



SPEC® MPIM2007 Result

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QLogic, Intel, Supermicro

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 25.6

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

MPI2007 license: 0018

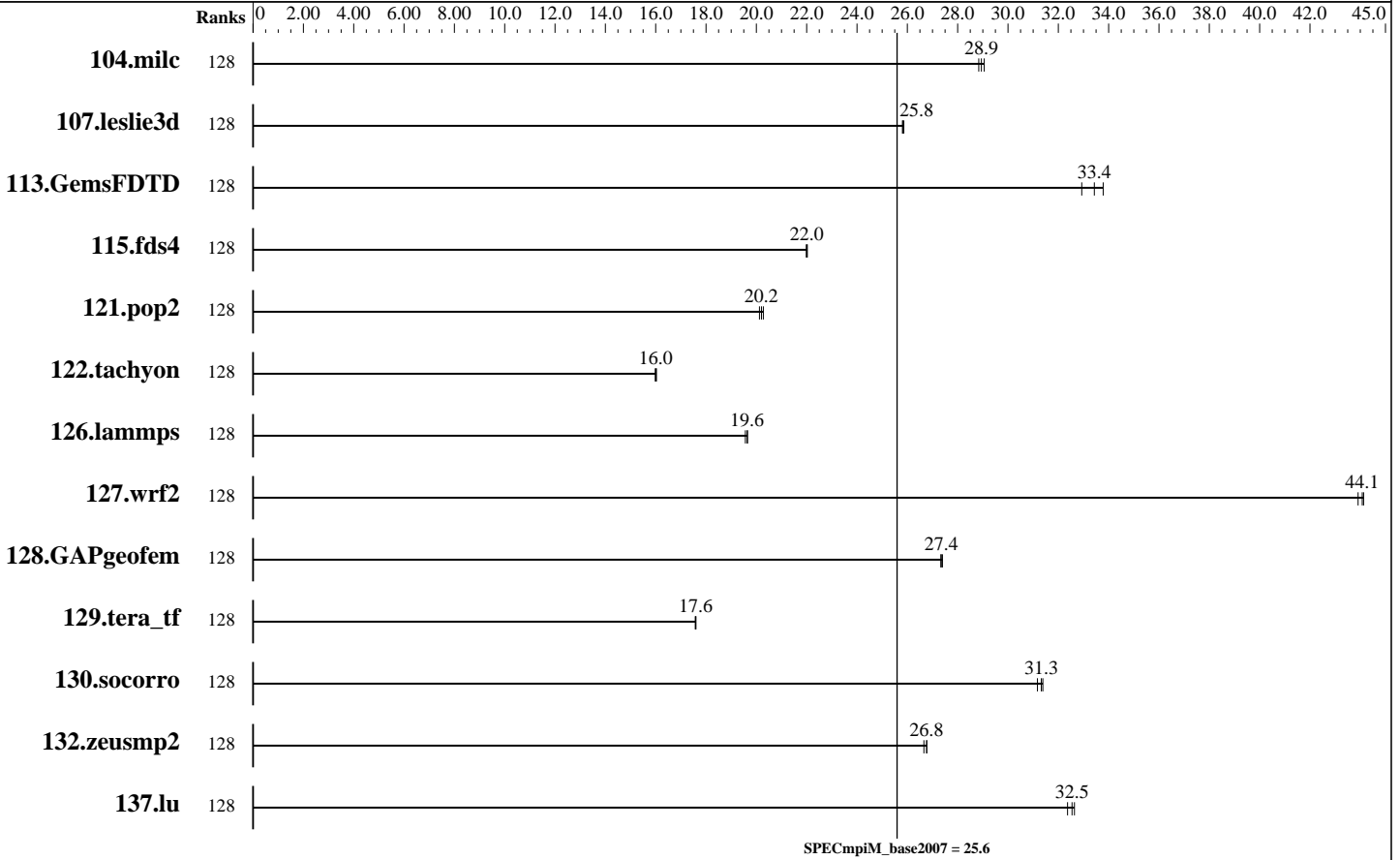
Test sponsor: QLogic Corporation

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 | 128 | <u>54.1</u> | <u>28.9</u> | 54.3 | 28.8 | 53.9 | 29.1 | | | | | | | |
| 107.leslie3d | 128 | <u>202</u> | <u>25.8</u> | 202 | 25.8 | 202 | 25.9 | | | | | | | |
| 113.GemsFDTD | 128 | 187 | 33.8 | <u>189</u> | <u>33.4</u> | 192 | 32.9 | | | | | | | |
| 115.fds4 | 128 | <u>88.7</u> | <u>22.0</u> | 88.6 | 22.0 | 88.7 | 22.0 | | | | | | | |
| 121.pop2 | 128 | 205 | 20.1 | 204 | 20.3 | <u>204</u> | <u>20.2</u> | | | | | | | |
| 122.tachyon | 128 | 174 | 16.0 | 175 | 16.0 | <u>175</u> | <u>16.0</u> | | | | | | | |
| 126.lammps | 128 | 149 | 19.6 | 148 | 19.6 | <u>148</u> | <u>19.6</u> | | | | | | | |
| 127.wrf2 | 128 | 178 | 43.9 | 177 | 44.1 | <u>177</u> | <u>44.1</u> | | | | | | | |
| 128.GAPgeofem | 128 | 75.6 | 27.3 | 75.4 | 27.4 | <u>75.5</u> | <u>27.4</u> | | | | | | | |
| 129.tera_tf | 128 | 157 | 17.6 | <u>157</u> | <u>17.6</u> | 158 | 17.6 | | | | | | | |

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 | 128 | 122 | 31.2 | 122 | 31.4 | <u>122</u> | <u>31.3</u> | | | | | | | | | |
| 132.zeusmp2 | 128 | 116 | 26.8 | <u>116</u> | <u>26.8</u> | 116 | 26.7 | | | | | | | | | |
| 137.lu | 128 | 114 | 32.4 | <u>113</u> | <u>32.5</u> | 113 | 32.6 | | | | | | | | | |

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: 16
 Total Chips: 32
 Total Cores: 128
 Total Threads: 128
 Total Memory: 384 GB
 Base Ranks Run: 128
 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: 16
 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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Software Availability: Sep-2009

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.

Tested with SPEC MPI2007 v1.1.
Report generated on Tue Jul 22 13:38:22 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 29 July 2009.