	190 Ω
Headphone	.5 Ω
Internal Speaker Power Rating	1 Watt/Speaker

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Speakers

Internal System Speaker	Optional
Dell A225 Speakers	Optional
Dell AX510 Flat Panel Speakers (Sound Bar)	Optional
Dell AX510PA Flat Panel Speakers (Sound Bar)	Optional

Keyboard and Mouse

Dell USB Entry QuietKey Keyboard	Optional
Dell USB Enhanced Multimedia Keyboard	Optional
Dell Smart Card USB Keyboard	Optional
Dell Bluetooth Keyboard and Mouse	Optional
Dell USB Entry 2 Button Scroll Mouse	Optional
Dell USB Optical 2 Button Scroll Mouse	Optional
Dell USB Premium 5 Button Mouse	Optional

Service and Support

![icon] **NOTE: For more details on Dell Service Plans please to go to www.dell.com/service/service_plans/**

3 Year Limited Hardware Warranty[*] (3-3-0)	Standard
Dell ProSupport	Optional
Data Protection	Optional
Asset Protection	Optional

[*] For copy of Ltd Hardware Warranty, write Dell USA LP, Attn: Warranties, One Dell Way, Round Rock, TX 78682 or see www.dell.com/warranty.

Software

Dell Control Point	Standard
Wave EMBASSY® Trust Suite	Standard
Norton Internet Security	30 Day Trial or Optional Subscription

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Detailed Engineering Specifications

System Dimensions (Physical)

✔NOTE: System Weight* is based on a typical configuration and may vary based on PC configuration.

Chassis Dimensions	
Height	17.64"/44.8cm
Width	6.73"/17.1cm
Depth	18.54"/47.1cm
Weight	39lbs./17.7kg

System Level Environmental and Operating Conditions

Temperature	
Operating	10° to 35° C (50° to 95° F)
Non-Operating (Storage)	-40° to 65° C (-40° to -149° F)
Relative Humidity	20% to 80% (non-condensing)
Maximum vibration	
Operating	5 to 350 Hz at 0.0002 G2/Hz
Non-Operating	5 to 500 Hz at 0.001 to 0.01 G2/Hz
Maximum Shock	
Operating	40 G +/- 5% with pulse duration of 2 msec +/- 10% (equivalent to 20 in/sec [51 cm/sec])
Non-Operating	105 G +/- 5% with pulse duration of 2 msec +/- 10% (equivalent to 50 in/sec [127 cm/sec])
Maximum Altitude	
Operating	–15.2 to 3048 m (–50 to 10,000 ft)
Non-Operating	–15.2 to 3048 m (–50 to 35,000 ft)

Power Consumption

Power Supply[5]	525W 85%	525W
AC Input Voltage Range	100-240V	100-240V
AC Input Current (low AC range/high AC range)	4.62A	6.7A
AC Input Frequency	50-60Hz	50-60Hz

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Minimum Efficiency (Energy Star Compliant)	85%	65%
Energy Star 5.0 Compliant Power Supply	Y	N
EPEAT Gold	Y	N