



SPEC[®] MPIM2007 Result

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SGI

SGI Altix ICE 8400EX
(AMD Opteron 6180 SE, 2.5GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 19.4

MPI2007 license: 4

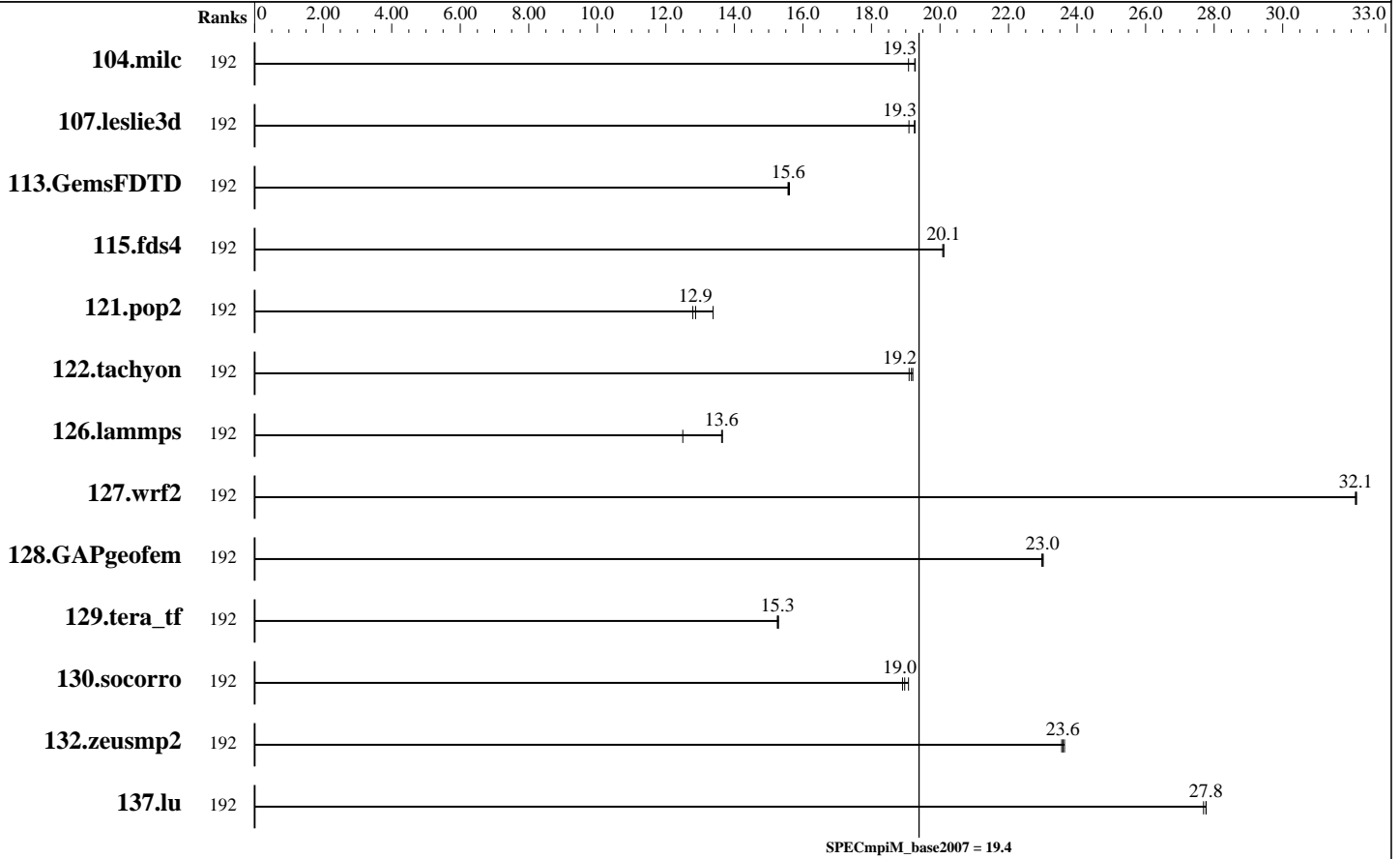
Test sponsor: SGI

Tested by: SGI

Test date: Jun-2011

Hardware Availability: Mar-2011

Software Availability: Aug-2011



Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	192	82.0	19.1	<u>81.2</u>	<u>19.3</u>	81.2	19.3									
107.leslie3d	192	<u>271</u>	<u>19.3</u>	271	19.3	273	19.1									
113.GemsFDTD	192	405	15.6	<u>405</u>	<u>15.6</u>	404	15.6									
115.fds4	192	97.0	20.1	<u>97.0</u>	<u>20.1</u>	97.2	20.1									
121.pop2	192	309	13.4	323	12.8	<u>321</u>	<u>12.9</u>									
122.tachyon	192	<u>146</u>	<u>19.2</u>	146	19.2	146	19.1									
126.lammps	192	214	13.7	233	12.5	<u>214</u>	<u>13.6</u>									
127.wrf2	192	<u>243</u>	<u>32.1</u>	242	32.2	243	32.1									
128.GAPgeofem	192	89.7	23.0	<u>89.8</u>	<u>23.0</u>	89.9	23.0									
129.tera_tf	192	181	15.3	181	15.3	<u>181</u>	<u>15.3</u>									

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	192	200	19.1	202	18.9	<u>201</u>	<u>19.0</u>									
132.zeusmp2	192	131	23.6	132	23.6	<u>132</u>	<u>23.6</u>									
137.lu	192	133	27.7	132	27.8	<u>132</u>	<u>27.8</u>									

