SPEC® MPIM2007 Result

Colfax International
Barcelona Cluster

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = NA

MPI2007 license:	021	**Test date:**	Sep-2007
Test sponsor:	Scali, Inc.	**Hardware Availability:**	Sep-2007
Tested by:	Scali, Inc.	**Software Availability:**	Aug-2007

SPEC has determined that this result was not in compliance with the SPEC MPI2007 run and reporting rules. Specifically, the processor vendor reported that the processor would not meet the SPEC HPG requirements for continued availability.

Ranks

104.milc
107.leslie3d
113.GemsFDTD
115.fds4
121.pop2
122.tachyon
126.lammps
127.wrf2
128.GAPgeofem
129.tera_tf
130.socorro
132.zeusmp2
137.lu

Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	NA	NA	NA	NA	NA	NA							
107.leslie3d	64	NA	NA	NA	NA	NA	NA							
113.GemsFDTD	64	NA	NA	NA	NA	NA	NA							

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
115.fds4	64	NA	NA	NA	NA	NA	NA							
121.pop2	64	NA	NA	NA	NA	NA	NA							
122.tachyon	64	NA	NA	NA	NA	NA	NA							
126.lammps	64	NA	NA	NA	NA	NA	NA							
127.wrf2	64	NA	NA	NA	NA	NA	NA							
128.GAPgeofem	64	NA	NA	NA	NA	NA	NA							
129.tera_tf	64	NA	NA	NA	NA	NA	NA							
130.socorro	64	NA	NA	NA	NA	NA	NA							
132.zeusmp2	64	NA	NA	NA	NA	NA	NA							
137.lu	64	NA	NA	NA	NA	NA	NA							

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

Hardware Summary

Type of System:	Heterogeneous
Compute Node:	H8DM[illegible]
Interconnects:	mpiComm[illegible]
	GBEthernet
File Server Node:	[illegible]4100
Total Compute Nodes:	8
Total Chips:	16
Total Cores:	64
Total Threads:	[illegible]
Total Memory:	128 GB
Base Ranks Run:	64
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	QLogic PathScale C Compiler 3.0
C++ Compiler:	QLogic PathScale C++ Compiler 3.0
Fortran Compiler:	QLogic PathScale Fortran Compiler 3.0
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	Scali MPI Connect 5.5
Other MPI Info:	OFED 1.2.5 ibverbs
Pre-processors:	No
Other Software:	None

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Node Description: H8DMU

Hardware

Number of nodes:	8
Uses of the node:	compute
Vendor:	SuperMicro
Model:	H8DMU+
CPU Name:	AMD Opteron CPU 2350
CPU(s) orderable:	1 or 2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	1
CPU Characteristics:	Quad-Core AMD Opteron Processor 2350 (Barcelona)
CPU MHz:	2000
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	2 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (8 x 2 GB DDR2 667 Micron)
Disk Subsystem:	400GB Seagate SATA, 7200RPM
Other Hardware:	None
Adapter:	Ethernet controller: nVidia Corporation MCP55 Ethernet
Number of Adapters:	[illegible]
Slot Type:	PCIe x8
Data Rate:	1 Gbps Ethernet
Ports Used:	1
Interconnect Type:	Gigabit Ethernet
Adapter:	Mellanox ConnectX DDR, board id MT_04A0110002
Number of Adapters:	[illegible]
Slot Type:	PCIe x8
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	Infiniband

Software

Adapter:	Ethernet controller: nVidia Corporation MCP55 Ethernet
Adapter Driver:	OS default
Adapter Firmware:	Unknown
Adapter:	Mellanox ConnectX DDR, board id MT_04A0110002
Adapter Driver:	OFED 1.2.5
Adapter Firmware:	2.2.000
Operating System:	CentOS release 4.5 (Final), 2.6.9-55.0.2.ELsmp
Local File System:	ext3
Shared File System:	NFS
System State:	Multi-user
Other Software:	None

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Node Description: X4100

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	Sun Microsystems, Inc.
Model:	Sun Fire X4100
CPU Name:	AMD Opteron 285
CPU(s) orderable:	1-2 chip
Chips enabled:	2
Cores enabled:	4
Cores per chip:	2
Threads per core:	1
CPU Characteristics:	Dual Core AMD Opteron Processor 285
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:	8 GB (8 x 1GB DDR2/667 ECC registered DIMMs)
Disk Subsystem:	2x SAS 10K RPM mirrored
Other Hardware:	None
Adapter:	Intel Corporation 82546EB Gigabit Ethernet Controller
Number of Adapters:	2
Slot Type:	PCIe x8
Data Rate:	1 Gbps Ethernet
Ports Used:	1
Interconnect Type:	Gigabit Ethernet

