Wikiprint Book

Title: Overview of our systems

Subject: DEEP - Public/User_Guide/System_overview

Version: 51

Date: 04.04.2025 21:09:16

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Overview of our systems

This page is supposed to give a short overview on the available systems from a hardware point of view. All hardware can be reached through a login node via SSH: deep@fz-juelich.de. The login node is implemented as virtual machine hosted by the master nodes (in a failover mode). Please, see also information about getting an account and using the batch system.

DEEP-EST Modular Supercomputer

The DEEP-EST system is a prototype of Modular Supercomputing Architecture (MSA) consisting of the following modules:

- · Cluster Module
- Extreme Scale Booster
- Data Analytics Module

In addition to the previous compute modules, the Scalable Storage Service Module provides the shared storage infrastructure for the DEEP-EST prototype.

The modules are connected together by the Network Federation, composed by different types of interconnects and briefly described below.

Cluster Module

It is composed of 50 nodes with the following hardware specifications:

192 GB RAM 1 x 400GB NVMe SSD
1 x 400GB NVMe SSD network: InfiniBand EDR (100 Gb/s)
))} #!td [[Image(CM_node_hardware.png, width+600px, align=center)]]
Extreme Scale Booster
It is composed of 75 nodes with the following hardware specifications:
Extreme Scale Booster (75 nodes): dp-exb(01-75)
1 x Intel Xeon 'Cascade Lake' Silver 4215 CPU @ 2.50GHz
1 x Nvidia V100 Tesla GPU (32 GB HBM2)
• 48 GB RAM
• 1 x 512 GB SSD
network: EXTOLL 100 (Gb/s)
)))eitd [[Image(ESR_node_hardware.png, width=400px, align=center)]]
#!comment [[span(style*color: #FF0000, **Attention:**)]] the Extreme Scale Booster will become available in March 2020.
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Data Analytics Module
It is composed of 16 nodes with the following hardware specifications:
Data Analytics Module [16 nodes]: dp-dam [01-16]
2 x Intel Xeon 'Cascade Lake' Platinum 8260M CPU @ 2.40GHz
1 x Nvidia V100 Tesla GPU (32 GB HBM2)
1 x Intel STRATIX10 FPGA (32 GB DDR4)
384 GB RAM + 2 or 3 TB non-volatile memory (14 nodes with 2, 2 nodes with 3) 2 x 1.5 TB Intel Optane SSD (1 for local scratch, 1 for BesOND)
1 x 240 GB SSD (for boot and OS)
network: EXTOLL (100 Gb/s) + 40 Gb Ethernet
))) #!td [[Image(DAM_mode_hardware.png, width+620px, align+center)]]
Network overview
Different types of interconnects are in use along with the Gigabit Ethernet connectivity that is available for all the nodes (used for administration and
service network). The following sketch should give a rough overview. Network details will be of particular interest for the storage access. Please also refer to the description of the <u>Sinsystems</u> .
Attention: performance measurements for the Network Federation will be provided in the future.
Attention: Additional information will be provided in the future when the EXTOLL fabric for the Extreme Scale Booster will become available (ETA:
September 2020).
Rack plan
Rack plan
This is a sketch of the available hardware including a short description of the hardware interesting for the system users (the nodes you can use for
running your jobs and that can be used for testing).
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DOOM TECK
This rack hosts the master nodes, file servers and the storage as well as network components for the Gigablit Ethernet administration and service networks. Users can access the login node via deep @12-juellich.de (implemented as virtual machine running on the master nodes). The rack is air-cooled.
networks. Users can access the login node via deep @fz-juelich.de (implemented as virtual machine running on the master nodes). The rack is
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