SPEC® MPIL2007 Result

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Indiana University

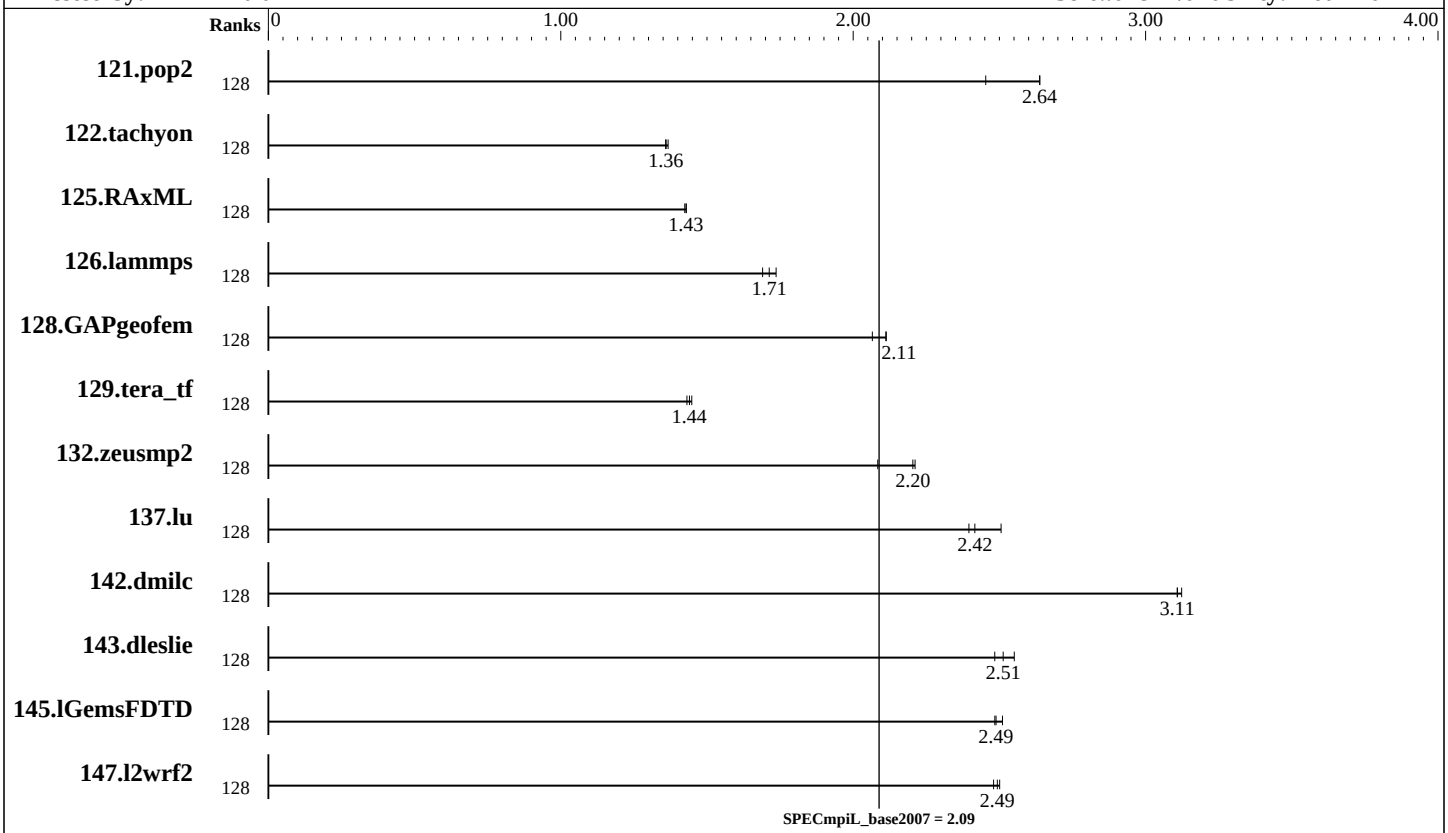
Mason (Intel Xeon L7555, base frequency 1.87 GHz,
PC3-10600R, ECC, running at 1066 MHz and CL9,
Turbo on,
Max Turbo Frequency 2.53 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 2.09

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	128	1586	2.45	**1475**	**2.64**	1475	2.64							
122.tachyon	128	**1429**	**1.36**	1431	1.36	1422	1.37							
125.RAxML	128	2042	1.43	2050	1.42	**2043**	**1.43**							
126.lammps	128	**1436**	**1.71**	1455	1.69	1416	1.74							
128.GAPgeofem	128	2808	2.11	**2810**	**2.11**	2873	2.07							
129.tera_tf	128	**763**	**1.44**	759	1.45	768	1.43							
132.zeusmp2	128	**962**	**2.20**	1017	2.08	959	2.21							
137.lu	128	1677	2.51	1754	2.40	**1739**	**2.42**							
142.dmilc	128	1185	3.11	**1185**	**3.11**	1180	3.12							
143.dleslie	128	**1234**	**2.51**	1248	2.48	1215	2.55							
145.lGemsFDTD	128	1776	2.48	**1773**	**2.49**	1757	2.51							
147.l2wrf2	128	3308	2.48	3280	2.50	**3291**	**2.49**							

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:	4
Total Chips:	16
Total Cores:	128
Total Threads:	128
Total Memory:	2 TB
Base Ranks Run:	128
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:	4
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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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:

Continued on next page

Base Compiler Invocation (Continued)

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`

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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