



SPEC[®] MPIM2007 Result

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IBM Corporation

System x3550 M2 (Intel Xeon X5570, 2.93 GHz
SMT on, Turbo on)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 14.0

MPI2007 license: 005

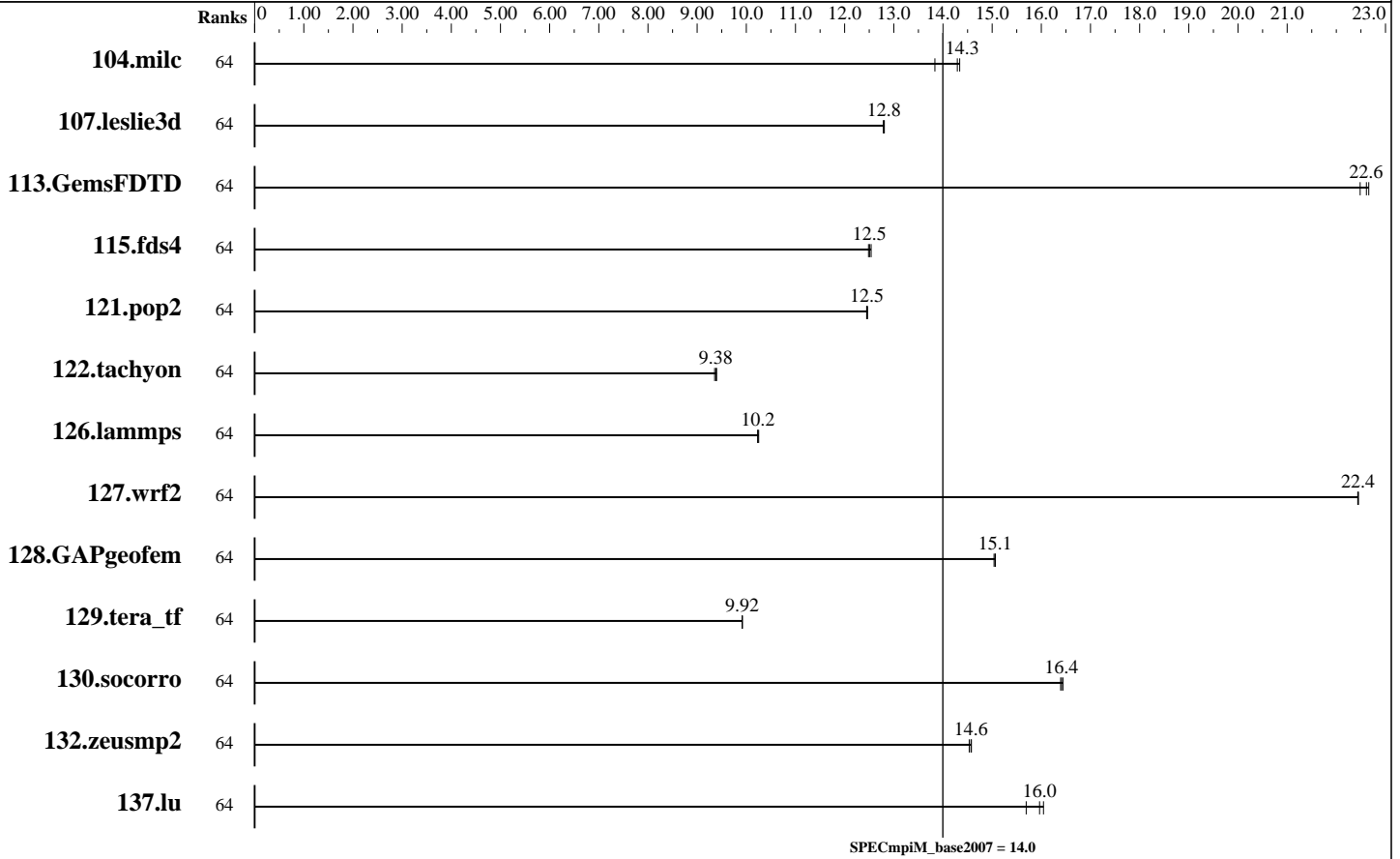
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2009

