“Haswell” Nodes - 303.2 Peak TF

- (376) Poweredge C6320
  - 4 in 2U Design
  - 2x e5-2680v3
  - 128GB - 8x16GB
  - 1x200GB - Intel S3610 SSD
  - 1x OPA HFI in a x16 pcie slot
  - idrac express, dedicated port per node
  - Transceiver SFP+ to BT
  - HPC BIOS
  - 2x1400W psu per chassis
  - 5 yrs hardware warranty NBD
“KnL” Nodes – 53.4 Peak TF

- (20) KnL Nodes
  - 4 in 2U design
  - KnL-F 2.6GHz
  - 96GB RAM - 6x16GB
  - 1x200GB SSD
  - Integrated dual port OPA HFI
  - 5 years hardware warranty NBD
  - Redundant PSU

- Early design units shown at SC15
  - TTM based on Intel
“GPU” Nodes: 15.3 CPU TF + 71.1 GPU TF

- (19) Poweredge C4130 (config D)
  - 1U Chassis
  - 2x e5-2680v3
  - 2x NVIDIA K80
  - 128GB RAM – 8x16GB
  - 1x200GB HDD
  - 1x OPA HFI in a x16 pcie slot
  - Idrac express, dedicated port
  - HPC BIOS
  - 1x1600W PSU – Non Redundant
  - 5 yrs hardware warranty NBD
“Hi-Mem” Nodes – 6.5 Peak TF

- (5) Poweredge R930
  - 4x E5-4830v3
  - 1TB RAM – 64x16GB DIMMs
  - H730 Storage Controller – JBOD Mode
  - 12TB raw local storage – 12x1TB nl-sas drives
  - Idrac express, dedicated port
  - 5 yrs hardware warranty NBD
  - Redundant Hot Swap PSU
Storage Gateway Nodes

• (2) Poweredge R430
  – 1xE5-2623v3 3GHz 4C
  – 32GB RAM 4x8GB
  – 2x500GB SATA RAID1
  – Redundant PSU
  – Dual port 10Gb Ethernet
  – Idrac Enterprise
  – 5 yrs ProSupport Mission Critical 4 hour response
OPA Fabric Mgt Nodes

- (2) Poweredge R430
  - 1x E5-2623v3 3GHz 4C
  - 16GB RAM 4x4GB
  - 1x 500GB SATA
  - Redundant PSU
  - Idrac express
  - ProSupport NBD
Intel Omni-Path Adapters

Host Fabric Interface [HFI]

**Description**: Omni-Path interface card which provides host to switch connectivity.

**Max Data Rate**
- 100 Gbps – PCIe x16
  - *Supported with PowerEdge R430, R630, R730/XD, R930, C6320, and C4130*

**MTU**
Configurable MTU size of 2 KB, 4 KB, 8 KB or 10 KB

**Interfaces**
Supports QSFP 28 quad small form factor pluggable passive copper and optical cables

**Warranty**
Intel does not warranty cables or HFIs. We have included 10 extra HFIs, and 2 extra cables of each length
Dell Networking H-series Omni-Path switches

**H-series Switches** Dell Networking H1048 Omni-Path switch

- (22) 1U 48 Port Switches
  - 14 leaf, 8 spine
  - Fabric easily expands to 24 leaf switches
  - Non-Redundant PSU
Ethernet

- (1x) Dell S4048-ON 10Gb AND (20x) Dell S3048-ON 1Gb
- PSU to Port Airflow
- Redundant PSU on the S4048, Single PSU on the S3048s
- Single 10Gb uplink per 1Gb Switch
  - Adequate ports to do 2x10Gb uplinks, but future expansion may require expanding the core
- Optional 40Gb Uplink to the Science Ethernet Network
Proposed Ethernet and Omnipath Topology