THE IBM BLUE GENE/Q COMPUTE CHIP

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The Blue Gene/Q Compute chip is a system optimized for price performance, energy efficiency, and reliability in large-scale scientific applications.

Useful for applications like analytics.

Specifically designed for MPI & OpenMP.
It consists of:
18 IBM PowerPC A2 processors
(45nm Transistors)(16 KB L1 Cache)
Shared 32MB L2 Cache

Adds support for SIMD floating point operations
L1 Prefetching
Stream Prefetching
List Prefetching
WakeUp Unit

Reduces thread-to-thread interactions arising from software blocked in a spin loop.

Allows threads to pause and not waste time waiting.

Increased power efficiency
Each processor core has its own WakeUp unit.

Each WakeUp unit has 12 Wait Address Compare (WAC) registers.

Each WAC snoops writes on the chip looking for a wake up signal.
I suppose we are out of time now.