



EasyBuild site presentations

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HPC-UGent: general info



<http://ugent.be/hpc>

- HPC team at central IT dept. of Ghent University (Belgium)
- 9 team members: 1 manager, ~3 user support, ~5 sysadmin
- ~1.5k user accounts, across all scientific domains
- tasks: hardware, system administration, user support/training, ...

- member of Flemish Supercomputer Centre (VSC)
virtual centre, collaboration between Flemish university associations



HPC-UGent: systems

one Tier1 cluster ('muk')

- 528 nodes (8,448 cores), Intel Sandybridge, FDR Infiniband, SL 6.6

6(+2) Tier2 clusters

- 3 batch clusters: Ethernet, SL 6.6
 - *gastly*: 42 nodes (336 cores), Intel Nehalem
 - *haunter*: 150 nodes (1,200 cores), Intel Nehalem
 - *raichu*: 64 nodes (1,024 cores), Intel SandyBridge
- 2 MPI clusters: Infiniband, SL 6.6
 - *gulin*: 32 nodes (1,024 cores), AMD Magny Cours, 2x QDR IB
 - *delcatty*: 160 nodes (2,560 cores), Intel SandyBridge, FDR IB
- 1 ScaleMP vSMP system, (2x QDR Infiniband), SL 6.6
 - *dugtrio*: 16 nodes ($3 \times 48 + 2 \times 24$ cores), Intel Westmere
- 2 pre-production systems, Infiniband, CentOS 7
 - *phanpy*: 16 nodes (384 cores), Intel Haswell, dual FDR IB
 - *golett*: 200 nodes (4,800 cores), Intel Haswell, QDR IB



HPC-UGent: EasyBuild configuration

- one dedicated install user, shared between multiple people : (
- flat module tree, default EasyBuild module naming scheme
- Tcl/C environment modules v3.2.10 as modules tool
 - pilot setup with Lmod v5.8.6 since last week
- Tier2: one shared filesystem for software + modules, NFS mounted
 - subdirectory per cluster, e.g., /apps/gent/SL6/sandybridge
 - software + modules for Tier1 system on 'local' GPFS filesystem
- installations are done by submitting jobs on the cluster
 - `module swap cluster/foo; eb ... --job --robot`
- only install easyconfigs that have been merged into develop branch
- installed software is retained throughout lifetime of the system



JSC: general info



<http://www.fz-juelich.de/ias/jsc/EN>

- Jülich Supercomputer Centre (JSC) has ~200 staff members
- Hardware and system administration
 - Division : High Performance Computing Systems with 16 staff
- User support and training
 - Division : Application Support with 39 staff

- member of Gauss Centre for Supercomputing (GCS)
virtual centre, combines the three national supercomputing centres in Germany



JSC: systems

Two Tier0 systems

- JUQUEEN - BG/Q
 - 28 racks (7 rows x 4 racks) - 28,672 nodes (458,752 cores)
 - Main memory: 448 TB
 - Overall peak performance: 5.9 Petaflops (Linpack: 5.0 Petaflops)
 - I/O Nodes: 248 (27x8 + 1x32) connected to 2 CISCO Switches
- JURECA - cluster architecture (replaces JUROPA)
 - projected peak performance of about 1.8 PFLOPS
 - Intel Xeon E5-2680 v3 Haswell, 24 cores per node
 - Latest infiniband with full fat tree

Number of additional research systems

- QPACE - hot cooling, Cell processors
- JUDGE - GPU cluster
- DEEP - cluster + booster



JSC: EasyBuild configuration

- Shared installation group software with ~25 members
 - Use GID permissions to control
- hierarchical module tree, default EasyBuild module naming scheme (currently)
- Lmod as modules tool
- one shared filesystem for software + modules
 - subdirectory per cluster
- installations are done by submitting jobs on the cluster
- software is provided in stages
 - new module hierarchy or features are built in new stage
 - dedicated user for rebuilds
 - deprecated toolchains and software versions are retired
 - soft links \implies instant transition
 - previous stages can be loaded (installed software is retained)



sciCORE: General info

- providing HPC facilities and support for the University of Basel
- 7 team members:
 - 1 manager
 - 3 user support/development
 - 3 sysadmin
- ~350 user accounts



sciCORE: Systems

- Maia cluster:
 - ~300 compute nodes
 - Intel Sandy Bridge & Ivy Bridge
 - ~4,000 cores
 - QDR infiniband
 - ~50TB BeeGFS (Fraunhofer)
 - CentOS 6.5
- BC2 cluster:
 - ~150 compute nodes
 - Intel Sandy Bridge, AMD Bulldozer
 - ~3,000 cores
 - Ethernet
 - ~2PB GPFS
 - CentOS 6.5



sciCORE: EasyBuild configuration

- one dedicated install user, shared between multiple people
- flat module tree, EasyBuild default module naming scheme
- Lmod 5.7.4 (upgrade soon for performance improvements)
- default toolchains: `goolf-1.4.10` and `iomkl-2015.01`
- rely on system packages for common libraries like `zlib`, `ncurses`, `libpng`, `bzip2`, ...
 - dependencies are filtered using `"eb --filter-deps"`
- BC2 cluster: one shared filesystem (GPFS) for software and modules
 - subdirectory per cpu type, e.g. `/import/bc2/apps/sandybridge`
 - every machine access the software in a common path (`/import/bc2/apps`) mapped with automounter
- Maia: software/modules is copied to local disk of each node
- compilation is done in login nodes (SGE support in EasyBuild?)

