


NVIDIA Quadro K420 2GB

NVIDIA Quadro K420 2GB
Part No. VCQK420-2GB-PB

DVI DL

Where to Buy

Commercial Sales

Overview

Specifications Warranty & Support Resources

Product Specifications

CUDA Cores	192

GPU Memory	2 GB DDR3
Memory Interface	128-bit
Memory Bandwidth	29 GB/s
System Interface	PCI Express 2.0 x16
Maximum Power Consumption	41 W
Energy Star Enabling	Yes
Thermal Solution	Ultra-quiet active fansink
Form Factor	2.713” H x 6.30” low profile, single slot
Display Connectors	DVI-D DL + DP 1.2
DisplayPort 1.2	Yes
DisplayPort with Audio	Yes
DVI-D Single-Link Connector	Via included adapter
VGA Support	Via included adapter
Number of Displays Supported	4 (DP 1.2 Multi-Streaming)
Maximum DP 1.2 Resolution	3840 x 2160 at 60Hz (direct connect)
Maximum DVI-I DL Resolution	2560 x 1600 at 60Hz
Maximum DVI-I SL Resolution	1920 x 1200 at 60Hz
Maximum VGA Resolution	2048 x 1536 at 85Hz
HDCP Support	Yes
Graphics APIs	Shader Model 5.0, OpenGL 4.5, DirectX 11.2
Compute APIs	CUDA, DirectCompute, OpenCL
NVIEW	Yes
NVIDIA Mosaic	Yes (Windows 8.1, 8, 7, and Linux)
NVIDIA 3D Vision and 3D Vision Pro	Yes (via USB connection to 3D Vision hub)
Warranty	3 Years
PNY Part Number	VCQK420-2GB-PB

Minimum System Requirements

- Microsoft Windows® 10, 8.1, 8, 7, Vista, Linux®, or Solaris®
- PCIe x16 expansion slot
- 2GB or more of system memory, 8GB recommended
- 200MB of available disk space for full driver installation
- Blu-ray or DVD-ROM drive
- Internet connection (if preferred for driver installation)
- DisplayPort, DVI, or VGA compatible display(s)

Package Contains

- NVIDIA Quadro K420 2GB professional graphics board
- Attached low profile bracket
- Unattached standard height bracket
- DisplayPort to DVI-D SL adapter
- DVI-I to VGA adapter
- Driver DVD for Windows 8.1, 8, 7, and Vista (32- and 64-bit)
- Printed QuickStart Guide

Features & Benefits

3D Graphics Architecture

- Scalable geometry architecture
- Hardware tessellation engine
- FXAA/TSAA dedicated antialiasing engine
- Bindless Textures
- Shader Model 5.0 (OpenGL 4.4 and DirectX 11)
- Up to 16K x 16K 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 (requires application support)
- Blu-ray dual-stream hardware accelerating (supporting HD picture-in-picture playback)

Parallel Computing Capabilities

- SMX Architecture (streaming multi-processor design that delivers greater processing and efficiency)
- Support for all the latest CUDA 6 features, including Unified Memory, Dynamic Parallelism and Dedicated Shared Memory)
- Programming support for CUDA C, CUDA C++, DirectCompute 5.0, OpenCL, Python and Fortran

Advanced Display Features

- Simultaneously drive up to two directly connected displays, each with the full capabilities of the display
- Support up to four displays when using DisplayPort 1.2 multi-streaming
- Dual DisplayPort 1.2 outputs including Multi-Stream and HBR2 support (capable of supporting resolutions such as 3840 x 2160)
- DisplayPort 1.2 (up to 3840 x 2160 at 60Hz and 2560 x 1600 at 120Hz)
- DVI-I Dual-Link output (up to 2560 x 1600 at 60Hz and 1920 x 1200 at 120Hz)
- DVI-D Dual-Link output (up to 2560 x 1600 at 60Hz and 1920 x 1200 at 120Hz)
- Internal 400MHz DAC DVI-I output (analog display up to 2048 x 1536 at 85Hz)
- DisplayPort 1.2, HDMI 1.4, and HDCP support (HDMI requires 3rd party adapter)
- Stereoscopic 3D display support including NVIDIA 3D Vision Pro and 3D Vision, 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, NVIDIA Enterprise Management Tools

