SPEC® MPIM2007 Result

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Dell Inc.

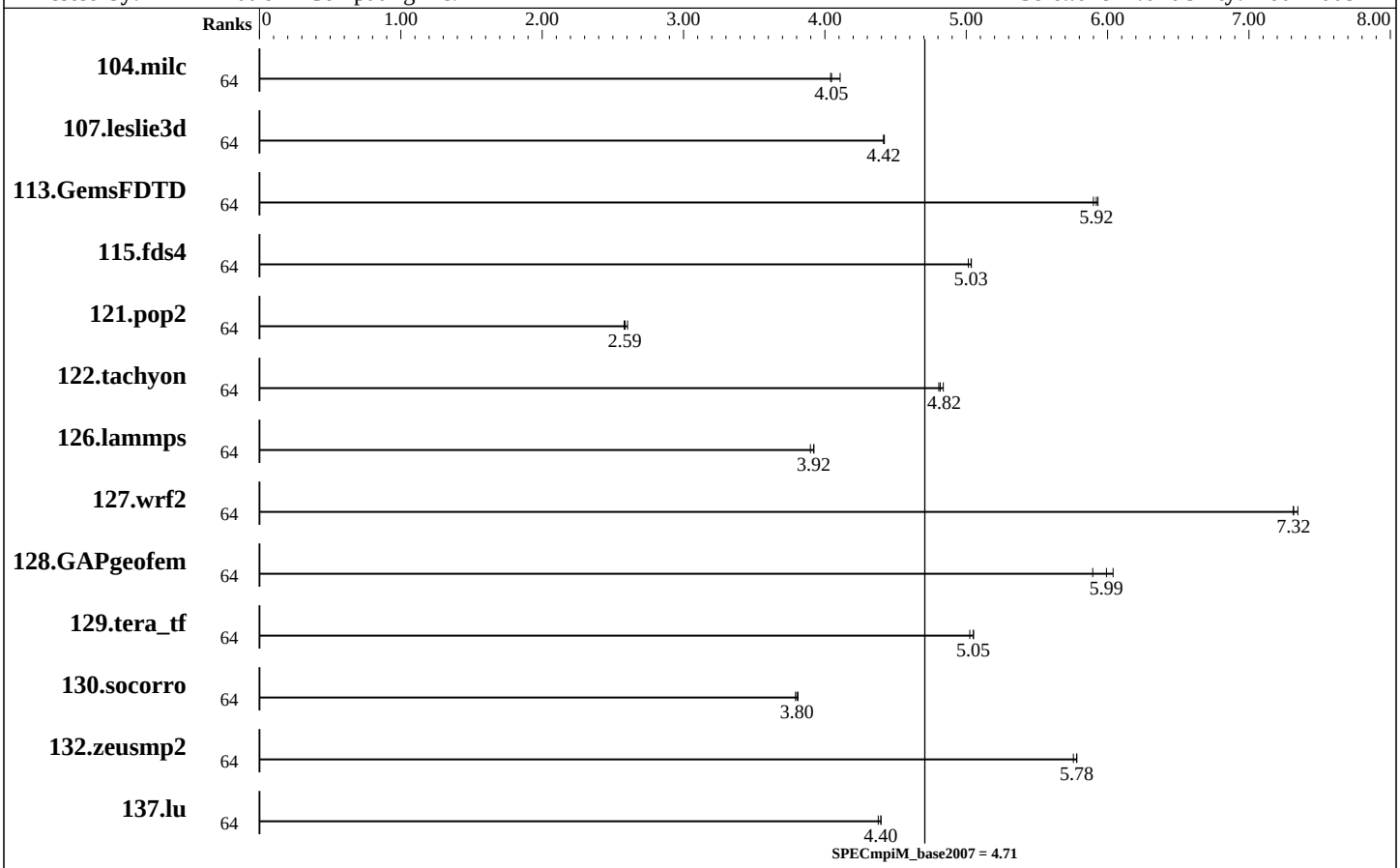
PowerEdge M605,
Gigabit Ethernet,
Platform MPI 5.6.4,
Intel 10.1 compilers

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 4.71

MPI2007 license: 021
Test sponsor: Platform Computing Inc.
Tested by: Platform Computing Inc.

Test date: Nov-2008
Hardware Availability: Jan-2008
Software Availability: Jul-2008



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	387	4.04	381	4.11	**387**	**4.05**							
107.leslie3d	64	1182	4.42	1181	4.42	**1182**	**4.42**							
113.GemsFDTD	64	1063	5.93	**1065**	**5.92**	1069	5.90							
115.fds4	64	387	5.04	**388**	**5.03**	389	5.01							
121.pop2	64	1585	2.60	**1596**	**2.59**	1600	2.58							
122.tachyon	64	578	4.84	582	4.81	**581**	**4.82**							
126.lammps	64	743	3.92	748	3.90	**744**	**3.92**							
127.wrf2	64	1066	7.31	1061	7.35	**1066**	**7.32**							
128.GAPgeofem	64	**345**	**5.99**	342	6.04	350	5.89							
129.tera_tf	64	548	5.05	551	5.02	**548**	**5.05**							

