Overview

Models

NVIDIA Quadro 4000 2GB Graphics Card   WS095AA

Introduction

Accelerate your entire workflow with NVIDIA's High End Quadro 4000 graphics card:

- Up to 5X faster 3D application performance scaling over previous generation Quadro FX3800
- GPGPU applications run 8X faster on Quadro GPUs compared to other processors

Revolutionary Quadro GPU architecture

- World's first GPU with Scalable Geometry and fast double-precision performance

Performance and Features

Overview

Next-Generation NVIDIA CUDA™ Architecture
Breakthrough NVIDIA CUDA parallel computing architecture, code named Fermi, tightly integrates advanced visualization and compute features delivering performance that greatly accelerates professional workflows.

NVIDIA Scalable Geometry Engine™
Dramatically improves geometry performance across a broad range of CAD, DCC and medical applications, enabling you to work interactively with models and scenes that are an order of magnitude more complex than ever before.

Large Framebuffers with Ultra-Fast Bandwidth
2 GB of GPU memory with fast bandwidth for display of complex models and scenes, as well as computation of large datasets.

Fast 64-Bit Floating Point Precision
Industry's fastest double precision floating point performance enabling accurate results on mission-critical applications, including computer-aided-design, finite element analysis to computational fluid dynamics.

Dual Copy Engines
Enables the highest rates of parallel data processing and concurrent throughput between the GPU and host, accelerating techniques such as ray tracing, color grading and physical simulation

Unified Driver Architecture (UDA)
The NVIDIA UDA guarantees forward and backward compatibility with software drivers. Simplifies upgrading to a new solution because all Quadro products work with the same driver software.

Full-Scene Antialiasing (FSAA)
Up to 64X FSAA dramatically reduces visual aliasing artifacts or "jaggies," resulting in unparalleled image quality and highly realistic scenes.

GPU Tessellation with Shader Model 5.0
Quadro Tessellation Engines automatically generate finely detailed geometry, for cinematic quality environments and scenes, without sacrificing performance.

16K Texture and Render Processing
The ability to texture from and render to 16K x 16K surfaces. Beneficial for applications that demand the highest resolution and quality image processing.

NVIDIA High Precision High Dynamic Range (HDR) Technology
Sets new standards for image clarity and quality through floating point capabilities in shading, filtering, texturing, and blending. Enables unprecedented rendered image quality for visual effects processing.

High-Quality Display Connectors
Attaches to ultra-high-resolution panels producing phenomenal photorealistic image quality from a range of display connectors. Through the GPU, supports two active connectors including, dual-link DVI-I with up to 3840 x 2400 @ 24Hz, DisplayPort with up to up to 2560 x 1600 @ 60Hz, or HDMI from a cable.

30-Bit Color Fidelity
30-bit color fidelity (10-bits per color) enables billions rather than millions of color variations for rich, vivid image quality with the broadest dynamic range.

- NVIDIA SLI Multi-OS technology utilizes virtualization to drive multiple business critical 3D or compute applications running simultaneously on different operation systems, all in a single workstation environment, with each application fully leveraging the processing power of Quadro GPUs.

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Compatibility

The Quadro 4000 is supported on the following HP Personal Workstations: Z800, Z600, Z400

Service and Support

The NVIDIA Quadro 4000 has a one-year limited warranty or the remainder of the warranty of the HP product in which it is installed. Technical support is available seven days a week, 24 hours a day by phone, as well as online support forums. Parts and labor are available on-site within the next business day. Telephone support is available for parts diagnosis and installation. Certain restrictions and exclusions apply.

Technical Specifications

Form Factor	4.376" H x 9.50" L Single Slot
Graphics Controller	NVIDIA Quadro 4000 Graphics Card
Bus Type	PCI Express 2.0 x16
Memory	2 GB GDDR5 256-bit
Connectors	1 DVI-I output, 2 DisplayPort outputs; One DP to DVI adapter included with card DVI to VGA, DisplayPort to VGA and DisplayPort to DVI (single- link or dual-link) adapters available as accessories (Optional stereo bracket available from 3rd party)
Maximum Resolution	Dual DisplayPort (up to 2560 x 1600 @ 60Hz and 1920x1200 @ 120Hz) Dual-link DVI-I output (up to 2560 x 1600 @ 60Hz and 1920x1200 @ 120Hz)
RAMDAC	400 MHz integrated RAMDAC
Image Quality Features	• Up to 16K x16K texture and render processing • Transparent multisampling and super sampling • 16x angle independent anisotropic filtering • 128-bit floating point performance • 32-bit per-component floating point texture filtering and blending • Support for any combination of two connected displays • DisplayPort 1.1a, HDMI 1.3a, and HDCP support • NVIDIA 3D Vision™ technology, 3D DLP, Interleaved, and other 3D stereo format support • Full OpenGL quad buffered stereo support • Underscan/overscan compensation and hardware scaling • NVIDIA nView® multi-display technology
Shading Architecture	Shader Model 5.0
Supported Graphics APIs	OpenGL 4.0 DirectX 11 CUDA API support includes: CUDA C, CUDA C++, DirectCompute 5.0, OpenCL, Java, Python, and Fortran
Available Graphics Drivers	Genuine Windows 7 Professional (64-bit and 32-bit) Genuine Windows Vista Business (64-bit and 32-bit) Microsoft Windows XP Professional (64-bit and 32-bit) Red Hat Enterprise Linux (RHEL) WS4 (64-bit and 32-bit) * WS4 not supported on Z200 and Z200 SFF Red Hat Enterprise Linux (RHEL) 5 Desktop/Workstation (64-bit and 32-bit) SUSE Linux Enterprise Desktop 11 (64-bit and 32-bit) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html Novell SUSE Linux Enterprise drivers may also be obtained from: ftp://download.nvidia.com/novell or http://www.nvidia.com

Technical Specifications

High-Resolution Antialiasing	64x full scene antialiasing (FSAA)/128x FSAA in SLI Mode
Parallel Processor Cores	256 CUDA parallel processing cores
Power consumption	142 Watts