5-Day-Course — ZIH, TU Dresden — 1st day

Message Passing Interface (part 1)

8:30 Registration
9:00 Introduction [1] (talk)
10:15 Coffee
10:30 MPI — Introduction to the Message Passing Interface [3+3a] (talk)
10:45 Chap. 1 MPI Overview (talk)
11:15 Chap. 2 MPI Process model (talk+practical)
12:30 Lunch
13:30 Chap. 3 Messages and Point-to-Point Communication (talk+practical)
15:00 Coffee
15:15 Chap. 4 Non-Blocking Communication (talk+practical)
16:30 Coffee
16:45 Chap. 6 Collective Communication (talk+practical)
17:45 Chap. 7 Error handling (talk)
18:00 End

19:00 Reiterstandbild vor Semperoper — kleine Führung durch die Altstadt
20:30 Augustinern an der Frauenkirche (auf „Schmidt“ reserviert)

5-Day-Course — ZIH, TU Dresden — 2nd day

Message Passing Interface (part 2) and OpenMP

8:30 Access to the federal high-performance computing-centers [9] (talk)
         and Computing Resources at ZIH, TU Dresden [9a] (talk)
9:00 Parallelization of Explicit and Implicit Solvers [38a] (talk)
9:45 Coffee
10:00 Parallelization of Explicit and Implicit Solvers [38a] (talk, continued)
10:30 Chap. 8-(1) Groups & Communicators, Environment Management (talk/no prac)
10:45 Short Break
11:00 OpenMP — Overview and execution model [7+7a] (talk+practical 15min)
12:00 OpenMP — Work sharing directives (talk+…)
12:30 Lunch
13:30 OpenMP — Work sharing directives (…+practical 25min)
14:00 OpenMP — Data environment (talk+practical 10min)
14:45 Coffee
15:00 OpenMP — Summary and Pitfalls (talk)
16:15 OpenMP — Heat example (talk+homework)
16:45 Coffee
17:00 OpenMP- 4.0 and 4.5 Extensions [7a] (talk)
18:00 End
5-Day-Course — ZIH, TU Dresden — 3rd day

Message Passing Interface (part 3)
8:30 Chap. 9-(1) Virtual Topologies [3, continued] (talk+practical)
9:30 Chap. 9-(2) Neighborhood Collective Communication (talk / no practical)
9:45 Coffee
10:00 Chap. 10 One-sided Communication (talk+practical 35min)
11:15 Coffee
11:30 Chap. 11-(1) Shared memory one–sided communication (talk+practical)
12:30 Lunch
13:30 Chap. 11-(2) Memory models and synchronization rules (talk / no practical)
14:15 Coffee
14:30 Chap. 12-(1) Derived Datatypes (talk+practical)
15:45 Coffee
16:00 Chap. 12-(2) Derived Datatypes – Resizing, long counts... (talk / no prac.)
16:30 Chap. 14 MPI and Threads (talk)
16:40 Chap. 15 Probe, Persistent Requests, Cancel (talk)
17:00 Coffee
17:15 Chap. 9-(3) Optimization trough reordering (talk / no practical)
17:45 Chap. 16 Process Creation and Management (talk)
18:00 Chap. 5 The new Fortran module mpi_f08 (talk – only for Fortran participants)
18:30 End

5-Day-Course — ZIH, TU Dresden — 4th day

MPI (part 4) & Performance Tools for Parallel Programming [P..]
8:30 Parallel programming models on hybrid systems / MPI + OpenMP [23] (talk)
10:00 Coffee
10:15 Chap. 13 Parallel file I/O (fileviews) (short tour)
10:40 Chap. 8-(2) Re-numbering on a cluster, ... (talk/no prac.)
11:00 Coffee
11:15 Chap. 17 Other MPI features (talk)
11:30 Chap. 18 Best practice / Summary (talk)
12:00 Additional MPI practical, e.g., 9-(3) (practical)
12:15 Lunch
13:15 Introduction to Performance Engineering [P1] (talk)
13:45 Score-P: A Joint Performance Measurement Run-Time Infrastructure [P2] (talk/practical)
14:15 Profile examination with CUBE [P3] (talk+practical)
14:45 Coffee
15:00 Automatic Trace Analysis with Scalasca [P4] (talk+practical)
15:45 Interactive Trace Analysis with Vampir [P5] (talk+practical)
17:00 End

Introduction and Agenda
5-Day-Course — ZIH, TU Dresden — 5th day

Debugging Tools for Parallel Programming [D..]

08:30 Introduction to Parallel Debugging [D1] (talk)
09:15 Verifying an OpenMP Parallelization with the Intel Inspector XE [D2] (talk+practical)
10:00 Coffee
10:15 MPI Correctness Checking with MUST [D3] (talk+practical)
11:15 Parallel Debugging with Allinea DDT [D4] (talk+practical)
12:30 End