



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Cray

SPECmpiM_peak2007 = Not Run

Big Red II (AMD Opteron 6380, 2.5 GHz)

SPECmpiM_base2007 = 4.82

MPI2007 license: 3440A

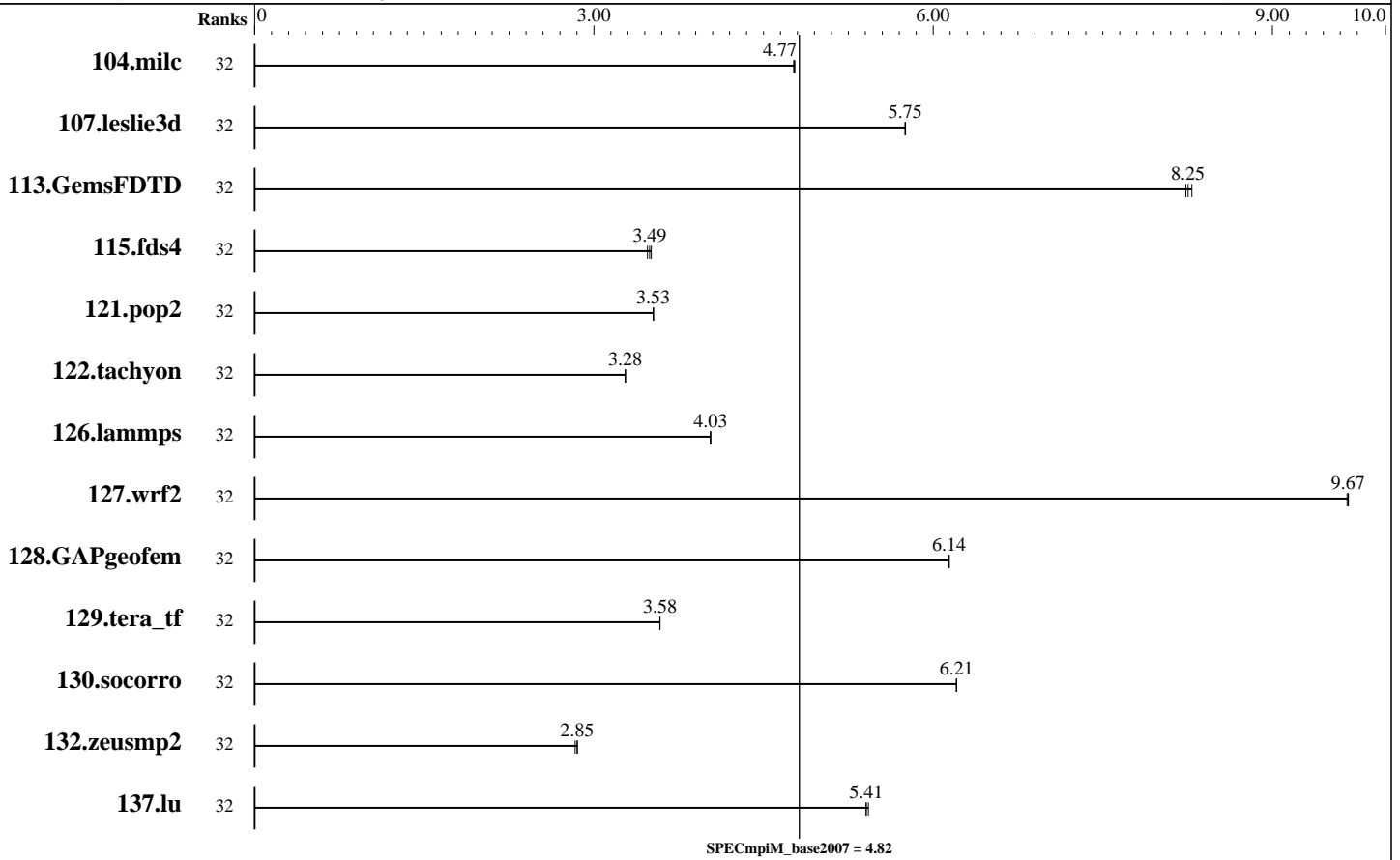
Test sponsor: Indiana University

Tested by: Indiana University

Test date: Mar-2015

Hardware Availability: Apr-2013

Software Availability: Jun-2013



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	32	328	4.77	328	4.77	328	4.78							
107.leslie3d	32	907	5.76	907	5.75	908	5.75							
113.GemsFDTD	32	766	8.23	761	8.29	764	8.25							
115.fds4	32	559	3.49	556	3.51	562	3.47							
121.pop2	32	1171	3.53	1171	3.53	1171	3.53							
122.tachyon	32	853	3.28	853	3.28	853	3.28							
126.lammps	32	723	4.03	723	4.03	723	4.03							
127.wrf2	32	806	9.67	807	9.66	806	9.67							
128.GAPgeofem	32	336	6.14	336	6.14	336	6.14							
129.tera_tf	32	773	3.58	772	3.58	772	3.58							

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	32	615	6.21	615	6.20	615	6.21							
132.zeusmp2	32	1088	2.85	1095	2.83	1087	2.85							
137.lu	32	677	5.43	680	5.41	680	5.41							

