Intel unveils Knights Corner - 1 teraflop chip

November 17 2011, by Bob Yirka

Rajeeb Hazra, General Manager of Intel Technical Computing Group holding “Knights Corner” - Intel Many Core Architecture co-processor capable of delivering more than 1 TFLOPS of double precision performance.

(PhysOrg.com) -- Rajeeb Hazra, Intel’s general manger of technical computing, surprised a group attending this year’s SC11 conference, at a steak house in Seattle this past week, by holding up a single chip and declaring "It's not a PowerPoint, it's a real chip." He was referring to the processing chip Intel has created that is capable of performing at 1 teraflops, called the Knights Corner, it is, unlike its rivals, based on the x86 architecture that still sits at the base of most desktop machines in use today.

The SC conference is a meeting for those in the high performance computing arena, thus it was no coincidence that Intel was fully prepared to unveil its chip, which it is clearly proud of.

The chip attains its high processing speeds by making use of multiple processors, or a Many Integrated Core - MIC architecture; in this case, more than 50, which pretty much puts to shame the quad-core technology being advertised for use in computers used by regular people. The new chip will first be installed in a machine at the Texas Advanced Computing Center, which expects the system to run at 10 petaflops.

The announcement of the chip has industry insiders marveling once again at the progress being made in systems architecture. It was just fourteen years ago that Intel showed off its first computer capable of running at 1 teraflop, a machine that required almost 10,000 Pentium chips and took up all of 72 cabinets. Putting all that power in one new chip reduces power consumption dramatically.

The new chip isn't meant to be used as a CPU though, instead it's to serve as a coprocessor, taking on specific, highly computational routines, helping to bump up the overall speed of a computer, much the same way graphics processors are used in desktop PC's.

And speaking of graphics processors, the announcement of the Knights Corner means Intel is taking direct aim at Nvidia and AMD, two companies that make graphics processors but who have also branched out into making their coprocessors a useful component in superfast computers. Thus, the stakes have just been raised.

Intel says its product is a better fit for most current systems due to its being based on x86 architecture, because adopters won't have to port their applications to a new technology, unlike its competitors.

Intel also took advantage of the spotlight it garnered with the announcement of its Knights Corner chip to declare the that company has set a goal of attaining exascale speeds by 2018, which would mean a 100 fold increase over current technology. Computers running at such

speeds would open up doors to new results oriented computing such as better weather prediction, or figuring out what really happens when cars crash, and would of course be wanted by the military to calculate super secret stuff.

More information: Press release