



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Colfax International

SPECmpiM_peak2007 = Not Run

Intel Xeon Phi 7210, 1.30 GHz,
SMT off, Turbo off, flat (MCDRAM preferred)

SPECmpiM_base2007 = 7.45

MPI2007 license: 3440

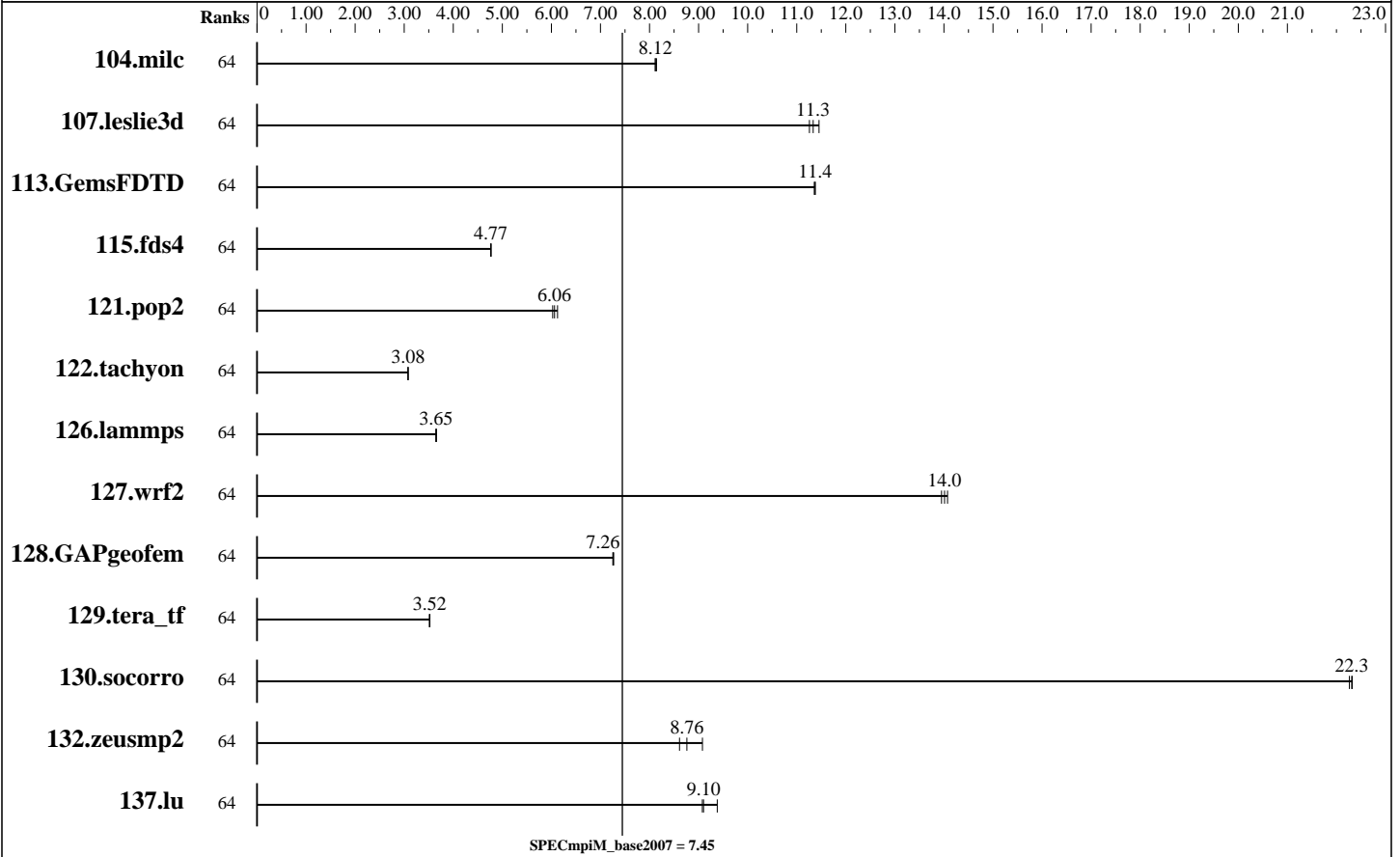
Test sponsor: Indiana University

Tested by: Junjie Li

Test date: Sep-2016

Hardware Availability: Aug-2016

Software Availability: Apr-2016



Results Table

Benchmark	Base								Peak					
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	193	8.12	193	8.12	192	8.14							
107.leslie3d	64	456	11.5	461	11.3	464	11.3							
113.GemsFDTD	64	555	11.4	555	11.4	555	11.4							
115.fds4	64	409	4.77	409	4.77	409	4.77							
121.pop2	64	674	6.12	685	6.03	681	6.06							
122.tachyon	64	909	3.08	909	3.08	909	3.08							
126.lammps	64	799	3.65	797	3.66	800	3.65							
127.wrf2	64	556	14.0	559	14.0	554	14.1							
128.GAPgeofem	64	285	7.26	285	7.25	284	7.27							
129.tera_tf	64	786	3.52	787	3.51	787	3.52							

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	171	22.3	171	22.3	<u>171</u>	<u>22.3</u>									
132.zeusmp2	64	342	9.08	<u>354</u>	<u>8.76</u>	360	8.61									
137.lu	64	392	9.38	<u>404</u>	<u>9.10</u>	405	9.08									

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: KNL
 File Server Node: KNL
 Head Node: KNL
 Total Compute Nodes: 1
 Total Chips: 1
 Total Cores: 64
 Total Threads: 64
 Total Memory: 96 GB
 Base Ranks Run: 64
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2016 for Linux, Version 16.0.3.210 Build 20160415
 C++ Compiler: Intel C++ Composer XE 2016 for Linux, Version 16.0.3.210 Build 20160415
 Fortran Compiler: Intel Fortran Composer XE 2016 for Linux, Version 16.0.3.210 Build 20160415
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Library for Linux 5.1.3 Build 20160120
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: KNL

Hardware

Number of nodes: 1
 Uses of the node: head, compute, fileserver
 Vendor: Colfax International
 Model: None
 CPU Name: Intel Xeon Phi 7210
 CPU(s) orderable: 1 chip
 Chips enabled: 1
 Cores enabled: 64
 Cores per chip: 64
 Threads per core: 1
