SPEC® MPIL2007 Result

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SGI

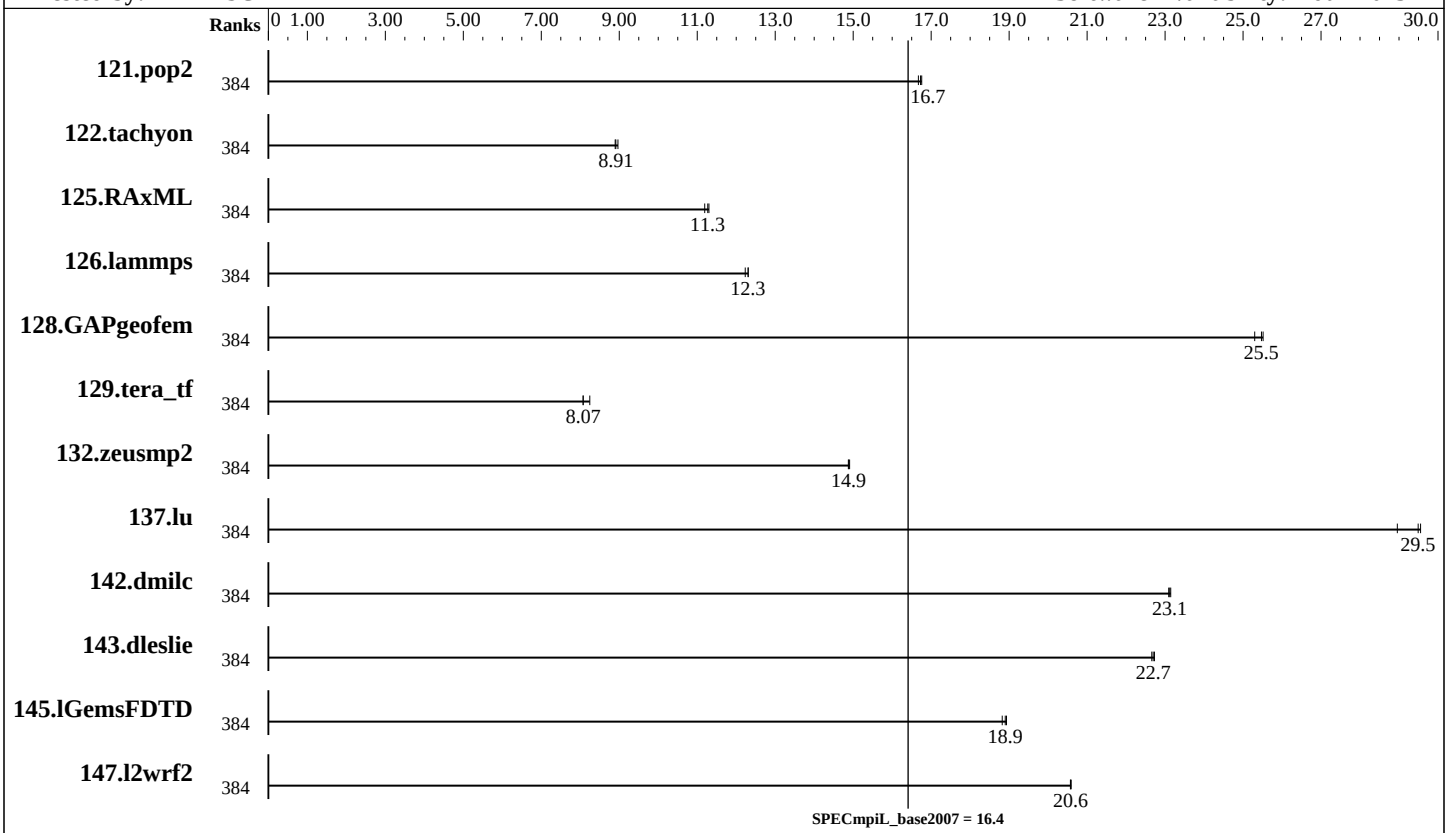
SGI Rackable C2112-4RP4
(Intel Xeon E5-2697 v2, 2.70 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 16.4

MPI2007 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Aug-2013
Hardware Availability: Sep-2013
Software Availability: Jun-2013



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	384	233	16.7	**233**	**16.7**	232	16.8							
122.tachyon	384	217	8.97	**218**	**8.91**	219	8.90							
125.RAxML	384	**259**	**11.3**	258	11.3	261	11.2							
126.lammps	384	200	12.3	**200**	**12.3**	201	12.2							
128.GAPgeofem	384	235	25.3	**233**	**25.5**	233	25.5							
129.tera_tf	384	133	8.24	136	8.07	**136**	**8.07**							
132.zeusmp2	384	142	14.9	143	14.9	**142**	**14.9**							
137.lu	384	142	29.6	145	29.0	**142**	**29.5**							
142.dmilc	384	160	23.1	**159**	**23.1**	159	23.1							
143.dleslie	384	136	22.7	**137**	**22.7**	137	22.7							
145.lGemsFDTD	384	233	18.9	**233**	**18.9**	234	18.8							
147.l2wrf2	384	399	20.6	398	20.6	**399**	**20.6**							

