

# ПРИЛОЖЕНИЯ С ПОДДЕРЖКОЙ GPU

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# Исследовательские задачи в научно-образовательной сфере

## ВЫЧИСЛИТЕЛЬНАЯ ХИМИЯ И БИОЛОГИЯ

### Молекулярная динамика

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>ACEMD</b>	GPU simulation of molecular mechanics force fields, implicit and explicit solvent	Written for use only on GPUs	Yes
<b>AMBER</b>	Suite of programs to simulate molecular dynamics on biomolecule	Version 12 + bugfix19, PMEMD Explicit Solvent and GB Implicit Solvent	Yes
<b>CHARMM</b>	MD package to simulate molecular dynamics on biomolecule	Implicit (5x), Explicit (2x) Solvent via OpenMM	Yes
<b>DL-POLY</b>	Simulate macromolecules, polymers, ionic systems, etc on a distributed memory parallel computer	Version 4.04 Source only, Two-body forces, Link-cell pairs, Ewald SPME forces, Shake VV	Yes
<b>Folding@Home</b>	A distributed computing project that studies protein folding, misfolding, aggregation, and related diseases	Powerful distributed computing molecular dynamics system; implicit solvent and folding	Yes
<b>GPUGrid.net</b>	A distributed computing project that uses GPUs for molecular simulations	High-performance all-atom biomolecular simulations; explicit solvent and binding	Yes
<b>GROMACS</b>	Simulation of biochemical molecules with complicated bond interactions	Version 4.6.3, Implicit (5x), Explicit (2x) Solvent	Yes
<b>HALMD</b>	Large-scale simulations of simple and complex liquids	Version 0.2.0, Simple fluids and binary mixtures (pair potentials, high-precision NVE and NVT, dynamic correlations)	Single only
<b>HOOMD-Blue</b>	Particle dynamics package written grounds up for GPUs	Version 0.11.3, Written for use only on GPUs	Yes
<b>LAMMPS</b>	Classical molecular dynamics package	Lennard-Jones, Gay-Berne, Tersoff, and many more potentials	Yes
<b>NAMD</b>	Designed for high-performance simulation of large molecular systems	Version 2.9, Full electrostatics with PME and most simulation features; 100M atom capable	Yes
<b>OpenMM</b>	Library and application for molecular dynamics for HPC with GPUs	Version 5.1, Implicit and explicit solvent, custom forces	Yes

## Проведите Тест-Драйв Ускорителя Tesla K20 GPU

Воспользуйтесь нашим предложением провести простой и бесплатный тест-драйв ускорителей Tesla K20 GPU.

[www.nvidia.eu/cluster](http://www.nvidia.eu/cluster)



## Вычислительная химия

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Abinit</b>	Allows to find total energy, charge density and electronic structure of systems made of electrons and nuclei within DFT	Version 7.4.1, Local Hamiltonian, non-local Hamiltonian, LOBPCG algorithm, diagonalization/ orthogonalization	Yes
<b>ADF (Available in Q1 2014)</b>	Density Functional Theory (DFT) software package that enables first-principles electronic structure calculations	Fock Matrix, Hessians	Yes
<b>BigDFT</b>	Implements density functional theory by solving the Kohn-Sham equations describing the electrons in a material	Version 1.6.0, DFT; Daubechies wavelets, part of Abinit	Yes
<b>CP2K</b>	Program to perform atomistic and molecular simulations of solid state, liquid, molecular and biological systems	DBCSR (space matrix multiply library)	Yes
<b>GAMESS-UK</b>	The general purpose ab initio molecular electronic structure program for performing SCF-, DFT- and MCSCF-gradient calculations	Version 7.0, (ss/ls) type integrals within calculations using Hartree-Fock ab initio methods and density functional theory. Supports organics and inorganics.	Yes
<b>GAMESS-US</b>	Computational chemistry suite used to simulate atomic and molecular electronic structure	Libqc with Rys Quadrature Algorithm, Hartree-Fock, MP2 and CCSD	Yes
<b>Gaussian (In development)</b>	Predicts energies, molecular structures, and vibrational frequencies of molecular systems	Joint NVIDIA, PGI and Gaussian collaboration	Yes
<b>GPAW</b>	Real-space grid DFT code written in C and Python	Electrostatic poisson equation, orthonormalizing of vectors, residual minimization method (rmm-diis)	Yes
<b>LATTE</b>	Density matrix computations	CU_BLAS, SP2 Algorithm	Yes
<b>MOLCAS</b>	Methods for calculating general electronic structures in molecular systems in both ground and excited states	Version 7.8, CU_BLAS	Single only Additional GPU support coming in Version 8
<b>MOPAC2013 (Available in Q2 2014)</b>	Semiempirical Quantum Chemistry	Pseudodiagonalization, full diagonalization, and density matrix assembling	Single only
<b>NWChem</b>	Calculations	Version 6.3, Triples part of Reg-CCSD(T), CCSD and EOMCCSD task schedulers	Yes
<b>Octopus</b>	Used for ab initio virtual experimentation and quantum chemistry calculations	Version 4.1.0, Full GPU support for ground-state, real-time calculations; Kohn-Sham Hamiltonian, orthogonalization, subspace diagonalization, poisson solver, time propagation	TBD
<b>Q-CHEM</b>	Computational chemistry package designed for HPC clusters	Version 4.0.1, Various features including RI-MP2	TBD
<b>TeraChem</b>	Quantum chemistry software designed to run on NVIDIA GPU	Version 1.5K, Full GPU-based solution; Performance compared to GAMESS CPU version	Yes

