

## Workshop in **High-Performance Computing (HPC)** applied in Computational Mechanics and Sciences

**Time and place:** 0900-1700 19. May 2008 at DNV, Langgangen, Veritas 2, D2.

**Objective:** The workshop is intended to draw attention to the field of HPC and create an awareness of the possibilities inherent in increased computational power.

**Background:** DNV R&I is entering into Computational Mechanics in order to do strategic research within fields of DNV interest. The focus is directed towards Computational Fluid Dynamics (CFD) and Computational Structural Mechanics (CSM) with a natural extension into Fluid Structure Interaction (FSI). The strategic directions are towards advanced methods and detailed modelling resulting in an increasing need for extensive computational power. In this respect, Pål Bergan has invited Olaf Storaasli from Oak Ridge National Laboratory (ORNL), to come to DNV and share some of his experience in the field of HPC. Olaf Storaasli is attending the PARA'08 Conference in Trondheim, <http://para08.idi.ntnu.no/>, where he is giving a tutorial on Field Programmable Gate Arrays (FPGA).

**Language:** English

### **Program:**

0900-0910	<i>Welcome</i>	<b>Pål Bergan</b> , DNV
0910-0955	<i>Future Supercomputers and High-Performance Computing</i>	<b>Olaf Storaasli</b> , ORNL
0955-1040	<i>Simplify HPCC: the Dell view on HPC Clustering</i>	<b>Bart Mellenbergh</b> , Dell
1040-1055	<i>Coffee</i>	
1055-1155	<i>COMSOL Multiphysics presentation with FSI modelling demonstration</i>	<b>Bertil Nistad</b> , COMSOL AS
1155-1110	<i>Current Status of Computing at DNV</i>	<b>Håvard Austefjord</b> , DNV
1110-1225	<i>Demanding Abaqus applications in Pipeline Technology</i>	<b>Knut Rasmussen</b> , DNV
1225-1310	<i>Lunch</i>	
1310-1325	<i>Examples of use of CFD in DNV Energy</i>	<b>Tormod Bøe/ Arne Nestegård</b> , DNV
1325-1355	<i>Introduction to GPU and Cell BE Computing</i>	<b>Trond R Hagen</b> , SINTEF
1355-1425	<i>Some Properties of Selected Parallel Architectures</i>	<b>André Rigland Brodtkorb</b> , SINTEF
1425-1440	<i>Coffee</i>	
1440-1525	<i>From SESAM'69 to Domain Decomposition - From Vax to XT4 and Multicore, 9 orders of computational power.</i>	<b>Petter Bjørstad</b> , Paralab/UiB
1525-1555	<i>Virtualization in HPC</i>	<b>Jostein K. Sundet</b> , UiO
1555-1640	<i>Experiences adapting Structures Finite Element and Failure Analysis codes (GENOA) to harness Parallel Computing and FPGA Advances</i>	<b>Olaf Storaasli</b> , ORNL
1640-1700	<i>General discussions</i>	<b>All</b>