SPEC® MPIM2007 Result

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IBM Corporation

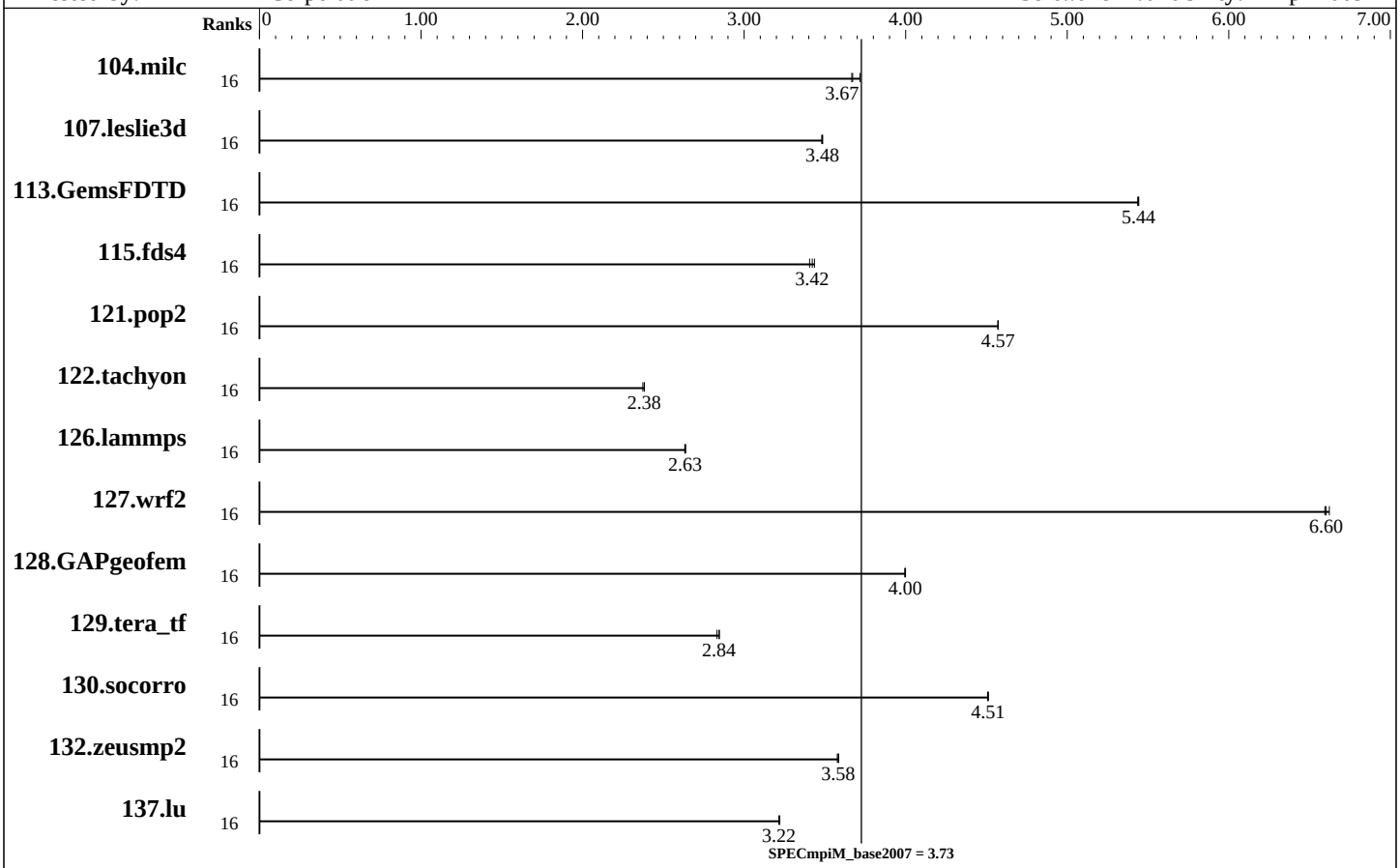
System x3550 M2 (Intel Xeon X5570, 2.93 GHz
SMT on, Turbo on)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 3.73

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	16	427	3.67	**426**	**3.67**	421	3.72							
107.leslie3d	16	1500	3.48	**1498**	**3.48**	1497	3.49							
113.GemsFDTD	16	1160	5.44	1159	5.44	**1159**	**5.44**							
115.fds4	16	568	3.44	**570**	**3.42**	573	3.41							
121.pop2	16	903	4.57	**903**	**4.57**	903	4.57							
122.tachyon	16	1179	2.37	**1174**	**2.38**	1174	2.38							
126.lammps	16	**1107**	**2.63**	1107	2.63	1105	2.64							
127.wrf2	16	**1181**	**6.60**	1182	6.59	1177	6.62							
128.GAPgeofem	16	517	3.99	516	4.00	**517**	**4.00**							
129.tera_tf	16	977	2.83	972	2.85	**973**	**2.84**							

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	16	**846**	**4.51**	847	4.51	846	4.51							
132.zeusmp2	16	**866**	**3.58**	865	3.59	868	3.58							
137.lu	16	1143	3.22	1141	3.22	**1143**	**3.22**							

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:	2
Total Chips:	4
Total Cores:	16
Total Threads:	32
Total Memory:	48 GB
Base Ranks Run:	16
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:	2
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)

Continued on next page

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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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

Continued on next page

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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Test date: Jun-2009
Hardware Availability: Apr-2009
Software Availability: Apr-2009

Node Description: IBM System x346 8840

Ports Used:	1
Interconnect Type:	Ethernet

Interconnect Description: InfiniBand

Hardware		Software
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	

Interconnect Description: Ethernet

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

Submit Notes

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

Base Compiler Invocation

C benchmarks:
`mpiicc`

C++ benchmarks:

Continued on next page

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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