



## **Features & Benefits of the NVIDIA® Quadro Plex**

### **512MB – 1.5 GB Frame Buffer per GPU**

Delivers high throughput for interactive visualization of large models and high-performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (FSAA). (1GB Available on Model I and III; 512MB Available on Model II, 1.5GB Available on Model IV)

### **Fast 3D Textures**

Fast transfer and manipulation of 3D textures resulting in more interactive visualization of large volumetric dataset. (Model IV only)

### **Full-Scene Antialiasing (FSAA)**

Up to 64× SLI FSAA on Model IV and 32× SLI FSAA on Models I, II and III dramatically reduces visual aliasing artifacts or jaggies, resulting in highly realistic scenes.

### **Genlock/Frame Lock**

Also known as "house sync." Genlock allows the graphics output to be synchronized to an external source, typically for film and broadcast video applications.

### **GPU Computing for Visualization**

An innovative combination of GPU computing features, with NVIDIA® CUDA™ technology, that is accessible through a standard C language unleashing entirely new capabilities to solve complex, data intensive challenges. (Model IV only)

### **NVIDIA Unified Architecture**

Industry's first unified architecture designed to dynamically allocate compute, geometry, shading and pixel processing power to deliver optimized GPU performance. (Model IV only)

### **12-Bit Subpixel Precision**

3x that of the nearest competitive workstation graphics, 12-bit sub-pixel precision delivers high geometric accuracy, eliminating speckles, cracks, and other rasterization anomalies.

### **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.

### **32-Bit Floating Point Precision**

Sets new standards for image clarity and quality through 32-bit floating point capabilities in shading, filtering, texturing, and blending. Enables unprecedented rendered image quality for visual effects processing.

### **32-Bit Filtering and Blending**

Enables unprecedented rendered image quality for visual effects processing. (Model IV only)

### **256-Bit Memory Interface**

Delivers the industry's highest memory bandwidth (up to 42.2GB/sec) for blistering data transfer. Supports the world's fastest GDDR3 memory with lower power consumption than previous generation systems.

### **Advanced Color Compression, Early Z-Cull**

Improved pipeline color compression and early z-culling to increase effective bandwidth and improve rendering efficiency and performance.

### **Graphics API Extensions**

NVIDIA® provides a set of API extensions for Linux and Windows, enabling applications to take maximum advantage of the hardware's capabilities.

### **Breakthrough Visual Compute Density**

Unmatched graphics compute per cubic centimeter provides highest visual compute density enabling breakthrough levels of capability and productivity.

### **Cg High-Level Graphics Shader Language**

Cg—"C" for graphics—is a high-level, open-standard programming language for OpenGL that takes advantage of the power of programmable GPUs. NVIDIA Quadro® FX programmable graphics pipelines leverage high-level shading languages to enable the creation and integration of real-time photorealistic effects into 3D models, scenes, and designs. This represents a major leap forward in ease and speed for the creation of real-time, realistic graphics within MCAD, DCC, and scientific applications.

### **Dedicated Visual Computing System**

Enables NVIDIA® SLI™ multi-GPU capability on any NVIDIA Quadro Plex certified PCI Express platform.

### **Flexible Form Factor**

Compact design can be easily deployed in a desktop workspace or can be transformed to fit any standard 19" 3U rack environment.

### **Frame Synchronization**

Allows the display channels from multiple workstations to be synchronized, thus creating one large "virtual display" that can be driven by a multisystem cluster for performance scalability.

### **Hardware 3D Window Clipping**

Hardware accelerated clip regions (data transfer mechanism between a window and the frame buffer) which improve overall graphics performance by increasing transfer speed between color buffer and frame buffer.

### **Hardware-Accelerated Pixel Read-Back**

Up to 2.4GB/sec pixel read-back performance delivers massive host throughput, more than 10x the performance of previous generation graphic systems.

### **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.

### **High-Performance Display Outputs**

400MHz RAMDACs and up to two DVI digital connectors drive the highest resolution digital displays available on the market.

### **Industries Highest Performance**

NVIDIA SLI multi-GPU technology scales geometry and pixel processing to meet the most demanding professional application requirements.

### **Next-Generation Vertex and Pixel Programmability**

The NVIDIA Quadro FX GPUs introduce infinite length vertex programs and dynamic flow control, removing the previous limits on complexity, and structure of shader programs. With full support for Vertex/Shader Model 3.0 and Vertex/Shader Model 4.0 on Model IV, NVIDIA Quadro FX GPUs deliver sophisticated effects never before imagined for real-time graphics systems.

### **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.

### **NVIDIA Quadro Unified Memory Architecture**

Allows for superior memory management, which efficiently allocates and shares memory resources between concurrent graphics windows and applications.

