NEW ORLEANS, La., Nov. 17 — Intel Corporation today announced several new and enhanced technologies bolstering its leadership in high-performance computing (HPC). These include disclosure of the future generation Intel Xeon Phi processor, code-named Knights Hill, and new architectural and performance details for Intel Omni-Path Architecture, a new high-speed interconnect technology optimized for HPC deployments.

Intel also announced new software releases and collaborative efforts designed to make it easier for the HPC community to extract the full performance potential from current and future Intel industry-standard hardware.

Together, these new HPC building blocks and industry collaborations will help to address the dual challenges of extreme scalability and mainstream use of HPC while providing the foundation for a cost-effective path to exascale computing.

Intel disclosed that its future, third-generation Intel Xeon Phi product family, code-named Knights Hill, will be built using Intel's 10nm process technology and integrate Intel Omni-Path Fabric technology. Knights Hill will follow the upcoming Knights Landing product, with first commercial systems based on Knights Landing expected to begin shipping next year.

Industry investment in Intel Xeon Phi processors continues to grow with more than 50 providers expected to offer systems built using the new processor version of Knights Landing, with many more systems using the coprocessor PCIe card version of the product. To date, committed customer deals using the Knights Landing processor represent over 100 PFLOPS of system compute.

Recent high-profile Knights Landing deals include the Trinity (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fnnsa.energy.gov%2Fmediaroom%2Fpressreleases%2Ftrinity&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=Trinity&index=1&md5=11b6c6362a577e19721ef35e84c76a7b) supercomputer, a joint effort between Los Alamos and Sandia National Laboratories, and the Cori (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fwww.nersc.gov%2Fnews-publications%2Fnews%2Fnersc-center-news%2F2014%2Fnersc-cray-intel-announce-next-generation-supercomputer%2F&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=Cori&index=2&md5=c69b9d43deb09a3e21952b4102df0208) supercomputer, announced by The U.S. Department of Energy's (DOE) National Energy Research Scientific Computing (NERSC) Center. Additionally, DownUnder GeoSolutions a geosciences company, recently announced (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fwww.sgi.com%2Fcompany_info%2Fnewsroom%2Fpress_releases%2F2014%2Foctober%2Fdug.html&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=recently+announced&index=3&md5=5ea7c107012211ec0ceef9f381eab7f8) largest commercial deployment of current-generation Intel Xeon Phi coprocessors, and the National Supercomputing Center IT4Innovations (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fwww.it4i.cz%2F%3Flang%3Den&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=National+Supercomputing+Center+IT4Innovations&index=4&md5=4c1370) a new supercomputer that will become the largest Intel Xeon Phi coprocessor-based cluster in Europe.

Intel disclosed that the Intel Omni-Path Architecture is expected to offer 100 Gbps line speed and up to 56 percent lower switch fabric latency in medium-to-large clusters than InfiniBand alternatives. The Intel Omni-Path Architecture will use a 48 port switch chip to deliver greater port density and system scaling compared to the current 36 port InfiniBand alternatives. Providing up to 33 percent more nodes per switch chip is expected to reduce the number of switches required, simplifying system design and reducing infrastructure costs at every scale. Expected system scaling benefits include:

- Up to 1.3x greater port density than InfiniBand – enabling smaller clusters to maximize single switch investments.2
- Use up to 50 percent fewer switches than a comparable InfiniBand-based cluster of medium- to large-size.3
- Up to 2.3x higher scaling in a two-tier fabric configuration using the same number of switches as an InfiniBand-based cluster – allowing for more cost-effective scaling for very large cluster-based systems.

Intel launched the Intel Fabric Builders Program (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Ffabricbuilders.intel.com&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=Intel+Fabric+Builders+Program&index=5&md5=c70440ba5ce81729f66e61) to create an ecosystem working together to enable solutions based on the Intel Omni-Path Architecture. An expansion of the Intel Parallel Computing Centers (http://cts.businesswire.com/ct/CT?id=smartlink&url=https%3A%2F%2Fsoftware.intel.com%2Fen-us%2Fipcc&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=Intel+Parallel+Computing+Centers&index=6&md5=1cee939f0d72ab9b77f5) also announced, bringing the total to more than 40 centers in 13 countries working to modernize more than 70 of HPC's most popular community codes.

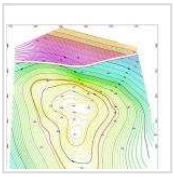
Intel expanded its Lustre software capabilities with the release of Intel Enterprise Edition for Lustre software v2.2 (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Finfo.intel.com%2FHPDDSC14AnnouncementLandingPage.html&esheet=50985140&newsitemid=2014...&lan=en-US&anchor=Intel%C2%AE+Enterprise+Edition+for+Lustre+software+v2.2&index=7&md5=2b220df718fe490ba6) Foundation Edition for Lustre software (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Finfo.intel.com%2FHPDDSC14AnnouncementLandingPage2.html&esheet=50985140&newsitemid=201...&lan=en-US&anchor=Intel%C2%

reveals-winners-2014-readers-editors-choice-...

Along These Lines

The HPC to Enterprise Infrastructure Leap
(http://www.hpcwire.com/2014/11/12/hpc-enterprise-infrastructure-leap/)

OSC Launches 'AweSim' Online Supercomputing Marketplace
(http://www.hpcwire.com/2013/12/03/osc-launches-awesim-online-supercomputing-marketplace/)



HPC Greases Exploration Efforts
(http://www.hpcwire.com/2014/01/15/hpc-greases-exploration-efforts/)

MGrid Doubles Capacity, Welcomes New Members
(http://www.hpcwire.com/2014/01/30/mgrid-doubles-capacity-welcomes-new-members/)

HPC Tweets

IBM Big Data & HPC @ibmhpc 6m
Attend " Hybrid and Public Cloud Optimized for Technical and High Performance Computing" today at #SC14, 7:15AM-8:15AM CDT#ibmhpc #hpc

Kenneth Hoste @kehoste 12m
Is there any streaming of any of the #SC14 sessions?