## Материаловедение

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>gWL-LSMS</b>	Materials code for investigating the effects of temperature on magnetism	Version WL-LSMS3, Generalized Wang-Landau method	Yes
<b>PEtot</b>	First principles materials code that computes the behavior of the electron structures of materials	Density functional theory (DFT) plane wave pseudopotential calculations	Yes
<b>QMCPACK</b>	Solves the many-body Schrodinger equation for electronic structures using a quantum Monte Carlo method	Main features	Yes
<b>Quantum Espresso/ PWscf</b>	An integrated suite of computer codes for electronic structure calculations and materials modeling at the nanoscale	Version 5.0, PWscf package: linear algebra (matrix multiply), explicit computational kernels, 3D FFTs	Yes
<b>VASP</b>	First principles materials code that computes the behavior of electronic structures based on quantum theory	Hybrid Hartree-Fock DFT functionals including exact exchange	Yes

## Визуализация и докинг

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Amira 5</b>	A multifaceted software platform for visualizing, manipulating, and understanding Life Science and bio-medical data	Version 5.5, 3D visualization of volumetric data and surfaces	Single only
<b>BINDSURF</b>	A virtual screening methodology that uses GPUs to determine protein binding sites	Allows fast processing of large ligand databases	Single only
<b>BUDE</b>	Molecular docking program	Empirical Free Energy Forcefield	Single only
<b>Core Hopping</b>	Rapid screening of novel cores to improve drug properties	GPU accelerated application	Yes
<b>FastROCS</b>	Molecule shape comparison application	Real-time shape similarity searching/ comparison	Yes
<b>Interactive Molecule Visualizer</b>	Molecular visualization based on a ray-tracing engine	Written for use only on GPUs	Yes
<b>Molegro Virtual Docker 6</b>	Method for performing high accuracy flexible molecular docking	Energy grid computation, pose evaluation and guided differential evolution	Single only
<b>PIPER Protein Docking</b>	Protein-protein docking program	Molecule docking	TBD
<b>PyMol</b>	User-sponsored molecular visualization system on an open-source foundation	Version 1.6, Lines: 460% increase Cartoons: 1246% increase Surface: 1746% increase Spheres: 753% increase Ribbon: 426% increase	Single only
<b>VMD</b>	Visualization and analyzing large bio-molecular systems in 3-D graphics	Version 1.9.1, High quality rendering, large structures (100M atoms), analysis and visualization tasks, multiple GPU support for display of molecular orbitals	Yes

## Биоинформатика

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>BarraCUDA</b>	Sequence mapping software	Version 0.6.2, Alignment of short sequencing reads	Yes
<b>CUDASW++</b>	Open source software for Smith-Waterman protein database searches on GPUs	Version 2.0.10, Parallel search of Smith-Waterman database	Yes
<b>CUSHAW</b>	Parallelized short read aligner	Version 1.0.40, Parallel, accurate long read aligner for large genomes	Yes
<b>GPU-BLAST</b>	Local search with fast k-tuple heuristic	Version 2.2.26, Protein alignment according to BLASTP	Single only
<b>mCUDA-MEME</b>	Ultrafast scalable motif discovery algorithm based on MEME	Version 3.0.13, Scalable motif discovery algorithm based on MEME	Yes
<b>MUMmer GPU</b>	High-throughput local sequence alignment program	Version 3.0, Aligns multiple query sequences against reference sequence in parallel	TBD
<b>SeqNFind</b>	A GPU Accelerated Sequence Analysis Toolset	Hardware and software for reference assembly, blast, SW, HMM, de novo assembly	Yes
<b>SOAP3</b>	GPU-based software for sequence alignment	Version 0.01 beta, Short read alignment tool that is not heuristic based; reports all answers	TBD
<b>UGENE</b>	Opensource Smith-Waterman for SSE/CUDA, Suffix array based repeats finder and dotplot	Version 1.12, Fast short read alignment	Yes
<b>WideLM</b>	Fits numerous linear models to a fixed design and response	Version 0.1-1, Parallel linear regression on multiple similarly-shaped models	Yes

