SPEC® MPIM2007 Result

Linux Networx
Linux Networx LS-1

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = NA

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

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	[illegible]	NA	NA	NA	NA	NA	NA							
107.leslie3d	64	NA	NA	NA	NA	NA	NA							
113.GemsFDTD	64	NA	NA	NA	NA	NA	NA							
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							

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 Ranks	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Ranks	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
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: Homogenous
Compute Node: Linux Networx LS-1
Interconnect: InfiniBand
File Server Node: Linux Networx Evolocity 1
Total Compute Nodes: 16
Total Chips: 32
Total Cores: 64
Total Threads: 64
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: IB Gold VAPI
Pre-processors: None
Other Software: None

Node Description: Linux Networx LS-1

Hardware

Number of nodes: 16
Uses of the node: compute
Vendor: Linux Networx, Inc.
Model: LS-1
CPU Name: Intel Xeon 5160
CPU(s) orderable: 1,2 chips
Chips enabled: 2
Cores enabled: 4
Cores per chip: 2
Threads per core: 1
CPU Characteristics: 1333 Mhz FSB
CPU MHz: 3000
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 4 MB I+D on chip per chip
L3 Cache: None
Other Cache: None
Memory: 8 GB (8 x 1GB DIMMs)
Disk Subsystem: 250GB SAS hard drive
Other Hardware: None
Adapter: Mellanox MHGA28-XTC
Number of Adapters: 1

Continued on next page

Software

Adapter: Mellanox MHGA28-XTC
Adapter Driver: IBGD 1.8.2
Adapter Firmware: 5.1.4
Operating System: SLES9 SP3
Local File System: Not applicable
Shared File System: GPFS
System State: multi-user
Other Software: None

SPEC MPIM2007 Result

Linux Networx
Linux Networx LS-1

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SPECmpiM_base2007 = NA

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

Node Description: Linux Networx LS-1

Slot Type:	PCIe x8
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Node Description: Linux Networx Evolocity 1

Hardware

Number of nodes:	8
Uses of the node:	file server
Vendor:	Linux Networx, Inc.
Model:	Evolocity 1
CPU Name:	AMD Opteron 248
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	2
Cores per chip:	1
Threads per core:	1
CPU Characteristics:	--
CPU MHz:	2200
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:	8 GB (8 x 1 GB DIMMs)
Disk Subsystem:	18 TB SAN interconnected by FC2
Other Hardware:	--
Adapter:	Mellanox MHXL-CF128-T
Number of Adapters:	1
Slot Type:	PCI-X
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MHXL-CF128-T
Adapter Driver:	IBGD 1.8.2
Adapter Firmware:	3.5.0
Operating System:	SLES9 SP3
Local File System:	Not applicable
Shared File System:	GPFS
System State:	multi-user
Other Software:	--

Interconnect Description: InfiniBand

Hardware

Vendor:	QLogic
Model:	QLogic Silverstorm 9120 Fabric Director
Switch Model:	9120
Number of Switches:	1
Number of Ports:	144
Data Rate:	InfiniBand 4x SDR and InfiniBand 4x DDR
Firmware:	4.0.0.5.5

Software

Continued on next page

Linux Networx
Linux Networx LS-1

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

Interconnect Description: InfiniBand

Topology:	Single switch (star)
Primary Use:	MPI and filesystem traffic

Submit Notes

```
Scali MPI Connect's mpirun wrapper has been
used to submit the jobs. Description of switches:
  -aff manual:0x1:0x2:0x4:0x8: instruct the launcher to
     bind rank N..N+3 to the cores corresponding to the
     masks 1,2,4, and 8 respectively on each node.
  -npn 4: launch 4 processes per node.
  -rsh rsh: use rsh as method to connect to nodes.
  -mstdin none: do not connect the processes' STDIN
     to anything.
  -q: quiet mode, no output from launcher.
  -machinefile: file selecting the hosts to run on.
  -net smp,ib: prioritized list of networks used
     for communication between processes.
```

General Notes

```
Scali, Inc has executed the benchmark on Linux Networx's
Solution Center. We are grateful for the support from
Linux Networx and in particular Justin Wood in order to
finalize the submission.
```

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`

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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

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.20071107.00.html

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You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/MPI2007_flags.20071107.00.xml

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

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