SPEC® MPIL2007 Result

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SGI

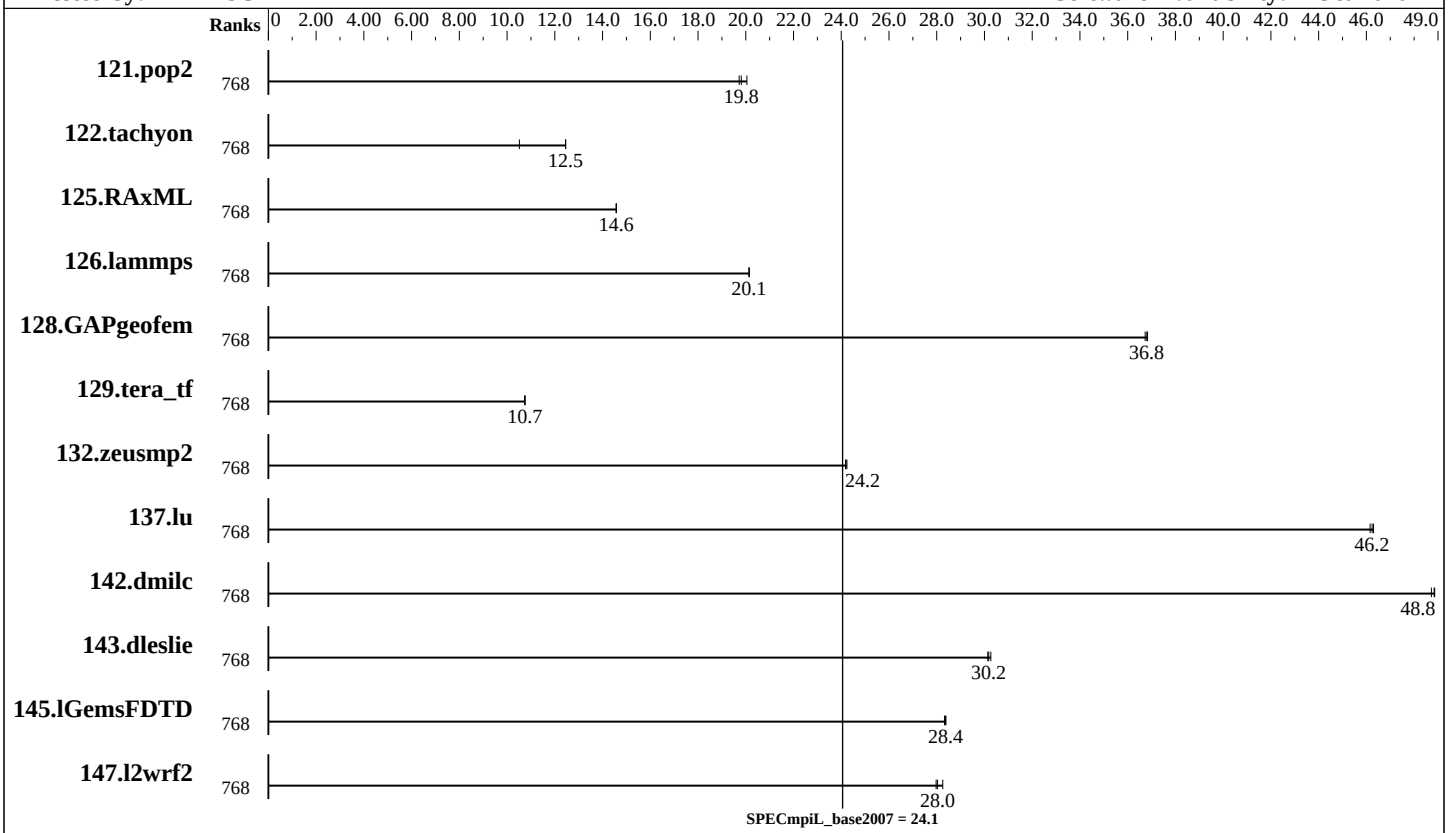
SGI Altix ICE 8400EX
(Intel Xeon X5680, 3.33 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 24.1

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

Test date: Sep-2010
Hardware Availability: May-2010
Software Availability: Oct-2010



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	768	197	19.7	194	20.0	**196**	**19.8**							
122.tachyon	768	185	10.5	156	12.5	**156**	**12.5**							
125.RAxML	768	**200**	**14.6**	200	14.6	200	14.6							
126.lammps	768	**122**	**20.1**	122	20.1	122	20.1							
128.GAPgeofem	768	162	36.7	161	36.8	**161**	**36.8**							
129.tera_tf	768	**102**	**10.7**	102	10.7	102	10.7							
132.zeusmp2	768	87.7	24.2	87.5	24.2	**87.6**	**24.2**							
137.lu	768	91.0	46.2	90.8	46.3	**90.9**	**46.2**							
142.dmilc	768	75.4	48.9	75.6	48.7	**75.4**	**48.8**							
143.dleslie	768	103	30.1	**103**	**30.2**	102	30.3							
145.lGemsFDTD	768	**155**	**28.4**	156	28.3	155	28.4							
147.l2wrf2	768	290	28.3	293	28.0	**293**	**28.0**							