Software

Adapter:	Intel Corporation 82546EB Gigabit Ethernet Controller
Adapter Driver:	OS default
Adapter Firmware:	Unknown
Operating System:	CentOS release 4.5 (Final), 2.6.9-55.0.2.ELsmp
Local File System:	ext3
Shared File System:	NFS
System State:	Multi-user
Other Software:	None

Interconnect Description: mpiComm

Hardware

Vendor:	Voltaire
Model:	Voltaire 9024D 24 ports DDR switch
Switch Model:	9024D
Number of Switches:	1
Number of Ports:	24
Data Rate:	InfiniBand 4x DDR

Software

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Interconnect Description: MpiComm

Firmware:	Unknown
Topology:	single switch (star)
Primary Use:	MPI traffic

Interconnect Description: GBEthernet

Hardware

Vendor:	Nortel
Model:	Nortel Networks Baystack 5510 Gigabit Ethernet switch
Switch Model:	5510
Number of Switches:	1
Number of Ports:	24
Data Rate:	1 Gbps Ethernet
Firmware:	fw: 1.0.0.16 sw: v3.0.1.00
Topology:	Single Switch
Primary Use:	file system traffic

Software

Submit Notes

```
Scali MPI Connect's mpirun wrapper has been
used to submit the jobs. Description of switches:
  -npn 8: launch 8 processes per node.
  -rsh rsh: use ssh as method to connect to nodes.
  -nstdin none: do not connect the processes' STDIN
    onto anything.
  -q: quiet mode, no output from launcher.
  -machinefile: file selecting the hosts to run on.
```

General Notes

```
Scali, Inc has executed the benchmark on AMD
Development Center. We are grateful for the support from
AMD and in particular Joshua Mora and Brian Taylor in order to
finalize the submissions.
```

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Base Compiler Invocation

C benchmarks:
`/opt/scali/bin/mpicc  -ccl pathcc`

C++ benchmarks:

126.lammps: `/opt/scali/bin/mpicc  -ccl pathCC`

Fortran benchmarks:
`/opt/scali/bin/mpif77 -ccl pathf90`

Benchmarks using both Fortran and C:
`/opt/scali/bin/mpicc  -ccl pathcc /opt/scali/bin/mpif77 -ccl pathf90`

Base Portability Flags

104.milc: `-DSPEC_MPI_LP64`
115.fds4: `-DSPEC_MPI_LC_TRAILING_DOUBLE_UNDERSCORE -DSPEC_MPI_LP64`
121.pop2: `-DSPEC_MPI_DOUBLE_UNDERSCORE -DSPEC_MPI_LP64`
122.tachyon: `-DSPEC_MPI_LP64`
127.wrf2: `-DF2CSTYLE -DSPEC_MPI_DOUBLE_UNDERSCORE -DSPEC_MPI_LINUX -DSPEC_MPI_LP64`
128.GAPgeofem: `-DSPEC_MPI_LP64`
130.socorro: `-fno-second-underscore -DSPEC_MPI_LP64`
132.zeusmp2: `-DSPEC_MPI_LP64`

Base Optimization Flags

C benchmarks:
`-march=core -Ofast -OPT:malloc_alg=1`

C++ benchmarks:

126.lammps: `-march=core -O3 -OPT:Ofast -CG:local_fwd_sched=on`

Fortran benchmarks:
`-march=core -O3 -OPT:Ofast -OPT:malloc_alg=1 -LANG:copyinout=off`

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
  -march=core -Ofast -OPT:malloc_alg=1 -O3 -OPT:Ofast
  -LANG:copyinout=off

Base Other Flags

C benchmarks:
  -IPA:max_jobs=4

C++ benchmarks:

  126.lammps: -IPA:max_jobs=4

Fortran benchmarks:
  -IPA:max_jobs=4

Benchmarks using both Fortran and C:
  -IPA:max_jobs=4

The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/MPI2007_flags.20071107.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/MPI2007_flags.20071107.xml

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

Tested with SPEC MPI2007 v1.0.
Report generated on Tue Jul 22 13:33:07 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 7 November 2007.