



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 53.5

MPI2007 license: 28

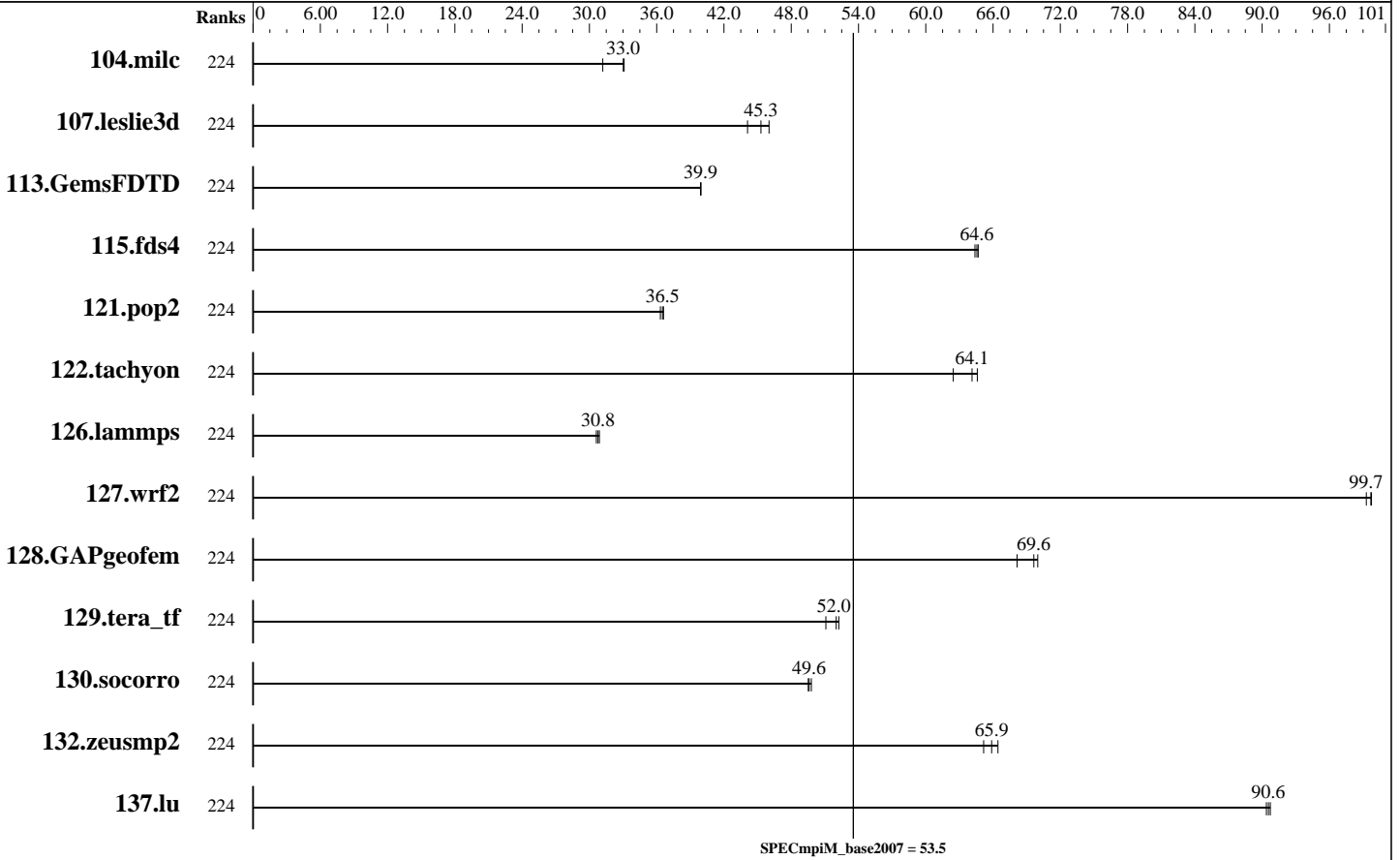
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-2018

Hardware Availability: Aug-2017

Software Availability: Jul-2018



Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	224	47.3	33.1	47.4	33.0	50.2	31.2									
107.leslie3d	224	115	45.3	113	46.0	118	44.1									
113.GemsFDTD	224	158	39.9	158	39.9	158	39.9									
115.fds4	224	30.2	64.7	30.3	64.4	30.2	64.6									
121.pop2	224	113	36.5	114	36.3	113	36.6									
122.tachyon	224	43.3	64.6	43.6	64.1	44.8	62.5									
126.lammgs	224	94.4	30.9	94.8	30.8	95.2	30.6									
127.wrf2	224	78.5	99.3	78.2	99.7	78.2	99.8									
128.GAPgeofem	224	29.5	70.0	30.3	68.1	29.7	69.6									
129.tera_tf	224	53.0	52.2	53.2	52.0	54.2	51.1									

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	<u>77.0</u>	<u>49.6</u>	77.1	49.5	76.7	49.8									
132.zeusmp2	224	47.6	65.2	<u>47.1</u>	<u>65.9</u>	46.7	66.4									
137.lu	224	40.5	90.7	40.7	90.4	<u>40.6</u>	<u>90.6</u>									

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 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 SR950

Hardware

Number of nodes: 1
 Uses of the node: compute
 Vendor: Lenovo Global Technology
 Model: SR950
 CPU Name: Intel Xeon Platinum 8180
 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: 2500
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: 39424 KB I+D on chip per chip
 shared / 28 cores
 Other Cache: None
 Memory: 1536 GB (96 x 16GB 2Rx8 PC4-2666V)
 Disk Subsystem: 960GB NVME SSD
 Other Hardware: ThinkSystem RAID 930-8i 2GB Flash
 Adapter: N/A
 Number of Adapters: 0
 Slot Type: N/A
 Data Rate: N/A

Software

Adapter: N/A
 Adapter Driver: N/A
 Adapter Firmware: N/A
 Operating System: Red Hat Enterprise Linux Server release 7.3,
 Kernel 3.10.0-514.48.5.el7.x86_64
 Local File System: xfs
 Shared File System: None
 System State: None
 Other Software: None

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Node Description: ThinkSystem SR950

Ports Used: 0
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 2x16GB RDIMM on each memory channel.

Add "intel_idle.max_cstate=0 intel_pstate=disable" into grub

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.20180912.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.20180912.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.

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