SPEC® MPIM2007 Result

Colfax International

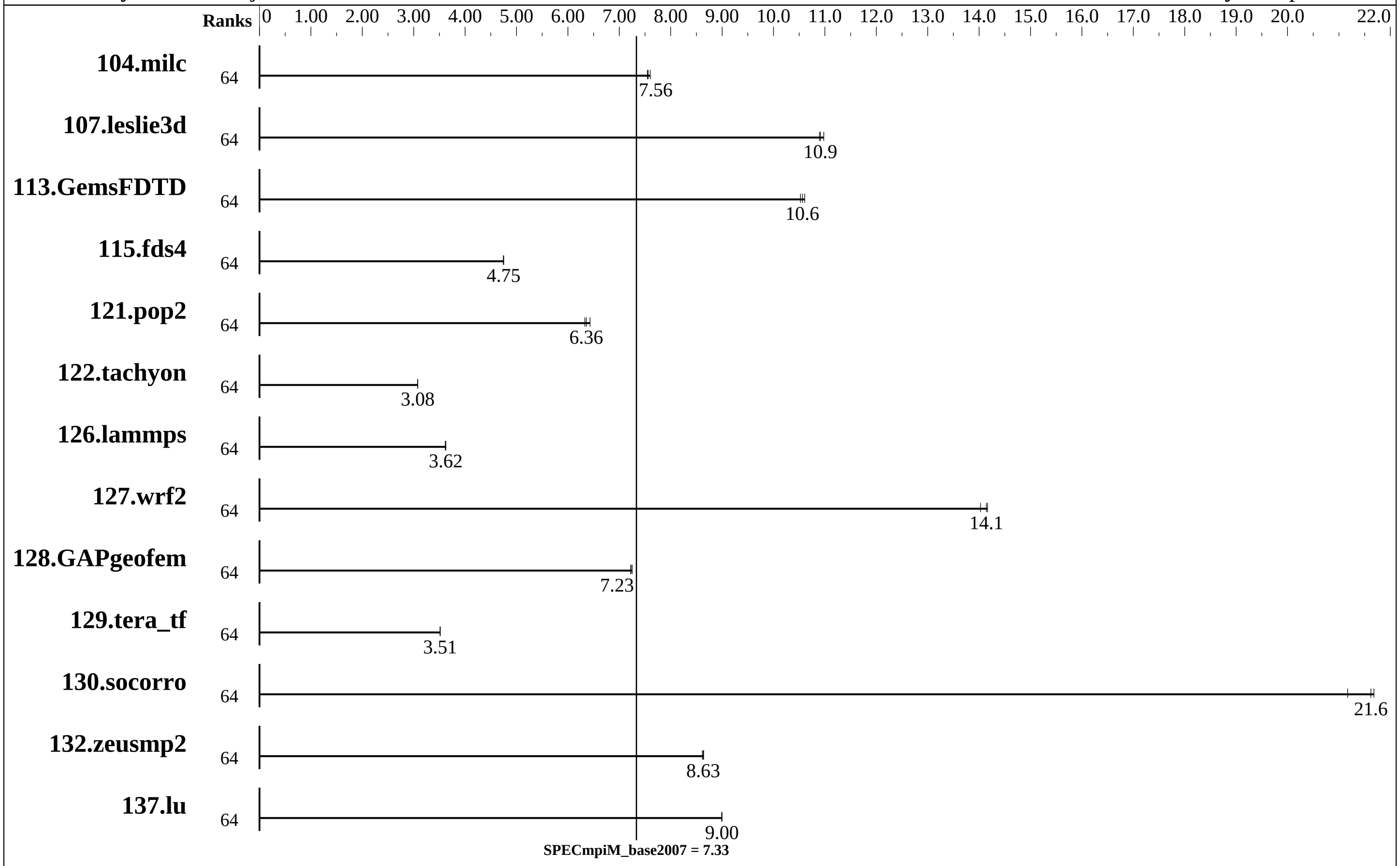
Intel Xeon Phi 7210, 1.30 GHz,
SMT off, Turbo off, MCDRAM Cache

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 7.33

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	206	7.60	**207**	**7.56**	207	7.55							
107.leslie3d	64	475	11.0	**478**	**10.9**	479	10.9							
113.GemsFDTD	64	595	10.6	**597**	**10.6**	599	10.5							
115.fds4	64	411	4.74	**411**	**4.75**	411	4.75							
121.pop2	64	**649**	**6.36**	652	6.33	642	6.43							
122.tachyon	64	909	3.08	908	3.08	**908**	**3.08**							
126.lammps	64	807	3.61	804	3.63	**804**	**3.62**							
127.wrf2	64	550	14.2	**551**	**14.1**	556	14.0							
128.GAPgeofem	64	**286**	**7.23**	285	7.25	286	7.22							
129.tera_tf	64	788	3.51	787	3.52	**788**	**3.51**							

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	**177**	**21.6**	180	21.2	176	21.7							
132.zeusmp2	64	**359**	**8.63**	359	8.64	360	8.62							
137.lu	64	**409**	**9.00**	408	9.00	409	8.99							

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

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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.
```

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: cache
```

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

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

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

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