

IBM® System Blue Gene®/P Solution Frequent Asked Questions

1. What is IBM® System Blue Gene®/P supercomputer?
 - A: The IBM® Blue Gene®/P Solution is the second generation machine in IBM's Blue Gene program. It adheres to the key design strategies of the Blue Gene program, providing petaflop scale performance in a package that is efficient in term of power, cooling and floor space, thereby reducing the total cost of ownership. Compared to Blue Gene/L, its predecessor, Blue Gene/P extends performance through a doubling of processor cores and a frequency increase, and adds 4-way SMP functionality, hardware DMA, 10 Gb Ethernet, and aggressive power management. Blue Gene/P provides a standard programming environment and supports a wide range of IBM and open source software libraries and middleware.
2. How many nodes in a rack?
 - A: A single Blue Gene/P rack contains 1024 compute nodes where each node contains a quad-core SMP PowerPC® 450 processor. It is running at a frequency of 850 MHz. There is 2GB of memory per node. All cpu-memory interconnects and cpu-cpu interconnects have the same byte/flop ratio as Blue Gene/L supercomputer in spite of the demands from quad-core and higher clock frequency, so porting from Blue Gene/L supercomputer to Blue Gene/P supercomputer is straightforward.
3. When will Blue Gene/P supercomputer be available?
 - A: Blue Gene/P supercomputer was announced on June 26, and it has been available since September 30, 2007.
4. What is the performance?
 - A: One Petaflop peak is the target for a full multirack system. Experiments indicate that the Linpack percent of peak on Blue Gene/P supercomputer will be comparable to or better than that of Blue Gene/L supercomputer.
5. How high does it scale?
 - A: Blue Gene/P supercomputer will scale to 294,912 cores, 73,728 nodes, 72 racks or 1 petaflop peak. 1PF will consume just 2.9MW, and occupy an area of 2800 square feet including storage and hosts.
6. What is Blue Gene/P supercomputer good for? What applications?
 - A: Blue Gene/P supercomputer is designed for ultrascale workloads where commodity clusters cannot be physically or economically constructed to handle the workload. All segments that are running on Blue Gene/L supercomputer will run on Blue Gene/P supercomputer with recompilation. More specifically, biology, astronomy, chemistry, molecular dynamics both classical and quantum, material science, weather, climate, computational fluid mechanics, finite element codes, earthquake, quantum chromodynamics, and many others.
7. Who are the customers or prospects?
 - A: We are working with early adopters in Government, Higher Ed, and selected industrial sectors. Some of the world's leading research laboratories and universities have already placed orders for Blue Gene/P supercomputers. The U.S. Dept. of Energy's Argonne National Laboratory, Argonne, Ill., will deploy the first Blue Gene/P supercomputer in the U.S. beginning later this year. In Germany, the Max Planck Institute and

Forschungszentrum Julich also plan to begin installing Blue Gene/P systems in late 2007. Additional Blue Gene/P system rollouts are being planned by Stony Brook University and Brookhaven National Laboratory in Upton, N.Y., and the Science and Technology Facilities Council, Daresbury Laboratory in Cheshire, England.

8. Can Blue Gene/L supercomputer be converted to Blue Gene/P supercomputer?
 - A: No. Blue Gene/P supercomputer represents new packaging which does not allow conversion from Blue Gene/L supercomputer.

9. Will applications that run on Blue Gene/L supercomputer also run on Blue Gene/P supercomputer?
 - A: Yes, preservation of application investment is essential; recompilation in most cases is all that will be required.

10. How much does it cost?
 - A: The strategy is to offer leadership price-to-sustained performance ratio.

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