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 Altix ICE 8400EX Compute Node
Interconnects:	InfiniBand (MPI) InfiniBand (I/O)
File Server Node:	SGI InfiniteStorage Nexis 2000 NAS
Total Compute Nodes:	64
Total Chips:	128
Total Cores:	768
Total Threads:	1536
Total Memory:	1536 GB
Base Ranks Run:	768
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C Compiler for Linux Version 11.1, Build 20100414
C++ Compiler:	Intel C++ Compiler for Linux Version 11.1, Build 20100414
Fortran Compiler:	Intel Fortran Compiler for Linux Version 11.1, Build 20100414
Base Pointers:	64-bit
Peak Pointers:	64-bit
MPI Library:	SGI MPT 2.02 Beta
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:	64
Uses of the node:	compute
Vendor:	SGI
Model:	SGI Altix ICE 8400EX (Intel Xeon X5680, 3.33 GHz)
CPU Name:	Intel Xeon X5680
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	12
Cores per chip:	6
Threads per core:	2
CPU Characteristics:	Six Core, 3.33 GHz, 6.4 GT/s QPI Intel Turbo Boost Technology up to 3.6 GHz Hyper-Threading Technology enabled
CPU MHz:	3333
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6*4GB DDR3-1333 CL9 RDIMMs)
Disk Subsystem:	None
Other Hardware:	None
Adapter:	Mellanox MT26428 ConnectX IB QDR (PCIe x8 Gen2 5 GT/s)
Number of Adapters:	2
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x QDR
Ports Used:	1
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MT26428 ConnectX IB QDR (PCIe x8 Gen2 5 GT/s)
Adapter Driver:	OFED-1.4.2
Adapter Firmware:	2.7.200
Operating System:	SUSE Linux Enterprise Server 11 SP1, Kernel 2.6.32.13-0.4-default
Local File System:	NFSv3
Shared File System:	NFSv3 IPoIB
System State:	Multi-user, run level 3
Other Software:	SGI ProPack 7 for Linux Service Pack 1, SGI Tempo V 2.1

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

Test date: Sep-2010
Hardware Availability: May-2010
Software Availability: Oct-2010

Node Description: SGI InfiniteStorage Nexis 2000 NAS

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	SGI
Model:	SGI Altix XE 270 (Intel Xeon X5670, 2.93 GHz)
CPU Name:	Intel Xeon X5670
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	12
Cores per chip:	6
Threads per core:	2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz Hyper-Threading Technology enabled
CPU MHz:	2933
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per chip
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6*4GB DDR3-1333 CL9 DIMMs)
Disk Subsystem:	8.8 TB RAID 5 60 x 146 GB SAS (Seagate Cheetah 15K.5)
Other Hardware:	None
Adapter:	Mellanox MT26418 ConnectX, MT25208 InfiniHost III Ex (PCIe x8 Gen2 5 GT/s, PCIe x8 Gen1 2.5 GT/s)
Number of Adapters:	2
Slot Type:	PCIe x8 Gen2, PCIe x8 Gen1
Data Rate:	InfiniBand 4x DDR
Ports Used:	2
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MT26418 ConnectX, MT25208 InfiniHost III Ex (PCIe x8 Gen2 5 GT/s, PCIe x8 Gen1 2.5 GT/s)
Adapter Driver:	OFED-1.4.0
Adapter Firmware:	2.6.0 and 5.2.0
Operating System:	SUSE Linux Enterprise Server 11 (x86_64) Kernel 2.6.27.19-5-default
Local File System:	xfs
Shared File System:	--
System State:	Multi-user, run level 3
Other Software:	SGI Foundation Software 2

Interconnect Description: InfiniBand (MPI)

Hardware

Vendor:	Mellanox Technologies and SGI
Model:	MT26428 ConnectX
Switch Model:	SGI QDR_1.5_HYPR_2454 with Mellanox Device 48438 (Infiniscale IV)
Number of Switches:	32
Number of Ports:	36
Data Rate:	InfiniBand 4x QDR
Firmware:	5030005
Topology:	Enhanced Hypercube
Primary Use:	MPI traffic

Software

Interconnect Description: InfiniBand (I/O)

Hardware

Vendor:	Mellanox Technologies and SGI
Model:	MT26428 ConnectX
Switch Model:	SGI QDR_1.5_HYPR_2454 with Mellanox Device 48438 (Infiniscale IV)
Number of Switches:	16
Number of Ports:	36
Data Rate:	InfiniBand 4x QDR
Firmware:	5030005
Topology:	Enhanced Hypercube
Primary Use:	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
   export MPI_IB_RAILS=2
   ulimit -s unlimited

 BIOS settings:
   AMI BIOS version 080016
   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

Job Placement:
  Each MPI job was assigned to a topologically compact set
  of nodes, i.e. the minimal needed number of switches was
  used for each job: 2 switches for 96 ranks,
  4 switches for 192 ranks, 8 switches for 384 ranks,
  16 switches for 768 ranks, 32 switches for 1536 ranks.
```

Base Compiler Invocation

C benchmarks:

```
icc
```

Continued on next page

Base Compiler Invocation (Continued)

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 -xSSE4.2 -no-prec-div`

C++ benchmarks:

126.lammps: `-O3 -xSSE4.2 -no-prec-div -ansi-alias`

Fortran benchmarks:
`-O3 -xSSE4.2 -no-prec-div`

Benchmarks using both Fortran and C:
`-O3 -xSSE4.2 -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.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.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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