PNY Quadro K5000

PROFESSIONAL GRAPHICS PERFECTED

PART NUMBER:
VCQK5000-PB

The PNY Quadro K5000 GPU leverages the new NVIDIA Kepler™ architecture to deliver the world's most compatible and power-efficient solution for accelerating professional applications.

Count on the PNY Quadro K5000 for exceptional design interaction with complex models, richer scene details and effects for content creation, and faster results when processing massive datasets for scientific exploration.

You can now drive up to four displays simultaneously. This makes it easy to deploy multiple displays across a desktop, build an expansive digital signage wall, or create a sophisticated stereoscopic 3D CAVE environment. NVIDIA's latest technologies (Quadro Sync, Quadro Mosaic, and GPUDirect), coupled with a Quadro K5000, give you an easy way to perform image synchronization and resolution scaling of a synchronized display surface with multiple projectors or displays.

The next-generation NVIDIA Kepler architecture is built on a breakthrough streaming multiprocessor (SM) design, called SMX, providing several important architectural changes. These include substantial increases in per-clock throughput of key graphics operations that combine to deliver a new level of performance and power efficiency.

The NVIDIA Kepler architecture also introduces the concept of bindless textures, enabling the GPU to reference textures directly in memory eliminating the limit on the number of unique textures that can be used to render
a scene.

PNY Quadro GPUs are designed, built, and tested by NVIDIA specifically for professional workstations powering more than 150 professional applications across a broad range of industries, including manufacturing, media and entertainment, sciences, and energy.

For maximum application performance, add an NVIDIA Tesla® K20 co-processor to your workstation and experience the power of NVIDIA Maximus™ technology.

QUADRO K5000 - PRODUCT SPECIFICATIONS

CUDA PARALLEL PROCESSING CORES	1536
FRAME BUFFER MEMORY	4 GB GDDR5
MEMORY INTERFACE	256-bit
MEMORY BANDWIDTH	173 GB/s
DISPLAY CONNECTORS	DVI-I (1) DVI-D (1) DP 1.2 (2) Optional Stereo (1)
SINGLE PRECISION COMPUTE PERFORMANCE	2.1 TERAFLOPS
MAX POWER CONSUMPTION	122 W
GRAPHICS BUS[1]	PCI Express 3.0 x16
FORM FACTOR	1110 mm (H) x 2667 mm (L) Dual Slot
THERMAL SOLUTION	Active
NVIDIA 3D VISION® / 3D VISION PRO	Support via 3 Pin Mini DIN
QUADRO SYNC	Compatible
HD SDI CAPTURE/OUTPUT	Compatible
GPU DIRECT FOR VIDEO	Compatible

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QUADRO K5000 - New NVIDIA Kepler Architecture Features and Benefits for the NVIDIA Quadro K5000

QUAD-DISPLAY SUPPORT	All-new display engine drives up to four displays simultaneously and fully supports the next-generation DisplayPort 1.2 standard capable of resolutions up to 3840x2160. This makes it easy to deploy multiple displays across a desktop, build an expansive digital signage wall, or create a sophisticated stereoscopic 3D CAVE environment.
BINDLESS TEXTURES	Dramatically increases the number of unique textures available to shaders at run-time, enabling vastly 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
NVIDIA FXAA AND TXAA	Reduces visible aliasing and delivers higher image quality without the performance hit by harnessing the power of the GPU's CUDA cores and new film-style anti-aliasing techniques

Number of synchronized displays/projectors from a single system with NVIDIA® Mosaic technology:

Up to 4	Up to 8	Up to 12	Up to 16
1 GPU	2 GPUs + SLI or 2 GPUs + Quadro Sync	3 GPUs + Quadro Sync	4 GPUs + Quadro Sync

QUADRO K5000 - 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)[4]
>> Linux® - Full OpenGL implementation, complete with NVIDIA and ARB

3D GRAPHICS ARCHITECTURE
>> Hardware tessellation engine
>> NVIDIA® GigaThread™ engine with dual copy engines
>> 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
>> 128-bit floating point performance
>> 32-bit per-component floating point texture filtering and blending
>> 64x full scene antialiasing (FSAA)/128x FSAA in SLI Mode
>> FXAA and TXAA full scene antialiasing
>> 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[3]
>> Blu-ray dual-stream hardware acceleration (supporting HD picture-in-picture playback)

NVIDIA CUDA PARALLEL PROCESSING ARCHITECTURE
>> SMX architecture (streaming multiprocessordesign 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)
>> Error-correction codes (ECC) memory[2]
>> 64 KB of RAM (configurable partitioning of shared memory and L1 cache)
>> 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 four connected displays
>> Dual DisplayPort 1.2 (supporting resolutions such as 3840x2160 @60 Hz)
>> Dual-link DVI-I/DVI-D outputs (up to 2560 x1600 @ 60 Hz and 1920x1200 @ 120 Hz)
Internal 400 MHz DAC DVI-I output (analog display up to 2048x1536 @ 85 Hz)
>> DisplayPort to VGA, DisplayPort to DVI (single-link and dual-link) and DisplayPort to HDMI cables (resolution support based on dongle specifications)
>> DisplayPort 1.2, HDMI, 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
>> Support for large-scale, ultra-high resolution visualization using the Quadro SVS platform which includes Quadro Mosaic, Quadro Sync and Warp/Blend technologies

DISPLAY PORT AND HDMI DIGITAL AUDIO
>> Support for the following audio modes:
> Dolby Digital (AC3), DTS 5.1, Multichannel (7.1) LPCM, Dolby Digital Plus (DD+), andMPEG-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 bits, 20 bits, and 24 bits

