

**C-DAC & IUCAA Technology Workshop: Five-Day Technology Workshop on
Performance Enhancement on Emerging Parallel Processing Platforms (PEEP-2008)**

Venue: Bhaskara 3, IUCAA Lecture Hall, IUCAA, Pune University Campus, **Schedule:** September 23-27, 2008

Break-fast: 8:00 AM – 8:45 AM	Coffee & Tea Break: 10:15 AM -10:30 AM & 4:00 PM - 4:15 PM	Lunch Break 1:00 PM – 1:30 PM
Dinner: 7:00 PM – 7:45PM	Banquet Dinner: 7:30 PM on 25/07/2008 at Chittaranjan lawns, IUCAA	

Mode 1: Programming on Multi Core Processors					Hands-on 1:30 PM –6:00 PM	
Day 1	9:30 AM - 10:00 AM	10:00 AM-10:15 AM	B R E A K	10:30AM -11:30 AM	11:30 AM - 1:00 PM	1:30 PM - 6:00 PM
Sep 23 Tuesday	PEEP-2008 Welcome & Inauguration <i>Naresh Dadhich,</i> Director, IUCAA <i>Shridhar P Dixit,</i> Director, C-DAC	<i>Classroom Lecture</i> An Overview of PEEP-2008- Technical Prog. Mode 1 & Mode 2		Keynote Talk (INDUSTRY): HEWLETT-PACKARD Topic: Multi-core tools and Optimization. Speaker: Soma Kohli Manager, HPCD	<i>Classroom Lecture</i> Prog. on Multi-Core Processors: part-I Pthreads & OpenMP - Performance Issues	Hands-on: Prog. Examples using Pthreads, OpenMP, MPI; Mixed Prog. - Performance Issues; Prog. on Numerical & Non- Numerical Computations
Day 2	9:00 AM - 9:30 AM	9:30 AM - 10:15 AM		10:30AM -11:30 AM	11:30 AM - 1:00 PM	1:30 PM - 6:00 PM
Sep 24 Wednesday	<i>Classroom Lecture</i> Prog. on Multi-Core Processors: part-II An Overview of Memory Allocators & Performance Issues of I/O; Common Errors in Thread Prog	<i>Classroom Lecture</i> Prog. on Multi-Core Processors:part-III Tuning and Compiler Optimization ↦ Performance Issues Mathematical libraries on Multi Core Processors	B R E A K	Keynote talk (INDUSTRY) INTEL Topic : Winning with Parallelism Speaker : Vivek Venkatesh Business Development Manager; Intel(r) Developer Tools	Keynote talk (INDUSTRY) INTEL Topic : Threading for Performance Speaker : Vivek Venkatesh Business Develop.Manager; Intel(r) Develop tools	Demonstration (INTEL): Multi Cores - Intel Performance Visualization Tools- Intel Vtune Performance analyzer Hands-on : Prog. Examples - Pthreads, OpenMP, MPI & Performance Issues, Intel Tools
Day 3	9:00 AM - 9:30 AM	9:30 AM - 10:15 AM		10:30AM -11:30 AM	11:30 AM - 1:00 PM	1:30 PM - 6:00 PM
Sep 25 Thursday	<i>Classroom Lecture</i> Prog. on Multi-Core Processors: part-IV Multi Cores - Compiler Optimization techniques; Mixed Programming Environment; Performance of Benchmarks	Keynote talk (ACADEMIC) Topic: Some Challenges & Directions in Astrophysics using MultiCore Processors & GPU Computing Speaker: Dr.Yashwant Gupta; NCRA- TIFR; Pune		Keynote talk (ACADEMIC) Topic: Fault Tolerance Techniques for Numerical Linear Algebra Library on Chip Multicore processors Speaker: Dr.Soumayendu Raha; SERC, IISc, Bangalore	Keynote talk (ACADEMIC-R&D) Topic: New Frontiers of Research: Exaflops – Design of Massively Parallel Systems Speaker: Dr.Narendra Karmarkar; Pune	Hands-on : Prog. Examples using Pthreads; OpenMP, MPI - Performance Issues; Example programs on Numerical Computations. Demonstration: Application and System Benchmarks: Compiler Optimization Techniques - Performance of Micro & Macro Benchmarks
Invited Talk Topic (5:30PM - 6:15 PM) Large Scale Computational Geometry & Visualization of terabytes of Data on Multi-Cores & GPU Processors. Speaker: Chaman Singh Verma, Pune						
Banquet Dinner: 7:30 PM at Chittaranjan lawns, IUCAA						

C-DAC & IUCAA Technology Workshop: Tentative Schedule for Five-Day Technology Workshop on Performance Enhancement on Emerging Parallel Processing Platforms (PEEP-2008)

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Mode 2 (Day 4-5) Sep 26-27, 2008: An overview of Evolving Multi Cores with Thread Building Blocks (TBB), GPU Computing; CUDA Programming, and Cell Processors & Cell Programming; **Hands-on session:** Programs on Intel TBB; Programs on GPU computing (NVIDIA-CUDA Prog.); Performance of Open Source software on GPU Computing using CUDA; Programs on Cell Processor using Cell Programming;

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Dinner: 7:00 PM – 7:45 PM		

Mode 2: Prog. on Multi Core Proc -TBB; GPU Comp. –CUDA; Stream Accelerators; Cell Prog						Hands-on 1:30 PM–6:00 PM
Day 4	9:00 AM - 09:15 AM	9:15 AM - 10:15 AM	B R E A K	10:30 AM-12:00 NN	12:00NN- 1:00 PM	1:30 PM- 6:00 PM
Sep 26 Friday	PEEP-2008 Overview (Mode 2) Classroom Lecture: Intel TBB; GPU Comp., GPU & Cell	Keynote talk (INDUSTRY) NVIDIA Topic: - High Performance Computing with CUDA Speaker: Sanjiv Satoor			Keynote talk (INDUSTRY) AMD Topic: - Entering the golden age of Heterogeneous Comp. (Multicore CPUs and Multi-teraflop GPUs, - AMD Stream Comp.) Speaker: Mike Mantor, Senior GPU Compute Architect /Fellow	Keynote talk (INDUSTRY) IBM Topic: IBM Cell Processor Tech. Speaker: Dr. Manish Gupta, Associate Director, IBM India Research Lab, New Delhi
Day 5 Sep 27 Saturday	Classroom Lecture Multi Cores - Performance Issues of Scientific applications Intel Multi Cores using TBB, GPU computing CUDA Prog. & Stream Accelerators; Cell Processors and Cell Programming - Issues and Challenges	Keynote talk (INDUSTRY) NVIDIA Topic: - CUDA programming and optimizations Speaker: Dibyapran Sanyal	B R E A K	Keynote talk (ACADEMIC) Topic: Cell Processor & Prog. Performance Issues Speaker: Dr. P.K.Baruah & Team, Sri Sathya Sai University, A.P State (India)	Keynote talk (INDUSTRY) CDAC Topic: Performance Issues- Re-Configurable Comp. FPGA Prog. Speaker: Yogindra Abhyankar C-DAC, Pune	1:30 PM- 6:00 PM Demonstration: NVIDIA Time : 2:00 PM – 3:00 PM Venue: Bhaskara 3 Demonstration: AMD Time : 3:00 PM – 4:00 PM Venue: Bhaskara 3 Demonstration: CELL Time : 4:15 PM – 5:00 PM Venue: Bhaskara 3 Hands-on: Programming on Intel TBB, NVIDIA -GPU Comp.-CUDA; GPU Comp. Stream Accelerators & IBM-Cell Prog
Closure: PEEP-2008 at 6:00 PM						