DisplayPort and HDMI Digital Audio

- Dolby Digital (AC3), DTS 5.1, multi-channel (7.1) LPCM, Dolby Digital Plus (DD+), and MPEG-2/MPEG-4 AAC, DTS-HD, TrueHD
- Data rates of 44.1KHz, 48KHz, 88.2KHz, 96KHz, 176KHz, and 192KHz
- Word sizes of 16-bit, 20-bit, and 24-bit

GPU Features

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, enabling you to work interactively with models and scenes that are an order of magnitude more complex than ever before.

Large Framebuffers with Ultra-Fast Bandwidth

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

h

NVIDIA Parallel DataCache

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

Bindless Textures

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

NVIDIA Streaming Multiprocessor

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

H.264 encoder

Dedicated H.264 encode engine that independent of 3D/compute pipeline and delivers faster than real-time performance for transcoding, video editing, and other encoding applications (requires application support).

PCI Express 2.0 Compliance

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

Unified Driver Architecture (UDA)

Guarantees forward and backward compatibility with software drivers, simplifying upgrading to a new Quadro solution whenever you're ready.

Ultra-Quiet Design

Silent cooling design enables lower acoustics for an ultra-quiet desktop environment.

Image Quality

Full-Scene Antialiasing (FSAA)

Up to 64X FSAA for dramatically reducing visual aliasing artifacts or "jaggies," resulting in unparalled image quality and highly realistic scenes.

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 AA techniques.

GPU Tessellation

Quadro Tessellation Engines automatically generate finely detailed geometry for cinematic quality environments and scenes, without sacrificing performance.

16K Texture and Render Processing

Provides the ability to texture from and render to 16K x 16K surfaces. Beneficial for applications that demand the highest resolution and quality image processing.

Display Features

NVIDIA Quadro Mosaic Technology

Enables transparent scaling of the desktop and applications across up to 16 displays from 4 GPUs from a single workstation while delivering full performance and image quality.

Multi-Display Support

The all-new display engine in the NVIDIA GPU drives up to four displays simultaneously, whether they're directly connected to the board or connected using a single cable using DisplayPort 1.2's new multi-streaming capabilities. With support for the next-generation DisplayPort 1.2 standard, each DisplayPort connector is also capable of driving ultra-high resolutions like 3840 x2160 at 60 Hz with 30-bit color. The flexible display connectivity of the Quadro family 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 NVIEW Advanced Desktop Software

This software delivers maximum flexibility for single large display or multi-display options, providing unprecedented end-user control of the desktop experience for increased productivity.

DisplayPort 1.2 Support (with Audio)

Compact and secure DisplayPort 1.2 connectors support multi-stream technology, stream cloning and ultra-high-resolution panels (up to 3840 x 2160 at 60Hz). This enables maximum range, resolution, refresh rate, and color depth designed to support the latest display technologies.

OpenGL Quad Buffered Stereo Support

Provides a smooth and immersive 3D Stereo experience for professional applications.

Deep Color Processing and Display

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.

---

h

Software Support

NVIDIA CUDA Parallel Computing Architecture

Quadro solutions leverage general-purpose GPU computing using standard programming languages like C/C++ and Fortran, and 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.

NVIDIA Enterprise-Management Tools

Exhaustive tools for maximizing your system uptime by enabling seamless wide-scale deployment. This allows remote query and control of graphics and display settings for systems spread across installations.

Multi-GPU Technology

NVIDIA Multi-GPU Technology

NVIDIA Multi-GPU powered workstations combine the visualization and interactive design capability of multiple GPUs, by leveraging any combination of Quadro and Tesla GPUs to intelligently scale the performance of your application and dramatically speed up your production workflow.