Life Sciences Hub @lshubwales 1h
1 week today until the @HPCWales "Making Big Data work for you" event, 09:15 - 15:30, Register here: eventbrite.co.uk/e/making-big-d...
Retweeted by HPC Wales
Show Summary

HPC Wales @HPCWales 42m
Thought provoking keynote from SPECIFIC @Tatasteelltd starting @LCRIMarine Annual Conference - buildings as power stations #sustainability

Feature Articles

AE+Foundation+Edition+for+Lustre+software&index=8&md5=9dde4ccce580b8e29aff9044 New appliances using the enhanced Intel Solutions for Lustre software are currently being offered from Dell, DataDirect Networks and Dot Hill.

Continued TOP500 Momentum

Intel-based systems account for 86 percent of all supercomputers and 97 percent of all new additions, according to the 44th edition of the TOP500 list announced today. In the two years since the introduction of the first-generation Intel Xeon Phi product family, these many-core, coprocessor-based systems represent 17 percent of the aggregated performance of all TOP500 supercomputers. The complete TOP500 list is available at www.top500.org (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fwww.top500.org&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=www.top500.org&index=9&md5=8f508d1e8e34d80f3f0fd0d1be3f6d14).

"Intel is excited about the strong market momentum and customer investment in the development of HPC systems based on current and future Intel Xeon Phi processors and high-speed fabric technology," said Charles Wuischpard, vice president, Data Center Group, and general manager of Workstations and HPC at Intel. "The integration of these fundamental HPC building blocks, combined with an open standards-based programming model, will maximize HPC system performance, broaden accessibility and use, and serve as the on-ramp to exascale."

"The combination of Intel Xeon Phi coprocessors with our proprietary software allows us to provide our customers with one of the most powerful geo-processing production systems to date," said Dr. Matt Lamont, managing director, DownUnder GeoSolutions. "Our Intel Xeon Phi powered solutions enable interactive processing and imaging from each of our geophysicists' individual computers. A testing regime that once took weeks can now be achieved in days. We're thrilled with the Intel Xeon Phi coprocessors and look forward to evaluating the next-generation product."

About Intel

Intel is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world's computing devices. As a leader in corporate responsibility and sustainability, Intel also manufactures the world's first commercially available "conflict-free" microprocessors. Additional information about Intel is available at newsroom.intel.com (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fnewsroom.intel.com&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=newsroom.intel.com&index=16&md5=3d56305d95058d085742c83ad9f290e6) (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fblogs.intel.com&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=blogs.intel.com&index=17&md5=d0068646493ea97194ee6d23abee1032), and about Intel's conflict-free efforts at conflictfree.intel.com (http://cts.businesswire.com/ct/CT?id=smartlink&url=http%3A%2F%2Fconflictfree.intel.com&esheet=50985140&newsitemid=20141117005366&lan=en-US&anchor=conflictfree.intel.com&index=18&md5=0bcebc28ac0a373b5ac149104d058bc1

Source: Intel

NASA Pushes Long-Range Climate Model Limits with SGI (http://www.hpcwire.com/2014 pushes-long-range-climate-model-limits-sgi/)
The Discover system at NASA's Center for Climate Simulation was designed with scalability and flexibility in mind, starting with its original Read more… (http://www.hpcwire.com/2014/1 pushes-long-range-climate-model-limits-sgi/)

Monday Twitter Roundup (http://www.hpcwire.com/2014 twitter-roundup/)
In celebration of SC14, we've decided to put together a daily list of some the top tweets from the event. For those unable to attend, we hope Read more… (http://www.hpcwire.com/2014/1 twitter-roundup/)

Why the Top 500 Standstill Won't Last Forever (http://www.hpcwire.com/2014 standstill-top-500-wont-last-forever/)
Traditionally, one of the most exciting opening elements of the annual SC event is the announcement of the list of the Top 500 supercomputers on Read more… (http://www.hpcwire.com/2014/11/17/curious-standstill-top-500-wont-last-forever/)

Read more HPCwire Features… (http://www.hpcwire.com/ca

Short Takes

Weekly Twitter Roundup (http://www.hpcwire.com/2014/11/13/weekly-twitter-roundup-21/)
Here at *HPCwire*, we want to help keep the HPC community as up-to-date as possible on some of the most captivating news items that were Read more… (http://www.hpcwire.com/2014/11/ twitter-roundup-21/)

Big Data Compels HPC Adoption in Life Sciences (http://www.hpcwire.com/2014/1 data-compels-hpc-adoption-life-sciences/)
Expect a lot of the talk at SC14 this year to revolve around big data. Ari E. Berman, Ph.D., Director of Government Services and Principal Read more… (http://www.hpcwire.com/2014/11/13 data-compels-hpc-adoption-life-sciences/)

UK Project Tackles Bike Helmet Safety (http://www.hpcwire.com/2014/11/13/uk-project-tackles-bike-helmet-safety/)
There are certain HPC projects that stand out for their ability to help humankind in practical ways. One recent example of such a project Read more… (http://www.hpcwire.com/2014/11/13/uk-project-tackles-bike-helmet-safety/)

Featured Events

SC14 (http://www.hpcwire.com/event/s

November 16 - November 21

CHPC National Meeting 2014 (http://www.hpcwire.com/event/c national-meeting-2014/)

December 1 - December 5
Mpumalanga
South Africa