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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:

• 102 GR RAM	
192 GB RAM 1 x 4000B NVMe SSD	
1 x 400GB NVMe SSD network: InfiniBand EDR (100 Gb/s)	
))) #itd [[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 Nvida V100 Tesla GPU (32 GB HBM2)	
• 48 GB RAM	
• 1 x 512 GB SSD	
network: EXTOLL 100 (Gb/s)	
}}}#!td [[Image(ESE_node_hardware.png, width=400px, align=center)]]	
l .	
#!Comment [[span(style=color) #FF0000, *"Attention("")]] the Extreme Scale Booster will become available i March 2020.	.n
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 8280M CPU (8 2.40GHz)	
1 x Nvidia V100 Teda GPU (32 GB HBM2) 1 x Intal STRATIX10 FPGA (32 GB DDR4)	
1 x Intal STRATIXTO FPGA (32 GB DDN4) 384 GB RAM + 2 or 3 TB non-volatile memory (14 nodes with 2, 2 nodes with 3)	
364 UB POWN + 2 of 3 15 non-receive memory (14 nodes with 2, 2 nodes with 3) 2 x 1.5 TB Intel Optane SSD (1 for local scretch, 1 for BesOND)	
1 x 240 GB SSD (for boot and OS)	
network: EXTOLL (100 Gb/s) + 40 Gb Ethernet	
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}}} #!td [[Image(DAM_node_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 a service network). The following sketch should give a rough overview. Network details will be of particular interest for the storage access. Please a	and
refer to the description of the filesystems.	atwo
Attention: performance measurements for the Network Federation will be provided in the future.	
Attention: pariormatica measurements for the Network Pederation will be provided in the lottre.	
Attention: Additional information will be provided in the future when the EXTOLL fabric for the Extreme Scale Booster will become available (ET)	A:
September 2020).	
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).	ar
Truning your jobs and that can be used for easing).	
SSSM rack	
This rack hosts the master nodes, file servers and the storage as well as network components for the Gigabit Ethernet administration and service	
This rack hosts the master nodes, file servers and the storage as well as network components for the Gigabit Ethemet administration and service networks. Users can access the login node via deep@tr-justich.de (implemented as virtual machine running on the master nodes). The rack is air-rocked.	
air-cooled.	
CM rack	
l .	
Contains the hardware of the DEEP-EST Cluster Module including compute nodes, management nodes, network components and liquid cooling	unit.
DAM rack	
This rack hosts the nodes of the Data Analytics Module of the DEEP-EST prototype and the Network Federation Gateways. The rack is air-cooler	
SDV rack	d.
	d.
l .	
Along with the prototype systems serveral test nodes and so called software development vehicles (SDVs) have been installed in the scope of the DEEPV-ER.EST) projects. These are located in the SDV rack (67). The following components can be accessed by the users:	
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