# SPEC® MPIM2007 Result

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## QLogic, TeamHPC

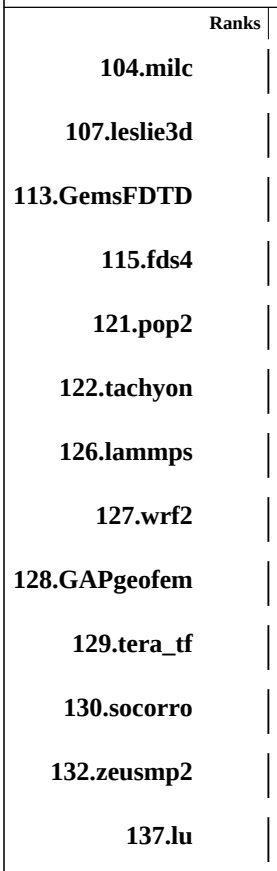
QLogic Benchmark Cluster
with TeamHPC compute nodes

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




Non-Compliant

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 104.milc | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 107.leslie3d | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 113.GemsFDTD | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 115.fds4 | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 121.pop2 | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 122.tachyon | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 126.lammps | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 127.wrf2 | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 128.GAPgeofem | 128 | 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 | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 130.socorro | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 132.zeusmp2 | 128 | NC | NC | NC | NC | NC | NC | | | | | | | |
| 137.lu | 128 | 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: | 16 |
| Total Chips: | 32 |
| Total Cores: | 128 |
| Total Threads: | 128 |
| Total Memory: | 256 GB |
| Base Ranks Run: | 128 |
| Minimum Peak Ranks: | -- |
| Maximum Peak Ranks: | -- |

### Software Summary

| | |
|---|---|
| C 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: | 16 |
| Uses of the node: | compute |
| Vendor: | TeamHPC |
| Model: | RM2UDSEB-DG (Dual DSEB-DG motherboard) |
| CPU Name: | Intel Xeon E5472 |
| CPU(s) orderable: | 1-2 chips |
| Chips enabled: | 2 |
| Cores enabled: | 8 |
| 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 |

Continued on next page

### 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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## Node Description: TeamHPC RM2U SEB-DG

| | |
|---|---|
| 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 (S2915) motherboard and LSI Logic MegaRAID SAS 8408E 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 + 64 KB 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 73 GB SAS 3Gb/s 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: | QLogic QLE7240 InfiniBand DDR (PCIe x8 Gen1 2.5 GT/s) |
| Adapter Driver: | QLogic InfiniPath 2.2 (OFED 1.3) |
| Adapter Firmware: | None |
| Operating System: | Red Hat Enterprise Linux AS release 4 (Update 5) Kernel 2.6.9-55.ELsmp |
| Local File System: | Software RAID 0, ext3 |
| Shared File System: | None |
| System State: | Multi-User |
| Other Software: | None |

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## Interconnect Description: QLogic InfiniBand HCAs and switches

| Hardware | |
|---|---|
| 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<br>Switch silicon: Anafa II Firmware 1.0.4 |
| Topology: | Star, one switch |
| Primary Use: | MPI, file server |

Software

## 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:

126.lammps: /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`

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

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