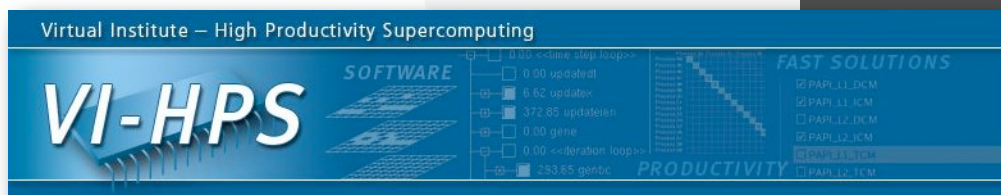


# ICL NEWSLETTER

July 2007

## VI-HPS



We are pleased to announce ICL's participation in the new virtual institute called VI-HPS (Virtual Institute - High Productivity Supercomputing). The effort is being led by former ICLer Felix Wolf and consists of the joint institute of Forschungszentrum Jülich, RWTH Aachen University, Technische Universität Dresden, and the University of Tennessee. It has been formed to combine the expertise of the four partners in order to improve the quality and accelerate the development process of complex simulation codes in science and engineering that are being designed for the most advanced parallel computer systems. The institution's mission is to develop integrated state-of-the-art programming tools for high-performance computing that assist programmers in diagnosing programming errors and optimizing the performance of their applications. The collaboration of the four partners is sponsored by the Helmholtz Association of German Research Centers. Helmholtz centers and universities establish "virtual institutes" to concentrate research capacities and thereby create centers of excellence of international standing in key areas of research.

### Steering Board

<b>Felix Wolf (Spokesman)</b>	Forschungszentrum Jülich
Christian Bischof (Deputy Spokesman)	RWTH Aachen University
<b>Jack Dongarra</b>	University of Tennessee
Thomas Lippert	Forschungszentrum Jülich
Wolfgang E. Nagel	Technische Universität Dresden

The virtual institute will be inaugurated with a half-day colloquium held at Forschungszentrum Jülich on July 4th 2007. [ [more info](#) ]

## Workshops

### [July 4th] VI-HPS Inauguration Workshop, Juelich Germany

Jack, Shirley, David C, Karl

### [July 9th - July 12th] CScADS Workshop for Automatic Tuning for Petascale Applications, Snowbird, UT

Dan

### [July 23th -July 26th] CScADS Workshop for Petascale Architectures and Performance Strategies, Snowbird, UT

George

### [July 30th- August 2nd] CScADS Workshop for Libraries and Algorithms for Petascale Applications , Snowbird, UT

Alfredo, Marc, Julie, Julien

## Releases

### The OpenMP Profiler ompP - Karl Fuerlinger

[ompP](#) is a profiling tool for OpenMP applications written in C/C++ or FORTRAN. ompP should work for most UNIX-like operating systems and OpenMP compilers. The profiling report of ompP becomes available immediately after program termination in a human-readable ASCII text format. ompP supports the measurement of hardware performance counters using PAPI and contains several advanced productivity features such as overhead analysis and detection of common inefficiency situations (performance properties).



### Open-MPI included in Mac OS X v.10.5 "Leopard"

Taken from the apple website [\[here\]](#) :

"To support the message-passing model popular in scientific computation — which has long needed to distribute calculations across multiple processes — Leopard includes the popular open source **OpenMPI** implementation of the MPI 2.0 standard. OpenMPI works with Xgrid, seamlessly supports both PowerPC- and Intel-based Macs, and makes it easy to add drivers for low-latency interconnects. And Xcode for Leopard includes the various MPI "compilers" (preprocessors) that streamline the process of writing MPI-compliant programs."



## HPCC 1.2



We are pleased to announce the long awaited [version 1.2 of HPCC](#). It contains many bug fixes, major features, and minor enhancements many of which were contributed by users. The major focus of this release was to improve accuracy of the reported results and ensure scalability of the code on the largest supercomputer installations with hundreds of thousands of computational cores.

### Friday Lunch Presentations in June

**06/01/07 Jens Gregor (CS UTK)**

Merge ECE and CS

**06/08/07 Hatem Ltaief**

**06/15/07 Yves Dolce and Julie**

Demo LAPACK on Windows.  
[ [QuickTime Movie](#) ]

**06/22/07 Fengguang**

Feedback-Directed Thread  
Scheduling with Memory  
Considerations [ [PDF](#) ]

**06/29/07 Alfredo**

Targeting Multicore Systems  
in Linear Algebra Applications [ [PPT](#) ]

### Planned Friday Lunch for July

**07/06/07 Piotr Luszczek (Mathworks)**

**07/13/07 Karl**

**07/20/07 Asim**

**07/06/07 David C.**

## 29th Top500, released in Dresden, Germany during ISC07 .



In the news:  
[Daily Beacon](#)  
[TechNews](#)  
[HPCWire](#)  
[IT Jungle](#)

For the fourth straight time, the BlueGene/L System development by IBM and DOE's National Nuclear Security Administration (NNSA) and installed at DOE's Lawrence Livermore National Laboratory in Livermore, Calif., claimed the No. 1 spot. The BlueGene/L reached a Linpack benchmark performance of 280.6 TFlop/s ("teraflops" or trillions of calculations per second). Two other systems exceeded the level of 100 TFlop/s: the upgraded Cray XT4/XT3 at DOE's Oak Ridge National Laboratory, ranked No. 2 with a benchmark performance of 101.7 TFlop/s; and Sandia National Laboratory's Cray Red Storm system, which ranked third at 101.4 TFlop/s.

