



SPEC® MPIM2007 Result

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QLogic, Intel, Supermicro

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 41.3

QDR Benchmark Cluster (QLogic TrueScale InfiniBand, Intel Xeon X5570, 2.93 GHz)

MPI2007 license: 0018

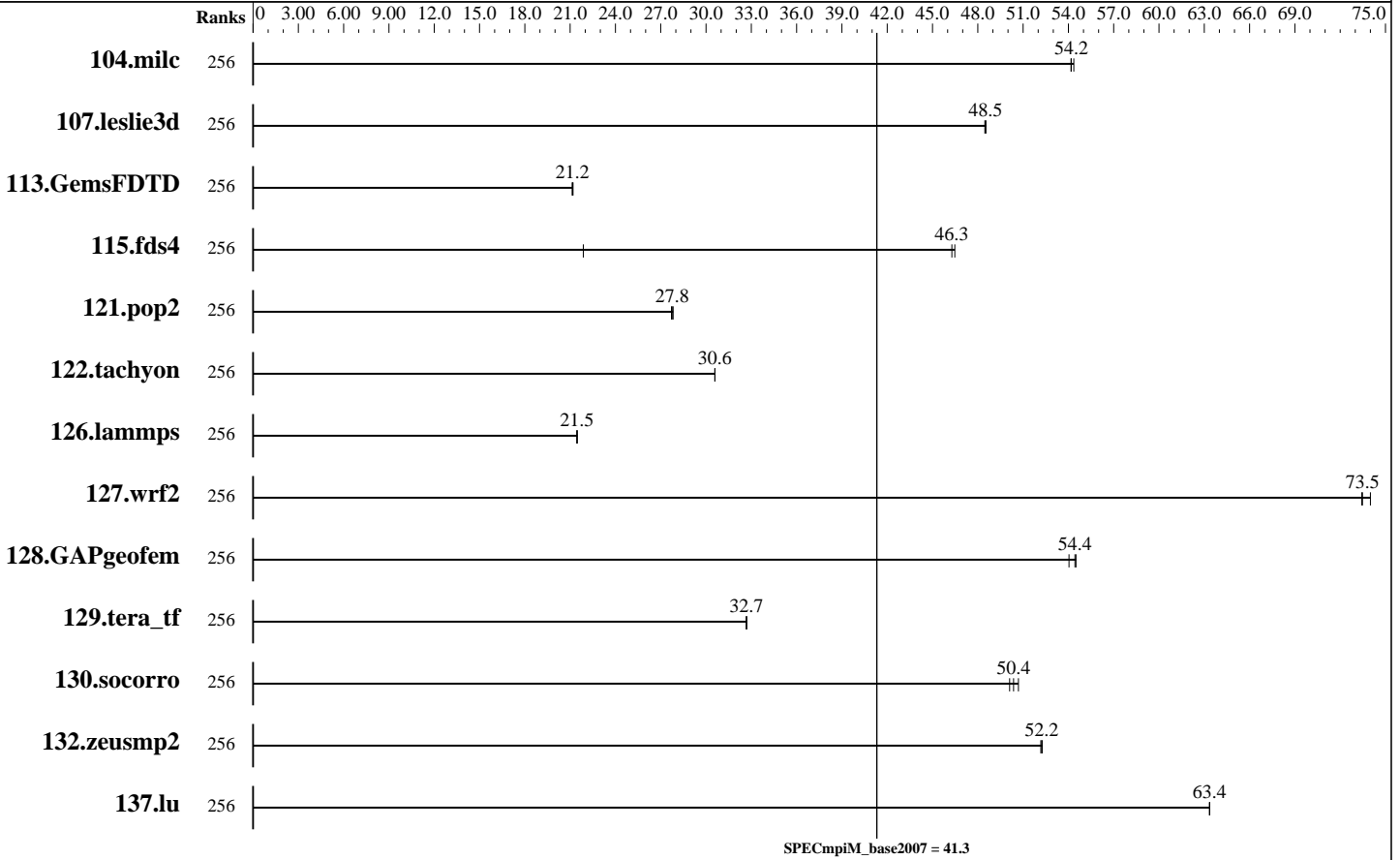
Test sponsor: QLogic Corporation

Tested by: QLogic Corporation

Test date: Jul-2009

Hardware Availability: Sep-2009

Software Availability: Sep-2009



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	256	28.9	54.2	<u>28.9</u>	<u>54.2</u>	28.8	54.4							
107.leslie3d	256	108	48.5	108	48.5	<u>108</u>	<u>48.5</u>							
113.GemsFDTD	256	298	21.2	298	21.1	<u>298</u>	<u>21.2</u>							
115.fds4	256	89.2	21.9	<u>42.2</u>	<u>46.3</u>	42.0	46.5							
121.pop2	256	149	27.7	148	27.8	<u>149</u>	<u>27.8</u>							
122.tachyon	256	91.4	30.6	91.4	30.6	<u>91.4</u>	<u>30.6</u>							
126.lammps	256	136	21.5	<u>136</u>	<u>21.5</u>	136	21.4							
127.wrf2	256	106	73.4	<u>106</u>	<u>73.5</u>	105	74.0							
128.GAPgeofem	256	<u>37.9</u>	<u>54.4</u>	37.9	54.5	38.2	54.0							
129.tera_tf	256	<u>84.7</u>	<u>32.7</u>	84.7	32.7	84.7	32.7							

