SPEC® MPIL2007 Result

Dell Inc.

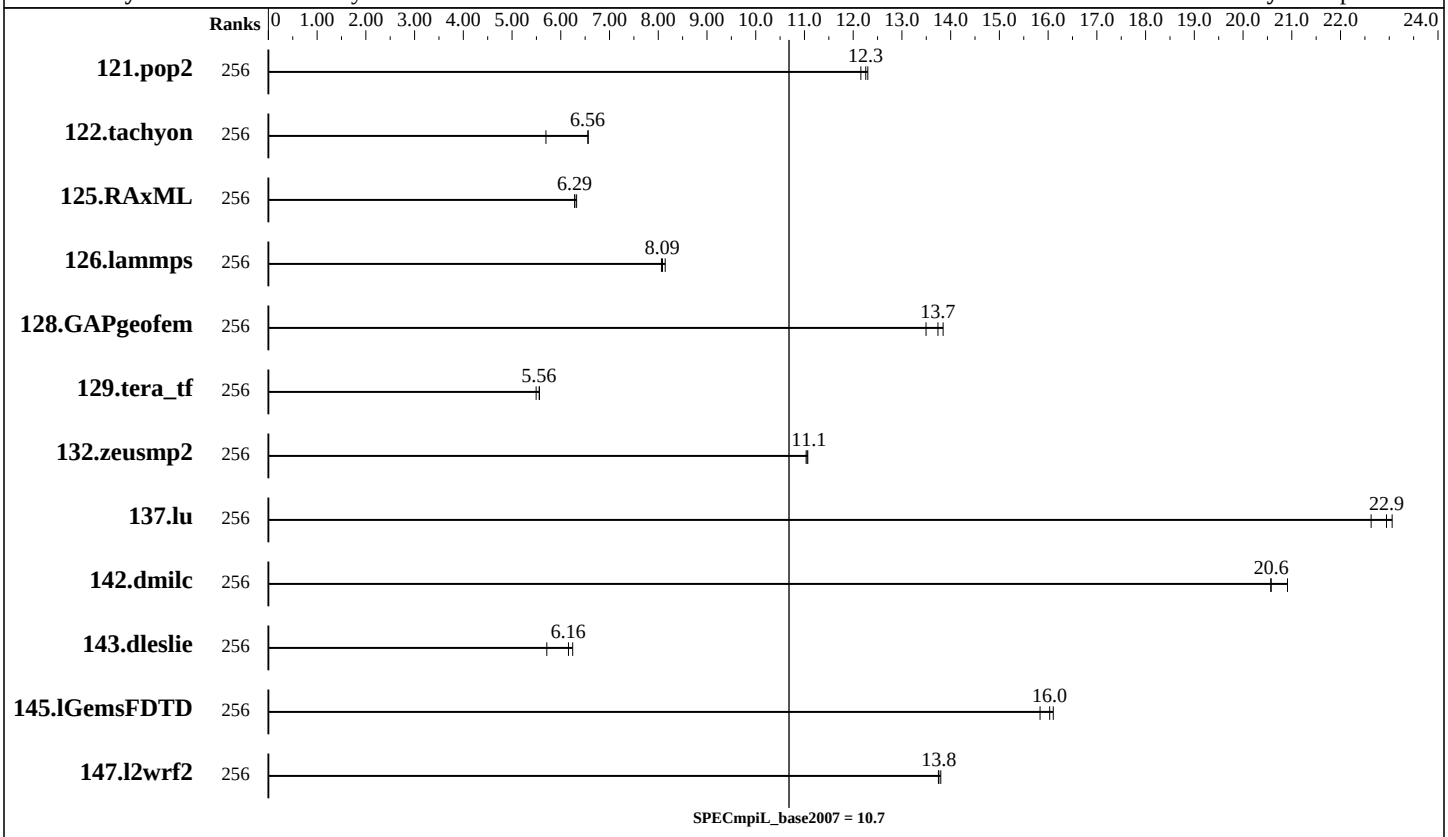
PowerEdge M620 (Intel Xeon E5-2680, 2.70 GHz, DDR3-1600 MHz

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 10.7

MPI2007 license: 25
Test sponsor: Dell
Tested by: Burton Finley

Test date: May-2012
Hardware Availability: Mar-2012
Software Availability: Sep-2011



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	256	**317**	**12.3**	320	12.2	316	12.3							
122.tachyon	256	341	5.70	296	6.56	**297**	**6.56**							
125.RAxML	256	462	6.32	**464**	**6.29**	464	6.29							
126.lammps	256	302	8.14	305	8.07	**304**	**8.09**							
128.GAPgeofem	256	440	13.5	429	13.8	**432**	**13.7**							
129.tera_tf	256	200	5.49	198	5.56	**198**	**5.56**							
132.zeusmp2	256	**192**	**11.1**	192	11.1	192	11.0							
137.lu	256	186	22.6	182	23.1	**183**	**22.9**							
142.dmilc	256	**179**	**20.6**	179	20.6	176	20.9							
143.dleslie	256	**503**	**6.16**	496	6.24	543	5.71							
145.lGemsFDTD	256	279	15.8	**275**	**16.0**	274	16.1							
147.l2wrf2	256	595	13.8	**596**	**13.8**	597	13.7							