## ЧИСЛЕННЫЙ АНАЛИЗ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>ArrayFire</b>	Comprehensive GPU function library	Hundreds of functions for math, signal/image processing, statistics, and more.	Yes
<b>Mathematica Wolfram</b>	A symbolic technical computing language and development environment	Development environment for CUDA and OpenCL	Yes
<b>MATLAB by Mathworks</b>	GPU acceleration for MATLAB (high-level technical computing language)	Support for 200+ of most used MATLAB functions (incl. Signal Processing, Image Processing, Communications Systems, etc)	Yes
<b>NMath Premium</b>	GPU-accelerated math and statistics for .NET, automatically detects the presence of a CUDA-enabled GPU at runtime and seamlessly redirects appropriate computations to it.	Version 5.3, Automatically offloads computations to the GPU	Single only

## ФИЗИКА

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Chroma</b>	Lattice Quantum Chromodynamics (LQCD)	Wilson-clover fermions, Krylov solvers, Domain-decomposition	Yes
<b>ENZO</b>	3D block-structured AMR code for cosmological structure formation	Accelerated magneto hydrodynamics solvers	Yes
<b>GTC</b>	Simulates microturbulence and transport in magnetically confined fusion plasma	Electron push and shift (accounting for >80% of run time)	Yes
<b>GTS</b>	Simulates microturbulence and the motion of charged particles and interactions in fusion plasma	Push and shift for both electron and ion dynamics	Yes
<b>MILC</b>	Lattice Quantum Chromodynamics (LQCD) codes simulate how elemental particles are formed and bound by the “strong force” to create larger particles like protons and neutrons	Staggered fermions, Krylov solvers, Gauge-link fattening	Yes
<b>PIConGPU</b>	A relativistic Particle-in-Cell code that describes the dynamics of a plasma by computing the motion of electrons and ions subject to the Maxwell-Vlasov equation.	Simulation of laser-wakefield acceleration of electrons	Yes
<b>QUDA</b>	Library for Lattice QCD calculations using GPUs	CUDA supports the following fermion formulations: Wilson, Wilson-clover, Twisted mass, Improved staggered (asqtad or HISQ) and Domain wall	Yes
<b>RAMSES</b>	Simulates astrophysical problems on different scales (e.g. star formation, galaxy dynamics, cosmological structure formation)	CUDA acceleration is applied for radiative transfer for reionization, and the hydrodynamic solver using AMR	Yes

## Оборона и разведка

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>DigitalGlobe Advanced Ortho Series</b>	Geospatial Visualization	Image orthorectification	Yes
<b>Eternix Blaze Terra</b>	Geospatial Visualization	3D visualization of geospatial data	Yes
<b>Exelis (ITT) ENVI</b>	Geospatial Visualization	Image orthorectification (custom builds only)	Yes
<b>MrGeo</b>	Geospatial Visualization	Terrain analytics	Yes
<b>GeoWeb3d Desktop</b>	Geospatial Visualization	3D visualization of geospatial data	Yes
<b>Incogna GIS</b>	Geospatial Visualization	Image processing on Tesla cloud servers Object recognition	Yes
<b>Intergraph Motion Video Analyst</b>	Video filters and mosaic'ing - Geo-fuses FMV analytics with intelligence data	Full motion video ortho mosaic processing	Single only
<b>Intuvision Panoptes 3.0</b>	Video Analytics	Object recognition and change detection	Yes
<b>LuciadLightspeed</b>	Geospatial Visualization and Analysis	Geospatial Situational Awareness	Single only
<b>MotionDSP Ikena ISR</b>	Real-time Full Motion Video and WAMI enhancement and analytics	Real-time super-resolution-based video enhancement, filtering, mosaicing, video analytics, and transcoding	Yes
<b>Nerve ViD SrX</b>	Video Analytics	Object recognition and tracking	Yes
<b>NerVve Visual Search Solution (NVSS)</b>	Video/Image Live and Forensic Search	Video and Image content search	Yes
<b>OpCoast SNEAK</b>	Electromagnetic signals propagation modeling for complex urban and terrain environments	Ray tracing, DTED and remote sensing inputs	Yes
<b>PCI Geomatics GXL</b>	Geospatial Visualization	Image orthorectification and additional image processing	Yes
<b>GAIA</b>	Multi-GPU, Multi-Machine distributed object store providing SQL style query capability, advanced geospatial query capability, heatmap generation, and distributed rasterization services	Built for GPUs, scales to many machines and many cards without end user query modification or pre-meditation	Yes

