

NCAR/CU Computational System

- Compute nodes (Dell C6100) 1368
- Total cores 16416
- Peak performance 184 GFLOP/s
- 2GB of DDR3 1333Mhz RAM/core (32TB total)
- Storage
 - 2x DDN SFA10000: 16-20 GB/s max throughput
 - 600 2TB drives → 1.2 PB raw
- Interconnect
 - Mellanox **fully nonblocking** QDR InfiniBand,
 - Core switches: 3x 648-port

MRI System

■ Compute Node: Dell c6100 (12 cores)	
■ Clock speed: (GHz)	2.8
■ (FLOPS/cycle)/core	4
■ cores/socket	6
■ sockets/node	2
■ (GFLOP/s)/node	134.4
■ Compute nodes	1368
■ Total cores	16416
■ Peak performance	184 GFLOP/s

Comparative Performance

RP	Name	Vendor	Cores	CPU Type	Peak TFLOP/s
ORNL	Jaguar	Cray XT5	224,162	Opteron x6	2331
LANL	Roadrunner	IBM QS22	122,400	Opteron & Cell	1375
ORNL/NICS	Kraken	Cray XT5	98,928	Opteron x6	1028
Juelich	Jugene	IBM BG/P	294,912	PPC 450	1002
TACC	Ranger	Sun	62,976	Opteron x4	579
Sandia	Red Sky	Sun	41,616	Nehalem	487
NCSA	Abe	Dell	9,600	Intel 64	89
TACC	Lonestar	Dell	5,840	Intel 64	62
PSC	BigBen	Cray XT4	4,180	Opteron	21
NCSA	Cobalt	SGI Altix	1,024	Itanium	6
NCAR	Frost	IBM BG/L	2,048	PPC 440	5
CU/NCAR	TBD	Dell	16,416	Westmere	184

CU Facility

- Dell DCS “containerized” solution
 - Full 15-year lifespan 65' x 35' building fabricated to order, not repurposed containers
- Power
 - 2 MW feed
 - 60kW N+1 UPS power for admin/storage/core network
- Cooling
 - Evaporative cooler, “free-cooling” flat plate
 - 337 ton chiller (expected to run 5% of the time)
 - 20 APC ACRC500 chilled water in-row cooling units
- Facility PUE: $1.2 \pm 10\%$