One Week Workshop on Supercomputing

Organized under National Supercomputing Mission (HRD Group)

Organized by

Centre for Development of Advanced Computing, Pune (India)
Indian Institute of Technology (BHU), Varanasi (India)

Coordinator: Dr. Ravi Shankar Singh, Dept. of CSE, IIT(BHU), Varanasi

Registration Link: https://forms.gle/F7nsUC3VnCHSDDw48

Venue: UGLAB 1, Dept. of CSE, IIT(BHU), Varanasi

Duration: 23rd Sep – 27th Sep, 2019

September 23, 2019

DAY 1	Time (Hrs.)	Lecture/Hands-on Session
	10:00 – 10:30	Overview of HPC
	10:30 – 11:00	General Idea of PARAM Shivay
	Tea break	
	11:15 – 13:00	Shared Memory Parallelism with OpenMP
	Lunch Break - 1.00 hr.	
	14:00 – 15:45	Lab Session: Shared Memory Parallelism with OpenMP
	Tea break	
	16:00 – 17:00	Lab Session: Shared Memory Parallelism with OpenMP

September 24, 2019

DAY 2	Time (Hrs.)	Lecture/Hands-on Session
	10:00 – 10:30	SLURM
	10:30 – 11:00	Distributed Memory Parallelism with MPI (Point to Point Communication)
	Tea Break	
	11:15 – 12:00	Distributed Memory Parallelism with MPI (Point to Point Communication)
	12:00 – 13:00	Distributed Memory Parallelism with MPI (collective Communication)
	Lunch Break - 1 hr.	
	14:00 – 14:30	Parallelization of Matrix – Matrix Multiplication
	14:30 – 15:45	Lab Session: Distributed Memory Parallelism with MPI
	Tea Break	

16:00 – 17:00	Lab Session: Distributed Memory Parallelism with MPI

September 25, 2019

DAY 3

Time (Hrs.)	Lecture/Hands-on Session
10:00 – 17:00	Intel tools and code Optimization Training • Intel® Parallel Studio XE 2019 • Intel® compiler for C++/Fortran and hands-on • Vectorization+ Intel® Advisor hands-on • Intel® MPI Library • Intel® VTune™ Amplifier and demo • Intel AI Portfolio • Intel® Distribution for Python and demo • Intel® Data Analytics Acceleration Library and PyDAAL demo • Deep learning frameworks optimized by Intel • Intel OpenVINO™ toolkit

September 26, 2019

DAY 4

Time (Hrs.)	Lecture/Hands-on Session
10:00 – 13:00	Nvidia **(CUDA and OpenACC)**
Lunch Break - 1 hr.	
14:00 – 15:45	Introduction to Image Processing Parallelism in Image Processing Lab Session on Parallelism in Image Processing
Tea Break	
16:00 – 17:00	Lab Session on Parallelism in Image Processing

September 27, 2019

DAY 5

Time (Hrs.)	Lecture/Hands-on Session
10:00 – 17:00	Nvidia (DL/ML) • What is GPU computing and why now? • Deep Learning • GPU Hardware. • Domain based high level intro: IVA, Health Care NVIDIA GPU clouds Inferencing (TensorRT) NVIDIA RAPIDS RAPIDS and NGC hands-on session.