

## IBM® System Blue Gene® Solution and IBM System Blue Gene®/P Solution

Property		Blue Gene/L	Blue Gene/P
Node Properties	Node Processors	2* 440 PowerPC®	4* 450 PowerPC®
	Processor Frequency	0.7GHz	0.85GHz
	Coherency	Software managed	SMP
	L1 Cache (private)	32KB/processor	32KB/processor
	L2 Cache (private)	7 stream prefetching 2 line buffers/stream	7 stream prefetching 2 line buffers/stream
	L3 Cache size (shared)	<b>4MB</b>	<b>8MB</b>
	Main Store	<b>512MB/1GB</b>	<b>2GB</b>
	Main Store Bandwidth (1:2 pclk)	<b>5.6GB/s (16B wide)</b>	<b>13.6 GB/s (2*16B wide)</b>
	Peak Performance	<b>5.6GF/node</b>	<b>13.6 GF/node</b>
Torus Network	Bandwidth	Core/inj/rec packets 6*2*175MB/s= <b>2.1GB/s</b>	DMA inj/rec packets 6*2*425MB/s= <b>5.1GB/s</b>
	Hardware Latency (Nearest Neighbor)	<b>200ns</b> (32B packet) <b>1.6us</b> (256B packet)	<b>160ns</b> (32B packet) <b>1.3us</b> (256B packet)
	Hardware Latency (Worst Case 72 racks)	<b>7us</b> (68 hops)	<b>5.0us</b> (68 hops)
Collective Network	Bandwidth	2*350MB/s= <b>700MB/s</b>	2*0.85GB/s= <b>1.7GB/s</b>
	Hardware Latency (round trip worst case)	<b>6.0us</b>	<b>5.0us</b>
System Properties Example: 72 racks	Area (square meters)	<b>150</b>	<b>200</b>
	Peak Performance	<b>596TF</b>	<b>1PF</b>
	Total Power	1.9MW	2.9MW