# The Portland Group Updates Compilers to Deliver NVIDIA CUDA Architecture for x86 Platforms

The Portland Group announced that it is now shipping the PGI CUDA C and C++ compilers for systems based on the industry standard general-purpose 64-bit and 32-bit x86 architectures.

CUDA is NVIDIA's parallel computing architecture that enables dramatic increases in computing performance by harnessing the power of NVIDIA GPUs (graphics processing units). With PGI's new CUDA C/C++ compilers, significantly more developers can use the CUDA parallel programming model to optimize the performance of the critical parts of their code base, targeting servers and clusters with or without NVIDIA GPUs.

"With the addition of PGI CUDA C and C++ for x86, PGI further extends its comprehensive suite of tools for programming GPUs," said Douglas Miles, director, The Portland Group. "It's another important element in our ongoing strategy of providing HPC programmers with a full range of options for optimizing compute-intensive applications and leveraging the latest technical innovations from AMD, Intel and NVIDIA."

"CUDA is the world's preeminent parallel programming model, supporting a range of open standards, architectures and programming languages," said Sanford Russell, director of CUDA marketing at NVIDIA. "Now for the first time, developers can run their CUDA apps on any x86 clusters."

When run on x86-based systems, PGI CUDA C/C++ applications perform parallel execution by using the multiple processor cores, and by using Streaming SIMD (Single Instruction Multiple Data) Extensions (SSE), including the new AVX instructions available on the latest generation of x86 compatible CPUs from Intel and AMD.

PGI will roll out the x86 CUDA C/C++ compilers in three phases. Phase 1, available now, demonstrates the capabilities of the technology and allows developers to begin working with the compilers. Phase 2, scheduled for the fourth quarter of 2011, will include performance optimizations intended to extract maximum performance of CUDA programs running on the x86 target platform. Phase 3, planned for mid 2012, will include support for PGI Unified Binary™ technology — the ability to run one executable on both CPUs and GPUs. The PGI CUDA C/C++ compilers for x86 are included as part of the PGI Accelerator™ product line. All PGI Accelerator products support both CUDA programming and the PGI Accelerator high-level directive-based programming model targeting scientific and engineering-domain experts working in high-performance computing.

PGI Accelerator compilers are currently available for C99 and Fortran 2003. Both

CUDA Fortran, a Fortran analog to NVIDIA CUDA C, and PGI CUDA C/C++ for x86 were developed by PGI in cooperation with NVIDIA. HPC programmers targeting applications for GPUs as well 64-bit x64 and 32-bit x86 processor based systems use PGI products widely. PGI products are supported on the Linux, Apple Mac OS X and Microsoft Windows operating systems.

For more information on NVIDIA CUDA, please visit www.nvidia.com/cuda [1].

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**Links:**
[1] http://www.nvidia.com/cuda