

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:High Performance Computing for Scientists and Engineers

Subject Co-ordinator - Prof. Somnath Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to High Performance Computing
Lecture 2 - Architecture for Parallel Computing
Lecture 3 - Architecture for Parallel Computing (Continued...)
Lecture 4 - Architecture for Parallel Computing (Continued...)
Lecture 5 - Shared Memory and Distributed Memory in Parallel Computing
Lecture 6 - Shared Memory and Distributed Memory in Parallel Computing (Continued...)
Lecture 7 - Parallel Algorithms
Lecture 8 - Parallel Algorithms (Continued...)
Lecture 9 - Parallel Algorithms (Continued...)
Lecture 10 - Performance Metrics of Parallel Systems
Lecture 11 - Performance Metrics of Parallel Systems (Continued...)
Lecture 12 - Introduction to OpenMP
Lecture 13 - Introduction to OpenMP (Continued...)
Lecture 14 - Introduction to OpenMP (Continued...)
Lecture 15 - Essentials of OpenMP Programming
Lecture 16 - Essentials of OpenMP Programming (Continued...)
Lecture 17 - Data sharing and synchronization
Lecture 18 - Efficient OpenMP programming for matrix computing
Lecture 19 - Introduction to MPI and Distributed Memory Parallel Programming
Lecture 20 - Introduction to MPI and Distributed Memory Parallel Programming (Continued...)
Lecture 21 - Communication using MPI
Lecture 22 - Communication using MPI (Continued...)
Lecture 23 - Communication using MPI (Continued...)
Lecture 24 - Matrix Representation of Physical Systems - Matrix Solvers
Lecture 25 - Domain Decomposition Technique
Lecture 26 - Domain decomposition based parallelization of matrix solvers
Lecture 27 - Domain decomposition based parallelization of matrix solvers (Continued...)
Lecture 28 - Domain decomposition based parallelization of matrix solvers (Continued...)
Lecture 29 - MPI routines for parallel matrix solvers

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- Lecture 30 - Introduction to GPGPU and CUDA
- Lecture 31 - Introduction to GPGPU and CUDA (Continued...)
- Lecture 32 - Introduction to GPGPU and CUDA (Continued...)
- Lecture 33 - Introduction to GPGPU and CUDA (Continued...)
- Lecture 34 - Introduction to CUDA programming
- Lecture 35 - Introduction to CUDA programming (Continued...)
- Lecture 36 - Thread execution in CUDA program - scheduling and memory access
- Lecture 37 - Thread execution in CUDA program (Continued...)
- Lecture 38 - Matrix multiplications in CUDA
- Lecture 39 - OpenACC programming for GPU-s
- Lecture 40 - Hybrid parallelization and exascale computing