SPEC® MPIM2007 Result

Linux Networx

LS-1,
Scali MPI Connect 5.6.1,
Intel 9.1 compilers

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = NC

MPI2007 license: 021
Test sponsor: Scali, Inc
Tested by: Scali, Inc

Test date: Feb-2008
Hardware Availability: Sep-2007
Software Availability: Feb-2008

SPEC has determined that this result was not in compliance with the SPEC MPI2007 run and reporting rules. Specifically, the result did not meet the requirement for baseline optimization flags to not use assertion flags (the flag -fno-alias is a violation of this rule). The result was found to be performance neutral compared to runs without -fno-alias. Replacement results could not be produced because of system access limitations.

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	NC	NC	NC	NC	NC	NC							
107.leslie3d	64	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
113.GemsFDTD	64	NC	NC	NC	NC	NC	NC							
115.fds4	64	NC	NC	NC	NC	NC	NC							
121.pop2	64	NC	NC	NC	NC	NC	NC							
122.tachyon	64	NC	NC	NC	NC	NC	NC							
126.lammps	64	NC	NC	NC	NC	NC	NC							
127.wrf2	64	NC	NC	NC	NC	NC	NC							
128.GAPgeofem	64	NC	NC	NC	NC	NC	NC							
129.tera_tf	64	NC	NC	NC	NC	NC	NC							
130.socorro	64	NC	NC	NC	NC	NC	NC							
132.zeusmp2	64	NC	NC	NC	NC	NC	NC							
137.lu	64	NC	NC	NC	NC	NC	NC							

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 LS1 I/O Nodes
Total Compute Nodes:	16
Total Cores:	32
Total Chips:	64
Total Threads:	64
Total Memory:	128 GB
Base Ranks Run:	64
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C 9.1.045
C++ Compiler:	Intel C++ 9.1.045
Fortran Compiler:	Intel Fortran 9.1.040
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	Scali MPI Connect 5.6.1-58818
Other MPI Info:	IB Gold VAPI
Pre-processors:	None
Other Software:	None

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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 667 MHz)
Disk Subsystem:	250GB SAS hard drive
Other Hardware:	None
Adapter:	Mellanox MHGA28-XTC PCI-Express DDR InfiniBand HCA
Number of Adapters:	1
Slot Type:	PCIe x8
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	Infiniband

Software

Adapter:	Mellanox MHGA28-XTC PCI-Express DDR InfiniBand HCA
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

Node Description: Linux Networx LS1 I/O Nodes

Hardware

Number of nodes:	8
Uses of the node:	file server
Vendor:	Linux Networx, Inc.
Model:	LS1

Continued on next page

Software

Adapter:	Mellanox MHGA28-XTC PCI-X DDR InfiniBand HCA
Adapter Driver:	IBGD 1.8.2
Adapter Firmware:	5.2.0

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Node Description: Linux Networx LS-1 I/O Nodes

CPU Name:	Intel Xeon 5150
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:	2660
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:	4 GB (4 x 1GB DIMMS 667 MHz)
Disk Subsystem:	18 TB SAN interconnected by FC4
Other Hardware:	None
Adapter:	Mellanox MHGA2 XTC PCI-X D finiBand HCA
Number of Adapters:	1
Slot Type:	PCIe
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Operating System:	SLES9 SP3
Local File System:	Not applicable
Shared File System:	GPFS
System State:	multi-user
Other Software:	None

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:	4.1.1.1.11
Topology:	Single switch (star)
Primary Use:	MPI and filesystem traffic

Software

SPEC has determined that this result was not in compliance with the SPEC MPI2007 run and reporting rules. Specifically, the result did not meet the requirement for baseline optimization flags to not use assertion flags (the flag -fno-alias is a violation of this rule). The result was found to be performance neutral compared to runs without -fno-alias. Replacement results could not be produced because of system access limitations.

General Notes

```
The following approved srcalts are used
   tera_tf - fixbuffer
   wrf2    - fixcalling
```

Base Compiler Invocation

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

C++ benchmarks:

126.lammps: `/opt/scali/bin/mpi -ccl icpc`

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

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

Base Portability Flags

121.pop2: `-DSPEC_MPI_CASE_FLAG`
127.wrf2: `-DSPEC_MPI_LINUX -DSPEC_MPI_CASE_FLAG`

Base Optimization Flags

C benchmarks:
`-O3 -no-prec-div -ftz -fno-alias -xT`

C++ benchmarks:

126.lammps: `-O3 -no-prec-div -ftz -fno-alias -xT`

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-O3 -no-prec-div -ftz -fno-alias -xT
```

Benchmarks using both Fortran and C:
```
-O3 -no-prec-div -ftz -fno-alias -xT
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/MPI2007_flags.20080611.html
http://www.spec.org/mpi2007/flags/MPI2007_flags.0.20080611.html

You can also download XML flags sources by saving the following links:
http://www.spec.org/mpi2007/flags/MPI2007_flags.20080611.xml
http://www.spec.org/mpi2007/flags/MPI2007_flags.0.20080611.xml

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

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