Jülich Supercomputing Centre

- Forschungszentrum Jülich
- Part of Institute for Advanced Simulation (IAS)
- Operates supercomputers and connected infrastructure
- Researches in next-gen supercomputers
- Supports applications leveraging machines
- Supercomputers
  - JUWELS
  - JURECA
  - DEEP
  - JURON/JULIA
  - Former: JUROP, JUGENE, JUDGE
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OpenACC Course

- Since 2014
- There are other many-core courses
  - CUDA: April 2020
  - HPC Python: June 2020
  - → See JSC training program
- Interactive course – many hands-ons 🙌🏻
OpenACC Course

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- There are other *many-core* courses
  - CUDA: April 2020
  - HPC Python: June 2020
  - → See JSC training program
- Interactive course – many hands-ons 🙋‍♂️‍♀️
- Tutors of this course

Jiri Kraus
NVIDIA Application Lab at Jülich, NVIDIA

Thorsten Hater
High Performance Computing in Neuroscience, JSC

Andreas Herten
NVIDIA Application Lab at Jülich, JSC
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<td>M1</td>
<td>Introduction to GPU Programming</td>
<td>Performance Optimization</td>
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<td>Andreas</td>
<td>Jiri</td>
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<td>B</td>
<td>Coffee Break (10:45 - 11:00)</td>
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<td>M2</td>
<td>OpenACC Programming Model</td>
<td>Interoperability of OpenACC</td>
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<td>Andreas</td>
<td>Thorsten</td>
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<td>B</td>
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<tr>
<td>A1</td>
<td>OpenACC Programming Model</td>
<td>Multi-GPU Programming</td>
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<td>B</td>
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<td>A2</td>
<td>Tools for Debugging</td>
<td>Multi-GPU Programming</td>
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Organizationals

- Please sign Attendance List!
- Morning/afternoon breaks: Coffee machines (social room and upstairs)
- Lunch breaks: In canteen (Casino)
  - Need to buy payment cards on machine
  - Use machine with slot for entering cards, they provide Guest Cards!
  - 5 € deposit needed, returned when returning card on Tuesday
  - Participants from FZJ will surely help you!
More Technicalities

- Supercomputer for this course: JUWELS
- Infrastructure for tasks
  - Log in to training room computer
  - Generate SSH key pairs
    `ssh-keygen`
  - Upload public SSH key part to JUWELS via JuDoor [judoor.fz-juelich.de](http://judoor.fz-juelich.de)
  - Log in to JUWELS
  - Bootstrap environment (next slide)

- Tasks
  - After bootstrapping, tasks are in `$HOME/OpenACC-Course/` on JUWELS
  - Sorted by session
  - Solutions are always given, you decide how long you tinker before peeking into solutions
    (Hint: The longer, the more benefit you will get from this course!)
Bootstrapping Environment

- Log in to JUWELS
- Call bootstrapping script

```
source $PROJECT_training1931/bootstrap.sh
```

- Adds our login script to your environment (with important environment variables and configurations)
- Copy course material to $HOME/OpenACC-Course; re-sync with command jsc_material_sync

- Also safe for (JSC) users with established home directory!
  - Explanation printed; option to manually do steps
  - Backups of existing files created (always)
  - Roll back to old content easily after course

- **Everyone needs to have environment with our jscourse-bashrc.sh sourced!**
- **Do this now!**
Let’s Get Started!

Questions?