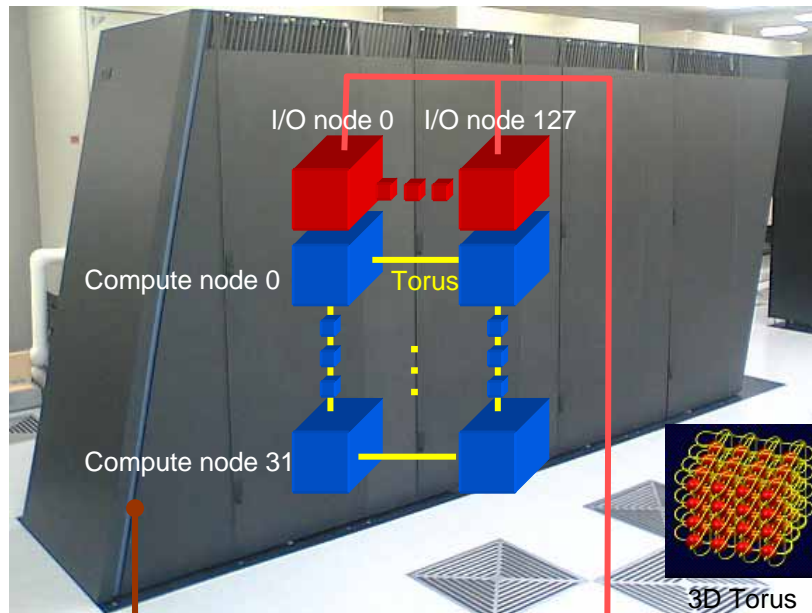
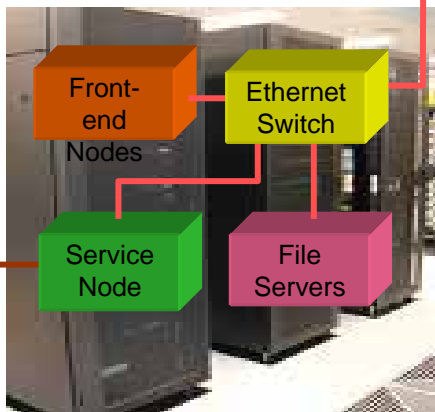


