SPEC® MPIM2007 Result
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Indiana University

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 4.02

Mason (Intel Xeon L7555, base frequency 1.87 GHz,
PC3-10600R, ECC, running at 1066 MHz and CL9,
Turbo on,
Max Turbo Frequency 2.53 GHz)
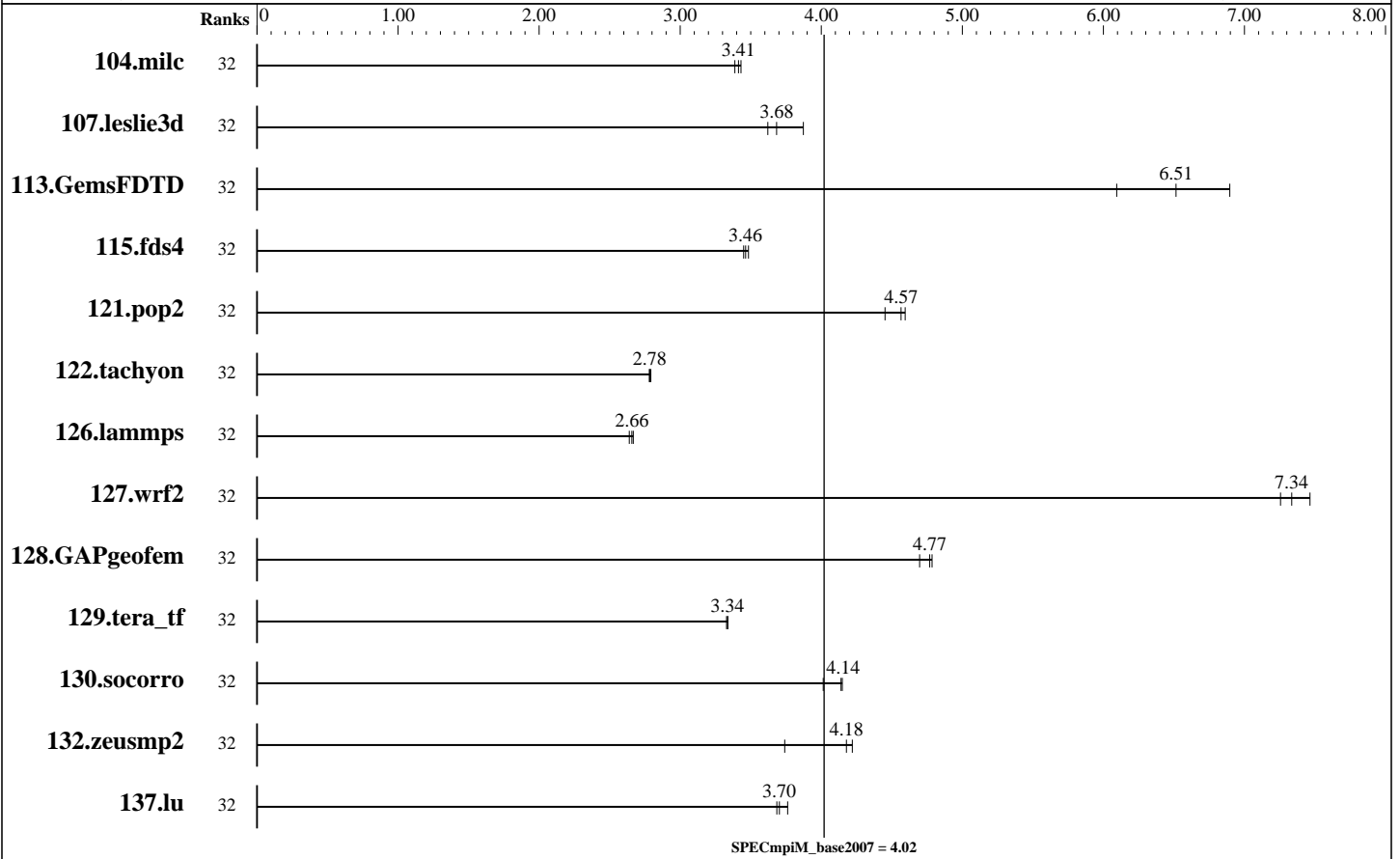
MPI2007 license: 3440	**Test date:** Dec-2011
Test sponsor: Indiana University	**Hardware Availability:** Jun-2010
Tested by: Huian Li	**Software Availability:** Jan-2011