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: Big Red II Node
 Interconnects: Infiniband (QDR)
 Cray Gemini
 File Server Node: Data Capacitor II
 Total Compute Nodes: 2
 Total Chips: 4
 Total Cores: 64
 Total Threads: 64
 Total Memory: 128 GB
 Base Ranks Run: 32
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Composer XE 2013 for Linux, Version 13.1.3.192 Build 20130607
 C++ Compiler: Intel C++ Composer XE 2013 for Linux, Version 13.1.3.192 Build 20130607
 Fortran Compiler: Intel Fortran Composer XE 2013 for Linux, Version 13.1.3.192 Build 20130607
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Cray MPI (MPT) 7.1.2
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: Big Red II Node

Hardware

Number of nodes: 2
 Uses of the node: compute
 Vendor: Cray
 Model: XE6
 CPU Name: AMD Opteron 6380
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 32
 Cores per chip: 16
 Threads per core: 1
 CPU Characteristics: AMD Turbo CORE technology up to 3.40 GHz
 CPU MHz: 2500
 Primary Cache: 512 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core
 Secondary Cache: 16 MB I+D on chip per chip, 2 MB shared / 2 cores
 L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 8 cores
 Other Cache: None
 Memory: 64 GB (8 x 8 GB 2Rx4 PC3L-12800R-11, ECC running at 1600 MHz and CL11)
 Disk Subsystem: None
 Other Hardware: None
 Adapter: Mellanox ConnectX MHQH29-XTC
 Number of Adapters: 1
 Slot Type: PCIe x8 Gen 2

Software

Adapter: Mellanox ConnectX MHQH29-XTC
 Adapter Driver: 1.0-ofed1.5.4
 Adapter Firmware: 2.9.1000
 Adapter: Cray Gemini
 Adapter Driver: Proprietary Cray_kgni
 Adapter Firmware: 0.17
 Operating System: SUSE Linux Enterprise Server 11 (x86_64), Cray Linux Environment 4.2, Kernel 2.6.32.59-0.7.1_1.0402.7496-cray_gem_c
 Local File System: None
 Shared File System: lustre
 System State: Multi-User
 Other Software: TORQUE-2.5.7

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Node Description: Big Red II Node

Data Rate: 40Gbps
 Ports Used: 1
 Interconnect Type: 40 Gigabit Infiniband (QDR)
 Adapter: Cray Gemini
 Number of Adapters: 1
 Slot Type: AMD HyperTransport 3
 Data Rate: 76.8Gbps
 Ports Used: 1
 Interconnect Type: Gemini

Node Description: Data Capacitor II

Hardware

Number of nodes: 2
 Uses of the node: fileserver
 Vendor: DDN
 Model: DDN SFA12K
 CPU Name: Intel Xeon CPU E5-2620
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 12
 Cores per chip: 6
 Threads per core: 1
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
 CPU MHz: 2000
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 96 GB
 Disk Subsystem: 30 TB RAID 6, 10 (8 + 2) x 3 TB SATA (Hitachi, 7200RPM, 6.0Gbps)
 Other Hardware: None
 Adapter: Mellanox ConnectX MHQH29-XTC
 Number of Adapters: 1
 Slot Type: PCIe x8 Gen 2
 Data Rate: 40Gbps
 Ports Used: 1
 Interconnect Type: 40 Gigabit Infiniband (QDR)

Software

Adapter: Mellanox ConnectX MHQH29-XTC
 Adapter Driver: 1.0-ofed1.5.4
 Adapter Firmware: 2.9.1000
 Operating System: CentOS 6.2
 Local File System: Linux/ext4
 Shared File System: lustre
 System State: Multi-User
 Other Software: None

Interconnect Description: Infiniband (QDR)

Hardware

Vendor: DDN
 Model: Mellanox SX6506
 Switch Model: Mellanox SX6506

Software

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Interconnect Description: Infiniband (QDR)

Number of Switches:	1
Number of Ports:	108
Data Rate:	56 Gbps
Firmware:	mellanox SX6506
Topology:	switched
Primary Use:	Lustre fileserver

Interconnect Description: Cray Gemini

	Hardware
Vendor:	Cray
Model:	Cray Gemini
Switch Model:	Cray Gemini
Number of Switches:	264
Number of Ports:	48
Data Rate:	9.36 GB/s
Firmware:	0.17
Topology:	3D Torus
Primary Use:	MPI traffic

Software

Submit Notes

The config file option 'submit' was used.

General Notes

130.socorro (base): "nullify_ptrs" src.alt was used.

MPI startup command:

```
aprun command was used to start MPI jobs. A flag below
is used to place processes onto 16 cores out of 32 on a node:
-cc 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
```

export MPICH_NO_BUFFER_ALIAS_CHECK=true

If set, the buffer alias error check for collectives is disabled. The MPI standard does not allow aliasing of type OUT or INOUT parameters on the same collective function call. The default is false.

Network:

3D Torus

Job placement:

PBS is used for job placement.
 Compute nodes are selected by PBS.
 No specific node selection is used.



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Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

126.lammps: CC

Fortran benchmarks:

ftn

Benchmarks using both Fortran and C:

cc ftn

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG
126.lammps: -DMPICH_IGNORE_CXX_SEEK
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX
130.socorro: -assume nostd_intent_in

Base Optimization Flags

C benchmarks:

-O3 -no-prec-div

C++ benchmarks:

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

Fortran benchmarks:

-O3 -no-prec-div

Benchmarks using both Fortran and C:

-O3 -no-prec-div

The flags file that was used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/EM64T_Intel140_flags.20150429.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/mpi2007/flags/EM64T_Intel140_flags.20150429.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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