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
130.socorro	256	76.2	50.1	<u>75.8</u>	<u>50.4</u>	75.3	50.7							
132.zeusmp2	256	59.4	52.3	59.5	52.2	<u>59.4</u>	<u>52.2</u>							
137.lu	256	58.0	63.3	<u>58.0</u>	<u>63.4</u>	58.0	63.4							

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

Hardware Summary

Type of System: Homogeneous
 Compute Node: Nehalem Compute Node
 Interconnect: TrueScale InfiniBand
 File Server Node: FusionSA
 Total Compute Nodes: 32
 Total Chips: 64
 Total Cores: 256
 Total Threads: 256
 Total Memory: 768 GB
 Base Ranks Run: 256
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Compiler 11.1 for Linux, Build 20090511
 C++ Compiler: Intel C++ Compiler 11.1 for Linux, Build 20090511
 Fortran Compiler: Intel Fortran Compiler 11.1 for Linux, Build 20090511
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: QLogic MPI 2.5
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: Nehalem Compute Node

Hardware

Number of nodes: 32
 Uses of the node: compute
 Vendor: Supermicro
 Model: X8DTi-P motherboard, CSE-815TQ-700CB chassis
 CPU Name: Intel Xeon X5570
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 8
 Cores per chip: 4
 Threads per core: 1
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz, 6.4 GT/s QPI, Hyper-Threading disabled
 CPU MHz: 2930
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 8 MB I+D on chip per chip, 8 MB shared / 4 cores
 Other Cache: None
 Memory: 24 GB (RDIMM 6x4-GB, DDR3-1333 MHz)
 Disk Subsystem: Seagate 500 GB ST3500320NS
 Other Hardware: None
 Adapter: QLogic QLE7342
 Number of Adapters: 1
 Slot Type: PCIe x8 Gen2
 Data Rate: InfiniBand 4x QDR

Software

Adapter: QLogic QLE7342
 Adapter Driver: QLogic OFED 1.4.1
 Adapter Firmware: none
 Operating System: Red Hat EL 5.3, kernel 2.6.18-128
 Local File System: Linux/ext2
 Shared File System: NFSv3 IPoIB
 System State: Multi-User
 Other Software: none

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Node Description: Nehalem Compute Node

Ports Used: 1
Interconnect Type: InfiniBand

Node Description: FusionSA

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: Western Scientific
Model: FusionSA (storage appliance) with
Tyan Thunder n6650W (S2915) motherboard and
LSI Logic MegaRAID SAS 8408E RAID controller
CPU Name: Opteron 2218
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 4
Cores per chip: 2
Threads per core: 1
CPU Characteristics: --
CPU MHz: 2600
Primary Cache: 64 KB I + 64 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per chip
L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2 GB PC2-5300 ECC)
Disk Subsystem: 8 x 73 GB SAS 3Gb/s 15K RPM
Other Hardware: None
Adapter: Mellanox MHGH28-XTC
Number of Adapters: 1
Slot Type: PCIe x8 Gen1
Data Rate: InfiniBand 4x DDR
Ports Used: 1
Interconnect Type: InfiniBand

Software

Adapter: Mellanox MHGH28-XTC
Adapter Driver: OFED 1.3
Adapter Firmware: 2.3.0
Operating System: Red Hat EL 4.5, 2.6.9-55.ELsmp
Local File System: None
Shared File System: NFSv3 IPoIB
System State: Multi-User
Other Software: None

Interconnect Description: TrueScale InfiniBand

Hardware

Vendor: QLogic
Model: QLogic 12000 Series
Switch Model: QLogic 12800-40
Number of Switches: 1
Number of Ports: 72
Data Rate: InfiniBand 4x QDR
Firmware: 5.0.3.0.3
Topology: Single switch
Primary Use: MPI traffic, File System traffic

Software



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Submit Notes

The config file option 'submit' was used.

General Notes

BIOS settings notes:

Intel Hyper-Threading Technology (SMT): Disabled (default is Enabled)

Intel Turbo Boost Technology (Turbo) : Enabled (default is Enabled)

Switch notes: Enabled 4K IB MTUs and 2 Virtual Lanes with QLogic 12800-40 switch CLI parameter setting "ismChassisSetMtu 5 3"

Base Compiler Invocation

C benchmarks:

```
mpicc -cc=icc
```

C++ benchmarks:

```
126.lammps: mpicxx -CC=icpc
```

Fortran benchmarks:

```
mpif90 -f90=ifort
```

Benchmarks using both Fortran and C:

```
mpicc -cc=icc mpif90 -f90=ifort
```

Base Portability Flags

```
121.pop2: -DSPEC_MPI_CASE_FLAG
```

```
127.wrf2: -DSPEC_MPI_LINUX -DSPEC_MPI_CASE_FLAG
```

Base Optimization Flags

C benchmarks:

```
-O3 -xSSE4.2 -no-prec-div
```

C++ benchmarks:

```
126.lammps: -O3 -xSSE4.2 -no-prec-div
```

Fortran benchmarks:

```
-O3 -xSSE4.2 -no-prec-div
```

Benchmarks using both Fortran and C:

```
-O3 -xSSE4.2 -no-prec-div
```



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The flags file that was used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/QLogic_Core_Intel1111_flags.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/mpi2007/flags/QLogic_Core_Intel1111_flags.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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