Ranks

Benchmark	Ranks	Value
104.milc	32	3.41
107.leslie3d	32	3.68
113.GemsFDTD	32	6.51
115.fds4	32	3.46
121.pop2	32	4.57
122.tachyon	32	2.78
126.lammps	32	2.66
127.wrf2	32	7.34
128.GAPgeofem	32	4.77
129.tera_tf	32	3.34
130.socorro	32	4.14
132.zeusmp2	32	4.18
137.lu	32	3.70

SPECmpiM_base2007 = 4.02

Results Table

Benchmark		Base						Peak					
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	32	462	3.39	**459**	**3.41**	456	3.43							
107.leslie3d	32	1348	3.87	1442	3.62	**1417**	**3.68**							
113.GemsFDTD	32	915	6.90	1035	6.09	**968**	**6.51**							
115.fds4	32	560	3.48	**563**	**3.46**	566	3.45							
121.pop2	32	927	4.45	**904**	**4.57**	898	4.59							
122.tachyon	32	1002	2.79	1006	2.78	**1005**	**2.78**							
126.lammps	32	1093	2.67	**1097**	**2.66**	1105	2.64							
127.wrf2	32	1074	7.26	**1063**	**7.34**	1044	7.46							
128.GAPgeofem	32	432	4.79	440	4.70	**433**	**4.77**							
129.tera_tf	32	829	3.34	**830**	**3.34**	832	3.33							

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	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
130.socorro	32	920	4.15	951	4.01	**922**	**4.14**							
132.zeusmp2	32	735	4.22	**743**	**4.18**	829	3.74							
137.lu	32	**993**	**3.70**	977	3.76	998	3.69							

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:	Mason Node
Interconnects:	10Gigabit Ethernet
	Gigabit Ethernet
File Server Node:	HOME
Total Compute Nodes:	1
Total Chips:	4
Total Cores:	32
Total Threads:	32
Total Memory:	512 GB
Base Ranks Run:	32
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C Composer XE 2011 for Linux Version 12.0, Build 20110112
C++ Compiler:	Intel C++ Composer XE 2011 for Linux Version 12.0, Build 20110112
Fortran Compiler:	Intel Fortran Composer XE 2011 for Linux Version 12.0, Build 20110112
Base Pointers:	64-bit
Peak Pointers:	64-bit
MPI Library:	OpenMPI-1.4.3
Other MPI Info:	None
Pre-processors:	No
Other Software:	None

Node Description: Mason Node

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	HP
Model:	Proliant DL580 G7 Server Series
CPU Name:	Intel Xeon L7555
CPU(s) orderable:	1-4 chips
Chips enabled:	4
Cores enabled:	32
Cores per chip:	8
Threads per core:	1
CPU Characteristics:	Intel Turbo Boost Technology enabled, 5.86 GT/s QPI
CPU MHz:	1866
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	24 MB I+D on chip per chip, 24 MB shared / 8 cores
Other Cache:	None
Memory:	512 GB (64 x 8 GB 2Rx4 PC3-10600R, ECC running at 1066 MHz and CL9)
Disk Subsystem:	Two 500 GB 7200 RPM 2.5" SAS hard drives, in RAID 1 mirror
Other Hardware:	None
Adapter:	HP NC375i 1G w/NC524SFP 10G Module
Number of Adapters:	1

Software

Adapter:	HP NC375i 1G w/NC524SFP 10G Module
Adapter Driver:	netxen_nic v 4.0.75
Adapter Firmware:	4.0.544
Adapter:	HP NC375i 1G
Adapter Driver:	netxen_nic v 4.0.75
Adapter Firmware:	4.0.544
Operating System:	RHEL6.0 (x86_64) 2.6.32-71.14.1.el6 Kernel 2.6.32-71.14.1.el6
Local File System:	Linux/ext2
Shared File System:	NFS
System State:	Multi-User
Other Software:	TORQUE-2.5.7

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Node Description: Mason Node

