# NVIDIA PROFESSIONAL GRAPHICS SOLUTIONS

The new family of advanced NVIDIA professional graphics is fueled by NVIDIA Kepler™—NVIDIA's most powerful GPU architecture ever—delivering unprecedented performance and innovative capabilities to boost your success. Whether you're creating revolutionary products, designing groundbreaking architecture, reviewing the fine details in a CT/MRI scan, or telling spectacularly vivid visual stories, NVIDIA professional solutions let  you do it better and faster.
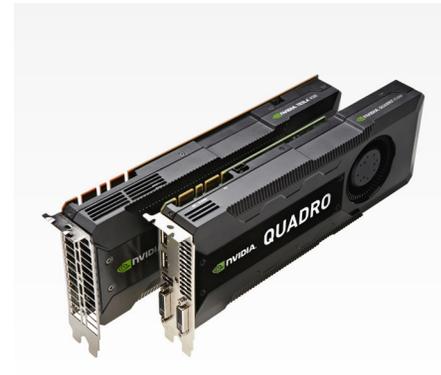
## NVIDIA® Quadro® 3D Workstation Professional Graphics Solutions

Designed and built specifically for professional workstations, NVIDIA Quadro GPUs power more than 150 professional applications across a broad range of industries. Professionals trust them to deliver the best possible experience in applications such as  Adobe® Creative Suite, Avid Media Composer, Autodesk Inventor, Dassault Systemes CATIA and SolidWorks, Siemens NX, PTC Creo, and many more.

## NVIDIA® Tesla® Co-Processors

NVIDIA Tesla GPU parallel processors provide the highest-performance NVIDIA CUDA® acceleration for your workflow. Designed for professional systems and demanding professional applications, Tesla GPUs perform the complex calculations required for CAE/CFD calculations, seismic processing, ray-traced  rendering, compositing, image processing, physics, and effects many times faster than a CPU.

## NVIDIA® Maximus™ Platform

NVIDIA Maximus-powered workstations combine the industry-leading professional 3D graphics capability of NVIDIA Quadro GPUs with the high-performance computing power of NVIDIA Tesla GPUs. Tesla co-processors automatically perform the heavy lifting of rendering or CAE computations, freeing the Quadro GPUs to do what they do best—enabling rich interactive graphics.

## NVIDIA® NVS™ Commercial Graphics Solutions

NVIDIA NVS graphics boards provide robust IT management tools for seamless enterprise deployment. This makes them the trusted solution of choice financial institutions, emergency call centers, digital signage systems, and other mission-critical environments.

# NVIDIA PROFESSIONAL GRAPHICS SOLUTIONS

## Quadro for Desktop Workstations

| Product | T1500 | T1600 | T1650 | T3600 | T5600 | T7600 | R5500 2U rack | M4600 | M6600 | M4700 | M6700 | CUDA Cores[1] | GPU Memory | Memory Bandwidth | FP Single Precision (GF, Peak) | FP Double Precision (GF, Peak) | ECC Memory | Dual-Link DVI[2] | DisplayPort 1.1[3] | DisplayPort 1.2[3] | HDMI Via Adaptors | Max Active Displays[4] | FSAA (Max) | FXAA | TXAA | SLI | Mosaic | GPUDirect for Video | Graphics Sync[5] | 3D Vision[6] | Maximus[7] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quadro K5000 | | | | 2 | 2 | 2 | 2 | | | | | 1,536 | 4 GB | 173 GBps | 2,150 | | •[8] | 2 | | 2 | 4 | 4 | 64x | • | • | • | • | • | • | • | • |
| Quadro K4000 | | | | 2 | 2 | 2 | 2 | | | | | 768 | 3 GB | 134 GBps | 1,246 | | | 1 | | 2 | 3 | 4 | 64x | • | • | | • | | | • | • |
| Quadro K2000 | | | | 2 | 2 | 2 | 2 | | | | | 384 | 2 GB | 64 GBps | | | | 1 | | 2 | 3 | 4 | 64x | • | • | | • | | | • | • |
| Quadro K2000D | | | | | | | | | | | | 384 | 2 GB | 64 GBps | | | | 2 | 1 | | 3 | 4 | 64x | • | • | | • | | | • | • |
| Quadro K600 | | | | 2 | 2 | 2 | 2 | | | | | 192 | 1 GB | 29 GBps | | | | 1 | | 1 | 2 | 2 | 64x | • | | | • | | | • | • |
| Quadro 410 | | | 2 | | | | | | | | | 192 | 512 MB | 14 GBps | | | | 1 | | 1 | 2 | 2 | 32x | • | | | • | | | • | • |
| Quadro 6000 | | | | 1 | 1 | 2 | 2 | | | | | 448 | 6 GB | 144 GBps | 1,030 | 515 | • | 1 | 2 | | 2 | 2 | 64x | • | • | • | • | | • | • | • |
| Quadro 5000 | | | | 1 | 2 | 2 | 2 | | | | | 352 | 2.5 GB | 120 GBps | 718 | | • | 1 | 2 | | 2 | 2 | 64x | • | • | • | • | | • | • | • |
| Quadro 4000 | | | | 2 | 2 | 2 | 2 | | | | | 256 | 2 GB | 90 GBps | 486 | | | 1 | 2 | | 2 | 2 | 64x | • | | | • | | | • | • |
| Quadro 2000 | | 1 | 1 | 2 | 2 | 2 | 2 | | | | | 192 | 1 GB | 42 GBps | | | | 1 | 2 | | 2 | 2 | 64x | • | | | • | | | • | • |
| Quadro 2000D | | 1[9] | 1[9] | | | | | | | | | 192 | 1 GB | 42 GBps | | | | 2 | | | 2 | 2 | 64x | • | | | • | | | • | • |
| Quadro 600 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | | | | | 96 | 1 GB | 26 GBps | | | | 1 | 1 | | 2 | 2 | 64x | • | | | • | | | • | • |

