



AVVISO DI SEMINARIO

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OpenCL and the Quest for Performance Portability

Abstract:

OpenCL is an important new standard for heterogeneous computing. With OpenCL, a software developer can write a single program that runs on everything from a cell phone to a node in a supercomputer. To reach its full potential, however, OpenCL needs to deliver more than portability. It needs to deliver "performance portability". In this talk, we will discuss the "performance portability" of OpenCL programs. Frankly, achieving good "performance portability" can be challenging with the current release of OpenCL, so in addition to tips for writing "performance portable" code today, we'll discuss potential enhancements to OpenCL to improve "performance portability".

Speaker's Bio:

Tim Mattson is an applications programmer (Ph.D. Chemistry, UCSC, 1985). Over the years he has built math libraries, found oil, folded proteins, solved differential equations, and modeled electrons in simple atomic systems. He has worked at Intel since 1993 where he has worked with brilliant people on truly great projects including: (1) the first TFLOP computer (ASCI Red), (2) the OpenMP API for shared memory programming, (3) the OpenCL programming language for heterogeneous platforms, (4) Intel's first TFLOP chip (the 80 core research chip), and (5) the design and software architecture of Intel's 48 core research processor. He has published extensively including the books *Patterns for Parallel Programming* (with B. Sanders and B. Massingill, Addison Wesley, 2004), *An Introduction to Concurrency in Programming Languages* (with M. Sottile and C. Rasmussen, CRC Press, 2009), and the *OpenCL Programming Guide* (with A. Munshi, B. Gaster, J. Fung, and D. Ginsburg, Addison Wesley, 2011).