



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR650
(Intel Xeon Platinum 8280 CPU, 2.70 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 19.1

MPI2007 license: 28

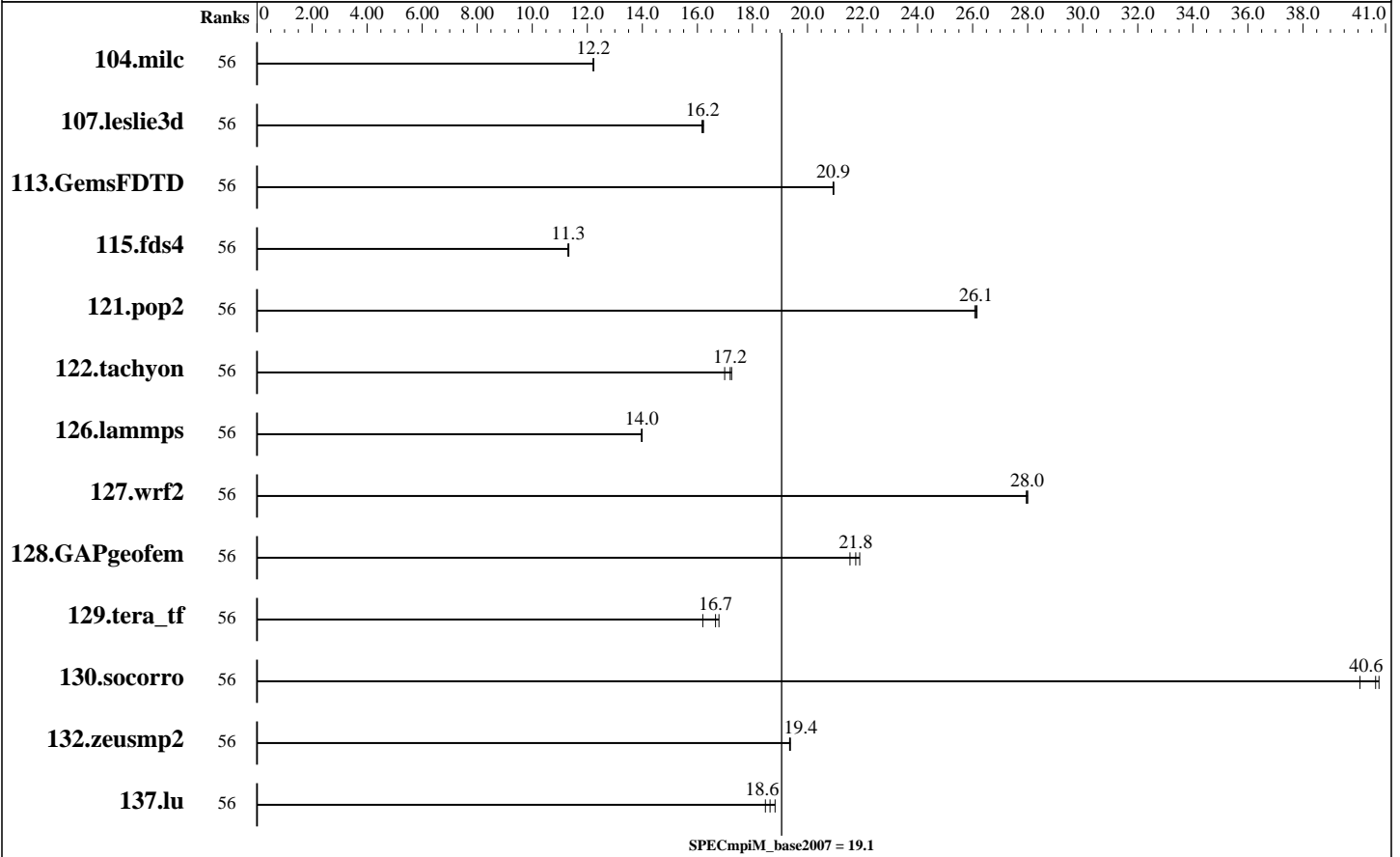
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Mar-2019

