



# SPEC<sup>®</sup> MPIM2007 Result

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## QLogic, TeamHPC

QLogic Benchmark Cluster  
with TeamHPC compute nodes

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = NC

MPI2007 license: 0018

Test sponsor: QLogic Corporation

Tested by: QLogic Performance Engineering

Test date: Jul-2008

Hardware Availability: May-2008

Software Availability: Jul-2008

Ranks
104.milc
107.leslie3d
113.GemsFDTD
115.fds4
121.pop2
122.tachyon
126.lammps
127.wrf2
128.GAPgeofem
129.tera_tf
130.socorro
132.zeusmp2
137.lu

## Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	32	NC	NC	NC	NC	NC	NC							
107.leslie3d	32	NC	NC	NC	NC	NC	NC							
113.GemsFDTD	32	NC	NC	NC	NC	NC	NC							
115.fds4	32	NC	NC	NC	NC	NC	NC							
121.pop2	32	NC	NC	NC	NC	NC	NC							
122.tachyon	32	NC	NC	NC	NC	NC	NC							
126.lammps	32	NC	NC	NC	NC	NC	NC							
127.wrf2	32	NC	NC	NC	NC	NC	NC							
128.GAPgeofem	32	NC	NC	NC	NC	NC	NC							

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



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### Results Table (Continued)

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
129.tera_tf	32	NC	NC	NC	NC	NC	NC									
130.socorro	32	NC	NC	NC	NC	NC	NC									
132.zeusmp2	32	NC	NC	NC	NC	NC	NC									
137.lu	32	NC	NC	NC	NC	NC	NC									

Results appear in the order in which they were run. Bold underlined text indicates median measurement.

#### Hardware Summary

Type of System: Homogeneous  
 Compute Node: TeamHPC RM2UDSEB-DG  
 Interconnect: QLogic InfiniBand HCAs and switches  
 File Server Node: FusionSA  
 Head Node: FusionSA  
 Total Compute Nodes: 4  
 Total Chips: 8  
 Total Cores: 32  
 Total Threads: 32  
 Total Memory: 64 GB  
 Base Ranks Run: 32  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

#### Software Summary

Compiler: Intel C Compiler for Linux  
 Version 10.1, Build 20080312  
 C++ Compiler: Intel C++ Compiler for Linux  
 Version 10.1, Build 20080312  
 Fortran Compiler: Intel Fortran Compiler for Linux  
 Version 10.1, Build 20080312  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 MPI Library: QLogic MPI 2.2  
 Other MPI Info: None  
 Pre-processors: No  
 Other Software: QLogic InfiniPath 2.2 (OFED 1.3)

### Node Description: TeamHPC RM2UDSEB-DG

#### Hardware

Number of nodes: 4  
 Uses of the node: compute  
 Vendor: TeamHPC  
 Model: RM2UDSEB-DG (as DSEB-DG motherboard)  
 CPU Name: Intel Xeon E5472  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 8  
 Cores enabled: 32  
 Cores per chip: 4  
 Threads per core: 1  
 CPU Characteristics: Quad-Core, 3.0GHz, 1600MHz FSB  
 CPU MHz: 3000  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8x2GB PC2-6400 FB-DIMMs)  
 Disk Subsystem: 1 x 80GB SATA II with 8MB cache  
 Other Hardware: None

#### Software

Adapter: QLogic QLE7280 InfiniBand DDR  
 (PCIe x16 Gen1 2.5 GT/s)  
 Adapter Driver: QLogic InfiniPath 2.2 (OFED 1.3)  
 Adapter Firmware: None  
 Operating System: CentOS release 5 (x86\_64)  
 Kernel 2.6.18-53.1.14.el5  
 Local File System: ext3  
 Shared File System: NFSv3 IPoIB  
 System State: Multi-user, run level 3  
 Other Software: None

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Tested by: QLogic Performance Engineering

Test date: Jul-2008

Hardware Availability: May-2008

Software Availability: Jul-2008

### Node Description: TeamHPC RM2U SEB-1G

Adapter: QLogic QLE7280 InfiniBand DDR  
(PCIe x16 Gen1 2.5 GT/s)

