NVIDIA

NVIDIA Quadro® Plex

A Quantum Leap In Visual Computing

With the introduction of the **NVIDIA Quadro® Plex 1000** visual computing system (VCS), NVIDIA delivers a quantum leap in visual compute density, enabling breakthrough levels of productivity and capability.

Professionals ranging from manufacturing designers and stylists to earth scientists to digital content creators can solve their most complex, graphics-intensive problems using an unconstrained dedicated visual computing system based on proven, industry standard architectures.

NVIDIA QUADRO® PLEX

A Quantum Leap In Visual Computing Enabling Breakthrough Levels Of Capability

Massive Levels Of Visual Compute Density

NVIDIA Quadro Plex 1000 represents a 20x leap in visual compute density — graphics computation per cubic inch. Its compact, ultra-quiet design can be quickly deployed in any desktop workspace or can be easily transformed to fit into any standard 19” rack environment.

Utilized as a single VCS node (two NVIDIA Quadro Plex VCSs connected to a single certified SLI-capable system) the power of up to eight GPUs can be scaled in 3U of rack space to deliver the power and capability required by even the most demanding applications. Visual compute density can further be scaled by clustering multiple VCS nodes together via NVIDIA Quadro G-Sync.

Multi-display mission critical visual simulation solution by Aechelon with NVIDIA Quadro Plex. *Image courtesy Aechelon.*

Configure To Meet Your Application Needs. Scale To Meet Your Performance Requirements.

Available in four distinct models, NVIDIA Quadro Plex 1000 is designed to deliver absolute maximum performance, the highest image quality, and ultimate display resolution so professionals can visualize the largest seismic datasets, create photorealistic, interactive designs or natively drive a digital 4k projection system.

The revolutionary unified architecture, featured in NVIDIA Quadro Plex Model IV, is designed to dynamically allocate compute, geometry, shading and pixel processing power to deliver optimized GPU performance. Combining the industry’s most advanced feature set, including largest and fastest frame buffers, with GPU computing technology for visualization, Quadro Plex Model IV provides a breakthrough platform to solve the world’s most complex challenges. The reference standard for Shader Model 4.0, Quadro Plex Model IV enables next generation ultra-realistic, real-time visualization applications with unprecedented image quality.

For the most demanding clustered applications, NVIDIA Quadro G-Sync enables frame synchronization, genlock, and frame lock to further scale performance, quality, and resolution to near infinite levels. Professionals can now drive massive clusters of synchronized channel outputs to create truly immersive reality environments, visualize large scale scientific models, and simulate astonishing virtual environments.

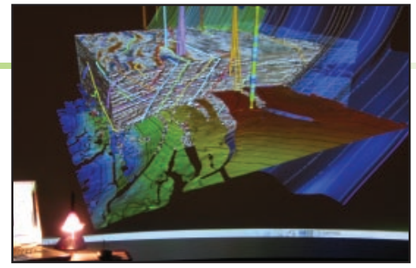
Photo-realistic, interactive automotive styling design driven by NVIDIA Quadro Plex. *Image courtesy Real Time Technology.*

Industry-based Standard Architecture

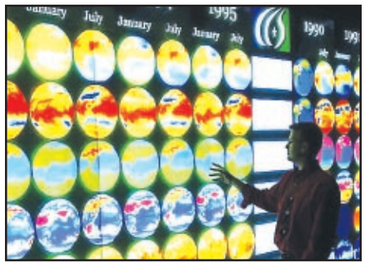
NVIDIA Quadro Plex 1000 enables the highest density SLI multi-GPU capability on any PCI Express x16 or x8[2] platform and is built on a foundation of proven NVIDIA Quadro graphics and NVIDIA Unified Driver Architecture (UDA).

Compatible with x86 32- and 64-bit Intel and AMD microprocessor architectures and running on Windows and Linux operating systems, NVIDIA Quadro Plex 1000 fits in any environment. In addition, NVIDIA Quadro Plex 1000 is certified on all industry-leading applications to ensure the highest levels of stability, reliability, and compatibility.

1 VCS Node is two NVIDIA Quadro Plex VCSs connected to a single certified SLI-capable system
2 Requires optional x8 interface card



Three projection image display by Landmark GeoProbe® powered by NVIDIA Quadro Plex *Image courtesy Landmark.*



To extract insights from terabytes of research data and computations, NVIDIA Quadro Plex drives state-of-the-art powerwall displays. *Image courtesy Oak Ridge National Laboratory.*

NVIDIA Quadro Plex[1] node delivers up to:

- 64x SLI FSAA
- 16 synchronized output channels
- 8 HD SDI channels
- 60 billion pixels/sec. fill rate
- 1 billion triangles/sec. geometry performance

