Department of Electronic Engineering
&
State Key Laboratory of Millimeter Waves (Hong Kong)
&
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Seminar On
GPU Accelerated CAE Using Open Solvers and the Cloud

by

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Date	**:**	**25 Nov 2011 (Friday)**
Time	**:**	**11:45 a.m. – 12:30 p.m.**
Venue	**:**	**Room G6315 (inside EE Department), Green Zone, 6/F, Academic 1, City University of Hong Kong**

Abstract
After more than five years since GPUs were first used as accelerators for general scientific computations, the field of General Purpose GPU computing or GPGPU has finally reached mainstream. Developers have now access to a mature hardware and software ecosystem. On the software side, several major open-source packages now support GPU acceleration while on the hardware side cloud-based solutions provide a simple way to access powerful machines with the latest GPUs at low cost. In this context, we look at the GPU acceleration of CAE, with
a focus on the matrix solvers. We compare the performance that can be achieved using the open-source solver package PETSc ran on GPU-enabled Amazon EC2 hardware with that of an optimized legacy FEM code ran on a last generation 12-core blade server. Our results show that, although good performance can be achieved, some development is still needed to achieve peak performance.

Biography
Dr. Serban Georgescu is a Senior Researcher in the Environment & Health Research Division at Fujitsu Laboratories of Europe Limited, UK. He has a bachelor degree in Applied

Mathematics and has received a Ph.D. from the University of Tokyo. His main interests are High Performance Computing and heterogeneous architectures, applied to the solving of large systems of linear equations and accelerating CAE.

Dr. Peter Chow is a Group Manager in Environment & Health Research Division at Fujitsu Laboratories of Europe Limited, UK. He has a Ph.D. from the University of Greenwich, London, UK. His research interests are in Computational Science and Engineering, and High-Performance Computing. His responsibility and application of interests include CAD-to-CAE model preparation, open source software for large-scale simulation processing chain, computational electromagnetic, multiphysics and multiscale simulations, and large-scale scalable and distributed methods for computing.

****** ALL ARE WELCOME ******

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