











3-Day-Course — 1st day

Message Passing Interface (MPI-1, part 1)

- 9:00 **Introduction** [1] (talk) 
- 9:10 **Parallel Architectures and Programming Models** [2] (talk) 
- 10:10 **Coffee**
- 10:25 **MPI-1 – Introduction to the Message Passing Interface** [3+3a] (talk) 
- 10:25 **Chap. 1 MPI Overview** (talk) 
- 10:45 **Chap. 2 MPI Process model** (talk+practical) 
- 12:00 **Lunch**
- 13:00 **Chap. 3 Messages and Point-to-Point Communication** (talk+practical) 
- 14:15 **Coffee**
- 14:30 **Chap. 4 Non-Blocking Communication** (talk+practical) 
- 15:45 **Coffee**
- 16:00 **Chap. 5 Derived Datatypes** (talk+practical) 
- 17:00 **Parallel debugging** [5] (talk)  
- 17:50 **End**














Introduction
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3-Day-Course — 2nd day

Message Passing Interface (MPI-1, part 2) and OpenMP

- 8:30 **Access to the federal high-performance computing-centers** [9] (talk)  
- 9:00 **Chap. 6 Virtual Topologies** [3, continued] (talk+practical) 
- 10:10 **Coffee**
- 10:25 **Chap. 7 Collective Communication** (talk+practical) 
- 11:00 **Coffee**
- 11:15 **Chap. 8 Other MPI-1 features** (talk) 
- 11:40 **Heat conduction program, a parallelization example with MPI** [6] (talk)  
- 12:00 **Lunch**
- 13:00 **OpenMP – Overview and execution model** [7+7a] (talk+practical) 
- 14:00 **Coffee**
- 14:15 **OpenMP – Work sharing directives** (talk+practical) 
- 15:15 **OpenMP – Data environment** (talk+practical) 
- 16:00 **Coffee**
- 16:15 **OpenMP – Summary and Pitfalls** (talk) 
- 17:15 **Verifying an OpenMP parallelization with the Intel Thread Checker** [8a] (talk)
- 18:15 **End**
















Introduction
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3-Day-Course — 3rd day

MPI-2, PETSc and Performance Analysis

- 8:30 **MPI-2 overview** [10] (talk) 
8:50 **MPI-2 one-sided communication** [12] (talk) 
9:20 **Parallel file I/O (basics)** [11] (talk+practical) 
10:15 **Coffee**
10:30 **Parallel file I/O (fileviews)** (talk+practical) 
11:30 **Parallel file I/O (access methods)** (talk) 
12:00 **Lunch**
13:00 **Parallel programming models on hybrid systems / MPI+OpenMP** [23] (talk) 
14:00 **Coffee** 
14:15 **PETSc Tutorial** [41] (talk) 
15:00 **Laplace-Example with PETSc** [42a+c] (talk+practical) 
15:45 **Parallel performance analysis and profiling** [16] (talk+practical) 
16:30 **End**



Introduction Rolf Rabenseifner
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1st
day