 CPU Characteristics: Intel Turbo Boost Technology off, Simultaneous Multithreading (SMT) off
 CPU MHz: 1300
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per two cores
 L3 Cache: None
 Other Cache: None
 Memory: 96 GB (6 x 16 GB 2Rx8 PC4-2400T-REB-11, ECC)
 Disk Subsystem: Intel S3510 SSD 800GB, SATA3
 Other Hardware: None
 Adapter: 0
 Number of Adapters: 0
 Slot Type: 0
 Data Rate: 0

Software

Adapter: 0
 Adapter Driver: 0
 Adapter Firmware: --
 Operating System: CentOS Linux Release 7.2.1511
 Local File System: Linux/ext4
 Shared File System: None
 System State: Multi-User
 Other Software: None

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Node Description: KNL

Ports Used: 0
Interconnect Type: 0

Submit Notes

The config file option 'submit' was used.
numactl -p 1 mpirun -genv I_MPI_COMPATIBILITY 4 -np \$ranks \$command

General Notes

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

MPI startup command:
mpirun command was used to start MPI jobs.

BIOS settings:
Intel Simultaneous Multithreading (SMT): off
Intel Turbo Boost Technology (Turbo) : off
Cluster Mode: quadrant
Memory Mode: flat

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
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX
130.socorro: -assume nostd_intent_in



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Base Optimization Flags

C benchmarks:

`-O3 -xMIC-AVX512 -no-prec-div -fp-model fast=2 -ipo -fma`

C++ benchmarks:

`126.lammps: -O3 -xMIC-AVX512 -no-prec-div -fp-model fast=2 -ipo -fma`

Fortran benchmarks:

`-O3 -xMIC-AVX512 -no-prec-div -fp-model fast=2 -ipo -fma`

Benchmarks using both Fortran and C:

`-O3 -xMIC-AVX512 -no-prec-div -fp-model fast=2 -ipo -fma`

The flags files that were used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/EM64T_Intel_flags.html

<http://www.spec.org/mpi2007/flags/colfax-knl.html>

You can also download the XML flags sources by saving the following links:

http://www.spec.org/mpi2007/flags/EM64T_Intel_flags.xml

<http://www.spec.org/mpi2007/flags/colfax-knl.xml>

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

Tested with SPEC MPI2007 v2.0.1.

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