SPEC® MPIL2007 Result
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SGI

SGI Altix ICE 8400EX
(AMD Opteron 6282 SE, 2.6GHz)

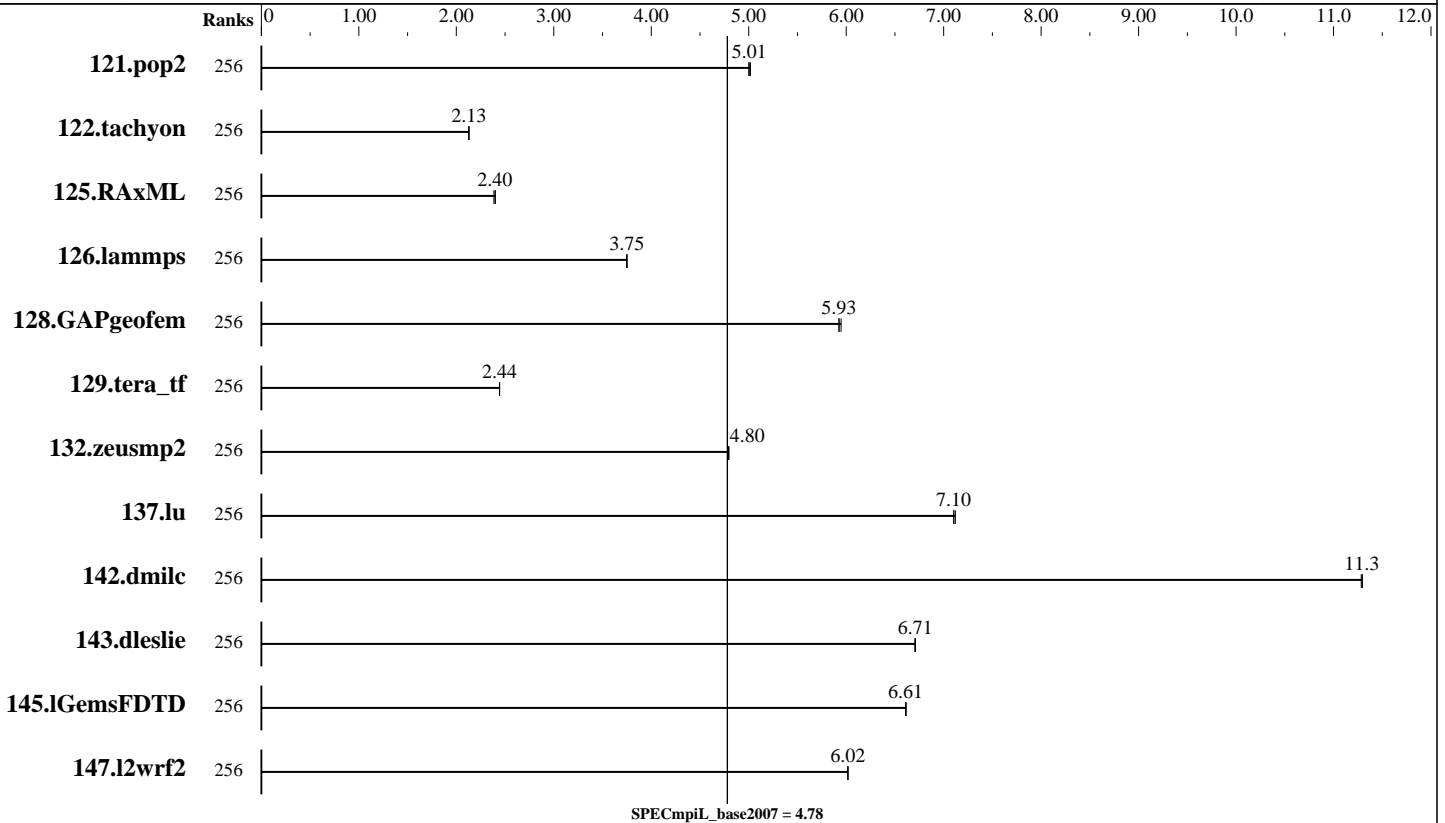SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 4.78

MPI2007 license: 4		**Test date:**	Jan-2012
Test sponsor: SGI		**Hardware Availability:**	Nov-2011
Tested by: SGI		**Software Availability:**	Nov-2011

