

**PART NUMBER:**  
VCQK2000-PB

**NVIDIA QUADRO K2000**  
OUTSTANDING WORKFLOW PRODUCTIVITY



**Outstanding workflow productivity across the broadest range of workstations.**  
**Create & manage large 3D models with 2GB of fast GDDR5 memory.**  
**Boost productivity with 3 native displays.**

The new family of NVIDIA® Quadro® professional graphics products leverages the powerful NVIDIA Kepler™ architecture to deliver a new level of workstation performance and capabilities. You can now realize your most ambitious vision—whether it's product design, visualization, and simulation or spectacular visual storytelling — and get it to market faster, more profitably, and with superior quality.

The **NVIDIA Quadro K2000** graphics board offers outstanding performance in a range of professional applications. You get a substantial **2 GB of on-board GDDR5 memory** to hold large models and the freedom to drive up to four displays simultaneously from a single slot configuration for enhanced desktop productivity.

**NVIDIA CUDA® Architecture**

Parallel-computing architecture that tightly integrates advanced visualization and compute features to significantly accelerate professional workflows

**NVIDIA Scalable Geometry Engine**

Dramatically improves geometry performance across a broad range of CAD, DCC, and medical applications. This lets you work interactively with models and scenes that are an order of magnitude more complex than ever before.

**Large Frame Buffers with Ultra-Fast Bandwidth**

Large GPU memory with fast bandwidth for display of complex models and scenes, as well as computation of large datasets

**NVIDIA Parallel DataCache™**

Supports a true cache hierarchy combined with on-chip shared memory. L1 and L2 caches drive exceptional throughput, accelerating features such as real-time ray tracing, physics, and texture filtering.

**Unified Driver Architecture (UDA)**

Guarantees forward and backward compatibility with software drivers. This simplifies upgrading to a new solution because all Quadro-based products work with the same driver software.

**Bindless Textures²**

Dramatically increases the number of unique textures available to shaders at run-time, enabling significantly more materials and richer texture detail in scenes

**NVIDIA SMX**

Delivers more processing performance and efficiency through a new, innovative streaming multiprocessor design that allows a greater percentage of space to be applied to processing cores versus control logic

**H.264 encoder²**

Dedicated H.264 encode engine that's independent of 3D/compute pipeline and delivers real-time performance for transcoding, video editing, and other encoding applications

**PCI Express 2.0 Compliance**

Supports data transfer rates up to 5 GT/sec per lane for an aggregate bandwidth of 16 GB/sec bi-directional (8 GB/sec in each direction)

**Ultra-Quiet Design**

An advanced cooling design enables acoustics lower than 28 db for an ultra-quiet desktop environment.

**NVIDIA® Quadro® K2000 - PRODUCT SPECIFICATIONS**

CUDA PARALLEL PROCESSING CORES	384
FRAME BUFFER MEMORY	2 GB GDDR5
MEMORY INTERFACE	128-bit
MEMORY BANDWIDTH	64 GB/s
MAX POWER CONSUMPTION	51 W
GRAPHICS BUS	PCI Express 2.0 x16
DISPLAY CONNECTORS	(1) DVI-H (2) DP 1.2
FORM FACTOR	110 mm (H) x 200 mm (L) Single Slot
THERMAL SOLUTION	Active
NVIDIA® 3D VISION® AND 3D VISION PRO	Support via USB connection to 3D Vision Hub
PACKAGE CONTENT	(1) DVI to VGA adapter P/N: QSP-DVIVGA (1) DP to DVI (SL) adapter P/N: QSP-DPDIISL

**NVIDIA® Quadro® K2000 - New NVIDIA Kepler Architecture Features and Benefits**

<p><b>NVIDIA CUDA® PARALLEL COMPUTING ARCHITECTURE</b></p>	<p>Quadro solutions leverage general-purpose GPU computing using standard programming languages like C/C++ and Fortran, as well as emerging APIs such as OpenCL and Direct Compute. This broad adoption of CUDA accelerates techniques like ray tracing, video and image processing, and computation fluid dynamics.</p>
<p><b>DISPLAYPORT 1.2 SUPPORT (WITH AUDIO)</b></p>	<p>Compact and secure DisplayPort 1.2 connectors support multi-stream technology, stream cloning, and ultra-high-resolution panels (up to 3840 x 2160 @ 60 Hz ). This allows maximum range, resolution, refresh rate, and color depth designed to support the latest display technologies.</p>
<p><b>DEEP COLOR PROCESSING AND DISPLAY</b></p>	<p>Preserve color detail and precision throughout the processing and display pipeline for smooth gradients transitions, even on high dynamic range imagery. Each color component can be processed at up to 32-bit floating point precision and displayed at up to 12-bit precision with supported DisplayPort 1.2 or HDMI 1.4 displays.</p>
<p><b>LARGE FRAME BUFFERS WITH ULTRA-FAST BANDWIDTH</b></p>	<p>Large GPU memory with fast bandwidth for display of complex models and scenes, as well as computation of large datasets</p>