# Экономические и финансовые вычисления

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Aaon Benfield Pathwise™</b>	Specialized platform for real-time hedging, valuation, pricing and risk management	Spreadsheet-like modeling interfaces, Python-based scripting environment and Grid middleware	Yes
<b>Hanweck Associates</b>	Real-time options analytical engine (Volera)	Real-time options analytics engine	Yes
<b>Murex MACS Analytics Library</b>	Analytics library for modeling valuation and risk for derivatives across multiple asset classes.	Market standard models for all asset classes paired with the most efficient resolution methods (Monte Carlo simulations and Partial Differential Equations)	Yes
<b>Numerical Algorithms Group (NAG)</b>	Random number generators, Brownian bridges, and PDE solvers	Monte Carlo and PDE solvers	Single only
<b>RMS</b>	Catastrophic risk modeling for FSI (earthquakes, hurricanes, terrorism, infectious diseases)	Risk analytics	Yes
<b>Tanay ZX Lib (Fuzzy Logic)</b>	Financial analytics and data mining library	Monte Carlo simulations, pricing of vanilla and exotic options, fixed income analytics, data mining	Yes
<b>SciComp, Inc</b>	Derivative pricing (SciFinance)	Monte Carlo and PDE pricing models	Single only
<b>Xcelerit SDK and Xcelerit Quant</b>	Software toolkit for implementing high performance Monte-Carlo derivative pricing	Monte Carlo simulations, linear algebra, n-body simulations, spectral methods	Yes
<b>Synerscope's Synerscope Data Visualization</b>	Visual big data exploration and insight tools	Graphical exploration of large network datasets including geo-spatial and temporal components	Single only
<b>QuantAlea's Alea.cuBase F#</b>	F# package enabling a growing set of F# capability to run on a GPU.	F# for GPU accelerators	Yes
<b>Altimesh's Hybridizer C#</b>	Multi-target C# framework for data parallel computing.	C# with translation to GPU or Multi-Core Xeon	Yes
<b>MISYS Global Risk</b>	Regulatory compliance and enterprise wide risk transparency package	Risk Analytics	Yes
<b>MiAccLib</b>	High Speed Multi-Algorithm Search Engine library providing high speed text string search with scalability of searching text and/or keywords on hundreds millions of records and/or text data.	Version 2.0, Exact Text match Search, Approximate\Similarity Text Search, Wild Card Text Search, Proximity & Percentage Text Search, MultiKeyword and MultiColumnMultiKeyword Text Search, RadixSort Text	Yes
<b>SunGard Adaptiv Analytics</b>	A flexible and extensible engine for fast calculations of a wide variety of pricing and risk measures on a broad range of asset classes and derivatives	Existing models code in C# supported transparently, with minimal code changes, Supports multiple backends including CUDA and OpenCL, Switches transparently between multiple GPUs and CPUS depending on the deal support and load factors	Yes



# Вычислительные решения для промышленности

## ВЫЧИСЛИТЕЛЬНАЯ ГИДРОДИНАМИКА

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Altair AcuSolve</b>	General purpose CFD software	Release 1.8a, Linear equation solver	Yes
<b>ANSYS Fluent</b>	General purpose CFD software	Release 14.5.7, Radiation heat transfer model, linear equation solver (beta)	Single only
<b>ANSYS Fluent</b>	General purpose CFD software	Release 15.0 available in Dec 13, Radiation heat transfer model, linear equation solver	Yes
<b>Autodesk Moldflow</b>	Plastic mold injection software	Release 2014, Linear equation solver	Single only
<b>FluiDyna Culises for OpenFOAM</b>	Solver library for general purpose CFD software	Release 1.2, Linear equation solvers	Yes
<b>FluiDyna LBultra</b>	General purpose CFD software	Release 2.0, Lattice-Boltzmann solver	Yes
<b>Prometech Particleworks</b>	Particle-based CFD software	Release 3.0, Implicit and explicit solvers	Single only
<b>Vratis ARAEL</b>	General purpose CFD software based on FVM with OpenFOAM compatibility	Release 1.0, Linear equation solver	Yes
<b>Turbostream Ltd.</b>	CFD software for turbomachinery flows	Release 3.0, Explicit solver	Yes
<b>Vratis SpeedIT extreme for OpenFOAM</b>	Solver library for general purpose CFD software	Release 1.2, Linear equation solvers	Yes
<b>DualSPHysics</b>	SPH-based CFD software	Release 1.0, SPH model	Yes
<b>NASA FUN3D</b>	General purpose CFD software	Release 12.3, Linear equation solver	Single only

## МЕХАНИКА ТВЕРДОГО ТЕЛА, ПРОЧНОСТНЫЕ РАСЧЕТЫ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Abaqus/Standard</b>	Simulation and analysis tool for structural mechanics	Version 6.13, Direct sparse solver	Yes
<b>ANSYS Mechanical</b>	Simulation and analysis tool for structural mechanics	Release 14.5.7, Direct and iterative solvers	Yes
<b>Impetus Afea</b>	Predicts large deformations of structures and components exposed to extreme loading conditions	Linear equation solver	Yes
<b>LS-DYNA Implicit</b>	Multiphysics simulation package used	Beta available for CentOS Linux, Linear equation solver	Yes
<b>MSC Nastran</b>	Simulation and analysis tool for structural mechanics	Version 2013, Direct sparse solver	Yes
<b>MSC Marc</b>	Simulation and analysis tool for structural mechanics	Version 2012, Direct sparse solver	Yes
<b>RADIOSS Implicit</b>	Simulation and analysis tool for structural mechanics	Version 12, Direct and iterative solvers	Yes
<b>DS Exsight</b>	Uses Abaqus Standard for GPU computing	V6R2013x, Direct sparse solver	Single only
<b>DS DesignSight</b>	Uses Abaqus Standard for GPU computing	V6R2013x, Direct sparse solver	Single only

