SPEC® MPIM2007 Result

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Colfax International

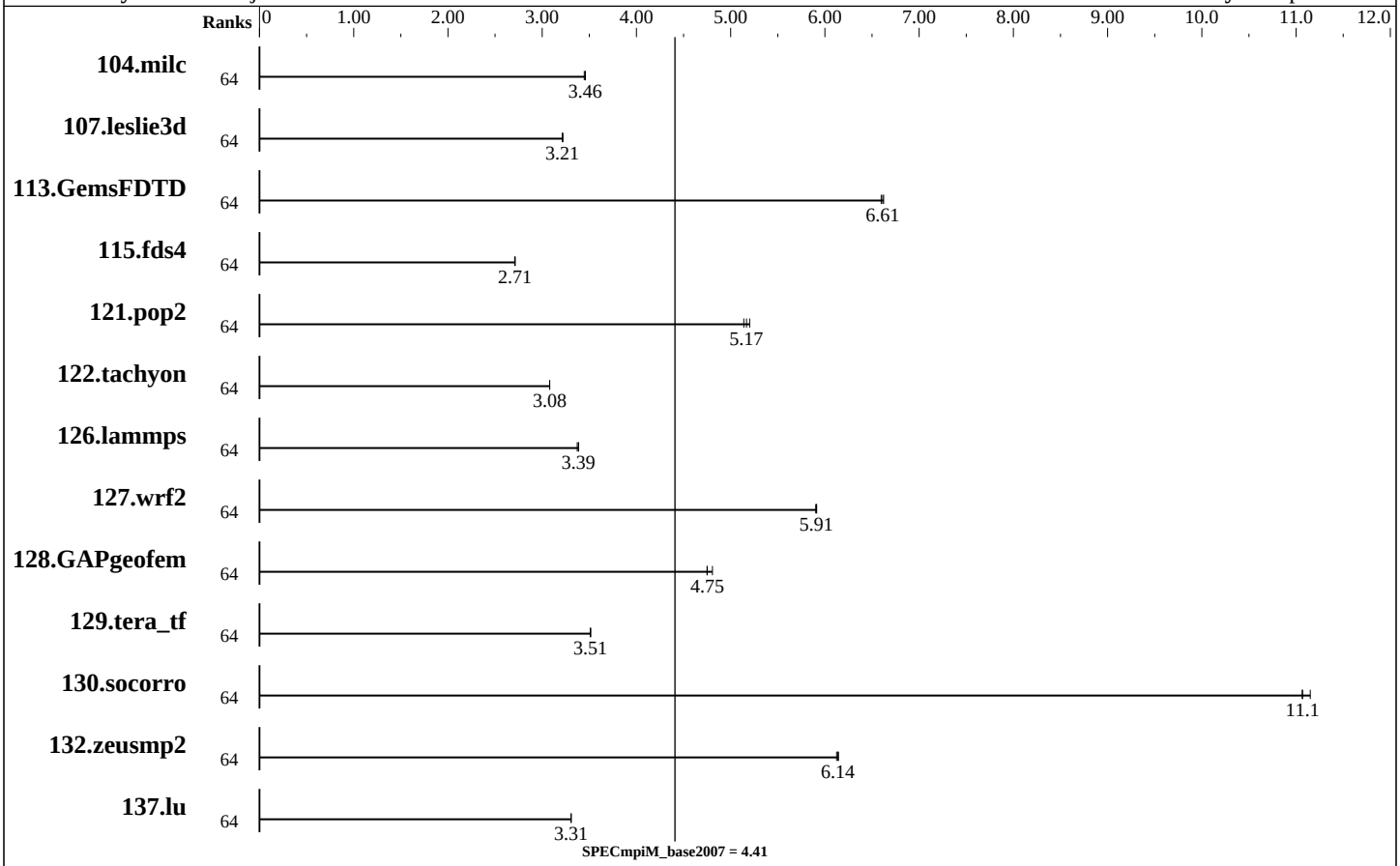
Intel Xeon Phi 7210, 1.30 GHz,
SMT off, Turbo off, flat DRAM+MCDRAM

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 4.41

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	**453**	**3.46**	452	3.46	454	3.45							
107.leslie3d	64	1621	3.22	1625	3.21	**1624**	**3.21**							
113.GemsFDTD	64	956	6.60	952	6.62	**954**	**6.61**							
115.fds4	64	**719**	**2.71**	719	2.71	720	2.71							
121.pop2	64	**799**	**5.17**	794	5.20	803	5.14							
122.tachyon	64	908	3.08	**908**	**3.08**	908	3.08							
126.lammps	64	865	3.37	**861**	**3.39**	861	3.39							
127.wrf2	64	**1319**	**5.91**	1319	5.91	1321	5.90							
128.GAPgeofem	64	430	4.81	435	4.75	**435**	**4.75**							
129.tera_tf	64	789	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	345	11.1	342	11.2	**345**	**11.1**							
132.zeusmp2	64	507	6.12	505	6.14	**506**	**6.14**							
137.lu	64	**1112**	**3.31**	1112	3.31	1112	3.31							

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

Continued on next page

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: 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`

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.

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