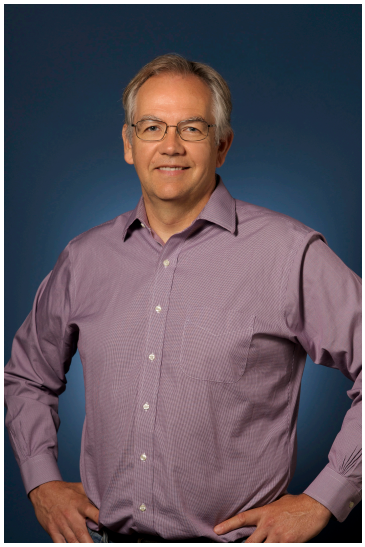
Smoky Mountains Computational Sciences and Engineering Conference

Al Gara
Intel



Presentation Title:
New Dimensions in Configurable Computing at runtime simultaneously allows Big Data and fine Grain HPC

Abstract:
New technologies and concepts allow for future machine architectures to be configurable in new ways that will allow for a single machine can both achieve exceptional performance for applications requiring big data type of memory solutions as well as highly tuned HPC applications needing a dramatically different balance of compute to memory capacity. Disaggregation of configurable compute plus memory blocks are fundamental to this new direction. This same disaggregation coupled with new memory technologies will complete the hardware side of the architecture. This direction will present new challenges to software. The hardware and software implications of this approach will be discussed.

Bio:

Alan Gara Joined Intel June 2011as Intel Fellow and Chief Architect for Energy Efficient Computing. In April 2012 he became Exascale Chief Architect and he is currently driving the system architecture direction for Intel's exascale efforts. Prior to joining Intel he was an IBM fellow and Chief Architect for the Blue Gene platform for three generations from 2000 till leaving IBM in 2011. He has received 2 Gordon Bell prizes, once in 1998 and again in 2006 for work in the area of Quantum Chromodynamics. The Blue Gene effort received the National Medal of Technology in 2008 and he received the Seymour Cray award in 2010 for his work in computer science. He has over 70 publications in computer science and physics and more than 130 US patents in the area of computer design and architecture.

Alan received his PhD in Physics from the University of Wisconsin, Madison.