**nView Multi-Display Technology** The NVIDIA® nView® hardware and software technology combination delivers maximum flexibility for multi-display options, and provides unprecedented end-user control of the desktop experience. NVIDIA GPUs are designed to support multi-displays, but graphics cards vary. Please verify multi-display support in the graphics card before purchasing.

### **PCI Express Certified**

PCI Express is a new Intel bus architecture that doubles the bandwidth of the AGP 8X bus, delivering greater than 2GB/sec. in both upstream and downstream data transfers.

### **Quad Buffered Stereo**

Offers enhanced visual experience for professional applications that demand stereo viewing capability.

### **Rotated-Grid Full-Scene Antialiasing (RG FSAA)**

The rotated grid FSAA sampling algorithm introduces far greater sophistication in the sampling pattern, significantly increasing color accuracy and visual quality for edges and lines, reducing "jaggies" while maintaining performance.

### **NVIDIA SLI Technology**

The NVIDIA SLI technology enables intelligent and transparent scaling of professional application performance.

**2 to 8 Dual-Link Digital Display Connectors** Full dual-link TMDS transmitters support ultra-high-resolution panels (up to 3840 x 2400 @ 24Hz on each panel) -- which result in amazing image quality producing detailed photorealistic images. (Up to 8 on Model II, 4 on Model I and IV and IV, and 2 on Model III)

### **Ultra Quiet Design**

Sub 40db delivers acoustics lower than most desktop workstations to maintain a quiet and productive environment.

### **Unified Driver Architecture (UDA)**

The NVIDIA UDA guarantees forward and backward compatibility with all applications. Simplifies upgrading to a new NVIDIA product because all NVIDIA products work with the same driver software.

### **Uncompressed 8-, 10-, or 12-Bit SDI Output (Model III only)**

The programmable GPU architecture and the NVIDIA Quadro FX 5500 SDI specific graphic user interface enable configurability of: video channels, color space conversion, and gamma correction. A video backend unit provides full support for outputs in the following 2K, HD, and SD formats through 4 video channels with support for either 4 distinct channels of fill or 2 channel of fill and 2 channel of key.

- 720p 23.98 Hz (SMPTE296)
- 720p 24.00 Hz (SMPTE296)
- 720p 25.00 Hz (SMPTE296)
- 720p 29.97 Hz (SMPTE296)
- 720p 30.00 Hz (SMPTE296)
- 720p 50.00 Hz (SMPTE296)
- 720p 59.94 Hz (SMPTE296)
- 720p 60.00 Hz (SMPTE296)
- 1035i 59.94 Hz (SMPTE260)
- 1035i 60.00 Hz (SMPTE260)
- 1080i 47.96 Hz (SMPTE274)
- 1080i 48.00 Hz (SMPTE274)
- 1080i 50.00 Hz (SMPTE295)
- 1080i 50.00 Hz (SMPTE274)
- 1080i 59.94 Hz (SMPTE274)
- 1080i 60.00 Hz (SMPTE274)

- 1080PsF 23.976 Hz (SMPTE274)
- 1080PsF 24.00 Hz (SMPTE274)
- 1080PsF 25.00 Hz (SMPTE274)
- 1080PsF 29.97 Hz (SMPTE274)
- 1080PsF 30.00 Hz (SMPTE274)
- 1080p 23.976 Hz (SMPTE274)
- 1080p 24.00 Hz (SMPTE274)
- 1080p 25.00 Hz (SMPTE274)
- 1080p 29.97 Hz (SMPTE274)
- 1080p 30.00 Hz (SMPTE274)
- 2048x1080p 23.976 Hz (SMPTE372)
- 2048x1080p 24.00 Hz (SMPTE372)
- 2048x1080p 25.00 Hz (SMPTE372)
- 2048x1080p 29.97 Hz (SMPTE372)
- 2048x1080p 30.00 Hz (SMPTE372)
- 2048x1080i 47.96 Hz (SMPTE372)
- 2048x1080i 48.00 Hz (SMPTE372)
- 2048x1080i 50.00 Hz (SMPTE372)
- 2048x1080i 59.94 Hz (SMPTE372)
- 2048x1080i 60.00 Hz (SMPTE372)
- 480i 59.94 Hz (SMPTE259) NTSC
- 576i 50.00 Hz (SMPTE259) PAL

### **NVIDIA PureVideo Technology**

NVIDIA® PureVideo™ technology is the combination of high-definition video processors and software that delivers unprecedented picture clarity, smooth video, accurate color, and precise image scaling for SD and HD video content. Features include, high-quality scaling, spatial temporal de-interlacing, inverse telecine, and high quality HD video playback from DVD.