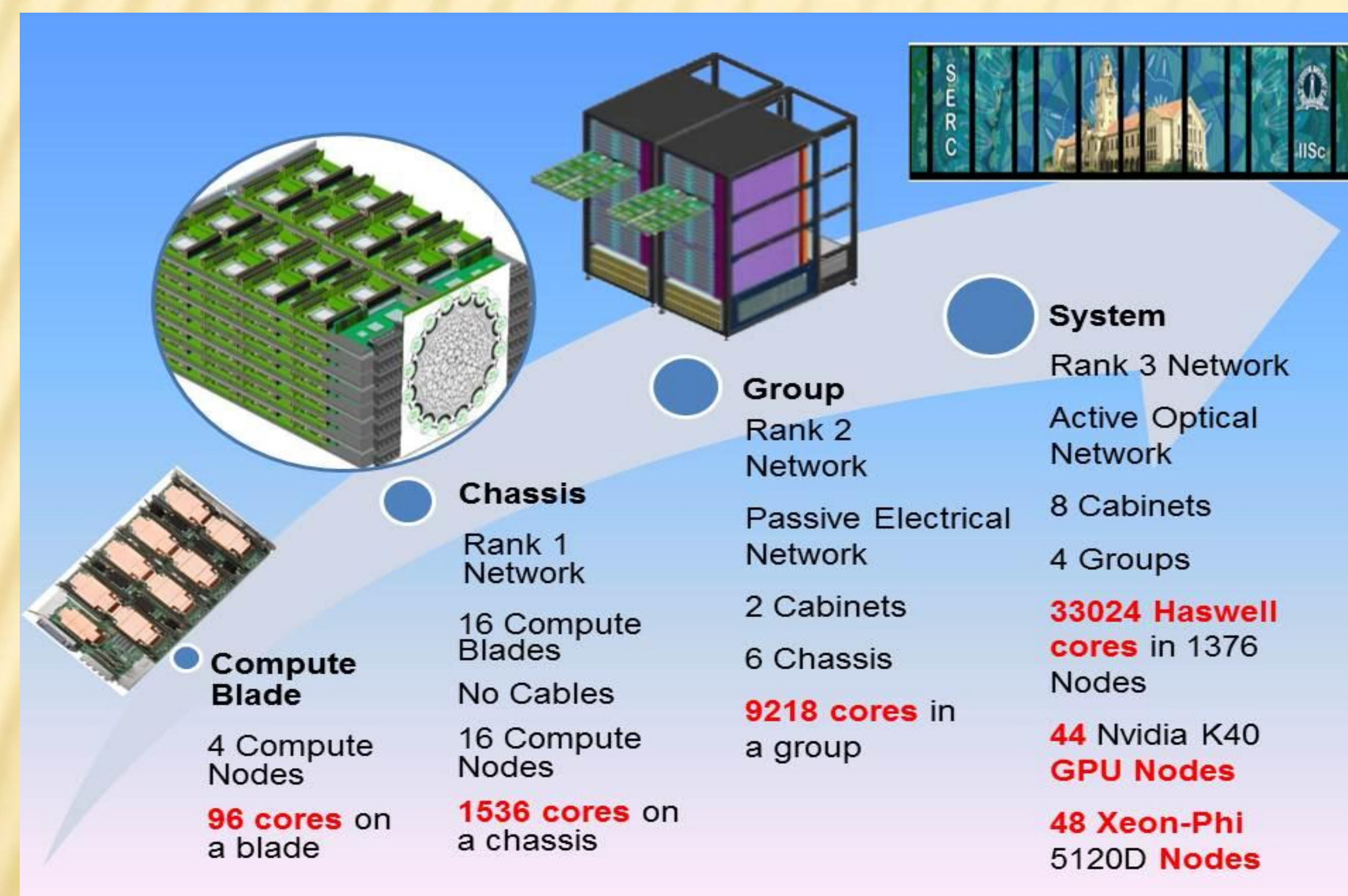


# CRAY XC40

Fastest Supercomputer in India as on Feb. 2015



## System Building Blocks



## System Performance

Type of node	Number of Nodes	HPL (sustained)
Compute cluster	1296	901 TeraFlops
GPU cluster	44	52 TeraFlops
Xeon Phi cluster	42	28 TeraFlops

