



# NVIDIA® TESLA™ GPU COMPUTING SOLUTION FOR WORKSTATIONS



## THE WORLD'S FIRST MASS MARKET PARALLEL PROCESSORS

### TESLA™ C2050 / C2070

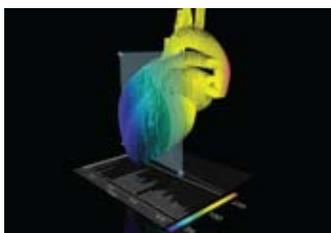
The Tesla C2050 / C2070 computing processor Tesla 20-series is designed from the ground up for high performance computing. Based on the next generation NVIDIA CUDA™ GPU architecture codenamed "Fermi", it supports many "must have" features for technical and enterprise computing. These include ECC memory for uncompromised accuracy and scalability, support for C++ and 8X the double precision performance compared Tesla 10-series GPU computing products. When compared to the latest quad-core CPU, Tesla 20-series GPU computing processors deliver equivalent performance at 1/20th the power consumption and 1/10th the cost.



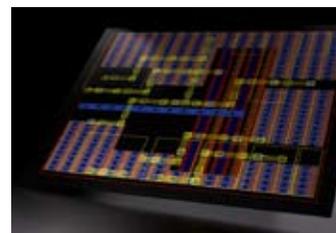
COMPUTATIONAL FLUID DYNAMICS



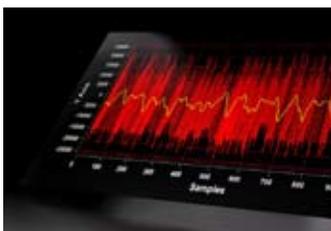
MOLECULAR DYNAMICS



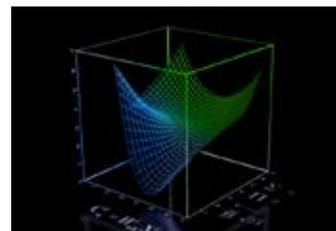
LIFE SCIENCES



ELECTRONIC DESIGN AUTOMATION



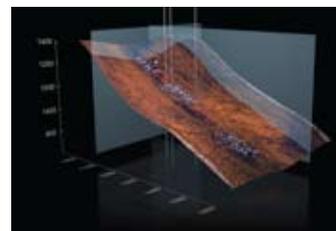
SIGNAL PROCESSING



NUMERICS



COMPUTATIONAL FINANCE



SEISMIC EXPLORATION

## FEATURES AND BENEFITS

GPU POWERED BY THE MASSIVELY PARALLEL CUDA ARCHITECTURE	Transform your workstation to perform like a small cluster at 1/20th the power consumption and 1/10th the cost.
CUDA PROGRAMMING ENVIRONMENT WITH BROAD SUPPORT OF PROGRAMMING LANGUAGES AND APIS	Choose C, C++, OpenCL, DirectCompute, or Fortran to express application parallelism and take advantage of the "Fermi" GPU's innovative architecture.
SCALE TO MULTIPLE GPUS AND HARNESS THE PERFORMANCE OF A SMALL SERVER CLUSTER	Solve large-scale problems faster than a small server cluster on a single workstation with multiple GPUs.
IEEE 754 SINGLE & DOUBLE PRECISION FLOATING POINT UNITS	Achieve up to 600 Gigaflops of double precision performance for faster and more accurate results.
ECC SUPPORT	Offers protection of data in memory to enhance data integrity and reliability for applications. Register files, L1/L2 caches, shared memory, and DRAM all are ECC protected.
UP TO 6GB GDDR5 COMPUTE MEMORY	Allows faster access to larger data sets.
NVIDIA® PARALLEL DATACACHE™ TECHNOLOGY	Accelerates algorithms such as physics solvers, ray-tracing, and sparse matrix multiplication where data addresses are not known beforehand.
NVIDIA® GIGATHREAD™ ENGINE	Maximizes throughput with faster context switching, concurrent kernel execution, and improved thread block scheduling.
ASYNCHRONOUS TRANSFER CAPABILITY	Turbocharges system performance by overlapping data transfers with computation.
HIGH SPEED , PCIe GEN 2.0 DATA TRANSFER	Fast and high-bandwidth communication between CPU and GPU.

## SPECIFICATIONS

FORM FACTOR	9.75" x 4.376", Dual Slot
# OF TESLA GPUS	1
DOUBLE PRECISION FLOATING POINT PERFORMANCE (PEAK)	520GFlops - 630 GFlops
TOTAL DEDICATED MEMORY TESLA C2050 TESLA C2070	3GB GDDR5* 6GB GDDR5*
POWER CONSUMPTION	190W (typical)
SYSTEM INTERFACE	PCIe x16 Gen2
THERMAL SOLUTION	Active Fan Sink
SOFTWARE DEVELOPMENT TOOLS	CUDA C/C++/Fortran, OpenCL, DirectCompute Toolkits

\* With ECC enabled, memory available to the user will be 2.625GB for C2050 and 5.25GB for C2070

### SUPPORTED OPERATING SYSTEMS

- > Linux 32-bit and 64-bit
- > Windows XP 32-bit and 64-bit
- > Windows Vista 32-bit and 64-bit

### SUPPORTED OPERATING SYSTEMS

- > C language compiler, debugger, profiler, and emulation mode for debugging
- > Standard numerical libraries for FFT (Fast Fourier Transform), BLAS (Basic Linear Algebra Subroutines), and CuDPP (CUDA Data Parallel Primitives)
- > The world's first fully integrated heterogeneous computing application development environment, code named "Nexus", within Microsoft Visual Studio

To learn more about NVIDIA Tesla, go to [www.nvidia.com/tesla](http://www.nvidia.com/tesla)