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NVIDIA Quadro 2000D by PNY

Medical and Diagnostic Imaging Grayscale Solutions

NVIDIA Quadro Grayscale Solutions



Medical or scientific imaging often requires more than 256 shades of gray

- 8-bit delivers up to 256 shades of gray
- 10-bit delivers up to 1,024 shades of gray
- 12-bit delivers up to 4,096 shades of gray

Human eyesight routinely perceives superior image quality with 10- or 12-bit displays

NVIDIA Quadro by PNY products enjoy wide acceptance in the grayscale ecosystem



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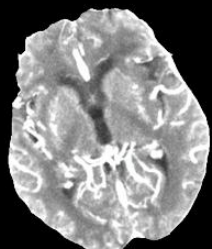
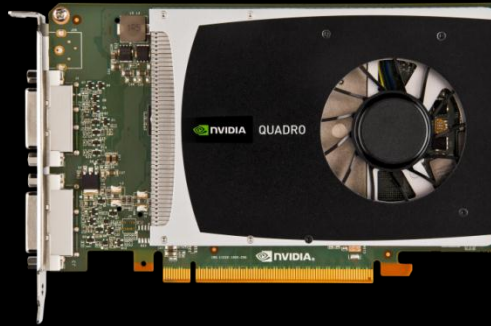
NVIDIA Quadro Grayscale System Requirements

Microsoft Windows

- Windows XP currently supports 10- or 12-bit grayscale imaging
- Windows 7 will support 10- or 12-bit grayscale imaging in the spring of 2011

Applications Programming Interface (API) support

- Grayscale software must be written to the OpenGL API



NVIDIA Quadro 2000D by PNY

Optimized for grayscale medical imaging applications



Frame Buffer	1GB GDDR5
Memory Interface	128-bit
Memory Bandwidth	41.6GB/sec
CUDA Processor Cores	192
Max Power Consumption	62W
Number of Slots	1
DVI-I Dual Link	2
3D Vision Pro	Yes (USB)
DirectX	11.0
Shader Model	5.0
OpenGL	4.1
Thermal	Active Fansink
MSRP	\$599
PNY Part Number	VCQ2000D-PB



Item Includes

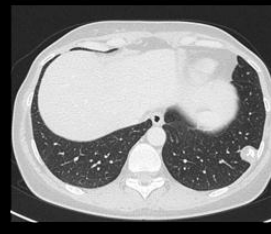
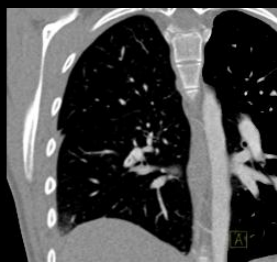
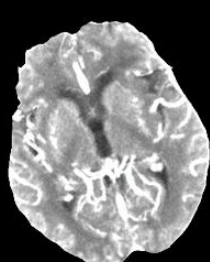
DVI to VGA adapters (2)

NVIDIA Quadro 2000D by PNY

Compatible with leading medical grayscale displays



	Panel	Resolution	Grayscale Depth	Supported
NDS Surgical Imaging	Dome E2	1600 x 1200 at 60 Hz 1200 x 1600 at 60 Hz	10- and 12-bit	Yes
	Dome E3	2048 x 1536 at 60 Hz 1536 x 2048 at 60 Hz	10- and 12-bit	Yes
	Dome E5	2560 x 2048 at 50 Hz 2048 x 2560 at 50Hz	10- and 12-bit	Yes
	Dome Z10	4096 x 2560 at 50 Hz 2560 x 4096 at 50 Hz 2560 x 2048 at 50 Hz 2048 x 2560 at 50 Hz	10- and 12-bit	Yes
Eizo	GS 520	2560 x 2048 at 50 Hz 2048 x 2560 at 50 Hz	10-bit	Yes
NEC	MD205MG	2560 x 2048 at 57 Hz 2048 x 2560 at 57 Hz	10-bit	Yes
	MD205MG-1	2560 x 2048 at 57 Hz 2048 x 2560 at 57 Hz	10-bit	Yes
	MD213MG	2048 x 1536 at 60 Hz 1536 x 2048 at 60 Hz	10-bit	Yes
	MD21GS-3MP	2048 x 1536 at 60 Hz 1536 x 2048 at 60 Hz	10-bit	Yes
	MD21GS-2MP	1600 x 1200 at 60 Hz 1200 x 1600 at 60 Hz	10-bit	Yes
Wide	1F2105MP	2560 x 2048 at 50 Hz 2048 x 2560 at 50 Hz	10-bit	Yes



