Update on GCS
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WHAT IS GCS?
- Funded by the federal and three state governments (Baden-Württem., Bavaria, North-Rhein-Westfalia)
- Is a collaboration of three centers (HLRS, JSC, LRZ)
- Provides Europe with tier-0 capability
- Provides Germany with tier-1 capability
Main Driving Forces of GCS

• Science and industry driven simulation solution center
  • All activities and hardware procurements are driven by scientific user demand
  • Each of the three centers has a clear focus to cover together all topics
  • Each of the three center has an application driven hardware strategy
• GCS takes a lead role in European HPC
Project Driven Strategy

- **PetaGCS**
  - 2008 – 2019
  - 400 M€

- **SiVeGCS**
  - 2017 – 2025
  - 460 M€

- **inHPC**
  - 2017 – 2021
  - 15 M€
PetaGCS

- Eugene
- SuperMUC
- Hazelhen

TOP 500 rank

- 2010/6
- 2010/11
- 2011/6
- 2011/11
- 2012/6
- 2012/11
- 2013/6
- 2013/11
- 2014/6
- 2014/11
- 2015/6
- 2015/11
- 2016/6
- 2016/11
- 2017/6
- 2017/11
- 2018/6
NEW GCS SYSTEMS THROUGH SIVEGCS
Jülich System: Juwels

Supplier: ATOS/Intel

Configuration:

- 10,4 PF (CPU) + 1,6 PF (GPU) Peak
- 122,448 CPU cores
- \(~1\,000\,000\) GPU cores
- GPFS File System
- First module of a Modular Machine
- highly scalable module added next year (50+ PF)
LRZ System / SuperMUC-NG

Supplier: Intel/Lenovo

Configuration:

- 26,7 PF Peak
- 309,504 CPU cores
GCS STRATEGY
Global View

- EuroHPC
- GCS
- NHR
German Smart Scaling Strategy

Objectives
- Provide integrated HW/SW solutions for science and industry
- Increase application performance x1000
- Provide high quality HPC-services and create ecosystem
- Attract, train and retain competences
- Leading application performance and energy to solution

Realization
- Systems with integrated performance >100 Pflop/s from 2020 on
- Mobility program for users
- Code porting
- Application enabling
- Communication, dissemination
- New types of access
Germany & Europe

- EuroHPC Pre-ExaEPI CoE
- SiVeGCS InHPC SPPEXA
- PRACE EOSC

Exascale Systems
Thank You

Questions