BlueGene/L System



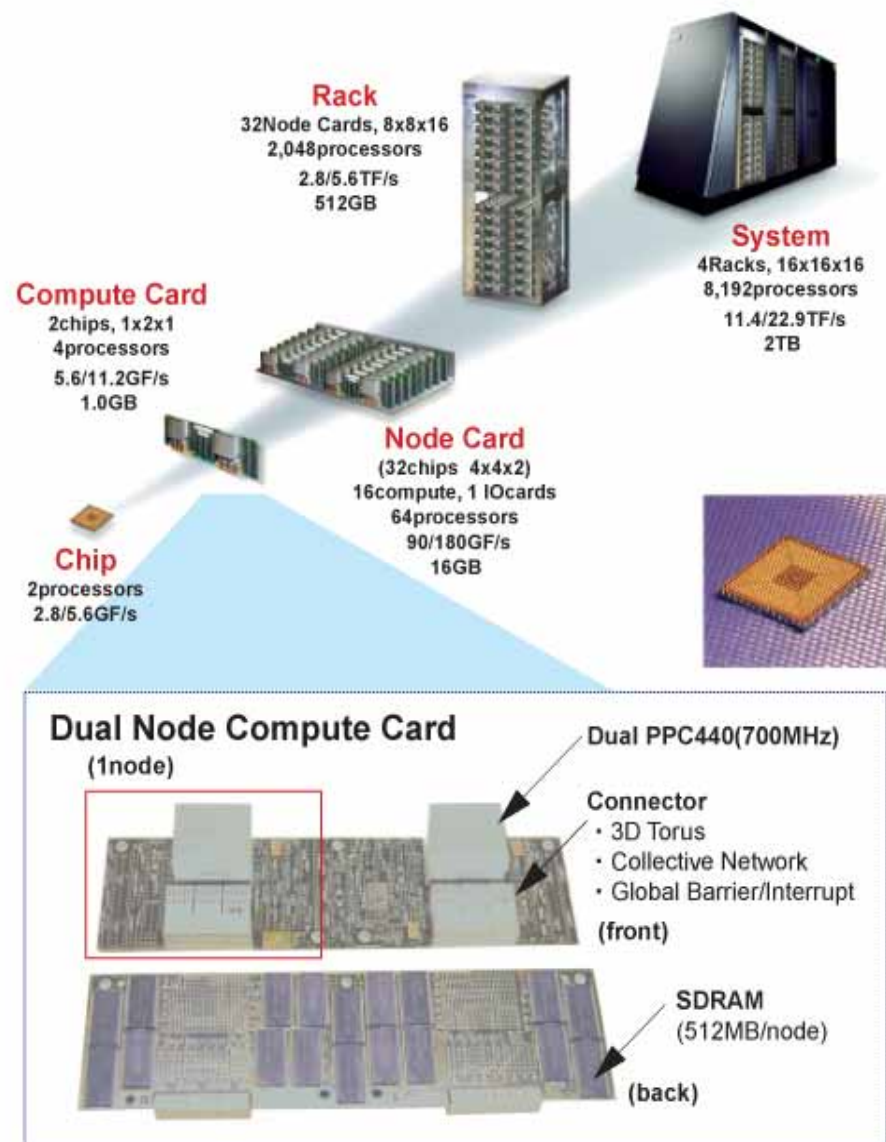
BlueGene/L core



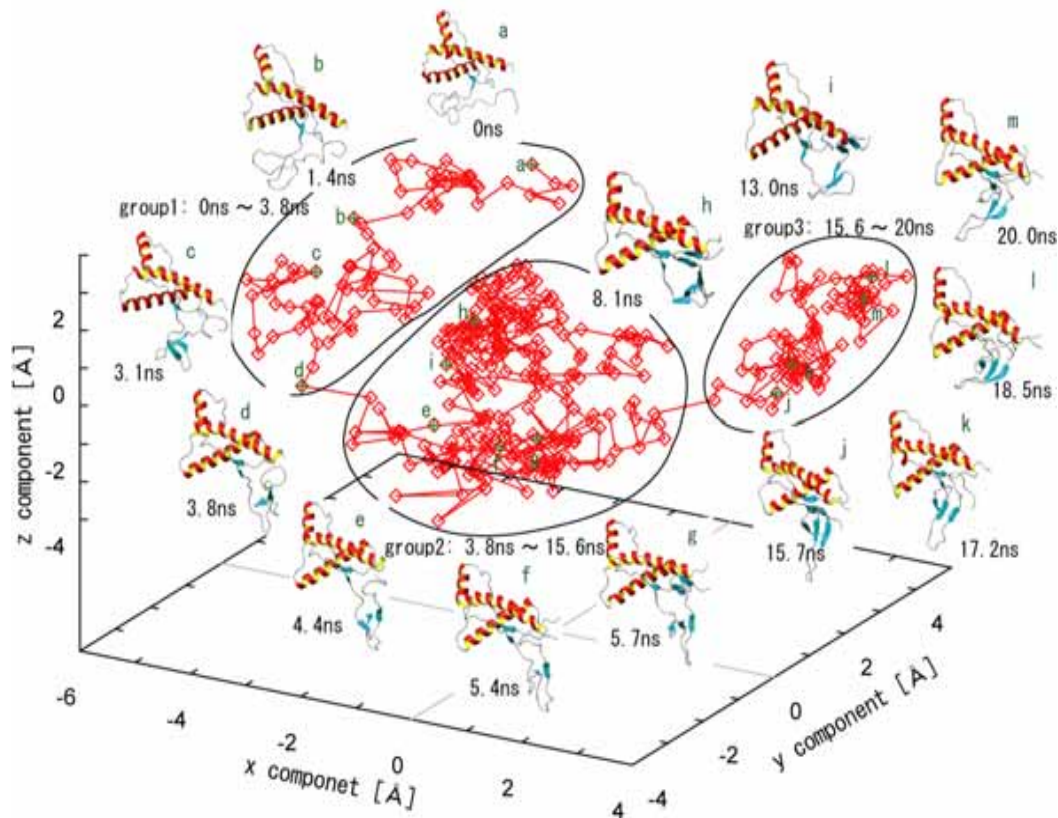
Control Management Network

Front End Node, Service Node, File System

Processor	8,192 processors (Dual PowerPC 440 700MHz; per node)
Memory	2 TeraBytes (512 MB SDRAM-DDR per node)
Networks	3D Torus - 175MB/sec in each direction Collective Network – 350MB/sec; 1.5 μ sec latency Global Barrier/Interrupt Gigabit Ethernet (machine control and outside connectivity)
Compute Nodes	Dual processor; 4096 nodes (1024 nodes per rack)
I/O Nodes	Dual processor; 128 nodes (32 nodes per rack)
Operating Systems	Compute Node – Lightweight proprietary kernel I/O Node – Embedded Linux Front End Nodes – SuSE SLES 9 Linux Service Nodes – SuSE SLES 8 Linux
Performance	22.9 teraflops peak (virtual node mode) 11.4 teraflops peak (coprocessor mode) 18.2 teraflops Linpack