## Storage Configuration

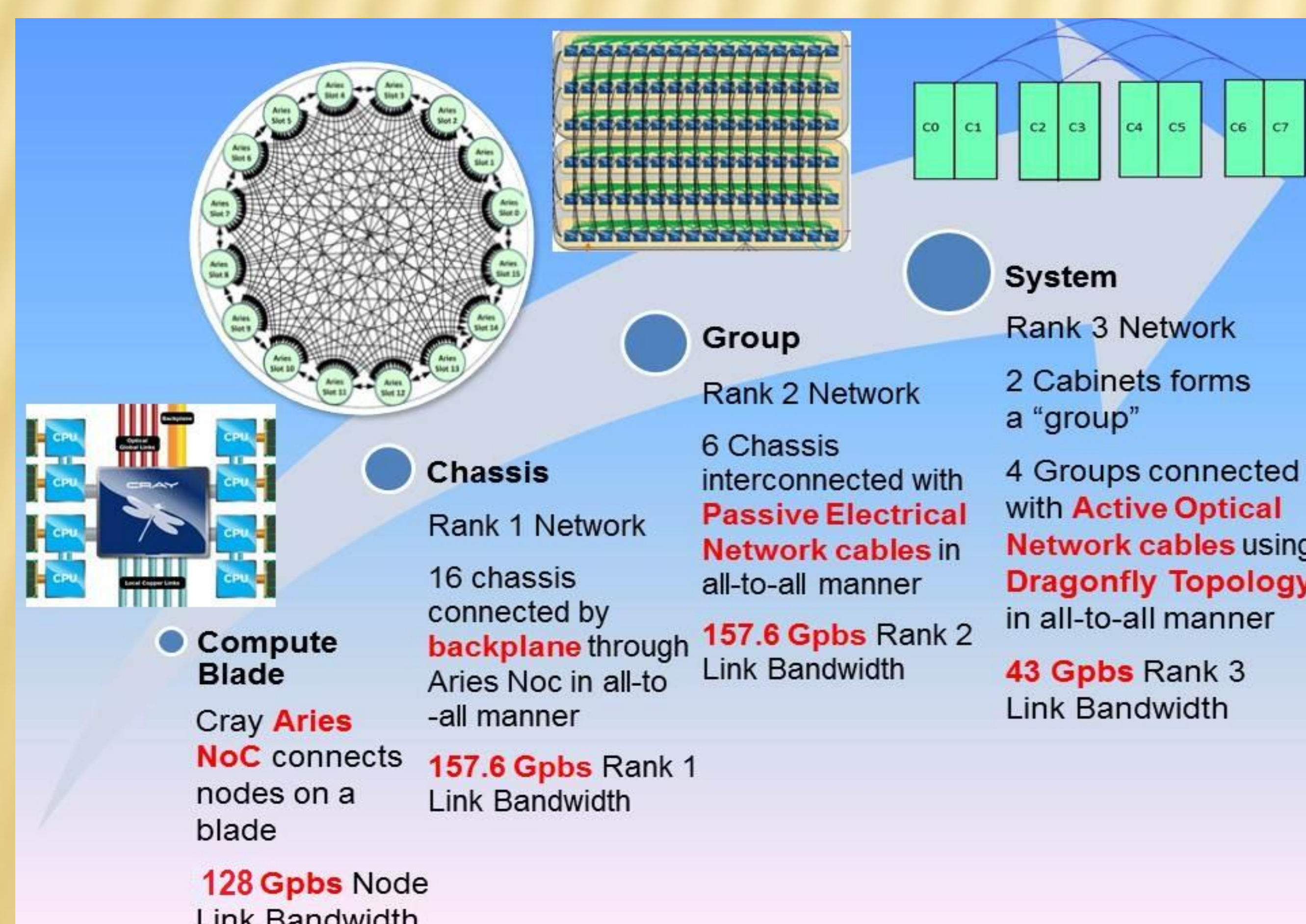
No. of cabinets	No. of Enclosures/ cabinet	No. of disks/ enclosure	Total no. of disks	Total Raw Capacity	Total Usable File System Capacity	IOR Performance
4	5	48 X 3 TB	960	2.88 PB	2 PB	27.7 GB/sec Read 32.2 GB/sec Write

## Tools and Libraries

### Cray XC40 Programming Environment

Programming Languages	Programming Models	Compilers	Tools	Optimized Scientific Libraries	I/O Libraries
Fortran	Distributed Memory (Cray MPT) • MPI • SHMEM	Cray Compiling Environment (CCE)	Environmental Setup Modules Debuggers	LAPACK	NetCDF
C		GNU	Allinea (DDT)	SCALAPACK	HDF5
C++	Shared Memory • OpenMP 3.0	3rd party Compilers • Intel Compilers	Igdb	BLAS	
Python	PGAS & GlobalView • UPC • CAF		Debugging Supported Tools	Iterative Refinement Toolkit	
			ATP	Cray Adaptive FFTs (CRAFFT)	
			STAT	FFT	
			Performance Analysis	Cray PETSc (with CASK)	
			• Cray PAT • Cray Apprentice	Cray Trilinos (with CASK)	
			Scoping Analysis		
			Reveal		

## Interconnection Building Blocks



## System Configuration

Type of node	Processor Make	No. of CPU cores/ node	RAM / node	Total No. of Nodes	Total cores	Total RAM
Compute nodes	Intel Haswell processor 12 core operating at 2.5 GHz	24	128 GB	1376	33024	172 TB
Intel Xeon phi nodes	Intel IvyBridge processor 12 core operating at 2.4 GHz	12(CPU)+1(Phi 5120D card)	64 GB	48	576(CPU)+2928(MIC cores)	3 TB
GPU nodes	Intel IvyBridge processor 12 core operating at 2.4 GHz	12(CPU)+1(GPU K40 card)	64 GB	44	528(CPU)+126720(cuda cores)	2.75 TB
Service/login nodes	Intel SandyBridge processor 8 core operating at 2.6 GHz	8	32 GB	15	240	480 GB
DVS nodes	Intel Haswell processor 12 core operating at 2.5 GHz	24	128 GB	8	192	1 TB