1 Check with your workstation OEM vendor for system specific configurations and available bandwidth.
2 Available on DRAM only
3 This feature requires implementation by software applications and is not a stand-alone utility. Please contact quadrohelp@nvidia.com for details on availability.
4 Supported on 2 displays only

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PNY PROFESSIONAL RANGE OF PRODUCTS

	QUADRO 400	QUADRO 410 *New!*	QUADRO 600	QUADRO 2000	QUADRO 2000D	QUADRO 4000	QUADRO 4000 MAC	QUADRO K5000 *New!*	QUADRO 6000
									
MEMORY	512 Mo DDR3	512 Mo DDR3	1 GB DDR3	1 GB GDDR5	1 GB GDDR5	2 GB GDDR5	2 GB GDDR5	4 GB GDDR5	6 GB GDDR5
MEMORY INTERFACE	64-bit	64-bit	128-bit	128-bit	128-bit	256-bit	256-bit	256-bit	384-bit
MEMORY BANDWIDTH	12.3 GB/s	14 GB/s	25.6 GB/S	41.6 GB/S	41.6 GB/S	89.6 GB/S	89.6 GB/S	173 GB/S	144 GB/S
CUDA PARALLEL PROCESSING CORES	48	192	96	192	192	256	256	1536	448
DISPLAY CONNECTORS	Dual-Link DVI-I (1) DP (1)	Dual-Link DVI-I (1) DP (1)	DVI-I (1) DP (1)	DVI-I (1) DP (2)	Dual Link DVI-I (2)	DVI-I (1) DP (2)	DVI-I (1) DP (1) Stereo (1)	DVI-I (1) DVI-D (1) DP 1.2 (2) Optional Stereo (1)	DVI-I (1) DP (2)
INCLUDED ACCESSORIES	DVI to VGA DP to DVI (SL)	DVI to VGA DP to DVI (SL)	DVI to VGA DP to DVI (SL)	DVI to VGA DP to DVI (SL)	DVI to VGA (2)	DVI to VGA DP to DVI (SL) 6-pin power cable	DVI to VGA DP to DVI (SL) 6-pin power cable	DVI to VGA DP to DVI (SL) 6-pin power cable	DVI to VGA DP to DVI (SL) 6-pin power cable
MAXIMUM POWER CONSUMPTION	32 W	38 W	40 W	62 W	62 W	142 W	142 W	152 W	204 W
PHYSICAL DIMENSIONS	69mm (H) x 142mm (L) Single Slot	69 mm (H) x 176 mm (L) Single slot	69mm (H) x 142mm (L) Single Slot	110mm (H) x 178mm (L) Single Slot	110mm (H) x 178mm (L) Single Slot	110 mm (H) x 240 mm (L) Single Slot	110 mm (H) x 240 mm (L) Single Slot	111 mm (H) x 260 mm (L) Dual Slot	110 mm (H) x 250 mm (L) Dual Slot
3D VISION PRO	Support via USB	Support via USB	Support via USB	Support via USB	Support via USB	3-pin mini DIN	3-pin mini DIN	Optional 3-pin mini DIN	3-pin mini DIN
GRAPHICS BUS	PCI EXPRESS 2.0 x 16	PCI EXPRESS 2.0 x 16	PCI EXPRESS 2.0 x 16	PCI EXPRESS 2.0 x 16	PCI EXPRESS 2.0 x 16	PCI EXPRESS 2.0 x 16	PCI EXPRESS 2.0 x 16	PCI EXPRESS 3.0 x 16	PCI EXPRESS 2.0 x 16
THERMAL SOLUTION	Active	Active	Active	Active	Active	Active	Active	Active	Active
LOW PROFILE	Yes	Yes	Yes	No	No	No	No	No	No
PART NUMBERS	VCQ400-PB	VCQ410-PB	VCQ600-PB	VCQ2000-PB	VCQ2000DVI-PB	VCQ4000-PB	VCQ4000MAC-PB	VCQK5000-PB	VCQ6000-PB
EAN	3536403339579	3536403341299	3536403338916	3536403338893	3536403339494	3536403338404	3536403338855	3536403338336	3536403338411

	QUADRO G-SYNC	QUADRO SDI CAPTURE	QUADRO SDI OUTPUT
			
ADD-ON CARD FOR	Quadro 5000 Quadro 6000	Quadro 4000 Quadro 5000 Quadro 6000	Quadro 4000 Quadro 5000 Quadro 6000
BUS TYPE	-	PCI-E 2.0 x8	-
CONNECTORS	2x RJ-45 1x BNC	5x BNC	3x BNC 1x DVI-D In
FEATURES	Genlock Frame Lock Swap Lock Synchronization of several workstations, visualisation clusters, caves, videowalls	4x HD-SDI Capture 1x HD-SDI Output 8-Bit, 10-Bit, 12-Bit Ancillary Data SDI capture and postprocessing in realtime. Genlock Preview output	2x HD-SDI Output 8-Bit, 10-Bit, 12-Bit Ancillary Data SDI output and postprocessing in realtime. Genlock

	TESLA C2075
	
TOTAL DEDICATED MEMORY	6GB GDDR5
MEMORY SPEED	1.5 GHz
MEMORY INTERFACE	384-bit
# OF CUDA CORES	448
DOUBLE PRECISION FLOATING POINT PERFORMANCE (PEAK)	515 GFlops
SINGLE PRECISION FLOATING POINT PERFORMANCE (PEAK)	1.03 Tflops
POWER CONSUMPTION	225 W
PART NUMBERS	TCSC2075-PB
EAN	3536403340193

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