Size	Width:4517mm / Depth:915mm / Height:1958mm Weight:2740kg
Power	124kVA (31kVA/rack)
File System	General Parallel File System for Linux 8 File Servers (xSeries 345), 20TeraByte Disk System
Front End Node	2way Power5 1.65GHz (p520), C++, Fortran
Service Node	4way Power4+ 1.5GHz (p650), DB2 UDB



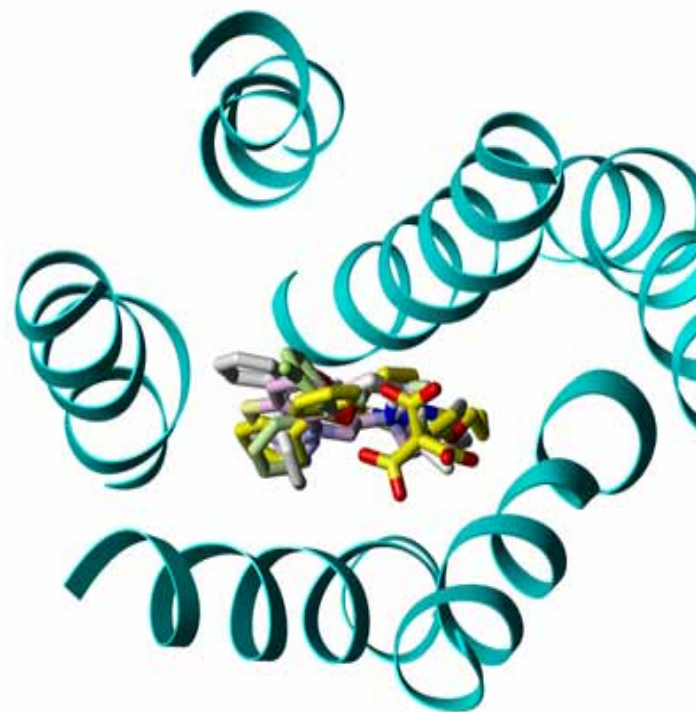
Possible applications at CBRC



A trajectory of a disease-related mutant of human prion protein (P102L) projected along its first three principal components (by Sekijima et al.).

Molecular dynamics simulations

Analysis of the molecular dynamics of disease-related proteins, or target proteins of drug design.



Complex model of histamine H1 receptor (light blue) and its antagonist (by Hirokawa).

Protein-ligand docking simulations

Protein-ligand binding prediction, estimation of binding free energy, etc.