Slot Type:	PCIe x8 Gen2
Data Rate:	10Gbps
Ports Used:	1
Interconnect Type:	10 Gigabit Ethernet
Adapter:	HP NC375i 1G
Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	1Gbps
Ports Used:	1
Interconnect Type:	1 Gigabit Ethernet

Node Description: HOME

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	IBM
Model:	IBM N5500 NAS
CPU Name:	Intel Xeon CPU
CPU(s) orderable:	1-4 chips
Chips enabled:	4
Cores enabled:	32
Cores per chip:	8
Threads per core:	1
CPU Characteristics:	--
CPU MHz:	1866
Primary Cache:	32 KB I + 32 KB D on chip per chip
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	6 GB
Disk Subsystem:	10 disks, 320GB/disk, 2.6TB total
Other Hardware:	None
Adapter:	Intel 82546GB Dual-Port Gigabit Ethernet Controller
Number of Adapters:	1
Slot Type:	PCI-Express x8
Data Rate:	1Gbps Ethernet
Ports Used:	1
Interconnect Type:	Ethernet

Software

Adapter:	Intel 82546GB Dual-Port Gigabit Ethernet Controller
Adapter Driver:	e1000
Adapter Firmware:	N/A
Operating System:	RedHat EL 4 Update 4
Local File System:	None
Shared File System:	NFS
System State:	Multi-User
Other Software:	None

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Interconnect Description: 10Gigabit Ethernet

Hardware		**Software**
Vendor:	HP	
Model:	HP NC375i 1G w/NC524SFP 10G Module	
Switch Model:	Cisco 7018 (Line card module: N7K-M132XP-12)	
Number of Switches:	1	
Number of Ports:	16	
Data Rate:	10 Gbps Ethernet	
Firmware:	EPLD 5.0.2	
Topology:	switched	
Primary Use:	MPI traffic and NFS traffic	

Interconnect Description: Gigabit Ethernet

Hardware		**Software**
Vendor:	HP	
Model:	Cisco SGE2010	
Switch Model:	Cisco SGE2010	
Number of Switches:	1	
Number of Ports:	48	
Data Rate:	1 Gbps Ethernet	
Firmware:	3.0.0.18	
Topology:	switched	
Primary Use:	Network management	

Submit Notes

The config file option 'submit' was used.

General Notes

```
MPI startup command:
  mpirun command was used to start MPI jobs.
  eth0 (10 GigE) was specified at the mpirun command line for MPI message passing
  eth3 (1 GigE) was specified for non-MPI communication.
BIOS settings:
  Intel Turbo Boost Technology (Turbo)  : Enabled (the default)
RAM configuration:
  Each compute node has 64x8-GB RDIMMs.
Network:
  Four compute nodes connect to one Cisco Nexus 7018 switch
  via 10 GigE port.
Job placement:
  Each MPI job was assigned to a topologically compact set of nodes, i.e.
  the minimal needed number of compute nodes was used for each job:
  1 compute node for 32 ranks, 2 for 64 ranks, 4 for 128 ranks, and 8 for 256 ranks
```

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General Notes (Continued)

PBS Pro was used for job submission. It has no impact on performance.
Can be found at: http://www.altair.com

Base Compiler Invocation

C benchmarks:
     mpicc

C++ benchmarks:

     126.lammps: mpicxx

Fortran benchmarks:
     mpif90

Benchmarks using both Fortran and C:
     mpicc mpif90

Base Portability Flags

     121.pop2: -DSPEC_MPI_CASE_FLAG
     126.lammps: -DMPICH_IGNORE_CXX_SEEK
     127.wrf2: -DSPEC_MPI_LINUX -DSPEC_MPI_CASE_FLAG

Base Optimization Flags

C benchmarks:
     -O3 -xSSE4.1 -no-prec-div

C++ benchmarks:

     126.lammps: -O3 -xSSE4.1 -no-prec-div

Fortran benchmarks:
     -O3 -xSSE4.1 -no-prec-div

Benchmarks using both Fortran and C:
     -O3 -xSSE4.1 -no-prec-div

The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20120720.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20120720.xml

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For other inquiries, please contact webmaster@spec.org.

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