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: SGI Altix ICE 8400EX Compute Node
 Interconnect: InfiniBand (MPI and I/O)
 File Server Node: SGI InfiniteStorage 4000
 Total Compute Nodes: 8
 Total Chips: 16
 Total Cores: 192
 Total Threads: 192
 Total Memory: 512 GB
 Base Ranks Run: 192
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Compiler for Linux
 Version 11.1, Build 20100806
 C++ Compiler: Intel C++ Compiler for Linux
 Version 11.1, Build 20100806
 Fortran Compiler: Intel Fortran Compiler for Linux
 Version 11.1, Build 20100806
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 2.04 Patch 10789
 Other MPI Info: OFED 1.4.2
 Pre-processors: None
 Other Software: None

Node Description: SGI Altix ICE 8400EX Compute Node

Hardware

Number of nodes: 8
 Uses of the node: compute
 Vendor: SGI
 Model: SGI Altix ICE 8400EX (AMD Opteron 6180 SE, 2.5GHz)
 CPU Name: AMD Opteron 6180 SE
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 24
 Cores per chip: 12
 Threads per core: 1
 CPU Characteristics: 12 Cores/chip, 2.5 GHz
 CPU MHz: 2500
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 12 MB I+D on chip per chip, 6 MB shared / 6 cores
 Other Cache: None
 Memory: 64 GB (16 x 4 GB, 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: None
 Other Hardware: None
 Adapter: Mellanox MT26428 ConnectX IB QDR
 (PCIe x8 Gen2 5 GT/s)
 Number of Adapters: 1
 Slot Type: PCIe x8 Gen2
 Data Rate: InfiniBand 4x QDR

Software

Adapter: Mellanox MT26428 ConnectX IB QDR
 (PCIe x8 Gen2 5 GT/s)
 Adapter Driver: OFED-1.4.2
 Adapter Firmware: 2.7.0
 Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64)
 Kernel 2.6.32.27-0.2-default
 Local File System: NFSv3
 Shared File System: NFSv3 IPoIB
 System State: Run Level 3 (Multi-User)
 Other Software: SGI Performance Suite 1.0,
 Build 702r19.sles11-1010072114
 SGI Tempo Compute Node 2.2,
 Build 702r19.sles11-1010072114

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Node Description: SGI Altix ICE 8400EX Compute Node

Ports Used: 2
Interconnect Type: InfiniBand

Node Description: SGI InfiniteStorage 4000

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: SGI
Model: SGI Altix 450 (Intel Itanium 2, 1.6GHz)
CPU Name: Intel Itanium 2 9030
CPU(s) orderable: 2-38 chips
Chips enabled: 2
Cores enabled: 4
Cores per chip: 2
Threads per core: 1
CPU Characteristics: 1.6GHz/8MB, 533MHz FSB
CPU MHz: 1600
Primary Cache: 16 KB I + 16 KB D on chip per core
Secondary Cache: 1 MB I + 256 KB D on chip per core
L3 Cache: 4 MB I+D on chip per core
Other Cache: None
Memory: 24 GB (12 x 2 GB, 2Rx4 PC2-3200-3, ECC)
Disk Subsystem: 16 TB RAID 5
32 x 500 GB SATA (Seagate Barracuda 7.2K)
Other Hardware: None
Adapter: Mellanox MT25208 InfiniHost III Ex
(PCIe x8 Gen1 2.5 GT/s)
Number of Adapters: 2
Slot Type: PCIe x8 Gen1
Data Rate: InfiniBand 4x DDR
Ports Used: 2
Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT25208 InfiniHost III Ex
(PCIe x8 Gen1 2.5 GT/s)
Adapter Driver: OFED-1.4.2
Adapter Firmware: 5.3.0
Operating System: SUSE Linux Enterprise Server 11 SP1 (ia64)
Kernel 2.6.32.12-0.7-default
Local File System: xfs
Shared File System: --
System State: Run Level 3 (Multi-User)
Other Software: SGI ProPack 7SP1 for Linux,
Build 701r2.sles11-1005242307

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor: Mellanox Technologies and SGI
Model: None
Switch Model: SGI QDR_1.5_HYPR_2454 with Mellanox Device 48438
(Infiniscale IV)
Number of Switches: 1
Number of Ports: 36
Data Rate: InfiniBand 4x QDR
Firmware: 5040005
Topology: Enhanced Hypercube

Software

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Interconnect Description: InfiniBand (MPI and I/O)

Primary Use: MPI and I/O traffic

Submit Notes

The config file option 'submit' was used.

General Notes

Software environment:

```
export MPI_REQUEST_MAX=65536
export MPI_TYPE_MAX=32768
export MPI_BUFS_THRESHOLD=1
ulimit -s unlimited
```

BIOS settings:

AMI BIOS version 1.0a

Job Placement:

Each MPI job is assigned to a topologically compact set of nodes, i.e. the minimal needed number of switches was used for each job: 1 switch for up to 192 ranks, 2 switches for 384 ranks, 4 switches for 768 ranks, 8 switches for 1536 ranks and 16 switches for 3072 ranks.

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

126.lammps: icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX



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Base Optimization Flags

C benchmarks:

-O3 -xSSE2 -ipo -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xSSE2 -ipo -no-prec-div -ansi-alias

Fortran benchmarks:

-O3 -xSSE2 -ipo -no-prec-div

Benchmarks using both Fortran and C:

-O3 -xSSE2 -ipo -no-prec-div

Base Other Flags

C benchmarks:

-lmpi

C++ benchmarks:

126.lammps: -lmpi

Fortran benchmarks:

-lmpi

Benchmarks using both Fortran and C:

-lmpi

The flags file that was used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.20120720.00.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.20120720.00.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 v2.0.
Report generated on Tue Jul 22 13:42:56 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 14 July 2011.