**NVIDIA® Quadro® K2000 - TECHNICAL SPECIFICATIONS**

**SUPPORTED PLATFORMS**

- >> Microsoft Windows 8 (64-bit and 32-bit)
- >> Microsoft Windows 7 (64-bit and 32-bit)
- >> Microsoft Windows Vista (64-bit and 32-bit)
- >> Microsoft Windows XP (64-bit and 32-bit)<sup>1</sup>
- >> Linux® - Full OpenGL implementation, complete with NVIDIA and ARB extensions (64-bit and 32-bit)

**3D GRAPHICS ARCHITECTURE**

- >> Scalable geometry architecture
- >> Hardware tessellation engine
- >> FXAA/TXAA dedicated anti-aliasing engine<sup>2</sup>
- >> Bindless Textures<sup>2</sup>
- >> Shader Model 5.0 (OpenGL 4.3 and DirectX 11)
- >> Up to 16K x16K texture and render processing
- >> Transparent multisampling and super sampling
- >> 16x angle independent anisotropic filtering
- >> 32-bit per-component floating point texture filtering and blending
- >> Up to 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)
- >> Dedicated H.264 Encoder<sup>2</sup>
- >> Blu-ray dual-stream hardware acceleration (supporting HD picture-in-picture playback)

**NVIDIA CUDA PARALLEL-PROCESSING ARCHITECTURE**

- >> SMX Architecture (streaming multi-processor design that delivers greater processing and efficiency)
- >> API support, including:
  - > CUDA C, CUDA C++, DirectCompute 5.0, OpenCL, Java, Python, and Fortran
- >> NVIDIA Parallel DataCache hierarchy (configurable L1 and unified L2 caches)

**ADVANCED DISPLAY FEATURES**

- >> Simultaneously run three directly connected displays, each with the full capabilities of the display
- >> Support up to four displays with DisplayPort 1.2 Multi-Stream<sup>3</sup>
- >> Mini-DisplayPort 1.2 output including Multi-Stream and HBR2 support<sup>3</sup> (capable of supporting resolutions such as 3840x2160 @60Hz)
- >> Dual-link DVI-I/DVI-D outputs (Each connector supports 330MPixels/sec which supports resolutions like 2560 x 1600 @ 60Hz and 1920x1200 @ 120Hz)
- >> Internal 400 MHz DAC DVI-I output (analog display up to 2048 x 1536 @ 85Hz)
- >> Mini-DisplayPort to VGA, mini-DisplayPort to DVI (single-link), mini-DisplayPort to HDMI and mini-Display Port to Display Port cables available (resolution support based on dongle specifications)
- >> Mini-DisplayPort 1.2, HDMI, and DVI support HDCP
- >> 12-bit internal display pipeline (hardware support for 12-bit scanout on supported panels, applications and connection)
- >> Stereoscopic 3D display support including NVIDIA® 3D Vision™ technology, 3D DLP, Interleaved, and passive stereo
- >> OpenGL and Direct3D quad buffered stereo support
- >> Underscan/overscan compensation and hardware scaling
- >> Support for NVIDIA® Quadro® Mosaic, 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+), DTS-HD, TrueHD
- >> Output data rates of 44.1 KHz, 48 KHz, 88.2 KHz, 96 KHz, 176 KHz (HDMI only), and 192 KHz (HDMI only)
- >> Word sizes of 16-bit, 20-bit, and 24-bit



**PACKAGE CONTENT:**

- Driver
- Quick Start Guide
- (1) DP to DVI (SL) adapter
- (1) DVI to VGA adapter

P/N: **GSP-DPDISL**  
P/N: **GSP-DVIVGA**



1 Supports up to 3 displays only  
 2 This feature requires implementation by software applications and is not a stand-alone utility. Please contact us for details on availability.  
 3 Available on Windows 7 or later  
 4 Virtualization software includes Parallels Workstation Extreme, XenServer, and vSphere.  
 5 For detailed display support, please see display connectors for specific Quadro board.