**INSTITUT DU DÉVELOPPEMENT
ET DES RESSOURCES
EN INFORMATIQUE SCIENTIFIQUE**

IDRIS seminar

An Overview of Chapel and an Example-Based Comparison of Chapel and X10

Steve Deitz (Cray Inc., USA) and Marc Tajchman (CEA, France)

Thursday May 27, 2010 (10:30am – 5:00pm)

Chapel presentation, Steve Deitz (10:30am – 12:00am)
Chapel is a new parallel programming language designed to improve the productivity of users of large-scale supercomputers as well as small-scale, multicore computers and workstations. Chapel aims to vastly improve programmability over current parallel programming models while supporting performance and portability at least as good as today's technologies. It has been under development at Cray Inc. as part of the DARPA High Productivity Computing Systems (HPCS) program. In the morning, an overview of Chapel will be presented with a focus on its task- and data-parallel abstractions and its support for systems with distributed memory.

Tutorial on Chapel and X10, Steve Deitz and Marc Tajchman (2:00pm – 5:00pm)
In the afternoon, we will look at an example computation, Heat Transfer, in both Chapel and X10 (a new parallel programming language designed at IBM as part of the DARPA High Productivity Computing Systems (HPCS) program[1]). We will compare and contrast these two languages with respect to this example computation, and we will present live demos of this example. In addition, we will discuss the relative merits of these languages in comparison to other parallel programming technologies including MPI, UPC, and Co-Array Fortran.

Steve Deitz is a Software Engineer at Cray Inc. He currently works on the design and implementation of the Chapel parallel language in his role as implementation lead for that project. Steve received his Ph.D. in Computer Science & Engineering from the University of Washington in 2005 for his work on extending the ZPL parallel array language to handle more dynamic and advanced parallel computations. He received a B.A. in Computer Science and Mathematics from Bowdoin College in 1998.

Marc Tajchman is a Scientific Computing Engineer at CEA (French Atomic Energy Commission). Working with a multi-disciplinary team of engineers and scientists, he currently designs and develops numerical simulation platforms. He is particularly interested by new languages and tools for high performance computing. Marc received a PhD in Applied Mathematics (University of Paris XI) in 1994 and a Construction Engineering degree (ULB, Brussels, Belgium) in 1991.

The access to this seminar is freely opened but a registration is required at the following link
`http://www.idris.fr:data/seminaires`

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[1]X10 was recently presented in another IDRIS seminar (see `http://www.idris.fr/data/seminaires/2009-2010/Seminaire-IDRIS-du-11-fevrier-2010.html` – in French).