Number of Adapters: 1

Slot Type: PCIe x16 Gen2

Data Rate: InfiniBand 4x DDR

Ports Used: 1

Interconnect Type: InfiniBand

### Node Description: FusionSA

**Hardware**

Number of nodes: 1

Uses of the node: head, file server

Vendor: Western Scientific

Model: FusionSA (storage appliance) with  
Tyan Thunder n6650W (S2917) motherboard and  
LSI Logic MegaRAID SAS 3040SE RAID controller

CPU Name: AMD Opteron 2218

CPU(s) orderable: 1,2 chip

Chips enabled: 2

Cores enabled: 4

Cores per chip: 2

Threads per core: 1

CPU Characteristics: --

CPU MHz: 2600

Primary Cache: 64 KB I+D on chip per core

Secondary Cache: 1 MB I+D on chip per core

L3 Cache: None

Other Cache: None

Memory: 16 GB (8 x 2 GB PC2-5300 ECC)

Disk Subsystem: 8 x 7.5 GB SAS 15K RPM

Other Hardware: None

Adapter: QLogic QLE7240 InfiniBand DDR  
(PCIe x8 Gen1 2.5 GT/s)

Number of Adapters: 1

Slot Type: PCIe x16 Gen1 (x8 signal)

Data Rate: InfiniBand 4x DDR

Ports Used: 1

Interconnect Type: InfiniBand

**Software**

Adapter Driver: QLogic QLE7240 InfiniBand DDR  
(PCIe x8 Gen1 2.5 GT/s)

Adapter Firmware: QLogic InfiniPath 2.2 (OFED 1.3)

Operating System: None

Local File System: Red Hat Enterprise Linux AS release 4 (Update 5)  
Kernel 2.6.9-55.ELsmp

Shared File System: Software RAID 0, ext3

System State: Multi-User

Other Software: None



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### Interconnect Description: QLogic InfiniBand HCAs and switches

	Hardware	Software
Vendor:	QLogic	
Model:	QLogic 7200 Series TrueScale HCAs,	
Switch Model:	QLogic SilverStorm 9024 Switch	
Number of Switches:	1	
Number of Ports:	24	
Data Rate:	InfiniBand 4x DDR	
Firmware:	Switch chassis: firmware version 4.2 Switch silicon: Anafa II Firmware 1.0.4	
Topology:	Star, one switch	
Primary Use:	MPI, file server	

### General Notes

Required alternate sources:  
 129.tera\_tf: fixbuffer  
 Alternate source:  
 104.milc: calloc  
 Enabled 4K IB MTUs with QLogic SilverStorm 9024 switch  
 parameter setting "ismChassisSetMtu 5"  
 BIOS parameter Snoop Filter set to "Disabled" on the compute nodes  
 The mpirun rcfile contained "ulimit -s unlimited"

### Base Compiler Invocation

C benchmarks:  
 /usr/bin/mpicc -cc=icc  
 C++ benchmarks:  
 /usr/bin/mpicxx -CC=icpc  
 Fortran benchmarks:  
 /usr/bin/mpif90 -f90=ifort  
 Benchmarks using both Fortran and C:  
 /usr/bin/mpicc -cc=icc /usr/bin/mpif90 -f90=ifort

### Base Portability Flags

121.pop2: -DSPEC\_MPI\_CASE\_FLAG  
 127.wrf2: -DSPEC\_MPI\_LINUX -DSPEC\_MPI\_CASE\_FLAG



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## Base Optimization Flags

C benchmarks:

-O3 -ipo -xT -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xT

Fortran benchmarks:

-O3 -ipo -xT -no-prec-div

Benchmarks using both Fortran and C:

-O3 -ipo -xT -no-prec-div

The flags file that was used to format this result can be browsed at  
[http://www.spec.org/mpi2007/flags/QLogic\\_Core\\_Intel101\\_flags.html](http://www.spec.org/mpi2007/flags/QLogic_Core_Intel101_flags.html)

You can also download the XML flags source by saving the following link:  
[http://www.spec.org/mpi2007/flags/QLogic\\_Core\\_Intel101\\_flags.xml](http://www.spec.org/mpi2007/flags/QLogic_Core_Intel101_flags.xml)

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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