

GPU COMPUTING

2007 - 2012



200+ Applications accélérées GPU

POPULAR GPU-ACCELERATED APPLICATIONS					
Applications	Description	Supported Features	Expected Speed-Up*	Multi-GPU Support	Release Status
AI					
CGI Render for Broadcast	Photorealistic rendering	Hardware, fully integrated in CATIA, Network Rendering	3-4x	Yes	Available now
Basement Pro (late 2017)	Easy to use photorealistic rendering software	Ray-based ray-tracing, Advanced Render, Network Rendering	3-4x	Yes	Available now
RTT (SolidWorks 14)	Interactive ray-tracing and global illumination, Integrated with Siemens TeamCollaborator Cluster Support	Ray-based ray-tracing, Support for 2D and 3D rendering	15x	Yes	Available now
RTT (SolidWorks)	Photorealistic rendering with integration of functions and RTT support	Ray-based ray-tracing, Support for 2D and 3D rendering	3-4x	Yes	Available now (version 1)
Computational Science					
Hemlock Assessment	Real-time options analytical engine	Material	100x	Yes	Available now
MATLAB Mathematics	Core parallel mathematics (MATLAB, PDE, MEX)	MATLAB Operators	3-20x	Yes	Available now
MATLAB Mechanical	Non-analytic (MATHE)	MATLAB analysis library	48-400x	Yes	Available now
Naval Architect Group (HSC)	Reaction transfer operations, Element Bridges, and PDE solvers	Matrix Cards	50x	Single GPU	Available now
Open (2D & 3D) (FrontComp)	Financial analytics and data mining library	Matrix Cards, simulation, mining, cache analysis, data mining	50-100x	Yes	Available now
SoCmp, Inc.	Derivative pricing (C++, Python)	Matrix Cards and PDE pricing models	10-15x (C++), 10-100x (Python)	Single GPU	Available now
Automotive/Industrial					
ANSYS/Explicit	Simulation and analysis tool for structural mechanics	Direct sparse solver	1.5-2.5x	Yes	Available now (version 1, 12)
ANSYS Mechanical	Simulation and analysis tool for structural mechanics	Direct & iterative solver	2-3x	Single GPU	Available now (version 1, 12)
HPC/Industrial	Dynamic large deformation of structures and components exposed to extreme loading conditions	Linear equation solver	10x, GPU, 26 Total	Yes	Available now
LS-DYNA Impact	Multi-physics simulation package used for CarCrash	Linear equation solver	2x	Yes	Available now
MSC Nastran	Simulation and analysis tool for structural mechanics	Linear equation solver	1.5x	Yes	Available now (version 11)
MSC Adams	Simulation and analysis tool for structural mechanics	Linear equation solver	1.5x	Yes	Available now (version 10)
MathWorks Impact	Used to measure durability, SHM, and load measurement of multi-structure interaction performance	Linear equation solver	2-4x	Yes	In Development

*NVIDIA GPUs are enabling tremendous performance speedups for a number of packaged applications spanning a variety of 64-bit x86_64 and ARM64 CPUs. Speed-up based on applications and is not the most current version of this Application Catalog; please visit www.nvidia.com/tesla/gpu

GPU-ACCELERATED APPLICATIONS, Continued					
Applications	Description	Supported Features	Expected Speed-Up*	Multi-GPU Support	Release Status
1D solver	Linear equation solver	Yes	10x	Yes	Available now (version 10a)
2D solvers based on FEM	Ballistic heat transfer model	10k model	Single GPU	Yes	Available now (version 10.0)
3D solvers parts and injection	Linear equation solver	1.5x	Single GPU	Yes	Available now (version 10.0)
CG solvers based on FEM	Explicit & implicit solver	2x	10x	Yes	In Development
CG solvers based on FEM	Linear equation solvers	1x Solver	Yes	Available now (version 1.2)	
CG solvers based on FEM	Lattice Boltzmann solver	20x	Yes	Available now (version 1.0)	
CG solvers based on FEM	Particle CFD using MPS	4-6x	Yes	Available now (version 1.0)	
CG solvers based on FEM	Explicit compressible solver	15x	Yes	In Development	
CG solvers based on FEM	Chemistry kernel	1x	Yes	In Development	
CG solvers based on FEM	Heat Conduction for turbulent	Yes	Single GPU	Available now (version 1.0)	
CG solvers based on FEM	Explicit compressible solver	15x	Yes	Available now (version 1.2)	
CG solvers based on FEM	Linear equation solvers	4x Solver	Yes	Available now (version 1.2)	
CG solvers based on FEM	Image enhancement/creation	50x	Yes	Available now	
CG solvers based on FEM	2D simulation of granular media	50x	Yes	Available now	
CG solvers based on FEM	Image reconstruction	70x	Yes	Available now	
CG solvers based on FEM	2D simulation of granular media	12-15x	Yes	Available now	
CG solvers based on FEM	2D simulation of granular media	Requires GPU	Yes	Available now	
CG solvers based on FEM	Image processing on video files	50x	Yes	Available now	
CG solvers based on FEM	Full resolution video frame processing	5-7x	No	Available now	
CG solvers based on FEM	Video stabilization, filtering, optical flow, and video cropping	10x	Yes	Available now	
CG solvers based on FEM	Object recognition and tracking	100x	Yes	Available now	
CG solvers based on FEM	Image enhancement/creation and additional image processing	20-50x	Yes	Available now	
CG solvers based on FEM	High-frequency solver	20-50x	Yes	Available now	

