SPEC® MPIM2007 Result

Huawei

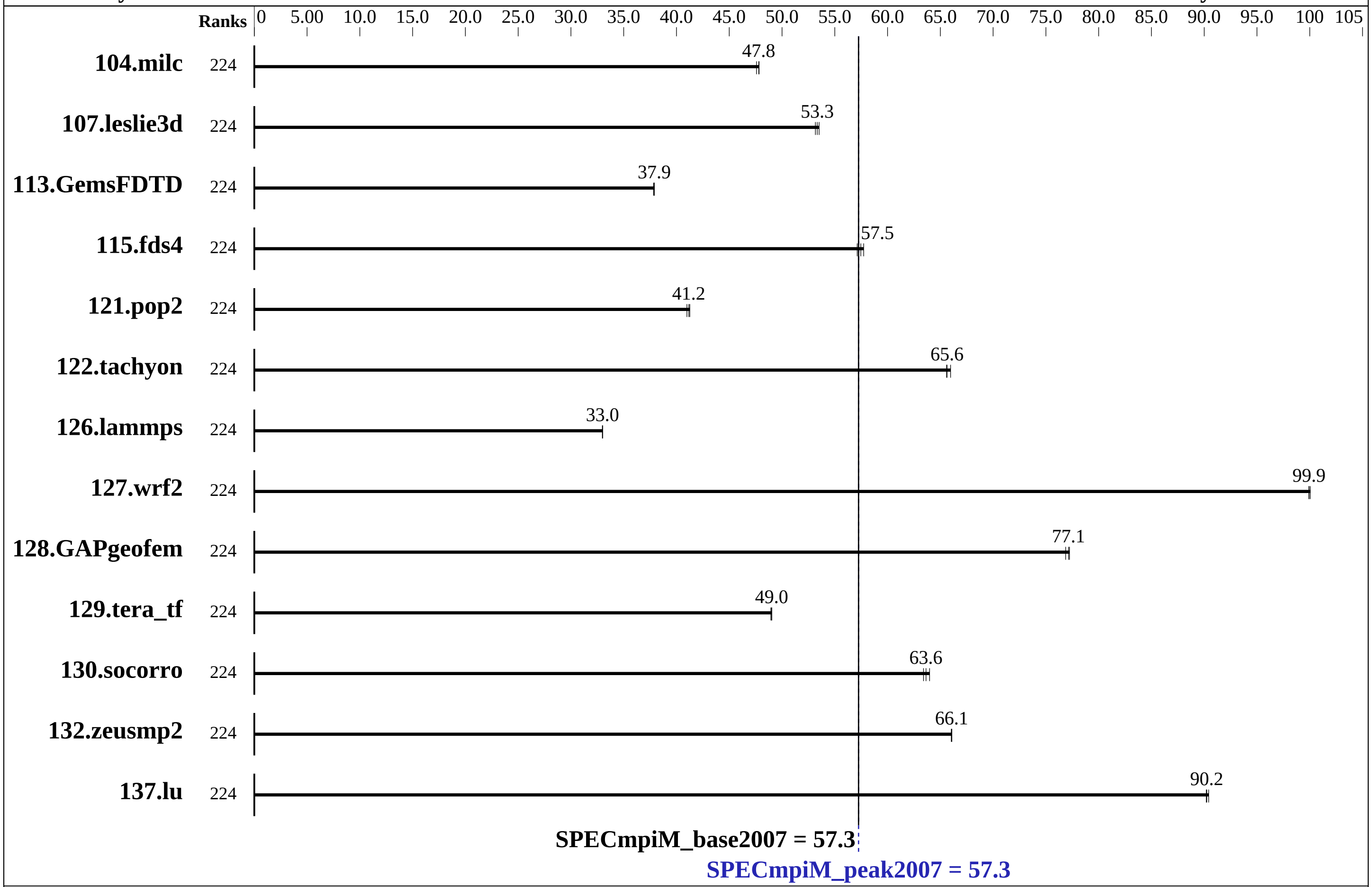
Huawei Kunlun 9008 V5 (Intel Xeon Platinum 8280 CPU, 2.70 GHz)

SPECmpiM_peak2007 = 57.3

SPECmpiM_base2007 = 57.3

MPI2007 license: 27
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2019
Hardware Availability: Jun-2019
Software Availability: Feb-2019



