



SPEC[®] MPIL2007 Result

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SGI

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

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 40.8

MPI2007 license: 4

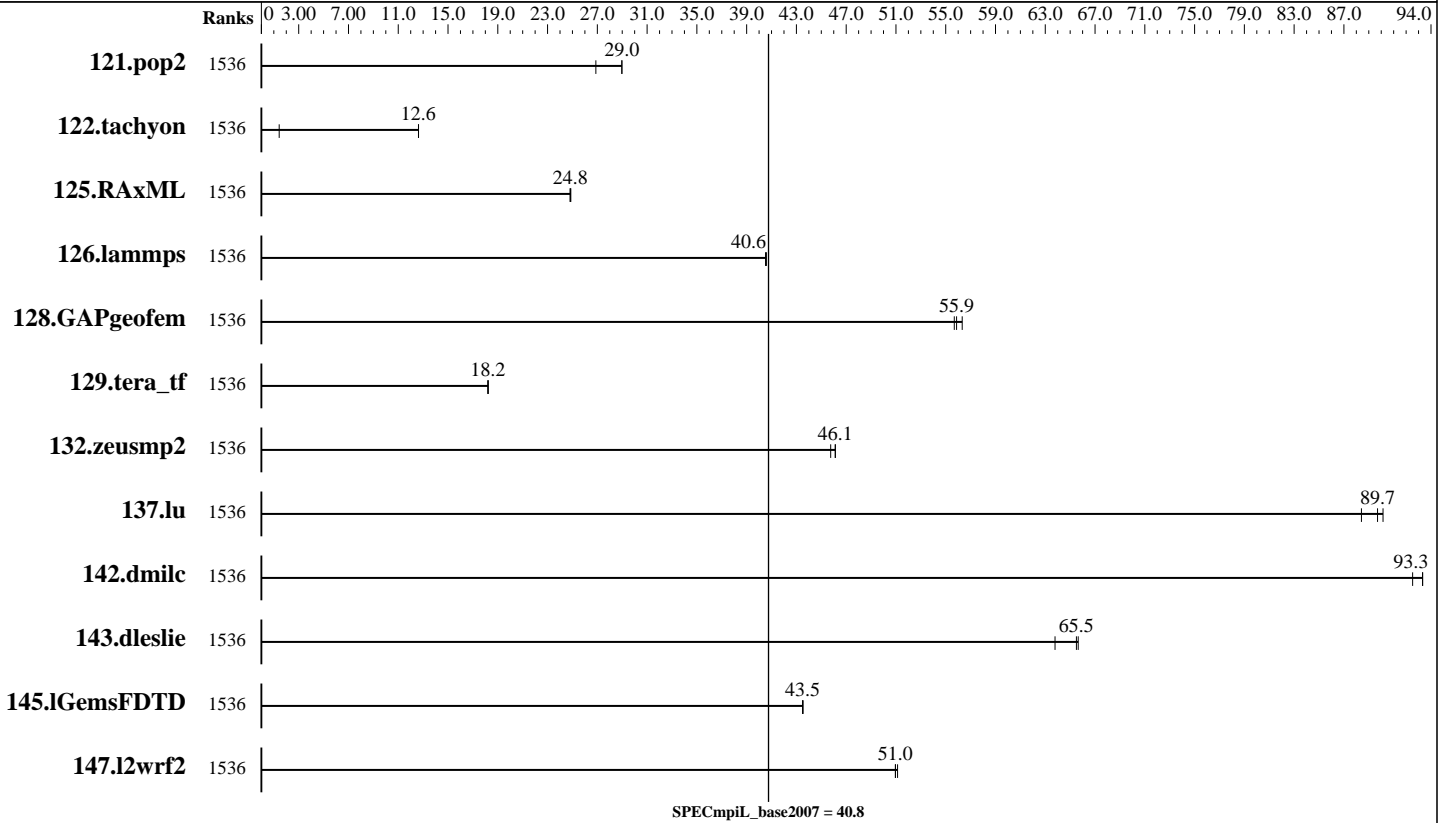
Test sponsor: SGI

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	1536	145	26.9	134	29.0	134	29.0									
122.tachyon	1536	1358	1.43	154	12.6	154	12.6									
125.RAxML	1536	117	24.9	118	24.8	118	24.8									
126.lammps	1536	60.7	40.5	60.6	40.6	60.6	40.6									
128.GAPgeofem	1536	105	56.3	106	55.9	107	55.7									
129.tera_tf	1536	60.3	18.2	60.3	18.2	60.3	18.2									
132.zeusmp2	1536	46.3	45.8	46.0	46.1	46.0	46.1									
137.lu	1536	46.8	89.7	46.6	90.1	47.5	88.4									
142.dmilc	1536	39.8	92.5	39.5	93.3	39.5	93.3									
143.dleslie	1536	47.2	65.6	48.6	63.8	47.3	65.5									
145.lGemsFDTD	1536	101	43.5	101	43.5	101	43.5									
147.l2wrf2	1536	161	51.0	161	51.0	160	51.1									

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

Standard Performance Evaluation Corporation

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http://www.spec.org/



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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: 128
 Total Chips: 256
 Total Cores: 1536
 Total Threads: 3072
 Total Memory: 3 TB
 Base Ranks Run: 1536
 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: 128
 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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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



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Hardware Availability: May-2010

Software Availability: Oct-2010

Interconnect Description: InfiniBand (I/O)

Hardware

Software

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

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

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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



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

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.html

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

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_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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