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	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	64	1007	3.79	1002	3.81	**1004**	**3.80**							
132.zeusmp2	64	**537**	**5.78**	539	5.76	537	5.78							
137.lu	64	**836**	**4.40**	840	4.38	836	4.40							

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

Hardware Summary

Type of System:	Homogenous
Compute Node:	PowerEdge M605
Interconnect:	Gigabit Ethernet
File Server Node:	PowerEdge M605
Head Node:	PowerEdge M605
Total Compute Nodes:	8
Total Chips:	16
Total Cores:	64
Total Threads:	64
Total Memory:	128 GB
Base Ranks Run:	64
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C Compiler 10.1 for Linux (10.1.018)
C++ Compiler:	Intel C++ Compiler 10.1 for Linux (10.1.018)
Fortran Compiler:	Intel Fortran Compiler 10.1 for Linux (10.1.018)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	Scali MPI Connect 5.6.4-59151
Other MPI Info:	Platform Computing Inc has acquired Scali MPI Connect, hence Platform MPI and Scali MPI Connect are used synonymously.
Pre-processors:	None
Other Software:	None

Node Description: PowerEdge M605

Hardware

Number of nodes:	8
Uses of the node:	compute, head, fileserver
Vendor:	Dell Inc.
Model:	M605
CPU Name:	AMD Opteron CPU 2350
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	1
CPU Characteristics:	Quad-Core AMD Opteron Processor 2350 (Barcelona)
CPU MHz:	2000
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	2 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4 x 4 GB DIMMs, 667 MHz)
Disk Subsystem:	10K RPM Serial-Attach SCSI 3Gbps 2.5-in HotPlug Hard Drive
Other Hardware:	None
Adapter:	Broadcom Corporation NetXtreme II BCM5708S Gigabit Ethernet (rev 12)
Number of Adapters:	1
Slot Type:	PCIe x8

Continued on next page

Software

Adapter:	Broadcom Corporation NetXtreme II BCM5708S Gigabit Ethernet (rev 12)
Adapter Driver:	OS default (bnx2, v1.5.11)
Adapter Firmware:	4.4.1
Operating System:	RHEL 5.1 (x86_64) Kernel 2.6.18-53.el5
Local File System:	ext3
Shared File System:	NFSv3
System State:	multi-user
Other Software:	None

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Node Description: PowerEdge M605

Data Rate:	1 Gbps
Ports Used:	1
Interconnect Type:	Gigabit Ethernet

Interconnect Description: Gigabit Ethernet

Hardware

Vendor:	Dell Inc.
Model:	24 port Gigabit Ethernet switch
Switch Model:	PowerConnect 5324
Number of Switches:	1
Number of Ports:	24
Data Rate:	1 Gbps Ethernet
Firmware:	sw: v2.0.0.39, boot: v1.0.2.02, hw: 00.00.02
Topology:	Single Switch
Primary Use:	MPI and file system traffic

Software

Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
Dell PowerConnect 5324 configuration details:

   Ports 9-16 were used and configured the following way:
                                                  Flow Link          Back    Mdix
   Port     Type         Duplex  Speed Neg      ctrl State       Pressure Mode
   -------- ------------ ------  ----- -------- ---- ----------- -------- -------
   g9       1G-Copper    Full    1000  Enabled  On   Up          Disabled Off


Broadcom NetXtreme II BCM5708S Coalesce Settings:

   The following coalesce settings were applied on all nodes:
  ethtool -C eth0 rx-usecs 7 rx-frames 2 rx-usecs-irq 14 rx-frames-irq 4 tx-usecs 20 tx-frames 5 tx -usecs-irq 40 tx-frames-irq 10


NFS server usage:

   The first node was used as NFS server. The other 7 nodes mounted the working directory from the first node.
```

Base Compiler Invocation

C benchmarks:
```
mpicc  -ccl icc
```

C++ benchmarks:

126.lammps: `mpicc  -ccl icpc`

Fortran benchmarks:
```
mpif77 -ccl ifort
```

Benchmarks using both Fortran and C:
```
mpicc  -ccl icc mpif77 -ccl ifort
```

Base Portability Flags

121.pop2: `-DSPEC_MPI_CASE_FLAG`
127.wrf2: `-DSPEC_MPI_LINUX -DSPEC_MPI_CASE_FLAG`

Base Optimization Flags

C benchmarks:
```
-O3 -ipo -no-prec-div -axS
```

C++ benchmarks:

126.lammps: `-O3 -ipo -no-prec-div -axS`

Fortran benchmarks:
```
-O3 -ipo -no-prec-div -axS
```

Benchmarks using both Fortran and C:
```
-O3 -ipo -no-prec-div -axS
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/MPI2007_flags.20081204.html
http://www.spec.org/mpi2007/flags/EM64T_Intel101_flags.20081204.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/mpi2007/flags/MPI2007_flags.20081204.xml
http://www.spec.org/mpi2007/flags/EM64T_Intel101_flags.20081204.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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