## САПР

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>AutoCAD</b>	2D and 3D CAD design, drafting, modeling, architectural drawing, and engineering software. Supports Open GL. Native DWG™ support.	Release 2014, Surface, mesh, and solid modeling tools, model documentation tools, parametric drawing capabilities. Native DWG™ support.	Single only
<b>AutoCAD Design Suite</b>	AutoCAD 2014 software, plus tools to create, capture, connect, and showcase designs	Release 2014, 2D/3D display of designs, interactive 3D presentation with realistic materials, rendering-ray tracing	Single only
<b>Autodesk 3ds Max</b>	3D animation creative toolset for modeling, animation, simulation, and rendering for games, film, and motion graphics	3D modeling, mesh and surface modeling, improved Nitrous viewport performance, iray rendering	Yes
<b>Inventor</b>	3D mechanical design, documentation, and product simulation	Release 2014, Uses BIM for intelligent building components to improve design accuracy	Single only
<b>Revit</b>	Building Information Modeling (BIM) for structural engineering, and construction	Release 2014, Modeling (BIM) to design, build, and maintain higher-quality, more energy-efficient buildings	Single only
<b>NVIDIA Iray</b>	A ready-to-integrate, physically-based, photorealistic rendering solution	Iray Interactive; Iray Photoreal; Iray Cluster. Fast interactive ray tracing; Physically-based, global-illumination rendering; Distributed cluster rendering	Yes
<b>Dassault Systemes CATIA - Live Rendering</b>	Photorealistic rendering	Version 6, Interactive. Fully integrated in CATIA V6. Network rendering	Yes
<b>Bunkspeed Suite</b>	Easy to use photorealistic rendering software	Release 2014, Iray-based ray-tracing. Animation support. Network rendering	Yes
<b>RTT DeltaGen</b>	Redefines high-end 3D visualization and realtime interaction. This latest version gives users a broad suite of robust new features to truly revolutionize processes and help increase visual quality, speed, and flexibility.	Version 12, Interactive ray tracing and global illumination. Integration with Siemens TeamCenter. Cluster support Realtime & Offline Production Process Integration and scene building. Scene Analysis, Xplore DeltaGen, SDK for DeltaGen	Yes
<b>PTC Creo Parametric</b>	Parametric design solution suite	Version 2.0, Anti-aliasing, better lighting and enhanced shaded-with-edges mode. GRID Support	Single only
<b>Siemens PLM NX and Teamcenter</b>	Product lifecycle management solutions from design to simulation to production to service	Version 8.5, Design software, NX, and PLM viewer applications, TcVis and Active Workspace Client.	Single only

## АВТОМАТИЗАЦИЯ ПРОЕКТИРОВАНИЯ ЭЛЕКТРОННЫХ УСТРОЙСТВ (EDA)

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Agilent Technologies ADS</b>	Simulation tool for design of RF, microwave and high speed digital circuits	Signal integrity simulation	Single only
<b>Agilent Technologies EMPro</b>	Modeling and simulation environment for analyzing 3D EM effects of high speed and RF/Microwave components	FDTD solver	Yes
<b>ANSYS Nexxim</b>	Circuit simulation engine for RF/analog/mixed-signal IC design; IBIS-AMI analysis speedup with GPU computing.	AMI analysis	Single only
<b>CST Microwave Studio (MWS)</b>	3D EM modeling and simulation	Transient solver	Yes
<b>Delcross Savant</b>	Simulation tool for installed antenna performance and antenna-to-antenna coupling	High-frequency solver	Yes
<b>EMSS FEKO</b>	3D EM modeling and simulation	MoM solver	Single only
<b>Remcom XFDTD</b>	3D EM modeling and simulation	FDTD solver	Yes
<b>SPEAG SEMCAD-X</b>	3D EM modeling and simulation	FDTD solver	Yes
<b>Rocketick RocketSim</b>	Verilog simulation	Verilog simulation	Yes