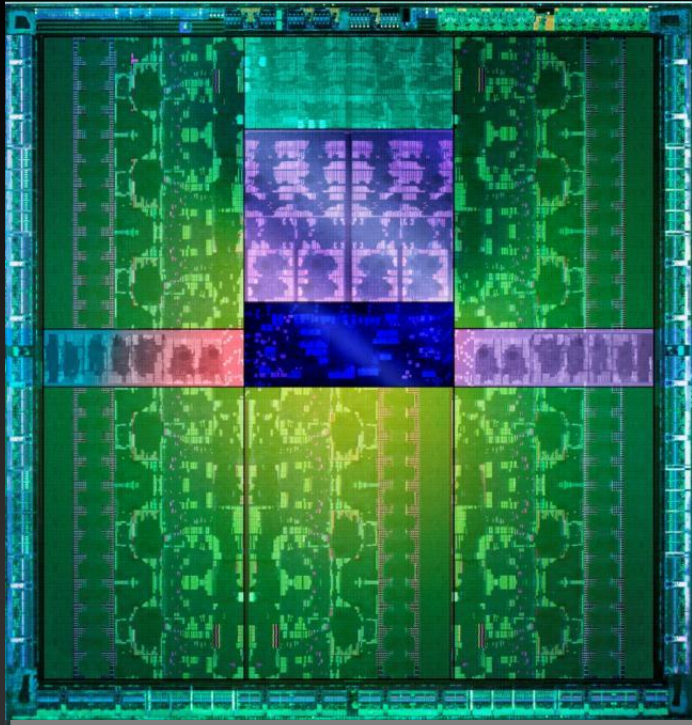
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Applications	Description	Supported Features	Expected Speed-Up*	Multi-GPU Support	Release Status
CG solvers based on FEM	Monocular SLAM and IMU		27x	Yes	Available now
CG solvers based on FEM	Image editing	Real Time	Single GPU	Yes	Available now
CG solvers based on FEM	Video editing	Real Time	Single GPU	Available now	
CG solvers based on FEM	Color grading	Real Time	Single GPU	Available now	
CG solvers based on FEM	Color Grading and Finishing	Real Time	Single GPU	Available now	
CG solvers based on FEM	Video editing	Real Time	Single GPU	Available now	
CG solvers based on FEM	Color grading	Real Time	Single GPU	Available now	
CG solvers based on FEM	Image texture management	Real Time	Single GPU	Available now	
CG solvers based on FEM	Effects plug-in for video editing	Real Time	Single GPU	Available now	
CG solvers based on FEM	Color grading	Real Time	Single GPU	Available now	
CG solvers based on FEM	Video editing	Real Time	Single GPU	Available now	
CG solvers based on FEM	Image texture management	Real Time	Single GPU	Available now	
CG solvers based on FEM	Simulation on 1000 GPUs	4-2%*	Single GPU	Available now	
CG solvers based on FEM	Simulation of mechanical parts, implicit & explicit solver on CUDA	10x-100x	Yes	Available now	
CG solvers based on FEM	Simulation of mechanical parts, implicit & explicit solver on CUDA	10x-100x	Yes	Available now	
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CG solvers based on FEM	CGU acceleration for MATLAB high-level technical computing language	Support for several hardware configurations, can run on up to 64 GPUs	2-20x	Yes	Available now
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Intel Xeon Phi coprocessor



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