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

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Hardware Summary

Type of System:	Homogeneous
Compute Node:	SGI Rackable C2112-4RP4 Compute Node
Interconnect:	InfiniBand (MPI and I/O)
File Server Node:	SGI MIS Server
Total Compute Nodes:	16
Total Chips:	32
Total Cores:	384
Total Threads:	768
Total Memory:	2 TB
Base Ranks Run:	384
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C++ Composer XE 2013 for Linux, Version 14.0.0.051 Build 20130529
C++ Compiler:	Intel C++ Composer XE 2013 for Linux, Version 14.0.0.051 Build 20130529
Fortran Compiler:	Intel Fortran Composer XE 2013 for Linux, Version 14.0.0.051 Build 20130529
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	SGI MPT 2.08 Patch 11012
Other MPI Info:	OFED 1.5.2
Pre-processors:	None
Other Software:	None

Node Description: SGI Rackable C2112-4RP4 Compute Node

Hardware

Number of nodes:	16
Uses of the node:	compute
Vendor:	SGI
Model:	SGI Rackable C2112-4RP4 (Intel Xeon E5-2697 v2, 2.70GHz)
CPU Name:	Intel Xeon E5-2697 v2
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	24
Cores per chip:	12
Threads per core:	2
CPU Characteristics:	Twelve Core, 2.7 GHz, 8.0 GT/s QPI Intel Turbo Boost Technology up to 3.5 GHz Hyper-Threading Technology enabled
CPU MHz:	2700
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	30 MB I+D on chip per chip, 30 MB shared / 12 cores
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	None
Other Hardware:	None
Adapter:	Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8.0 GT/s)
Number of Adapters:	2
Slot Type:	PCIe x8 Gen3
Data Rate:	InfiniBand 4x FDR
Ports Used:	1
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8.0 GT/s)
Adapter Driver:	OFED-1.5.2
Adapter Firmware:	2.10.2370
Operating System:	SUSE Linux Enterprise Server 11 SP2, Kernel 3.0.74-0.6.6-default
Local File System:	xfs
Shared File System:	NFSv3 IPoIB
System State:	Multi-user, run level 3
Other Software:	SGI Accelerate 1.6, Build 708r14.sles11sp2-1304102205

Node Description: SGI MIS Server

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	SGI
Model:	SGI MIS Server (Intel Xeon X2670, 2.60 GHz)
CPU Name:	Intel Xeon E5-2670
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	16
Cores per chip:	8
Threads per core:	2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz Hyper-Threading Technology enabled
CPU MHz:	2600
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per chip
L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8*16 GB 12800R-11, ECC)
Disk Subsystem:	57.6 TB RAID6 64 x 900 GB SAS (Western Digital WD9001BKHG 10K)
Other Hardware:	None
Adapter:	Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
Number of Adapters:	2
Slot Type:	PCIe x8 Gen3
Data Rate:	InfiniBand 4x FDR
Ports Used:	2
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
Adapter Driver:	OFED-1.5.2
Adapter Firmware:	2.11.500
Operating System:	SUSE Linux Enterprise Server 11 SP2 (x86_64) Kernel 3.0.74-0.6.6-default
Local File System:	xfs
Shared File System:	--
System State:	Multi-user, run level 3
Other Software:	SGI Foundation Software 2.8, Build 708r14.sles11sp2-1304102205

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor:	Mellanox Technologies
Model:	None
Switch Model:	Mellanox SX6025 InfiniBand Switch
Number of Switches:	4
Number of Ports:	36
Data Rate:	InfiniBand 4x FDR
Firmware:	9.1.7000
Switch Model:	Mellanox SX6036 InfiniBand Switch
Number of Switches:	2
Number of Ports:	36
Data Rate:	InfiniBand 4x FDR
Firmware:	9.1.6500
Topology:	Fat Tree
Primary Use:	MPI and I/O traffic

Software

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

Transparent Hugepage : disabled
  Transparent Hugepage is disabled by
  echo never > /sys/kernel/mm/transparent_hugepage/enabled

BIOS settings:
  Intel BIOS version SE5C600.86B.99.99.x067.060720130951
  Hyper-Threading Technology enabled (default)
  Intel Turbo Boost Technology enabled (default)
  Intel Turbo Boost Technology activated in the OS via
    /etc/init.d/acpid start
    /etc/init.d/powersaved start
    powersave -f
```

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`

Base Optimization Flags

C benchmarks:
`-O3 -xAVX -no-prec-div`

C++ benchmarks:

126.lammps: `-O3 -xAVX -no-prec-div -ansi-alias`

Fortran benchmarks:
`-O3 -xAVX -no-prec-div`

Benchmarks using both Fortran and C:
`-O3 -xAVX -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_Intel14_flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel14_flags.xml`

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

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