Hardware Availability: Apr-2009

Software Availability: Apr-2009



Results Table

| Benchmark | Base | | | | | | | | Peak | | | | | |
|---------------|-------|------------|-------------|------------|-------------|------------|-------------|-------|---------|-------|---------|-------|---------|-------|
| | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 104.milc | 64 | 113 | 13.8 | 110 | 14.3 | 109 | 14.3 | | | | | | | |
| 107.leslie3d | 64 | 408 | 12.8 | 408 | 12.8 | 408 | 12.8 | | | | | | | |
| 113.GemsFDTD | 64 | 278 | 22.7 | 279 | 22.6 | 281 | 22.5 | | | | | | | |
| 115.fds4 | 64 | 156 | 12.5 | 156 | 12.5 | 156 | 12.5 | | | | | | | |
| 121.pop2 | 64 | 331 | 12.5 | 332 | 12.4 | 332 | 12.5 | | | | | | | |
| 122.tachyon | 64 | 298 | 9.40 | 299 | 9.36 | 298 | 9.38 | | | | | | | |
| 126.lammps | 64 | 284 | 10.3 | 285 | 10.2 | 285 | 10.2 | | | | | | | |
| 127.wrf2 | 64 | 347 | 22.4 | 347 | 22.4 | 347 | 22.4 | | | | | | | |
| 128.GAPgeofem | 64 | 137 | 15.1 | 137 | 15.0 | 137 | 15.1 | | | | | | | |
| 129.tera_tf | 64 | 279 | 9.91 | 279 | 9.92 | 279 | 9.92 | | | | | | | |

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 | 64 | 233 | 16.4 | 232 | 16.4 | <u>233</u> | <u>16.4</u> | | | | | | | |
| 132.zeusmp2 | 64 | 213 | 14.6 | 214 | 14.5 | <u>213</u> | <u>14.6</u> | | | | | | | |
| 137.lu | 64 | <u>230</u> | <u>16.0</u> | 229 | 16.0 | 234 | 15.7 | | | | | | | |

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: IBM System x3550 M2
 Interconnects: InfiniBand
 Ethernet
 File Server Node: IBM System x346 8840
 Head Node: IBM System x3550 M2
 Total Compute Nodes: 8
 Total Chips: 16
 Total Cores: 64
 Total Threads: 128
 Total Memory: 192 GB
 Base Ranks Run: 64
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Compiler 11.0.083 for Linux
 C++ Compiler: Intel C++ Compiler 11.0.083 for Linux
 Fortran Compiler: Intel Fortran Compiler 11.0.083 for Linux
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Library 3.2.1.009 for Linux
 Other MPI Info: None
 Pre-processors: No
 Other Software: Intel MPI Library 3.2.1.009 for Linux
 Multi-Purpose Daemon (MPD)

Node Description: IBM System x3550 M2

Hardware

Number of nodes: 8
 Uses of the node: compute, head
 Vendor: IBM Corporation
 Model: 7946-92U
 CPU Name: Intel Xeon X5570
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 8
 Cores per chip: 4
 Threads per core: 2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz, 6.4 GT/s
 QPI, Hyper-Threading enabled
 CPU MHz: 2933
 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: 73.4GB 10K-rpm SAS SFF Slim-HS 2.5" HDD
 Other Hardware: None
 Adapter: Integrated Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)

Software

Adapter: Integrated Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)
 Adapter Driver: bnx2 1.7.9-1
 Adapter Firmware: 4.6.4 NCSI 1.0.6
 Adapter: Mellanox ConnectX
 Adapter Driver: OFED 1.4-20090301-0600
 Adapter Firmware: 2.6.000
 Operating System: Red Hat EL 5.3, kernel 2.6.18-128.el5
 Local File System: Linux/ext3
 Shared File System: NFS
 System State: Multi-User
 Other Software: None