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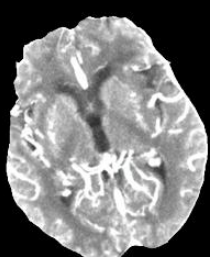
NVIDIA Quadro 2000D Display Connectors

Supports unique NVIDIA grayscale pixel packing technology



Two DVI-I Dual-Link connectors provide optimal grayscale medical imaging display connectivity

- NVIDIA grayscale pixel packing technology allows 2560 x 2048 5MP images to be sent over a DVI single-link connector, which is normally restricted to 1920 x 1200
- 10MP grayscale images up to 4096 x 2560 are supported by NVIDIA pixel packing technology when two DVI-SL connections are available



NVIDIA Quadro Dual 5MP Display Configuration

Side Display(s)



NVS or Quadro GPU



Grayscale Displays



NVIDIA Quadro 2000D



- A Quadro 2000D GPU drives two 5MP grayscale displays, one or more side displays are driven by an entry-level Quadro or NVS GPU based on PCIe x16 slot availability



NVIDIA Quadro Dual 5MP Display Options



		System Configuration Parameters*
Total Resolution	10MP	5120 x 2048 landscape 4096 x 2560 portrait
Grayscale Display	Quadro 2000D	PCIe x16 with dual DVI-DL connectors optimized for grayscale applications
Side Display PCIe x1	NVS 420	PCIe x1 version ideal for single x16 PCIe slot systems where x16 slot is occupied by grayscale GPU
	NVS 300	PCIe x1 version ideal for single x16 PCIe slot systems where x16 slot is occupied by grayscale GPU
	NVS 295	PCIe x1 version ideal for single x16 PCIe slot systems where x16 slot is occupied by grayscale GPU
Side Display PCIe x16	Quadro 4000	PCIe x16, recommended for systems with two or more PCIe x16 slots
	Quadro 2000D	PCIe x16, recommended for systems with two or more PCIe x16 slots
	Quadro 600	PCIe x16, recommended for systems with two PCIe x16 slots
	FX 380 LP	PCIe x16, recommended for systems with two PCIe x16 slots
	NVS 450	PCIe x16, recommended for systems with two PCIe x16 slots

- Generally a mid-range to high-end Quadro GPU drives two 5MP grayscale displays, one or more side displays are driven by an entry-level Quadro or NVS GPU based on PCIe x16 slot availability



NVIDIA Quadro Quad 5MP Display Configuration

Side Display(s)



NVS or Quadro GPU



Grayscale Displays



NVIDIA Quadro 2000D (1)



NVIDIA Quadro 2000D (2)

- Two Quadro 2000D GPUs drive four 5MP grayscale displays, one or more side displays are driven by an entry-level Quadro or NVS GPU based on PCIe x16 slot availability



NVIDIA Quadro Quad 5MP Display Options



		System Configuration Parameters*
Total Resolution	20MP	10,240 x 2048 landscape 8192 x 2560 portrait
Grayscale Display	Quadro 2000D (2)	PCIe x16 with dual DVI-DL connectors optimized for grayscale applications
Side Display PCIe x1	NVS 420	PCIe x1 version ideal for single x16 PCIe slot systems where x16 slot is occupied by grayscale GPU
	NVS 300	PCIe x1 version ideal for single x16 PCIe slot systems where x16 slot is occupied by grayscale GPU
	NVS 295	PCIe x1 version ideal for single x16 PCIe slot systems where x16 slot is occupied by grayscale GPU
Side Display PCIe x16	Quadro 4000	PCIe x16, recommended for systems with two or more PCIe x16 slots
	Quadro 2000D	PCIe x16, recommended for systems with two or more PCIe x16 slots
	Quadro 600	PCIe x16, recommended for systems with two PCIe x16 slots
	FX 380 LP	PCIe x16, recommended for systems with two PCIe x16 slots
	NVS 450	PCIe x16, recommended for systems with two PCIe x16 slots

- Generally two mid-range to high-end Quadro GPUs drive four 5MP grayscale displays, one or more side displays are driven by an entry-level Quadro or NVS GPU based on PCIe x16 slot availability



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For Additional Information Visit www.pny.com/quadro