# Индустрия масс-медиа и развлечений

## АНИМАЦИЯ, МОДЕЛИРОВАНИЕ, РЕНДЕРИНГ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Autodesk 3ds Max + NVIDIA Iray</b>	3D modeling, animation, and rendering	Iray interactive, photorealistic and physically correct rendering	Yes
<b>Autodesk Maya</b>	3D modeling, animation, and rendering	Increased model complexity, larger scenes	Yes
<b>Autodesk Motion Builder</b>	Character animation and motion capture	Increased model complexity at interactive rates	Single only
<b>Autodesk Mudbox</b>	3D sculpting	Increased model complexity at interactive rates	Single only
<b>Cebas finalRender</b>	GPU Renderer	CUDA-based GPU Rendering	Yes - waiting for release date
<b>CentiLeo GPU Render</b>	GPU Renderer	CUDA-based GPU rendering	Single only
<b>Chaos V-Ray RT</b>	GPU Renderer	CUDA interactive GPU Rendering	Yes
<b>Jawset TurbulenceFD</b>	Physics-based simulation plug in	Maximus supported GPU simulation using CUDA	Single only
<b>Maxon Cinema 4D</b>	3D modeling, animation, and rendering	Increased model complexity at interactive rates	Single only
<b>NewTek Lightwave</b>	3D modeling, animation, and rendering	Increased model complexity at interactive rates	Single only
<b>Otoy Octane Render</b>	GPU Renderer	GPU Rendering	Yes
<b>Pixologic Sculptiris</b>	3D sculpting	Increased model complexity at interactive rates	Single only
<b>Side Effects Houdini</b>	3D modeling, animation, and rendering	Maximus supported GPU simulation using OpenCL	Single only
<b>The Foundry Mari</b>	3D paint	Increased model complexity at interactive rates	Single only

## ЦВЕТКОРРЕКЦИЯ, ШУМОПОДАВЛЕНИЕ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Adobe SpeedGrade CC</b>	Color grading	Real-time grading and finishing with Lumetri Deep Color Engine.	Single only
<b>Autodesk Flame Premium</b>	Color grading and finishing	Post-production integrated end-to-end toolset for 3D VFX, editorial, and color grading	Single only
<b>Assimilate Scratch</b>	Color grading and finishing	Accelerated debayering for real-time digital finishing.	Single only
<b>Blackmagic DaVinci Resolve</b>	Color grading	Real-time color correction, real-time de-noising	Yes
<b>Cindefilm Dark Energy</b>	Application and plug-in for image texture management	Image de-noising and restoration. Simultaneous active and background rendering	Yes
<b>Digital Vision Nucoda</b>	Color grading	Real-time color correction	Single only
<b>Marquise Technologies Rain</b>	Color grading	Real-time color correction	Single only
<b>Quantel Pablo Rio</b>	Color grading and finishing	Real time color correction	Yes
<b>SGO Mistika</b>	Color grading and finishing	Real-time color correction	Single only
<b>The Pixel Farm PFClean</b>	Image restoration and remastering	CUDA-based acceleration	Single only

## СПЕЦЭФФЕКТЫ, КОМПОЗИТИНГ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>ABSoft Neat Video</b>	Video noise reduction plug-in	CUDA-based acceleration	Single only
<b>Adobe After Effects CC</b>	Motion graphics and effects	3D ray tracing engine based on NVIDIA OptiX	Yes
<b>Autodesk Flame Premium</b>	Finishing	Real-time effects	Single Only
<b>Boris FX Continuum Complete</b>	Visual effects plug-in	Faster effects	Single only
<b>Cinnafilm Dark Energy Plug-in</b>	Color management	All features accelerated with CUDA	Yes
<b>CoreMelt complete</b>	Visual effects plug-in	Faster effects	Single only
<b>eyeon Fusion</b>	Effects and compositing	Faster effects	Single only
<b>GenArts Monsters GT</b>	Visual effects plug-in	Faster effects	Single only
<b>GenArts Sapphire</b>	Visual effects plug-in	Faster effects	Single only
<b>ROBUSKEY</b>	Chroma keyer plug-in	Faster effects	Single only
<b>Neat Video Open FX</b>	Video noise reduction plug-in	Faster effects	Single only
<b>NewBlueFX Video Essentials</b>	Video effects plug-in	Faster effects	Single only
<b>NewBlue Titler Pro</b>	Video titling plug-in	Faster effects	Single only
<b>Pixelan AnyFX</b>	Video effects plug-in	Faster effects	Single only
<b>Re:Vision Effects</b>	Visual effects plug-in	Faster effects	Single only
<b>Red Giant Effects Suite</b>	Visual effects plug-ins	Faster effects	Single only
<b>Red Giant Magic Bullet Looks</b>	Color and finishing tools	Faster effects	Single only
<b>The Foundry HIERO</b>	Shot management, conform and review timeline	Better interactivity	Single only
<b>The Foundry NUKE and NUKEX</b>	Compositing tools with 3D tracker	Faster effects	Single only
<b>Video Copilot Software Element 3D</b>	3D object based particle system	Faster effects	Single only until Jan 2014
<b>Video Copilot Optical Flares</b>	Lens flares plug-in for After Effects	Faster effects	Single only
<b>Video Copilot Twitch</b>	Video effects plug-in for After Effects	Faster effects	Single only