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Test date: Jun-2009

Hardware Availability: Apr-2009

Software Availability: Apr-2009

Node Description: IBM System x3550 M2

| | |
|---------------------|-------------------|
| Number of Adapters: | 1 |
| Slot Type: | PCIe x16 Gen2 |
| Data Rate: | 10/100/1000 |
| Ports Used: | 1 |
| Interconnect Type: | Ethernet |
| Adapter: | Mellanox ConnectX |
| Number of Adapters: | 1 |
| Slot Type: | PCIe x16 Gen2 |
| Data Rate: | InfiniBand 4x DDR |
| Ports Used: | 1 |
| Interconnect Type: | InfiniBand |

General Notes

BIOS settings notes:

Intel Hyper-Threading Technology (SMT): Enabled
Intel Turbo Boost Technology (Turbo) : Enabled

RAM configuration notes: Each compute node has
1x4-GB RDIMM on each memory channel.

Node Description: IBM System x346 8840

Hardware

| | |
|----------------------|--|
| Number of nodes: | 1 |
| Uses of the node: | fileserver |
| Vendor: | IBM Corporation |
| Model: | 884045Y |
| CPU Name: | Intel Xeon EM64T |
| CPU(s) orderable: | 2 chips |
| Chips enabled: | 2 |
| Cores enabled: | 2 |
| Cores per chip: | 1 |
| Threads per core: | 1 |
| CPU Characteristics: | 800 MHz FSB |
| CPU MHz: | 3600 |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per chip |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 4 GB |
| Disk Subsystem: | SCSI |
| Other Hardware: | None |
| Adapter: | Integrated Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11) |
| Number of Adapters: | 1 |
| Slot Type: | PCI-X |
| Data Rate: | 10/100/1000 |

Software

| | |
|---------------------|--|
| Adapter: | Integrated Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11) |
| Adapter Driver: | tg3 3.86 |
| Adapter Firmware: | 5721-v3.29a, ASFIPMI v6.08 |
| Operating System: | Red Hat EL 5.2, kernel 2.6.18-92.el5 |
| Local File System: | None |
| Shared File System: | NFS |
| System State: | Multi-User |
| Other Software: | None |

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Hardware Availability: Apr-2009

Software Availability: Apr-2009

Node Description: IBM System x346 8840

Ports Used: 1
Interconnect Type: Ethernet

Interconnect Description: InfiniBand

| Hardware | |
|---------------------|-----------------------|
| Vendor: | Voltaire |
| Model: | 24 4X DDR port Bundle |
| Switch Model: | ISR 9024D-M |
| Number of Switches: | 1 |
| Number of Ports: | 24 |
| Data Rate: | 4X DDR |
| Firmware: | 1.0.0 |
| Topology: | Single Switch |
| Primary Use: | MPI traffic |

Software

Interconnect Description: Ethernet

| Hardware | |
|---------------------|---------------------|
| Vendor: | Cisco |
| Model: | 3750G |
| Switch Model: | WS-C3750G-24TS-E1U |
| Number of Switches: | 1 |
| Number of Ports: | 28 |
| Data Rate: | Full duplex 1000 |
| Firmware: | 12.2 (35SE5) |
| Topology: | Single Switch |
| Primary Use: | File system traffic |

Software

Submit Notes

The config file option 'submit' was used.
submit = mpiexec -genv -np \$ranks \$command

Base Compiler Invocation

C benchmarks:
mpiicc

C++ benchmarks:

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Base Compiler Invocation (Continued)

126.lammps: mpiicpc

Fortran benchmarks:

mpiifort

Benchmarks using both Fortran and C:

mpiicc mpiifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

126.lammps: -DMPICH_IGNORE_CXX_SEEK

127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX

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

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

http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20090729.html

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

http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20090729.xml



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For other inquiries, please contact webmaster@spec.org.

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