MinoTauro is a heterogeneous cluster where the main computational power is provided by NVIDIA GPUs. This cluster is the second most powerful at BSC and it is available as part of the RES resources and as Tier-1 system at the DECI-PRACE calls. The system provides more than 300TFlops in total.

System Overview

NVIDIA GPU is a heterogeneous cluster with 2 configurations, the first one with 61 Bull B505 blades each blade with the following technical characteristics:

- 2 Intel E5649 (6-Core) processor at 2.53 GHz
- 2 M2090 NVIDIA GPU Cards
- 24 GB of Main memory
- Peak Performance: 81.20 TFlops (M2090) + 7.40 TFlops (Westmere) = 88.60 TFlops
- 250 GB SSD (Solid State Disk) as local storage
- 2 Infiniband QDR (40 Gbit each) to a non-blocking network
- RedHat Linux
- 14 links of 10 GbitEth to connect to BSC GPFS Storage

And with 39 bullx R421-E4 servers, each server with:

- 2 Intel Xeon E5-2630 v3 (Haswell) 8-core processors, (each core at 2.4 GHz, and with 20 MB L3 cache)
- 2 K80 NVIDIA GPU Cards
- 128 GB of Main memory, distributed in 8 DIMMs of 16 GB -- DDR4 @ 2133 MHz - ECC SDRAM --
- Peak Performance: 226.98 TFlops (K80) + 23.96 TFlops (Haswell) = 250.94 TFlops
- 120 GB SSD (Solid State Disk) as local storage
- 1 PCIe 3.0 x8 8GT/s, Mellanox ConnectX®-3FDR 56 Gbit
- 4 Gigabit Ethernet ports.

**Software available**

- Red Hat Enterprise Server
- BullX Cluster Suite
- Intel Cluster Studio
  - C/C++/Fortran Compilers
  - MKL
  - Intel MPI
  - Intel Trace Analyzer and Collector
- PGI Accelerator Fortran Server
- NVIDIA CUDA Toolkit
- OpenMPI
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