



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(Intel Xeon Platinum 8280L CPU, 2.70 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 61.9

MPI2007 license: 28

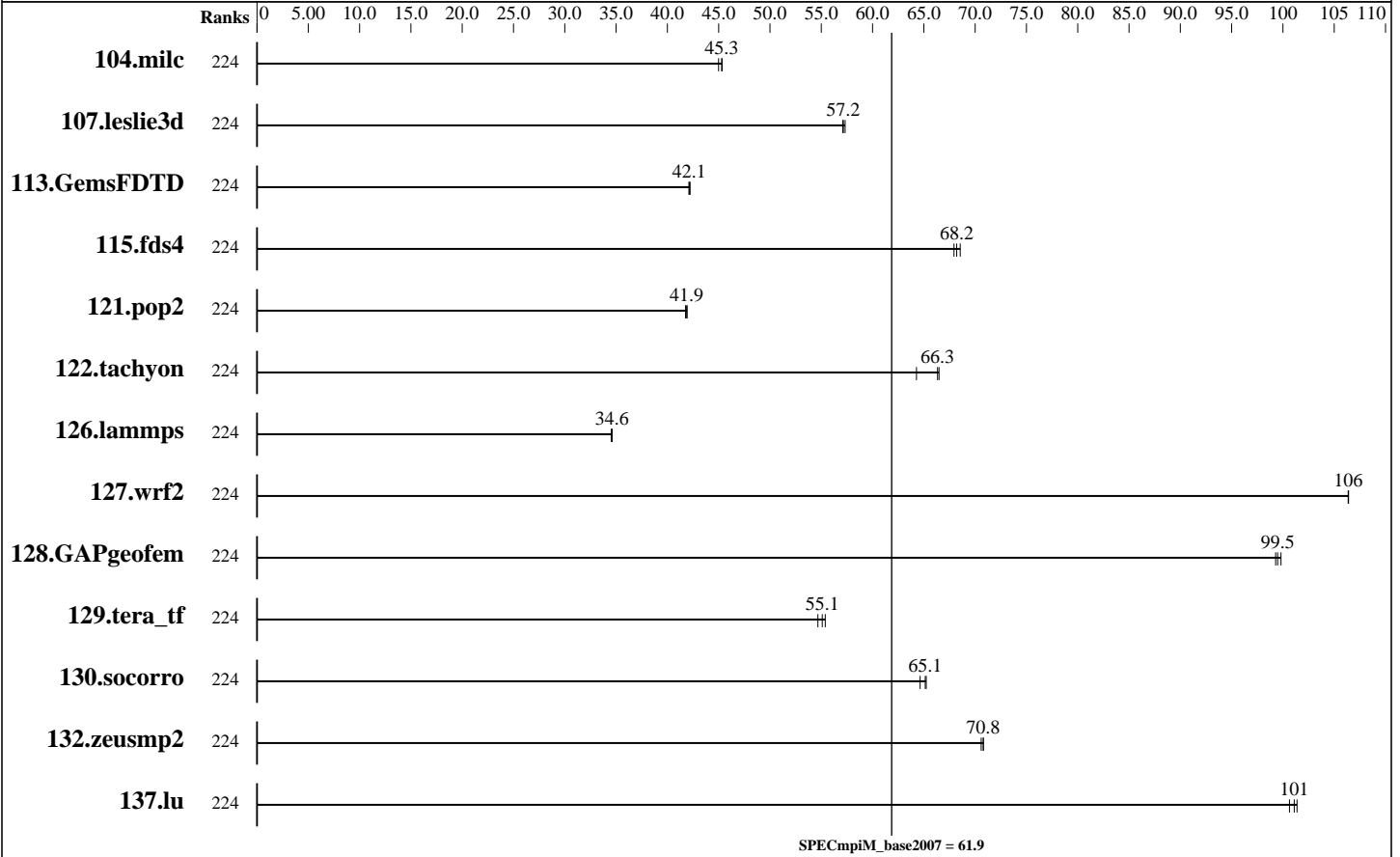
Test sponsor: Lenovo Global Technology

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	224	34.8	45.0	<u>34.6</u>	<u>45.3</u>	34.5	45.3							
107.leslie3d	224	91.1	57.3	91.4	57.1	<u>91.3</u>	<u>57.2</u>							
113.GemsFDTD	224	150	42.1	149	42.2	<u>150</u>	<u>42.1</u>							
115.fds4	224	28.7	67.9	28.5	68.5	<u>28.6</u>	<u>68.2</u>							
121.pop2	224	98.8	41.8	<u>98.6</u>	<u>41.9</u>	98.5	41.9							
122.tachyon	224	43.5	64.3	<u>42.2</u>	<u>66.3</u>	42.1	66.5							
126.lammps	224	84.2	34.6	<u>84.2</u>	<u>34.6</u>	84.4	34.5							
127.wrf2	224	73.3	106	73.3	106	<u>73.3</u>	<u>106</u>							
128.GAPgeofem	224	20.7	99.8	20.8	99.3	<u>20.8</u>	<u>99.5</u>							
129.tera_tf	224	<u>50.2</u>	<u>55.1</u>	50.0	55.4	50.6	54.7							

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	58.5	65.2	58.6	65.1	59.1	64.6							
132.zeusmp2	224	43.8	70.8	44.0	70.6	43.8	70.8							
137.lu	224	36.3	101	36.5	101	36.4	101							

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 SR950
 Interconnect: N/A
 Total Compute Nodes: 1
 Total Chips: 8
 Total Cores: 224
 Total Threads: 224
 Total Memory: 1536 GB
 Base Ranks Run: 224
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Compiler 18.0 Update 3 for Linux
 Version 18.0.3 Build 20180410
 C++ Compiler: Intel C++ Compiler 18.0 Update 3 for Linux
 Version 18.0.3 Build 20180410
 Fortran Compiler: Intel Fortran Compiler 18.0 Update 3 for Linux
 Version 18.0.3 Build 20180410
 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 SR950

Hardware

Number of nodes: 1
 Uses of the node: compute
 Vendor: Lenovo Global Technology
 Model: SR950
 CPU Name: Intel Xeon Platinum 8280L
 CPU(s) orderable: 2,3,4,6,8 chips
 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 (96 x 16 GB 2Rx8 PC4-2933Y-R)
 Disk Subsystem: 1 x 1 TB NVMe 2.5" SSD
 Other Hardware: N/A
 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 SR950

Interconnect Type: None

Interconnect Description: N/A

Hardware

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

Software

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

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

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