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:	PowerEdge M620
Interconnects:	IB Switch Gigabit Ethernet
File Server Node:	PowerEdge R410
Total Compute Nodes:	16
Total Chips:	32
Total Cores:	256
Total Threads:	256
Total Memory:	1 TB
Base Ranks Run:	256
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
C++ Compiler:	Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
Fortran Compiler:	Intel Fortran Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
Base Pointers:	64-bit
Peak Pointers:	64-bit
MPI Library:	Intel MPI Library 4.0.3.008 Build 20110824 for Linux
Other MPI Info:	None
Pre-processors:	No
Other Software:	None

Node Description: PowerEdge M620

Hardware

Number of nodes:	16
Uses of the node:	compute
Vendor:	Dell
Model:	PowerEdge M620 Installed in PowerEdge M1000e blade chassis
CPU Name:	Intel Xeon E5-2680
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	16
Cores per chip:	8
Threads per core:	1
CPU Characteristics:	Intel Turbo Boost Technology up to 3.5 GHz, 8.0 GT/s QPI, Hyper-Threading disabled
CPU MHz:	2700
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	20 MB I+D on chip per chip, 20 MB shared / 8 cores
Other Cache:	None
Memory:	64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	Seagate 146 GB SAS ST9146803SS
Other Hardware:	None
Adapter:	Onboard Intel X520-k Ethernet Controller
Number of Adapters:	1
Slot Type:	PCI-Express x16
Data Rate:	1Gbps Ethernet
Ports Used:	1
Interconnect Type:	Ethernet
Adapter:	Mellanox ConnectX2 Quad Data Rate IB PCIe 2.0 (Installed in Fabric C)
Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x QDR
Ports Used:	1

Continued on next page

Software

Adapter:	Onboard Intel X520-k Ethernet Controller
Adapter Driver:	3.4.8-k
Adapter Firmware:	13.1.9
Adapter:	Mellanox ConnectX2 Quad Data Rate IB PCIe 2.0 (Installed in Fabric C)
Adapter Driver:	MLNX_OFED_LINUX-1.5.3-3.0.0-rhel6.2-x86_64
Adapter Firmware:	2.9.1000
Operating System:	Red Hat EL 6.2, kernel 2.6.32-220.el6.x86_64
Local File System:	Linux/ext2
Shared File System:	NFS
System State:	Multi-User
Other Software:	None

Node Description: PowerEdge M620

Interconnect Type:	InfiniBand

Node Description: PowerEdge R410

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	Intel
Model:	PowerEdge R410
CPU Name:	Intel Xeon X5570 CPU
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	1
CPU Characteristics:	N/A
CPU MHz:	2930
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	32 GB
Disk Subsystem:	1 disks, 500GB/disk
Other Hardware:	None
Adapter:	Dual port Broadcom BCM 5716 Ethernet Controller
Number of Adapters:	1
Slot Type:	Integrated
Data Rate:	1Gbps Ethernet
Ports Used:	1
Interconnect Type:	Ethernet

Software

Adapter:	Dual port Broadcom BCM 5716 Ethernet Controller
Adapter Driver:	2.1.11
Adapter Firmware:	9-6.2.0.17.fw
Operating System:	Red Hat EL 6.2, kernel 2.6.32-220.el6.x86_64
Local File System:	None
Shared File System:	NFS
System State:	Multi-User
Other Software:	None

Interconnect Description: IB Switch

Hardware

Vendor:	Mellanox
Model:	Mellanox M3601Q
Switch Model:	Mellanox M3601Q Installed in PowerEdge M1000e blade chassis (Installed in slot C1)
Number of Switches:	1
Number of Ports:	32
Data Rate:	InfiniBand 4x QDR
Firmware:	7.4.0000
Topology:	Fat tree
Primary Use:	MPI traffic

Software

Interconnect Description: Gigabit Ethernet

Hardware

Vendor:	Dell Inc.
Model:	Intel X520-k Ethernet Controller
Switch Model:	PowerConnect M6220 (Modular Layer 3 blade switch for PowerEdge M1000e blade chassis) in slot A1
Number of Switches:	1
Number of Ports:	20
Data Rate:	1Gbps Ethernet
Firmware:	3.1.3.9
Topology:	Fat tree
Primary Use:	Cluster File System

Software

Submit Notes

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

General Notes

```
MPI startup command:
  mpiexec.hydra command was used to start MPI jobs.

BIOS settings:
  Intel Hyper-Threading Technology (SMT): Disabled (default is Enabled)
  Intel Turbo Boost Technology (Turbo)  : Enabled (default is Enabled)

RAM configuration:
  Compute nodes have 2x8-GB RDIMM on each memory channel.

Network:
  One 20-port switch

Compute Node Environment:
  ulimit -s = unlimited
  ulimit -l = unlimited
  File "/etc/modprobe.d/mlx4_core.conf" modified to contain "options
  mlx4_core log_mtts_per_seg=5"
```

Base Compiler Invocation

C benchmarks:
`mpiicc`

C++ benchmarks:

126.lammps: `mpiicpc`

Fortran benchmarks:
`mpiifort`

Benchmarks using both Fortran and C:
`mpiicc mpiifort`

Base Portability Flags

121.pop2: `-DSPEC_MPI_CASE_FLAG`
126.lammps: `-DMPICH_IGNORE_CXX_SEEK`

Base Optimization Flags

C benchmarks:
`-O3 -xAVX -no-prec-div`

C++ benchmarks:

126.lammps: `-O3 -xAVX -no-prec-div`

Fortran benchmarks:
`-O3 -xAVX -no-prec-div`

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

The flags file that was used to format this result can be browsed at
`http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.xml`

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

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