Other supercomputing resources

Every supercomputer is unique,
just like a snowflake

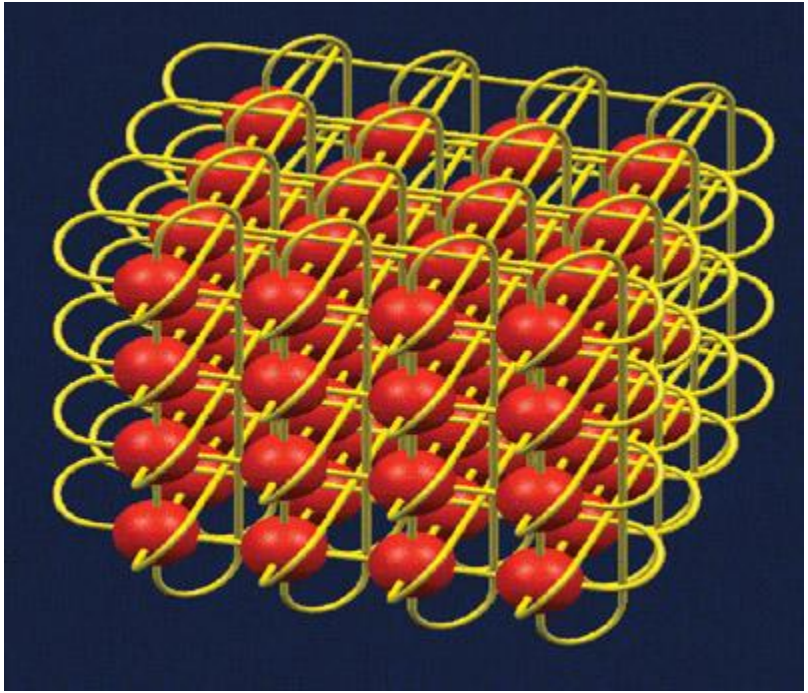
XSEDE resources

- XSEDE has pooled supercomputing resources accessible from one account
- Workspace + archival space
- Module-based environment management
- Run jobs via a job scheduler

Gordon (SDSC)

- Built as a “data intensive” computer
- 64 I/O nodes incorporating SSD flash-based memory
- 300TB of flash storage
  - Test this?
- uses a 3D Torus topology

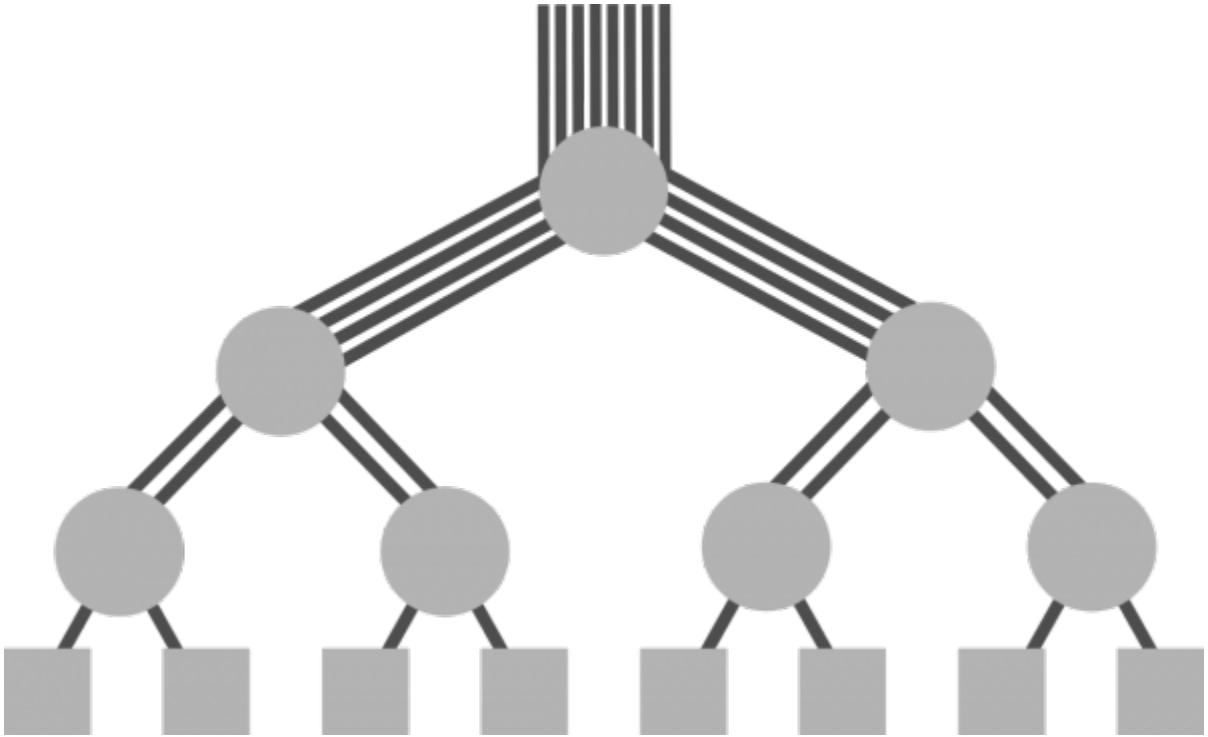
3D Torus



Stampede (TACC)

- aimed at *many users, with a breadth of applications*
- large shared-memory system
- GPUs for viz directly on the system (*in situ*)
- uses a fat tree topology

Fat tree



Compute for SuperMike-II

“SuperMike-II is a 146 TFlops Peak Performance 440 compute node cluster running the Red Hat Enterprise Linux 6 operating system. Each node contains two 8-Core Sandy Bridge Xeon 64-bit processors operating at a core frequency of 2.6 GHz.” - LSU

Time for y’all to compute! Get in pairs.
How many floating point operations per cycle?

For reference

Name	**Stampede**	**Gordon**
Performance	9.6 PF	0.341 PF
Compute node	2.7GHz Intel Xeon E5 (Sandy Bridge)	2.6 GHz Intel EM64T Xeon E5 (Sandy Bridge)
# of nodes	6400	1024
# of cores	522,080	16,384
Interconnect	56Gb/s FDR Mellanox InfiniBand	8 GB/s FDR Mellanox InfiniBand
Hard Disk	14+ PB, 150 GB/s	1.5 PB disk, 100 GB/s
Memory	270 TB total memory (16TB shared memory)	64 TB memory

Sources for previous table

- https://www.tacc.utexas.edu/stampede/
- https://www.tacc.utexas.edu/c/document_library/get_file?uuid=106ea90a-1a42-4336-b3dd-1e77c846b156
- http://www.sdsc.edu/supercomputing/gordon/system_info/