



Location:
Philipps-University Marburg
Hochschulrechenzentrum
Hans-Meerweinstrasse
Room 06A09,
Schulungsraum HRZ
35032 Marburg

Travel by public transport:

- From main station take bus 2 (bus station gate B6) in the direction of „Uni-Klinikum“, get off at „**Hans-Meerwein-Straße**“. The ride takes about 16 minutes.
- From south station / “Marburg Süd“ take bus 7 (bus station gate B4) in the direction of „Uni-Klinikum“, get off at „**Hans-Meerwein-Straße**“. The ride takes about 12 minutes.

- Walk in direction to the HRZ Building
- From the entrance hall turn right to the stairways A, up to the floor A6, then turn right
- Room 06A07 “HRZ Schulungsraum”

ProTHPC is the abbreviation for "**Proficiency Training High Performance Computing**" and stands for short training units which offer a quick introduction to the respective topics promoting efficient working in the context of HPC.

ProTHPC takes place at least once a year in southern Hesse (Frankfurt or Darmstadt) and in central or north Hesse (Giessen, Marburg, or Kassel). Covering the following topics:

- First Day: **Linux and shell scripting – quick access to HPC systems**
- Second Day: **Training course on the Linux software build process, and introduction to version control with Git**
- Third Day: **Training course on the TotalView debugger**

All courses consists of lectures, some are supplemented with practical exercises.

Please bring your own laptop.

The first ProTHPC will take place on

March 18-20, 2019 in Marburg.

ProTHPC is free of charge, participants organize their own refreshments during breaks.

Please register via

<https://www.hkhlr.de/en/events>

Updated flyer, version: March 11, 2019



ProTHPC
Proficiency Training
High Performance
Computing
March 18-20, 2019
in Marburg

Monday, March 18, 2019

First Day:

10:00-17:00

Linux and Shell Scripting – Quick Access to HPC Systems

This course is an introduction to the Linux command line interface, as found on most HPC systems. The basics of the command line will be taught in the first part of the course, while the second part teaches fundamentals of shell scripting and their use for the automation and organization of complex workloads within the context of HPC scheduling systems. The concepts are illustrated using the Sun Grid Engine scheduler.

Tuesday, March 19, 2019

Second Day:

10:00-13:00

Training course on the Linux software build process

We introduce the basics of building software in the Linux command line environment, which is common on HPC systems. You will learn how to build your own applications with the Linux make system. The basic use of compilers (compiler flags, optimization, linking to libraries, using a preprocessor, generating serial and parallel code, ...) will be covered as well the automation of the build process using makefiles (setting variables, targets, dependencies, linking, ...). We will discuss basic principles of automated build systems using configure files as found in many open source applications.

14:00-17:00

Introduction to Version Control with GIT

We present the distributed version control system Git which is well established in the Linux community. Git can not only be used for large projects - such as kernel development - but also for working together on smaller projects or for versioning your own projects

The following topics are covered:

- Explanation of key concepts (snapshots, commits, repositories)
- Prerequisites (install, config, create repository)
- Basic commands (status, add, commit, clone, push, pull, remote)
- Branching (create, rename, delete, switch, update & merge branches)
- Typical workflow concepts for vranching
- Dealing with merge conflicts
- Cool add-ons (stash, log, gitignore, worktree)

Wednesday, March 20, 2019

Third Day:

10:00-17:00

Training course on the TotalView debugger

Debugging is an essential part of software development and application. The advantages of a debugger compared to "printf-debugging" are often underappreciated. TotalView is a powerful tool which helps to find "sophisticated bugs" in parallel jobs quickly, but is also a helpful and timesaving tool for small problems.

TotalView is installed on all Hessian HPC-clusters, and is available for all Hessian researchers.

This course will introduce the basics of debugging and in-depth training on the use of the TotalView debugger. TotalView, in contrast to many free debuggers explicitly supports debugging of parallel applications. This course covers the basic steps of session preparation, processing of core dump files and attaching to a hung process using the TotalView debugger. Advanced techniques covered are reverse debugging and parallel debugging.