## Tesla for Desktop Workstations (Co-Processors as Part of NVIDIA Maximus Platform)

| Product | T1500 | T1600 | T1650 | T3600 | T5600 | T7600 | R5500 2U rack | M4600 | M6600 | M4700 | M6700 | CUDA Cores[1] | GPU Memory | Memory Bandwidth | FP Single Precision (GF, Peak) | FP Double Precision (GF, Peak) | ECC Memory | Dual-Link DVI[2] | DisplayPort 1.1[3] | DisplayPort 1.2[3] | HDMI Via Adaptors | Max Active Displays[4] | FSAA (Max) | FXAA | TXAA | SLI | Mosaic | GPUDirect for Video | Graphics Sync[5] | 3D Vision[6] | Maximus[7] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tesla K20 | | | | 1 | 1 | 2 | 2 | | | | | 2,496 | 5 GB | 208 GBps | 3,520 | 1,170 | • | | | | | | | | | | | • | | | • |
| Tesla C2075 | | | | 1 | 2 | 2 | 2 | | | | | 448 | 6 GB | 144 GBps | 1,030 | 515 | • | 1 | | | | 1 | | | | | | • | | | • |

## Quadro for Mobile Workstations

| Product | T1500 | T1600 | T1650 | T3600 | T5600 | T7600 | R5500 2U rack | M4600 | M6600 | M4700 | M6700 | CUDA Cores[1] | GPU Memory | Memory Bandwidth | FP Single Precision (GF, Peak) | FP Double Precision (GF, Peak) | ECC Memory | Dual-Link DVI[2] | DisplayPort 1.1[3] | DisplayPort 1.2[3] | HDMI Via Adaptors | Max Active Displays[4] | FSAA (Max) | FXAA | TXAA | SLI | Mosaic | GPUDirect for Video | Graphics Sync[5] | 3D Vision[6] | Maximus[7] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quadro K5000M | | | | | | | | | | | 1 | 1,344 | 4 GB | 96 GBps | 1,600 | | •[8] | •[10] | | •[10] | •[10] | •[10] | 64x | • | • | | • | | | • | |
| Quadro K4000M[11] | | | | | | | | | | | 1 | 960 | 4 GB | 90 GBps | 1,150 | | | •[10] | | •[10] | •[10] | •[10] | 64x | • | • | | • | | | • | |
| Quadro K3000M[11] | | | | | | | | | | | 1 | 576 | 2 GB | 90 GBps | 750 | | | •[10] | | •[10] | •[10] | •[10] | 64x | • | • | | • | | | • | |
| Quadro 5010M | | | | | | | | | 1 | | | 384 | 4 GB | 83 GBps | | | • | •[10] | •[10] | | •[10] | •[10] | 64x | • | | | • | | | • | |
| Quadro 4000M[11] | | | | | | | | | 1 | | | 336 | 2 GB | 80 GBps | | | | •[10] | •[10] | | •[10] | •[10] | 64x | • | | | • | | | • | |
| Quadro 3000M[11] | | | | | | | | | 1 | | | 240 | 2 GB | 80 GBps | | | | •[10] | •[10] | | •[10] | •[10] | 64x | • | | | • | | | • | |
| Quadro 2000M | | | | | | | | 1 | | 1 | | 192 | 2 GB | 29 GBps | | | | •[10] | •[10] | | •[10] | •[10] | 64x | • | | | • | | | • | |
| Quadro 1000M[11] | | | | | | | | 1 | | 1 | | 96 | 2 GB | 29 GBps | | | | •[10] | •[10] | | •[10] | •[10] | 64x | • | | | • | | | • | |
| Quadro 500M[12] | | | | | | | | | | | | 96 | 1 GB | 29 GBps | | | | •[10] | •[10] | | •[10] | •[10] | 64x | • | | | • | | | • | |