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	224	32.9	47.6	32.7	47.8	**32.7**	**47.8**	224	32.9	47.6	32.7	47.8	**32.7**	**47.8**
107.leslie3d	224	98.2	53.2	97.5	53.5	**97.9**	**53.3**	224	98.2	53.2	97.5	53.5	**97.9**	**53.3**
113.GemsFDTD	224	167	37.8	166	37.9	**166**	**37.9**	224	167	37.8	166	37.9	**166**	**37.9**
115.fds4	224	33.8	57.7	**34.0**	**57.5**	34.2	57.1	224	33.8	57.7	**34.0**	**57.5**	34.2	57.1
121.pop2	224	**100**	**41.2**	101	41.0	100	41.3	224	**100**	**41.2**	101	41.0	100	41.3
122.tachyon	224	**42.6**	**65.6**	42.6	65.6	42.4	66.0	224	**42.6**	**65.6**	42.6	65.6	42.4	66.0
126.lammps	224	**88.3**	**33.0**	88.4	33.0	88.3	33.0	224	**88.3**	**33.0**	88.4	33.0	88.3	33.0
127.wrf2	224	78.0	99.9	**78.0**	**99.9**	77.9	100	224	78.0	99.9	**78.0**	**99.9**	77.9	100
128.GAPgeofem	224	26.7	77.2	26.9	76.9	**26.8**	**77.1**	224	26.7	77.2	26.9	76.9	**26.8**	**77.1**
129.tera_tf	224	56.6	48.9	56.5	49.0	**56.5**	**49.0**	224	56.6	48.9	56.5	49.0	**56.5**	**49.0**

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	224	59.7	64.0	**60.0**	**63.6**	60.2	63.4	224	59.7	64.0	**60.0**	**63.6**	60.2	63.4
132.zeusmp2	224	**47.0**	**66.1**	47.0	66.1	47.0	66.0	224	**47.0**	**66.1**	47.0	66.1	47.0	66.0
137.lu	224	40.8	90.2	40.7	90.4	**40.7**	**90.2**	224	40.8	90.2	40.7	90.4	**40.7**	**90.2**

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:	Huawei Kunlun 9008 V5
File Server Node:	Huawei Kunlun 9008 V5
Head Node:	Huawei Kunlun 9008 V5
Total Compute Nodes:	1
Total Chips:	8
Total Cores:	224
Total Threads:	224
Total Memory:	1536 GB
Base Ranks Run:	224
Minimum Peak Ranks:	224
Maximum Peak Ranks:	224

Software Summary

C Compiler:	Intel C++ Composer XE 2018 for Linux, Version 18.0.5
C++ Compiler:	Intel C++ Composer XE 2018 for Linux, Version 18.0.5
Fortran Compiler:	Intel Fortran Composer XE 2018 for Linux, Version 18.0.5
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	Intel MPI Library for Linux, Version 2018 Update 4
Other MPI Info:	None
Pre-processors:	No
Other Software:	None

Node Description: Huawei Kunlun 9008 V5

Hardware

Number of nodes:	1
Uses of the node:	head, compute, fileserver
Vendor:	Huawei
Model:	Huawei Kunlun 9008 V5
CPU Name:	Intel Xeon Platinum 8280
CPU(s) orderable:	2,4,6,8 chip
Chips enabled:	8
Cores enabled:	224
Cores per chip:	28
Threads per core:	1
CPU Characteristics:	None
CPU MHz:	2700
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	38.5 MB I+D on chip per chip
Other Cache:	None
Memory:	1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R)
Disk Subsystem:	2 x 900 GB 10K RPM SAS HDD,RAID 0
Other Hardware:	None
Adapter:	N/A
Number of Adapters:	0
Slot Type:	N/A
Data Rate:	N/A

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Software

Adapter:	N/A
Adapter Driver:	N/A
Adapter Firmware:	N/A
Operating System:	SUSE Linux Enterprise Server 12 SP4 4.12.14-94.41-default
Local File System:	btrfs
Shared File System:	None
System State:	Multi-User, run level 3
Other Software:	None

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Node Description: Huawei Kunlun 9008 V5

Ports Used:	0
Interconnect Type:	N/A

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 :Disabled
   Intel Turbo Boost Technology :Enabled (default is Enabled)
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
```

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`

Base Optimization Flags

C benchmarks:
`-O3 -xCORE-AVX2 -no-prec-div`

C++ benchmarks:

126.lammps: `-O3 -xCORE-AVX2 -no-prec-div`

Fortran benchmarks:
`-O3 -xCORE-AVX2 -no-prec-div`

Benchmarks using both Fortran and C:
`-O3 -xCORE-AVX2 -no-prec-div`

Peak Optimization Flags

C benchmarks:

104.milc: `basepeak = yes`

122.tachyon: `basepeak = yes`

C++ benchmarks:

126.lammps: `basepeak = yes`

Fortran benchmarks:

107.leslie3d: `basepeak = yes`

113.GemsFDTD: `basepeak = yes`

129.tera_tf: `basepeak = yes`

137.lu: `basepeak = yes`

Benchmarks using both Fortran and C:

115.fds4: `basepeak = yes`

121.pop2: `basepeak = yes`

127.wrf2: `basepeak = yes`

128.GAPgeofem: `basepeak = yes`

130.socorro: `basepeak = yes`

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Peak Optimization Flags (Continued)

132.zeusmp2: `basepeak = yes`

The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/Huawei_x86_64_Intel_linux.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/Huawei_x86_64_Intel_linux.xml

Tested with SPEC MPI2007 v2.0.1.
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