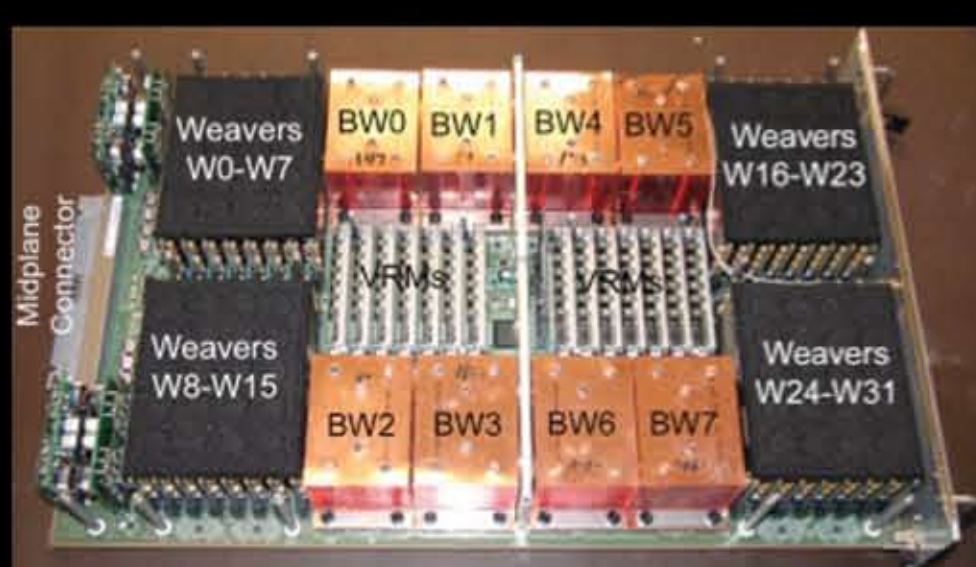


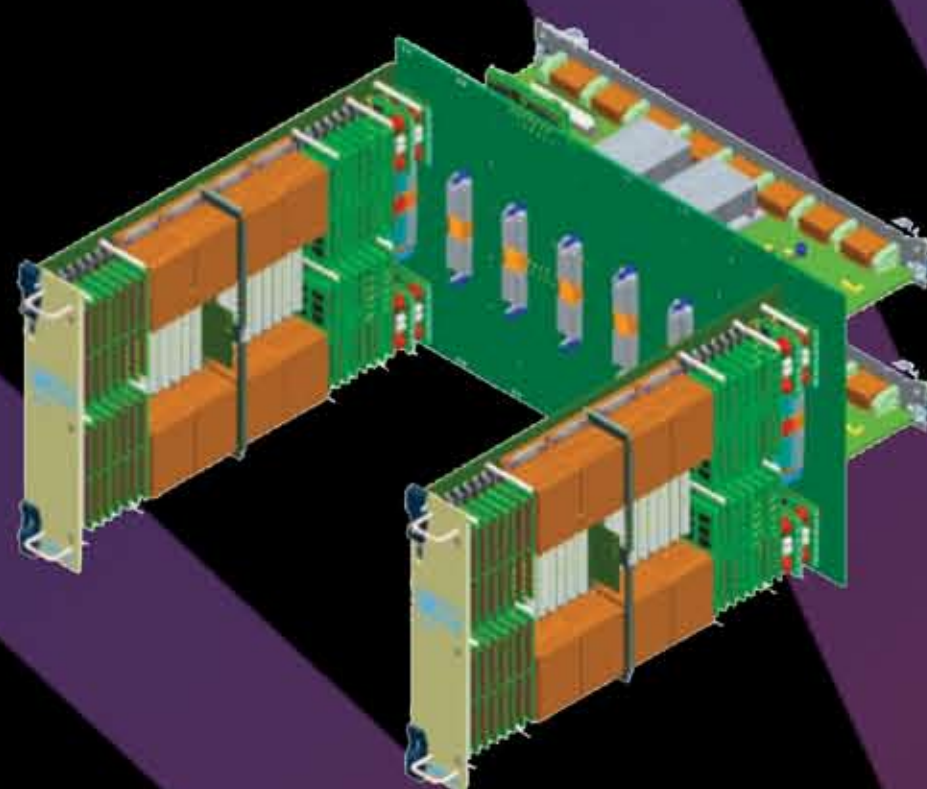
20 Years - Unleashing the Power of HPC

SC07

2007 Chair
Becky Verastegui
 Reno, NV



BlackWidow compute module with two nodes



BlackWidow system packaging

Chassis with 8 compute modules and 4 network cards

2007

Notable Systems first mentioned this year in the proceedings:

