



## REDEFINING MID-RANGE PROFESSIONAL GRAPHICS NVIDIA® QUADRO® 2000

Delivering the industry's best-in-class performance across leading CAD and DCC applications, the Quadro 2000 mid-range professional graphics solution features NVIDIA® Scalable Geometry Engine™ technology and 1 GB of memory for fast processing of complex models and scenes.

Quadro 2000 enables advanced capabilities including 3D Vision Pro for the highest quality stereoscopic 3D environments, SLI Multi-OS to drive multiple Windows or Linux environments from a single workstation, and Mosaic Technology<sup>1</sup> which enables any application to scale across up to eight displays.

Modern applications harness the NVIDIA® Scalable Geometry Engine of the Quadro GPU to deliver huge performance gains over previous generations when running leading CAD, DCC and medical applications. NVIDIA professional software technologies including CUDA™, NVIDIA Application Acceleration Engines, and optimized drivers, enable Quadro GPUs to further accelerate applications including CATIA, 3ds Max, AutoCAD and many more.

The entire Quadro family takes leading professional applications to a new level of interactivity leveraging the Fermi architecture to enable hardware-accelerated features, performance and quality not found in any other products. From the 6 GB<sup>3</sup> Quadro 6000 at the ultra-high-end to the small form factor Quadro 600 at the entry-level, NVIDIA solutions deliver the productivity you need at every price point. With Quadro solutions your work flows — design, iterate and deliver higher quality results in less time.

### QUADRO 2000 PRODUCT SPECIFICATIONS

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CUDA PARALLEL  
PROCESSING CORES  
> 192

FRAME BUFFER MEMORY  
> 1 GB GDDR5

MEMORY INTERFACE  
> 128-bit

MEMORY BANDWIDTH  
> 41.6 GB/s

DISPLAY CONNECTORS<sup>2</sup>  
> DVI-I (1) and DP (2)

MAX POWER CONSUMPTION  
> 62 W

GRAPHICS BUS  
> PCI Express 2.0 x16

FORM FACTOR  
> 4.376" H x 7" L, Single slot

THERMAL SOLUTION  
> Active

3D VISION PRO  
> Support via USB

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<sup>1</sup> Mosaic Technology will be available with upcoming driver release in Winter 2010

<sup>2</sup> Two out of any three connectors can be active at a time

<sup>3</sup> 6 GB is supported on Win7 and Linux64 (4GB memory limit on Windows XP64) via Rel 256 driver

## NVIDIA® QUADRO® 2000

GPU Features	Benefits
NVIDIA® Scalable Geometry Engine™	Dramatically improves geometry performance across a broad range of CAD, DCC, and medical applications, enabling professionals to work interactively with models and scenes that are an order of magnitude more complex than before.
GPU Tessellation with Shader Model 5.0	Quadro Tessellation Engines automatically generate finely detailed geometry, for cinematic quality environments and scenes, without sacrificing performance.
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	NVIDIA SLI Multi-OS allows a user to run multiple Windows or Linux workstation applications from a single system, with each Operating System directly assigned to a Quadro graphics solution. <i>Only available on SLI Multi-OS certified platforms.</i>
NVIDIA® Mosaic Technology	NVIDIA Mosaic Technology <sup>1</sup> enables transparent scaling of any application across up to eight display channels.

## TECHNICAL SPECIFICATIONS

### SUPPORTED PLATFORMS

- > Microsoft Windows 7 (64-bit and 32-bit)
- > Microsoft Windows Vista (64-bit and 32-bit)
- > Microsoft Windows XP (64-bit and 32-bit)
- > Linux - Full OpenGL implementation, complete with NVIDIA and ARB extensions (64-bit and 32-bit)
- > Solaris

### 3D GRAPHICS ARCHITECTURE

- > Scalable geometry architecture
- > Hardware tessellation engine
- > NVIDIA® GigaThread™ engine
- > Shader Model 5.0
- > OpenGL 4.0
- > DirectX 11
- > Optimized compiler for Cg and Microsoft HLSL
- > 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
- > 64x full scene antialiasing (FSAA)

- > Decode acceleration for MPEG-2, MPEG-4 Part 2 Advanced Simple Profile, H.264, MVC, VC1, DivX (version 3.11 and later), and Flash (10.1 and later)
- > Blu-ray dual-stream hardware acceleration (supporting HD picture-in-picture playback)

### NVIDIA CUDA PARALLEL PROCESSING ARCHITECTURE

- > API support includes:
  - > CUDA C, CUDA C++, DirectCompute 5.0, OpenCL, Java, Python, or Fortran
- > NVIDIA® Parallel DataCache™ hierarchy (configurable L1 and unified L2 caches)
- > 64 KB of RAM (configurable partitioning of shared memory and L1 cache)
- > Full IEEE 754-2008 - 32-bit or 64-bit double precision
- > Dual Warp Scheduler (schedules and dispatches simultaneously instructions from two independent warps)

### ADVANCED DISPLAY FEATURES

- > 30-bit color (10-bit per each red, green, blue channel)
- > Support for any combination of two connected displays
- > Dual DisplayPort (up to 2560 x 1600 @ 60Hz or 1920 x 1200 @ 120Hz)
- > Dual-link DVI-I output (up to 2560 x 1600 @ 60Hz or 1920 x 1200 @ 120Hz)

- > Internal 400 MHz DAC DVI-I output (analog display up to 2048 x 1536 @ 85Hz)
- > DisplayPort to VGA, DisplayPort to DVI (single-link and dual-link) and DisplayPort to HDMI cables (resolution support based on dongle specifications)
- > DisplayPort 1.1a, HDMI 1.3a, and HDCP support
- > 10-bit internal display processing (hardware support for 10-bit scanout for both windowed desktop and full screen, only available on Windows and Linux with Aero disabled)
- > 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

### DISPLAYPORT AND HDMI DIGITAL AUDIO

- > Support for the following audio modes:
  - > Dolby Digital (AC3), DTS 5.1, Multi-channel (7.1) LPCM, Dolby Digital Plus (DD+), and MPEG-2/MPEG-4 AAC
- > Data rates of 44.1 KHz, 48 KHz, 88.2 KHz, 96 KHz, 176 KHz, and 192 KHz
- > Word sizes of 16-bit, 20-bit, and 24-bit

To learn more about NVIDIA Quadro, go to [www.nvidia.com/quadro](http://www.nvidia.com/quadro)

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