SPEC® MPIL2007 Result

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Indiana University

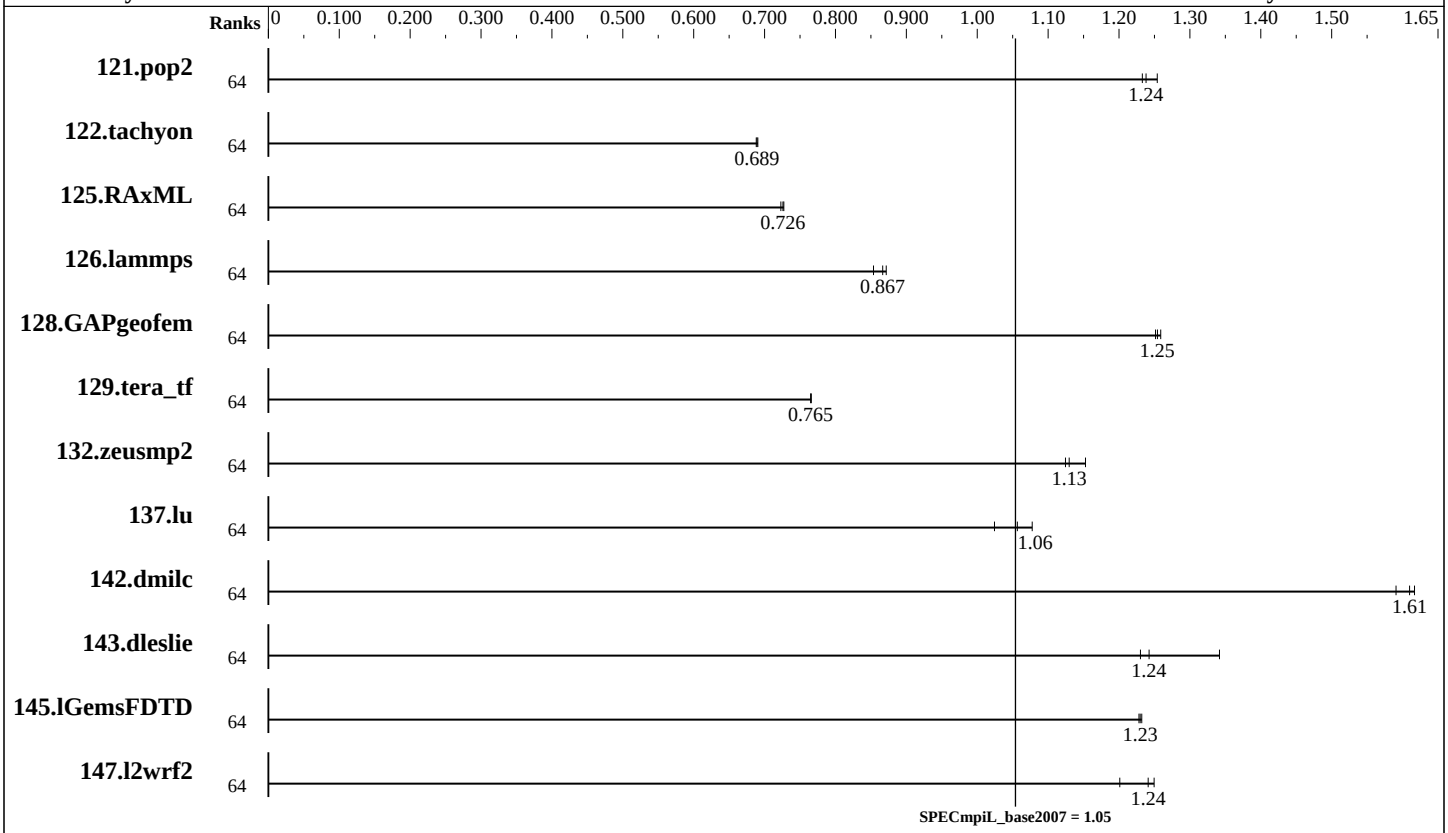
Mason (Intel Xeon L7555, base frequency 1.87 GHz,
PC3-10600R, ECC, running at 1066 MHz and CL9,
Turbo on,
Max Turbo Frequency 2.53 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 1.05

MPI2007 license: 3440
Test sponsor: Indiana University
Tested by: Huian Li

Test date: Dec-2011
Hardware Availability: Jun-2010
Software Availability: Jan-2011



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	64	3103	1.25	3156	1.23	**3143**	**1.24**							
122.tachyon	64	2825	0.688	**2820**	**0.689**	2815	0.690							
125.RAxML	64	4014	0.727	4038	0.723	**4021**	**0.726**							
126.lammps	64	2821	0.872	**2837**	**0.867**	2881	0.854							
128.GAPgeofem	64	4741	1.25	**4731**	**1.25**	4714	1.26							
129.tera_tf	64	1435	0.766	1436	0.765	**1436**	**0.765**							
132.zeusmp2	64	1885	1.12	**1877**	**1.13**	1839	1.15							
137.lu	64	3900	1.08	4102	1.02	**3977**	**1.06**							
142.dmilc	64	**2288**	**1.61**	2316	1.59	2278	1.62							
143.dleslie	64	**2495**	**1.24**	2520	1.23	2310	1.34							
145.lGemsFDTD	64	**3587**	**1.23**	3592	1.23	3580	1.23							
147.l2wrf2	64	**6610**	**1.24**	6830	1.20	6566	1.25							

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:	Mason Node
Interconnects:	10Gigabit Ethernet Gigabit Ethernet
File Server Node:	HOME
Total Compute Nodes:	2
Total Chips:	8
Total Cores:	64
Total Threads:	64
Total Memory:	1 TB
Base Ranks Run:	64
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:	2
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
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

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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MPI2007 license: 3440
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Test date: Dec-2011
Hardware Availability: Jun-2010
Software Availability: Jan-2011

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

Interconnect Description: 10Gigabit Ethernet

Hardware

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

Software

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:
  2 compute nodes for 64 ranks, 4 compute nodes for 128 ranks.

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`

Continued on next page

Base Compiler Invocation (Continued)

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

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

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