## РЕДАКТИРОВАНИЕ ВИДЕО И ИЗОБРАЖЕНИЙ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Adobe Photoshop CC</b>	Image editing	Over 30 effects for smoother image manipulation in Mercury Graphics Engine	Single only
<b>Adobe Premiere Pro CC</b>	Video editing	Mercury Playback Engine for real-time video editing & accelerated rendering	Yes
<b>Apple FinalCut</b>	Video editing	Faster effects	Single only
<b>Autodesk Smoke</b>	Editing and finishing	Faster effects	Single only
<b>Avid Media Composer</b>	Video editing	Faster video effects, unique stereo 3D capabilities	Single only
<b>Grass Valley Edius</b>	Video editing	Faster effects	Single only
<b>Harris Velocity</b>	Video editing	Faster effects	Single only
<b>Quantel Qube</b>	Broadcast video editing	Faster video effects, unique stereo 3D capabilities	Single only
<b>Sony Vegas Pro</b>	Video editing	Faster video effects and encoding	Single only

## ПЕРЕКОДИРОВАНИЕ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Cinnafilm Tachyon</b>	Standards conversion	Video encoding and video processing	Yes
<b>Digimetrics Aurora</b>	Automated video and audio test and measurement	Video encoding and video processing	Single only
<b>Elemental Live</b>	Live streaming video processing and encoding	Video encoding and video processing	Yes
<b>Elemental Server</b>	File-based video processing and encoding	Video encoding and video processing	Yes
<b>MainConcept CUDA H.264/AVC Encoder SDK</b>	H.264 video encoder	Video encoding and video processing	Yes
<b>Sorenson Squeeze</b>	Video transcoding application and plug-In	Video encoding and video processing	Yes
<b>Telestream Vantage</b>	Video transcoding and processing	Video encoding and video processing	Yes

## МОНТАЖ И ЭФФЕКТЫ В ПРЯМОМ ЭФИРЕ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Avid Motion Graphics</b>	Motion Graphics	Real-time rendering	Single only
<b>Brainstorm Estudio</b>	Virtual Sets and motion graphics	Real-time rendering	Single only
<b>Chyron HyperX</b>	On-air graphics	Real-time rendering	Single only
<b>Chyron LEX</b>	On-air graphics	Real-time rendering	Single only
<b>Harris Inscriber</b>	On-air graphics	Real-time rendering	Single only
<b>Monarch dScript 3D</b>	Virtual sets	Real-time rendering	Single only
<b>Monarch Twister Pro</b>	Virtual Sets and motion graphics	Real-time rendering	Single only
<b>Monarch Virtuoso</b>	Virtual Sets and motion graphics	Real-time rendering	Single only
<b>Pixel Power Clarity</b>	On-air graphics	Real-time rendering	Single only
<b>RT Software t0G</b>	On-air graphics	Real-time rendering	Single only
<b>Vizrt Viz Engine</b>	On-air graphics	Real-time rendering	Single only
<b>Wasp Beehive</b>	Virtual Sets and motion graphics	Real-time rendering	Single only

## 3D STEREO, ПРОЧИЙ ИНСТРУМЕНТАРИЙ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>3ality Intellicam</b>	3D stereo camera adjustment	CUDA-based imaging	Single only
<b>BlueFish 4K Review</b>	Review and approval of 4K content	Real-time	Single only
<b>Colorfront On-Set Dailies</b>	Review and approval of 4K content	Real-time	Yes
<b>eyeon Dimension</b>	3D stereoscopic workflow	Real-time	Single only
<b>Lightcraft Previzion</b>	On-set workflow	Real-time	Single only
<b>Tweak RV</b>	Review and approval of 4K content	Real-time	Single only

## МОДЕЛИРОВАНИЕ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>3DAliens Glu3d</b>	SPH fluid simulation	Faster simulation	Single only
<b>Blastcode Kilton/ Megaton</b>	Physics-based simulation plug in	Faster simulation	Single only
<b>Jawset TurbulenceFD</b>	Physics-based simulation plug in	Faster simulation	Single only, multi-GPU available in late Q4/Q1

## ВИЗУАЛИЗАЦИЯ МЕТЕОРОЛОГИЧЕСКИХ ДАННЫХ

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Accuweather Cinematic HD</b>	Weather graphics	Real-time	Single only
<b>Accuweather Storyteller</b>	Weather graphics	Real-time	Single only
<b>Meteo Earth</b>	Weather graphics	Real-time	Single only
<b>Weather Central Fusion Studio</b>	Weather graphics	Real-time	Single only
<b>WSI TrueView Max</b>	Weather graphics	Real-time	Single only