Two new IBM BlueGene/L systems entered the Top 10, at the New York Center for Computational Science in Stony Brook, NY, (ranked No. 5) and at the Computational Center for Nanotechnology Innovations at Rensselaer Polytechnic Institute in Troy, NY, (ranked No. 7). These two systems represent the largest supercomputing installations in an academic setting. Also new to the Top 10 is a Dell system at the National Center for Supercomputing Applications, ranked No. 8.

The fastest supercomputer in Europe is an IBM JS21 cluster at the Barcelona Supercomputing Center in Spain, which ranked No. 9 at 62.63 TFlop/s. Rounding out the Top 10 is a new SGI system installed at the Leibniz Computer Center in Munich, Germany, with performance of 56.52. TFlop/s.

The highest ranked Japanese system is located at the Tokyo Institute of Technology and ranks No. 14 on the list. This system is a cluster integrated by NEC based on Sun Fire x4600 with Opteron processors, Clear-Speed accelerators and an InfiniBand interconnect.

Rank	Site	Computer	Procs	Rmax
1	DOE/NNSA/LLNL - United States	BlueGene/L - eServer Blue Gene Solution - IBM	131072	280600
2	Oak Ridge National - United States	Jaquar - Cray XT4/XT3 - Cray Inc.	23016	101700
3	NNSA/Sandia National Laboratories United States	Red Storm - Sandia/ Cray Red Storm - Cray Inc.	26544	101400
4	IBM Thomas J. Watson Research Center United States	BGW - eServer Blue Gene Solution - IBM	40960	91290
5	Stony Brook/BNL, New York Center for Computational Sciences - United States	New York Blue - eServer Blue Gene Solution - IBM	36864	82161
6	DOE/NNSA/LLNL United States	ASC Purple - eServer pSeries p5 575 1.9 GHz - IBM	12208	75760
7	Rensselaer Polytechnic Institute, Computational Center for Nanotechnology Innovations - United States	eServer Blue Gene Solution - IBM	32768	73032
8	NCSA - United States	Abe - PowerEdge 1955, 2.33 GHz, Infiniband - DELL	9600	62680
9	Barcelona Supercomputing Center Spain	MareNostrum - BladeCenter JS21 Cluster, PPC 970, 2.3 GHz, Myrinet - IBM	10240	62630
10	Leibniz Rechenzentrum Germany	HLRB-II - Altix 4700 1.6 GHz SGI	9728	56520

## CS merger with ECE

Effective July 1, 2007, the Department of Computer Science and the Department of Electrical

and Computer Engineering will officially merge to become the Department of Electrical Engineering and Computer Science (EECS). EECS will be housed in a new \$37.5 million teaching and research facility to be completed in 2009. The combined departments currently enroll over 400 undergraduate and 300 graduate students, with a faculty of 40 and a support staff of 14, and research expenditures exceed \$10 million per year. The department is entering a significant new era and is expected to play an important role in the College of Engineering's vision to become a leading research institution and to take advantage of unique opportunities for research partnerships with the nearby Oak Ridge National Laboratory.

**Tracy:** "There will be some administrative changes, and possibly a few will pass down to the group. We hope it is a smooth transition, which means it probably won't be! The new email address suffix will be @eecs.utk.edu and it already works. The old ones will transfer too."

**Paul:** "Do NOT try using the new email address until it has been announced"



## Reminder: ICL Retreat

The ICL retreat for 2007 has been scheduled for Monday and Tuesday **August 20-21** and as in years past, it is just before classes begin on August 22. It will be at the Highland Manor Inn in Townsend, TN again.

## Reminder

July 4th: Independence day - University Closed

## Reading for the airplane:

<http://history.siam.org/oralhistories/dongarra.htm> [pdf]

Extract from Jack's interview: "ICL is my research group, active in our research program, and consists of about 50 people including research professors, postdocs, research assistants, graduate students, undergraduate students, programmers, an artist, secretarial staff, people who take care of our computers, and our support staff as well. That 50 member group is paid for out of what we would call soft money, so out of that group of 50 people only one person has a job for life: that's me because I'm a tenured professor in the department, so as such I have a job until I quit, die, or do something stupid."