NVIDIA Quadro Plex 1000

		Model I	Model II	Model III	Model IV
NVIDIA Quadro	MODEL SPECIFIC	**NVIDIA Quadro FX 5500**	**NVIDIA Quadro FX 4500 X2**	**NVIDIA Quadro FX 5500 SDI**	**NVIDIA Quadro FX 5600**
# NVIDIA Quadro GPUs	MODEL SPECIFIC	2	4	2	2
Total Frame Buffer	MODEL SPECIFIC	2GB (1GB/GPU)	2GB (512MB/GPU)	2GB (1GB/GPU)	3GB (1.5GB/GPU)
Option	MODEL SPECIFIC	NVIDIA Quadro G-Sync	NVIDIA Quadro G-Sync	NVIDIA Quadro SDI	NVIDIA Quadro G-Sync II
Channels	MODEL SPECIFIC	4 dual-link DVI	8 dual-link DVI	2 dual-link DVI + 4 single-IDI or 2 dual-link DVI + 2 dual-link HD SDI	4 dual-link DVI
GPU Computing for Visualization	MODEL SPECIFIC	N	N	N	Y
Shader Model	MODEL SPECIFIC	3.0	3.0	3.0	4.0
Genlock/frame lock	MODEL SPECIFIC	Y	Y	Y	Y
Frame Synchronization	MODEL SPECIFIC	Y	Y	N	Y
HD SDI	MODEL SPECIFIC	N	N	Y	N
FSAA (Max per Channel)	MODEL SPECIFIC	32x SLI FSAA	32x SLI FSAA	32x SLI FSAA	64x SLI FSAA
USB	ALL MODELS	2 Front			
Host Connection	ALL MODELS	PCI Express x16 or x8[2], Small Form Factor, Passive (10W) 2M (6.5 foot) NVIDIA Quadro Plex Interconnect Cable			
Power	ALL MODELS	480W Max 110/240 VAC autosensing worldwide power supply			
Accoustics	ALL MODELS	40db			
Form Factor	ALL MODELS	Tower Desktop (9.49” H x 5.94” W x 20.55” D) or Rack Mount (3U H x 8.5” W x 20.55” D)			

Features	Benefits
512MB – 1.5GB GDDR 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 per GPU available on Model I and III; 512MB per GPU available on Model II, 1.5GB Available on Model IV)
Breakthrough Visual Compute Density	Unmatched graphics compute per cubic centimeter provides highest visual compute density enabling breakthrough levels of capability and productivity.
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 Lock/Genlock	Also known as "house sync." Genlock allows the graphics output to synchronize to an external source, typical for film and broadcast video applications.
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. (Model I, II and 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.
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)
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 2 on Model III)
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)
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.
Uncompressed 8-, 10-, or 12-Bit SDI Output (Model III only)	The programmable GPU architecture and the NVIDIA Quadro 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 2K, HD, and SD SMPTE formats through 4 video channels with support for either 4 distinct channels of fill or 2 channel of fill and 2 channel of key.

NVIDIA Quadro Plex Technical Specifications

Supporting Platforms

- NVIDIA Quadro® Plex officially certified system or platform
- Microsoft® Windows® XP (64-bit and 32-bit)
- Microsoft Windows 2000 (32-bit)
- Linux® - Hardware OpenGL® implementation - NVIDIA and ARB extensions (64-bit and 32-bit)
- Solaris

NVIDIA Quadro GPU Architecture

- 128-bit color precision (IEEE fp32-bit per component)
- 3D volumetric texture support
- Fully programmable GPU (OpenGL2.1*/DirectX 9.0c/DirectX10*)

Display Resolution Support

- Analog displays up to 2048x1536 @ 85 Hz
- Dual-link DVI-I outputs - drive digital displays at resolutions up to 3840 x 2400 @ 24Hz
- Native DVI and SDI support for Sony 4K SXRD™ large venue projector

SDI Modes (Model III Only)

- Transparent Mode - work with any existing application using clone and dualview modes
  - 2 channel fill
  - 8-bit
    - RGB 4:4:4
    - YCrCb 4:2:2 or 4:4:4
- Extended Mode - Integrate into applications using the NVIDIA SDI API
  - 4 channel fill or 2 channel fill + 2 channel key
  - 8-, 10-, 12-bit
    - RGB 4:4:4
    - YCrCb 4:2:2 or 4:4:4
    - 2x YCrCb 4:2:2 + 4:2:2
    - YCrCbA 4:2:2:4
    - RGBA 4:4:4:4 (8-bit only)

*Available on Model IV

NVIDIA Quadro Plex 1000
Model I

NVIDIA Quadro Plex 1000
Model II

NVIDIA Quadro Plex 1000
Model III

NVIDIA Quadro Plex 1000
Model IV

Where to Buy | www.nvidia.com/quadroplex