## Вычисления в нефтегазовой отрасли

ПРИЛОЖЕНИЕ	ОПИСАНИЕ	ПОСЛЕДНЯЯ ВЕРСИЯ И ПОДДЕРЖИВАЕМАЯ ФУНКЦИОНАЛЬНОСТЬ	ПОДДЕРЖКА MULTI-GPU
<b>Acceleware AxRTM AxKTM</b>	Seismic Processing	RTM, Kirchhoff, control source, electromagnetism, forward modeling	Yes
<b>CGGV GeoVation</b>	Seismic Processing	Multiple algorithms (RTM, etc)	Yes
<b>ffa Geoteric</b>	Seismic Interpretation	Attributes calculations, geobodies extraction	Yes
<b>ffa SVI Pro</b>	Seismic Interpretation	Attributes calculations, geobodies extraction	Yes
<b>ffa SEA3D Pro</b>	Seismic Interpretation	Attributes calculations, geobodies extraction	Yes
<b>GeoStar Seismic Suite</b>	Seismic Processing	Multiple algorithms (RTM, etc)	Yes
<b>Headwave Suite</b>	Seismic Interpretation	Attributes calculations, Volume Rendering	Yes
<b>HUE HUESpace</b>	Seismic Interpretation	Interpretation development platform	Yes
<b>OpenGeo Solutions OpenSeis</b>	Seismic Processing	Spectral Decomposition	Yes
<b>Panorama Tech</b>	Seismic Processing, Modeling	Multiple algorithms (RTM, etc)	Yes
<b>Paradigm Echos RTM</b>	Seismic Processing	RTM algorithm	Yes
<b>Paradigm SKUA</b>	Reservoir Modeling	Faults, Horizons and Flow Simulation Grid	Yes
<b>Paradigm Geophysical VoxelGeo</b>	Seismic Interpretation	Volume Rendering, Horizon Flattening	Yes
<b>Roxar RMS</b>	Reservoir Modeling	Multi GPU capabilities via HUESpace	Yes
<b>Seismic City Prestack Interpretation</b>	Seismic Processing	Multiple algorithms (RTM, etc)	Yes
<b>SpectraSeis</b>	Seismic Processing	Full elastic wave-equation imaging and analysis of microseismic fracture data	Yes
<b>Stoneridge Technologies GAMPACK</b>	Reservoir Simulation	GPU Algebraic MultiGrid Package	Yes
<b>Terraspark Insight Earth</b>	Seismic Interpretation	Horizon orientation attributes; automated fault extraction, Curvature Attributes	Yes
<b>Tsunami RTM</b>	Seismic Processing	RTM algorithm	Yes
<b>WesterGeco Omega2 RTM</b>	Seismic Processing	Multiple algorithms (RTM, etc)	Yes

# Полезные ссылки по Tesla и CUDA

## НОВОСТИ И ИСТОРИИ УСПЕХА

NVIDIA GPU Computing в Twitter  
[twitter.com/gpucomputing](https://twitter.com/gpucomputing)

Еженедельная рассылка CUDA  
[www.nvidia.ru/object/cuda\\_week\\_in\\_review\\_newsletter](http://www.nvidia.ru/object/cuda_week_in_review_newsletter)

Новости и статьи  
[www.nvidia.co.uk/page/tesla-articles](http://www.nvidia.co.uk/page/tesla-articles)

Tesla видео на YouTube  
[www.youtube.com/nvidiatesla](https://www.youtube.com/nvidiatesla)

Истории успеха  
[www.nvidia.ru/object/tesla-case-studies-ru](http://www.nvidia.ru/object/tesla-case-studies-ru)

Университеты и исследовательские центры, использующие CUDA  
[www.nvidia.eu/research](http://www.nvidia.eu/research)

## ПРОГРАММНОЕ ОБЕСПЕЧЕНИЕ

CUDA Zone  
[www.nvidia.ru/cuda](http://www.nvidia.ru/cuda)

CUDA в действии  
[www.nvidia.ru/object/cuda\\_in\\_action\\_ru](http://www.nvidia.ru/object/cuda_in_action_ru)

Книги о CUDA  
[www.nvidia.ru/object/cuda-books-ru](http://www.nvidia.ru/object/cuda-books-ru)

CUDA тренинги и консультации  
[www.nvidia.ru/page/cuda\\_consultants](http://www.nvidia.ru/page/cuda_consultants)

Инструменты разработчика  
[www.nvidia.ru/object/tesla\\_software\\_ru](http://www.nvidia.ru/object/tesla_software_ru)

OpenACC директивы для GPU  
[www.nvidia.ru/openacc](http://www.nvidia.ru/openacc)

Веб-сайт/форум по CUDA Московского Государственного Университета  
[sites.google.com/site/cudacsmsusu/home](http://sites.google.com/site/cudacsmsusu/home)

## АППАРАТНОЕ ОБЕСПЕЧЕНИЕ

Высокопроизводительные вычисления с NVIDIA  
[www.nvidia.ru/tesla](http://www.nvidia.ru/tesla)

Tesla для персональных суперкомпьютеров  
[www.nvidia.ru/psc](http://www.nvidia.ru/psc)

Решения Tesla для дата-центров  
[www.nvidia.ru/page/preconfigured\\_clusters](http://www.nvidia.ru/page/preconfigured_clusters)

Техническая литература о Tesla  
[www.nvidia.ru/page/tesla\\_product\\_literature](http://www.nvidia.ru/page/tesla_product_literature)

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Дополнительная информация о GPU-ускоряемых приложениях на [www.NVIDIA.ru/TeslaApps](http://www.NVIDIA.ru/TeslaApps)

\* Ускорение может зависеть от конфигурации системы.

\*\* Q=Quadro GPU, T=Tesla GPU.

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