- IBM QS20 Cell BE Blade
- SGI Altix 3700
- Sun Fire X2200
- Cray XT4

Notable Processors:

- AMD Opteron 2214
- Intel Clovertown and Woodcrest
- NVIDIA GeForce 8800
- Sun UltraSPARC T2 Niagara2

Noteworthy Architecture Topics:

- Kernel component interference with parallel applications
- Multicore performance
- Failure prediction in large systems
- Energy consumption in large scale computations

Notable Operating Systems:

- UNICOS/lc

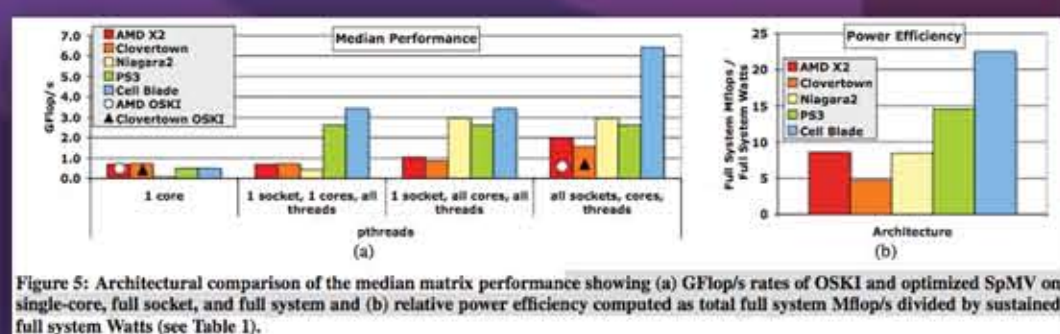


Figure 5: Architectural comparison of the median matrix performance showing (a) GFlop/s rates of OSKI and optimized SpMV on single-core, full socket, and full system and (b) relative power efficiency computed as total full system Mflops divided by sustained full system Watts (see Table 1).

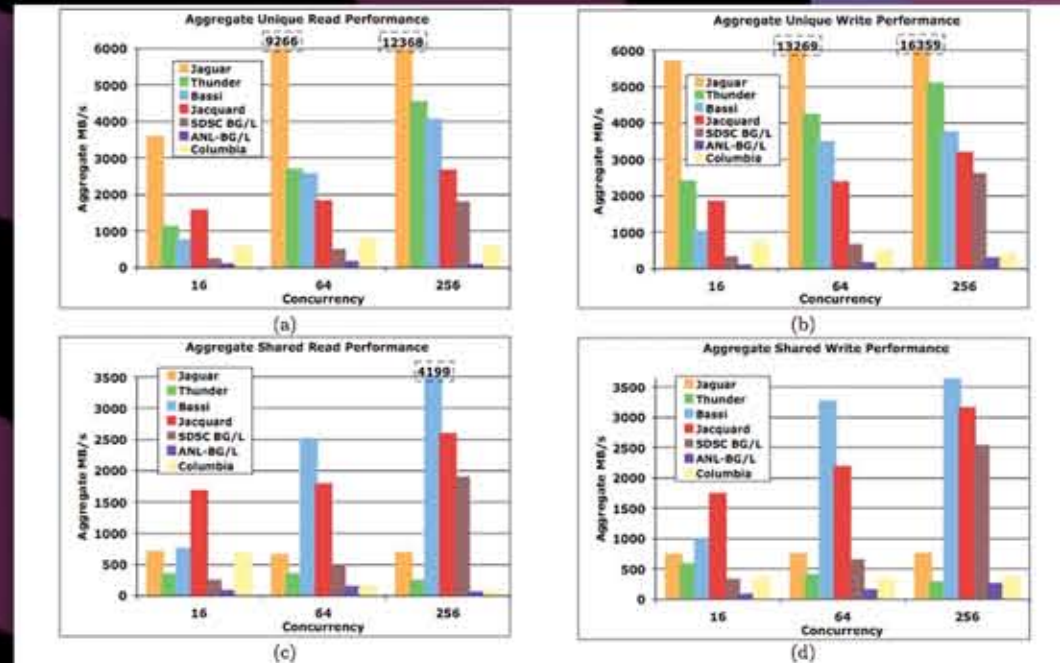


Figure 2: Synchronous MADbench2 aggregate throughput results for fixed concurrencies using the default environment parameters, showing unique file (a) read and (b) write performance, and shared file (c) read and (d) write performance. Note that the Jaguar unique file performance greatly exceeds the limits of the ordinate axes.