SPECmpiL_base2007 = 4.78

Results Table

Benchmark	Base Ranks	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Ranks	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
121.pop2	256	775	5.02	**777**	**5.01**	778	5.00							
122.tachyon	256	913	2.13	913	2.13	**913**	**2.13**							
125.RAxML	256	1216	2.40	**1218**	**2.40**	1224	2.39							
126.lammps	256	656	3.75	**656**	**3.75**	656	3.75							
128.GAPgeofem	256	998	5.95	1001	5.93	**1001**	**5.93**							
129.tera_tf	256	450	2.44	450	2.44	**450**	**2.44**							
132.zeusmp2	256	**442**	**4.80**	442	4.80	442	4.79							
137.lu	256	590	7.12	591	7.10	**591**	**7.10**							
142.dmilc	256	326	11.3	**326**	**11.3**	326	11.3							
143.dleslie	256	**462**	**6.71**	462	6.71	462	6.71							
145.lGemsFDTD	256	667	6.61	667	6.62	**667**	**6.61**							
147.l2wrf2	256	**1363**	**6.02**	1363	6.02	1363	6.02							

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
Interconnect:	InfiniBand (MPI and I/O)
File Server Node:	SGI InfiniteStorage 4000
Total Compute Nodes:	8
Total Chips:	16
Total Cores:	256
Total Threads:	256
Total Memory:	1 TB
Base Ranks Run:	256
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C++ Composer XE 2011 for Linux, Version 12.1.1.256 Build 20111011
C++ Compiler:	Intel C++ Composer XE 2011 for Linux, Version 12.1.1.256 Build 20111011
Fortran Compiler:	Intel Fortran Composer XE 2011 for Linux, Version 12.1.1.256 Build 20111011
Base Pointers:	64-bit
Peak Pointers:	64-bit
MPI Library:	SGI MPT 2.05
Other MPI Info:	OFED 1.5.2
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 6282 SE, 2.6GHz)
CPU Name:	AMD Opteron 6282 SE
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	32
Cores per chip:	16
Threads per core:	1
CPU Characteristics:	16 cores/chip, 2.6 GHz AMD Turbo CORE technology up to 3.30 GHz
CPU MHz:	2600
Primary Cache:	512 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core
Secondary Cache:	16 MB I+D on chip per chip, 2 MB I+D on chip per core
L3 Cache:	16 MB I+D on chip per chip, 8 MB shared / 8 cores
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, 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
Ports Used:	2
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MT26428 ConnectX IB QDR (PCIe x8 Gen2 5 GT/s)
Adapter Driver:	OFED-1.5.2
Adapter Firmware:	2.7.0
Operating System:	SUSE Linux Enterprise Server 11 SP1 (x86_64) Kernel 2.6.32.46-0.3-default #1 SMP
Local File System:	NFSv3
Shared File System:	NFSv3 IPoIB
System State:	Run level 3 (Multi-User)
Other Software:	SGI Performance Suite 1.3, Build 705rp8.sles11-1111092106 SGI Tempo Compute Node 2.5, Build 705r10.sles11-1110192111

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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:	2
Number of Ports:	36
Data Rate:	InfiniBand 4x QDR
Firmware:	5040005
Topology:	Enhanced Hypercube
Primary Use:	MPI and I/O traffic

Software

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Software Availability: Nov-2011

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 2.0

 Job Placement:
   In the base run, 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: 2 switch for up to 256 ranks, 4 switches
   for 512 ranks, 8 switches for 1024 ranks.

 Additional notes regarding interconnect:
   The Infiniband network consists of two independent planes,
   with half the switches in the system allocated to each plane.
   I/O traffic is restricted to one plane, while MPI traffic can
   use both planes.

   SGI manufactures its own switch blades using unmodified Mellanox
   switch ASICs. The test system has SGI QDR_1.5_HYPR_2454 switch
   with Mellanox 36-port QDR Infiniband switch Device 48438
   (InfiniScale IV).
```

Base Compiler Invocation

C benchmarks:
    icc

C++ benchmarks:

    126.lammps: icpc

Fortran benchmarks:
    ifort

Benchmarks using both Fortran and C:
    icc ifort

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Base Portability Flags

121.pop2: `-DSPEC_MPI_CASE_FLAG`

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_Intel12_flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel12_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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