Hardware Availability: Apr-2019

Software Availability: Apr-2019



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	56	<u>128</u>	<u>12.2</u>	128	12.2	128	12.2							
107.leslie3d	56	322	16.2	323	16.2	<u>322</u>	<u>16.2</u>							
113.GemsFDTD	56	301	20.9	301	21.0	<u>301</u>	<u>20.9</u>							
115.fds4	56	172	11.3	<u>172</u>	<u>11.3</u>	173	11.3							
121.pop2	56	158	26.2	158	26.1	<u>158</u>	<u>26.1</u>							
122.tachyon	56	<u>163</u>	<u>17.2</u>	165	17.0	162	17.2							
126.lammgs	56	<u>208</u>	<u>14.0</u>	208	14.0	209	14.0							
127.wrf2	56	278	28.0	<u>279</u>	<u>28.0</u>	279	27.9							
128.GAPgeofem	56	94.3	21.9	95.9	21.5	<u>94.9</u>	<u>21.8</u>							
129.tera_tf	56	165	16.8	171	16.2	<u>166</u>	<u>16.7</u>							

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	56	93.6	40.8	95.3	40.1	<u>93.9</u>	<u>40.6</u>							
132.zeusmp2	56	160	19.4	160	19.3	<u>160</u>	<u>19.4</u>							
137.lu	56	195	18.8	<u>197</u>	<u>18.6</u>	199	18.5							

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: ThinkSystem SR650
 Interconnect: N/A
 Total Compute Nodes: 1
 Total Chips: 2
 Total Cores: 56
 Total Threads: 56
 Total Memory: 768 GB
 Base Ranks Run: 56
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Compiler 17.0 Update 7 for Linux
 Version 17.0.7 Build 20180403
 C++ Compiler: Intel C++ Compiler 17.0 Update 7 for Linux
 Version 17.0.7 Build 20180403
 Fortran Compiler: Intel Fortran Compiler 17.0 Update 7 for Linux
 Version 17.0.7 Build 20180403
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 MPI Library: Intel MPI Library for Linux* OS
 Version 2018 Update 3 Build 20180411
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: ThinkSystem SR650

Hardware

Number of nodes: 1
 Uses of the node: compute
 Vendor: Lenovo Global Technology
 Model: SR650
 CPU Name: Intel Xeon Platinum 8280
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 56
 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: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
 Disk Subsystem: 1 x 1 TB 12 Gbps SAS 2.5" SSD (JBOD)
 Other Hardware: ThinkSystem RAID 530-8i
 Adapter: N/A
 Number of Adapters: 0
 Slot Type: N/A
 Data Rate: N/A
 Ports Used: 0

Software

Adapter: N/A
 Adapter Driver: N/A
 Adapter Firmware: N/A
 Operating System: Red Hat Enterprise Linux Server release 7.6,
 Kernel 3.10.0-957.el7.x86_64
 Local File System: xfs
 Shared File System: None
 System State: Multi-user, run level 3
 Other Software: None

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Node Description: ThinkSystem SR650

Interconnect Type: None

Interconnect Description: N/A

Hardware

Software

Vendor: N/A
 Model: N/A
 Switch Model: N/A
 Number of Switches: 0
 Number of Ports: 0
 Data Rate: N/A
 Firmware: N/A
 Topology: N/A
 Primary Use: N/A

Submit Notes

The config file option 'submit' was used.

General Notes

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

RAM configuration:
Compute nodes have 2 x 32 GB RDIMM on each memory channel.

BIOS settings:
Operating Mode : Maximum Performance Mode
Intel Hyper-Threading Technology (SMT): Disabled
SNC (Sub-NUMA Cluster): Enable

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.



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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 -ipo -xCORE-AVX512 -no-prec-div

C++ benchmarks:

126.lammps: -O3 -ipo -xCORE-AVX512 -no-prec-div

Fortran benchmarks:

-O3 -ipo -xCORE-AVX512 -no-prec-div

Benchmarks using both Fortran and C:

-O3 -ipo -xCORE-AVX512 -no-prec-div

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

http://www.spec.org/mpi2007/flags/Lenovo-SPECmpiM_Platform_Flags.html
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20170711.html

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

http://www.spec.org/mpi2007/flags/Lenovo-SPECmpiM_Platform_Flags.xml
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20170711.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.
Report generated on Tue Apr 2 18:30:09 2019 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 2 April 2019.