



NVIDIA QUADRO[®] FX 4500

**The Definition of Performance.
The Standard for Quality.**

NVIDIA Quadro[®] FX 4500 sets a new bar for workstation graphics, shattering the limits of programmability, performance, precision, and quality for professional CAD, DCC, and scientific applications.

NVIDIA Quadro FX 4500 features a revolutionary new architecture with 2x the geometry and fill rate and 4x the hardware pixel read-back performance of previous generation graphics, and supports 512MB ultra-fast GDDR3 memory. Whether used for designing a new car, investigating where to place an oil well, or delivering photorealistic effects for the latest Hollywood movies, NVIDIA Quadro FX 4500 delivers on industry leading performance and features. The flagship product of the NVIDIA Quadro product family, NVIDIA Quadro FX 4500 also features support for NVIDIA[®] SLI[™] (Scalable Link Interface) technology.

The NVIDIA Quadro family delivers on the promise of the industry's fastest PCI Express workstation graphics solutions. Featuring NVIDIA Quadro FX 4500 at the ultra-high end, NVIDIA Quadro FX 3450 and FX 3400 at the high end, NVIDIA Quadro FX 1400 in the mid range, and NVIDIA Quadro FX 540 at the entry level, NVIDIA Quadro provides the



ultimate in quality, precision, performance, and programmability. CAD and DCC applications acquire a new level of interactivity by enabling unprecedented capabilities in programmability and precision.

For the first time, styling and production rendering become integral functions of the design workflow, shortening the production process and enabling faster time to market.

PRODUCT SPECIFICATIONS

Product Name

NVIDIA Quadro FX 4500

Form Factor	ATX, 4.38" x 9.0"
Framebuffer Memory	512MB GDDR3
Memory Interface	256-bit
Memory Bandwidth	33.6 GB/sec.
Max Power Consumption	108W
Graphics Bus	PCI Express x16
Display Connectors	DVI-I, DVI-I, Stereo
Dual Link DVI	Yes (2)
Auxiliary Power Connectors	Yes (1)
Number of Slots	2
Thermal Solution	Active Fansink
Genlock/Framelock	Yes
SLI Support	Yes

NVIDIA QUADRO FX 4500

FEATURES

Highest Workstation Application Performance	Next-generation architecture enables over 2x improvement in geometry and fill rates with the industry's highest performance for professional CAD, DCC, and scientific applications
Unmatched Color Precision	Full 128-bit precision graphics pipeline enables sophisticated mathematical computations to maintain high accuracy, resulting in unmatched visual quality. Full IEEE 32-bit floating point precision per color component (RGBA) delivers millions of color variations with the broadest dynamic range
Next-generation Vertex and Pixel Programmability	NVIDIA Quadro FX 4500 graphics boards introduce infinite length vertex programs and dynamic flow control, removing the previous limits on complexity and structure of shader programs. With full support for Shader Model 3.0, NVIDIA Quadro FX 4500 delivers sophisticated effects never before imagined for real-time graphics systems
Unparalleled Subpixel Precision	12-bit subpixel precision delivers high geometric accuracy, eliminating sparkles, cracks, and other rasterization anomalies
Hardware-Accelerated Pixel ReadBack	Greater than 2.4GB/sec., pixel read-back performance delivers massive host throughput, more than 4x the performance of previous generation graphics systems
Rotated-Grid FSAA (Full Scene Antialiasing)	RG FSAA sampling algorithm introduces far greater sophistication in the sampling pattern, significantly increasing color accuracy and visual quality for edges and lines, and reducing "jaggies" while maintaining performance
High-Precision Dynamic-Range (HPDR) Imaging Technology	Sets new standards for image clarity and quality through 32-bit per component floating point capabilities in shading, filtering, and texturing. Enables unprecedented rendered image quality for visual effects processing
SLI Support	Designed for PCI Express, the NVIDIA Scalable Link Interface technology enables intelligent and transparent scaling of professional application performance
Dual Dual-Link Digital Display Connector	Dual-link TMDS transmitters support ultra-high-resolution panels (up to 3840x2400 @ 24Hz)—which result in amazing image quality producing detailed photorealistic images

	Memory Size	Memory Interface	Relative Perf*	SLI Support	Dual-Link DVI
NVIDIA Quadro FX 4500	512MB	256 bit	3.5	Yes	Yes (2)
NVIDIA Quadro FX 3450	256MB	256 bit	2.5	Yes	Yes (1)
NVIDIA Quadro FX 1400	128MB	256 bit	1.9	Yes	-
NVIDIA Quadro FX 540	128MB	128 bit	1.0	No	-

*based on US SPECviewperf

PRODUCT SPECIFICATIONS

Supported Operating Systems

- Microsoft® Windows® XP
- Microsoft Windows 2000
- Linux® – Full OpenGL® implementation, complete with NVIDIA and ARB extensions
- AMD64, Intel EM64T

NVIDIA Quadro FX 4500 Architecture

- 128-bit color precision
- 65,536 fragment instruction
- 65,536 vertex instruction
- 3D volumetric textures
- Single-system powerwall
- 12 pixels per clock rendering engine
- Hardware accelerated antialiased points and lines
- Hardware OpenGL overlay planes
- Hardware accelerated two-sided lighting
- Hardware accelerated clipping planes

- 3rd-generation occlusion culling
- 16 textures per pixel in fragment programs
- Window ID clipping functionality
- Hardware accelerated line stippling

Shading Architecture

- Fully programmable GPU (OpenGL 2.0/DirectX 9.0c class)
- Long fragment programs (up to 65,536 instructions)
- Long vertex programs (up to 65,536 instructions)
- Looping and subroutines (up to 256 loops per vertex program)
- Dynamic flow control
- Conditional execution

High Level Shader Languages

- Optimized compiler for Cg and Microsoft® HLSL
- OpenGL 2.0 and DirectX 9.0c support
- Open source compiler

High-Resolution Antialiasing

- 12-bit subpixel sampling precision enhances AA quality
- Rotated-grid full-scene antialiasing (RG FSAA)
- 16x FSAA dramatically reduces visual aliasing artifacts or "jaggies" at resolution up to 1920x1200
- 32x SLI FSAA mode*

Display Resolution Support

- Dual dual-link DVI-I output drives digital displays at resolutions up to 3840x2400 @ 41Hz
- Internal 400MHz DACs – Two analog displays up to 2048x1536 @ 75Hz each

nView Architecture

- Advanced multi-display desktop and application management seamlessly integrated into Microsoft Windows

* Available with future driver release



NVIDIA

Where to buy NVIDIA Quadro

NVIDIA Quadro is available through many OEM partners. Please visit www.nvidia.com/page/workstation.html for the latest list of partners.

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