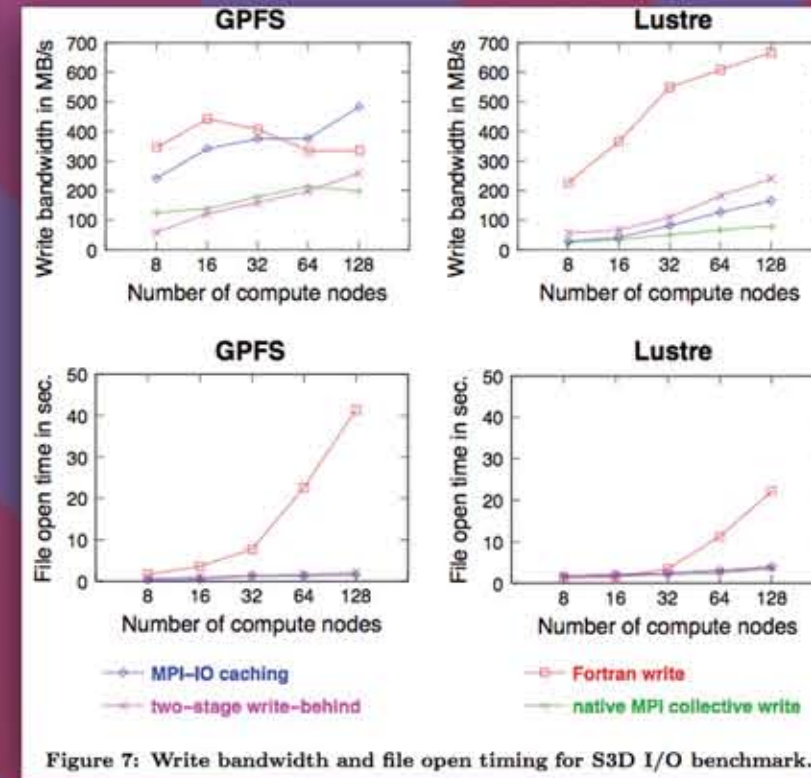


Figure 7: Write bandwidth and file open timing for S3D I/O benchmark.

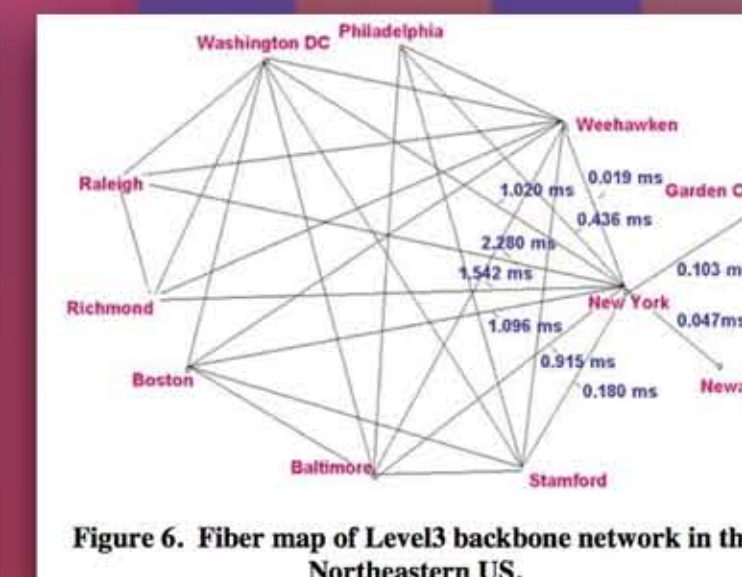


Figure 6: Fiber map of Level3 backbone network in the Northeastern US.

Part of the Internet backbone on the east coast