## NVS for Desktop Workstations

| Product | T1500 | T1600 | T1650 | T3600 | T5600 | T7600 | R5500 2U rack | M4600 | M6600 | M4700 | M6700 | CUDA Cores[1] | GPU Memory | Memory Bandwidth | FP Single Precision (GF, Peak) | FP Double Precision (GF, Peak) | ECC Memory | Dual-Link DVI[2] | DisplayPort 1.1[3] | DisplayPort 1.2[3] | HDMI Via Adaptors | Max Active Displays[4] | FSAA (Max) | FXAA | TXAA | SLI | Mosaic | GPUDirect for Video | Graphics Sync[5] | 3D Vision[6] | Maximus[7] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NVS 510 | | | | | | | | | | | | 192 | 2.0 GB | 29 GBps | | | | | | 4 | 4 | 4 | | | | | | | • | | |
| NVS 310 | | | | | | | | | | | | 48 | 512 MB | 14 GBps | | | | | | 2 | 2 | 2 | | | | | | | • | | |
| NVS 300 x16 or x1 | | 1 | 1 | 2 | 2 | 2 | 2 | | | | | 16 | 512 MB | 13 GBps | | | | 2[13] | 2[13] | | 2 | 2 | | | | | | | • | | |
| Quadro NVS 450 | | | | | | | | | | | | 16 | 512 MB | 11 GBps[13] | | | | | | 4 | 4 | 4 | | | | | | | • | | |
| Quadro NVS 420 x16 or x1 | | 1 | | | | | 2 | | | | | 16 | 512 MB | 11 GBps[13] | | | | | | 4[15] | 4 | 4 | | | | | | | • | | |
| Quadro NVS 295 x16 or x1 | 1 | | | | | | 2 | | | | | 8 | 256 MB | 11 GBps | | | | | | 2 | 2 | 2 | | | | | | | • | | |

For more information on NVIDIA NVS mobile solutions, please visit **www.nvidia.com/object/notebook-nvs.html**

1. CUDA parallel processing cores cannot be compared between GPU generations due to several important architectural differences that exist between streaming multiprocessor designs.
2. Maximum display resolution: 330M Pixels/sec (ex 2560x1600 @ 60hz or 1920x1200@120hz)
3. Adaptors available for DVI-SL, DVI-DL, HDMI, and VGA
4. Quadro K4000, K2000, and K2000D are equipped with 3 on-board display connectors with the option to connect a fourth display using DisplayPort 1.2's new
5. Quadro K-series GPUs are only compatible with NVIDIA Quadro Sync. Other GPUs listed are compatible only with Quadro G-Sync II
6. Requires 3D Vision-ready display. Visit www.nvidia.com/3dvision
7. Quadro K-series GPUs are only compatible with Tesla K20. Other GPUs listed are compatible only with Tesla C2075
8. Ensures data integrity and reliability by eliminating soft errors on DRAM only

multi-streaming capabilities. 4 Displays require a supported DisplayPort 1.2 Multi-Stream capable hub or displays

9. Configurable as a custom option
10. Display support will vary by OEM; please see OEM Mobile Workstation platform specifications for details
11. Also available for All-in-One workstations
12. Available for All-in-One workstations only
13. Supports dual SL-DVI-I/VGA/DP through DM559 connector
14. Per GPU memory bandwidth
15. Supports quad DP/SL-DVI through VHDCI connector

For more information on NVIDIA Workstation products, visit **www.nvidia.com/workstation**