SPEC® MPIM2007 Result

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Hewlett Packard Company

HP Proliant BL460c blade Cluster Platform 3000BL

SPECmpiM_peak2007 = Not Run

SPECmpiM_base200[illegible] = NC

MPI2007 license: 0001
Test sponsor: Hewlett-Packard Company
Tested by: HPCD

Test date: May-2007
Hardware Availability: May-2007
Software Availability: May-2007

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
[illegible]
132.zeusmp2
137.lu

Non-Compliant

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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							
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:	HP XC Cluster
Interconnect:	DDR InfiniBand
File Server Node:	HP ProLiant DL380 G4 file server
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:	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:	64-bit
MPI Library:	HP-MPI 2.2.5
Other MPI Info:	None
Pre-processors:	No
Other Software:	None

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Node Description: HP XC Cluster

Hardware

Number of nodes:	16
Uses of the node:	compute
Vendor:	Hewlett-Packard Company
Model:	XC3000
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
Disk Subsystem:	Ext 3
Other Hardware:	None
Adapter:	PCI-Express DDR InfiniBand HCA
Number of Adapters:	1
Slot Type:	Mezzanine - PCIe x8
Data Rate:	Infiniband 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Software

Adapter:	PCI-Express DDR InfiniBand HCA
Adapter Driver:	Voltiare GridStack 3.5.5_25
Adapter Firmware:	Hp 1.2
Operating System:	Redhat 4 Update 4
Local File System:	VXFS
Shared File System:	NFS
System State:	Multi User
Other Software:	None

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Node Description: HP ProLiant DL380 G4 file server

Hardware

Number of nodes:	1
Uses of the node:	file server
Vendor:	Hewlett-Packard Company
Model:	DL380 G4
CPU Name:	Intel Xeon
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	2
Cores per chip:	1
Threads per core:	1
CPU Characteristics:	None
CPU MHz:	3800
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	2 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	8 GB
Disk Subsystem:	SCSI
Other Hardware:	None
Adapter:	PCI-Express DDR InfiniBand HCA
Number of Adapters:	1
Slot Type:	PCIe x4
Data Rate:	Infiniband 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Software

Adapter:	PCI-Express DDR InfiniBand HCA
Adapter Driver:	Voltiare GridStack 3.5.5_25
Adapter Firmware:	Hp 1.2
Operating System:	Redhat 4 Update 4
Local File System:	2 x 146GB Ultra320 SCSI 10k RPM Disks RAID 0+1
Shared File System:	N/A
System State:	Multi User
Other Software:	None

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Interconnect Description: DDR InfiniBand

Hardware		Software
Vendor:	Voltaire	
Model:	ISR	
Switch Model:	HP 4X DDR IB Switch Module for HP BladeSystem C-Class	
Number of Switches:	1	
Number of Ports:	16	
Data Rate:	Infiniband 4x DDR	
Firmware:	1.30	
Switch Model:	Voltaire 24 port External Switch for subnet management ISR 9024	
Number of Switches:	1	
Number of Ports:	24	
Data Rate:	Infiniband 4x DDR	
Firmware:	0.8.6	
Topology:	two level, for subnet manager, and 1 for leaf.	
Primary Use:	MPI and file system traffic	

General Notes

```
MPI2007 on XC3000 cluster.
module load mpi
. ./shrc
. /opt/intel/fc/9.1.040/bin/ifortvars.sh
. /opt/intel/cc/9.1.045/bin/iccvars.sh
runspec -c linux64_amd_intel medium  --reportable --ranks=NN --define CMD_PREFIX= --define MPIRUN_OPTIONS= --flagsurl=hpmpi-intel.xml -o cfg,txt,html,check
cluster launch performed via slurm's srun
  submit=  \$MPI_ROOT/bin/mpirun  -srun $command
```

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Base Compiler Invocation

C benchmarks:
`mpicc -mpicc icc`

C++ benchmarks:

126.lammps: `mpiCC -mpicxx icpc`

Fortran benchmarks:

107.leslie3d: `mpif90 -mpif90 ifort`

113.GemsFDTD: `mpif90 -mpif90 ifort`

115.fds4: `mpif90 -mpif90 ifort`

129.tera_tf: `mpif90 -mpif90 ifort`

132.zeusmp2: `mpif90 -mpif90 ifort`

137.lu: `mpif90 -mpif90 ifort`

Benchmarks using both Fortran and C (except as noted below):
`mpicc -mpicc icc mpif90 -mpif90 ifort`

Base Portability Flags

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

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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`

Fortran benchmarks:

107.leslie3d: `-O3 -no-prec-div -ftz -fno-alias -xT`

113.GemsFDTD: `-O3 -no-prec-div -ftz -fno-alias -xT`

115.fds4: `-O3 -no-prec-div -ftz -fno-alias -xT`

129.tera_tf: `-O3 -no-prec-div -ftz -fno-alias -xT`

132.zeusmp2: `-O3 -no-prec-div -ftz -fno-alias -xT`

137.lu: `-O3 -no-prec-div -ftz -fno-alias -xT`

Benchmarks using both Fortran and C:

121.pop2: `-O3 -no-prec-div -ftz -fno-alias -xT`

127.wrf2: `Same as 121.pop2`

128.GAPgeofem: `Same as 121.pop2`

130.socorro: `Same as 121.pop2`

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The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/MPI2007_[illegible]s.html

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

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

Tested with SPEC MPI2007 v59.
Report generated on Tue Jul 22 13:32:46 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 16 July 2007.

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