

Computing@PNNL SEMINAR

Title: NVBit: a Binary Instrumentation Tool for Nvidia GPUs



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Abstract: This presentation (and related Tutorial) focuses on NVBit, a prototype binary instrumentation framework for CUDA, developed as part of the DOE PathForward program within NVIDIA Research. NVBit allows the development of versatile binary-based tools for profiling, tracing, performance optimization, correctness checking, and program monitoring without altering the application's semantics. Unlike previous compiler-based approaches, NVBit operates directly on SASS binaries, and is therefore agnostic to the language or compiler that generated the binary. Thus NVBit can instrument widely used, and often hand optimized, GPU libraries (e.g., cuDNN, cuFFT, cuBLAS, etc.) in addition to more traditional CUDA-C applications. This presentation and tutorial will provide hands-on experience with NVBit on how to implement a variety of instrumentations tools, ranging from simple “hello world”, to more complex tools such as memory reference tracers and page-access profilers. NVBit is currently developed by NVIDIA Research and is not officially supported by NVIDIA at this time.