

# IBM® System Blue Gene®/P Benefits – At a Glance



Attribute	Details	Benefits
Processor	IBM® PowerPC® 450 850 MHz; four per node	Low power allows dense packaging; optimize processor-memory balance
Memory	2 GB SDRAM-DDR per node (Model 0206-850)	Wider application reach
Networks	3D Torus – 5.1 GB/s; 3.5 usec latency (MPI point to point between nearest neighbors) Collective Network – 1.7 GB/s per port; There are three ports per chip for the collective network; 2.5 usec latency Global Barrier/Interrupt Optical 10 Gigabit Ethernet (machine control and outside connectivity) GB Control Network (system boot, debug, monitoring)	Special networks speed up internode communications; designed for MPI programming constructs; improve systems management
Compute Nodes	Quad SMP processor chip; 1024 per rack	Double FPU improves performance and increases application portfolio
I/O Nodes (10GbE)	Quad SMP processor. Configurable from 8 to 64 per rack. 8 is the default configuration	Increases relative I/O performance
Operating Systems	Compute Node – Lightweight proprietary kernel I/O Node – Linux® operating system Front End and Service Nodes – SUSE LINUX SLES 10	Kernel tailored to processor design; industry-standard distribution preserves familiarity to end user and administrators
Performance	Peak per rack – 13.9 teraflops	Highest available performance benefits capability customers
Power	40 kW power consumption per rack (maximum) 200-240 VAC 3-phase; 175 amp service per rack	Low power draw enables dense packaging, helps reliability and helps reduce costs
Cooling	Air conditioning ~13 tons/rack (minimum)	Low cooling requirements enable extreme scale-up
Dimensions (includes air duct)	Height–1956 mm Width–1220 mm Depth–966 mm Weight–782 Kg Service clearance–914 mm Raised floor height –40.64 cm (minimum) 121.92 cm (recommended)	Design allows dense floor layout for optimum floor space utilization