



# SPEC<sup>®</sup> 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 = 44.9

MPI2007 license: 28

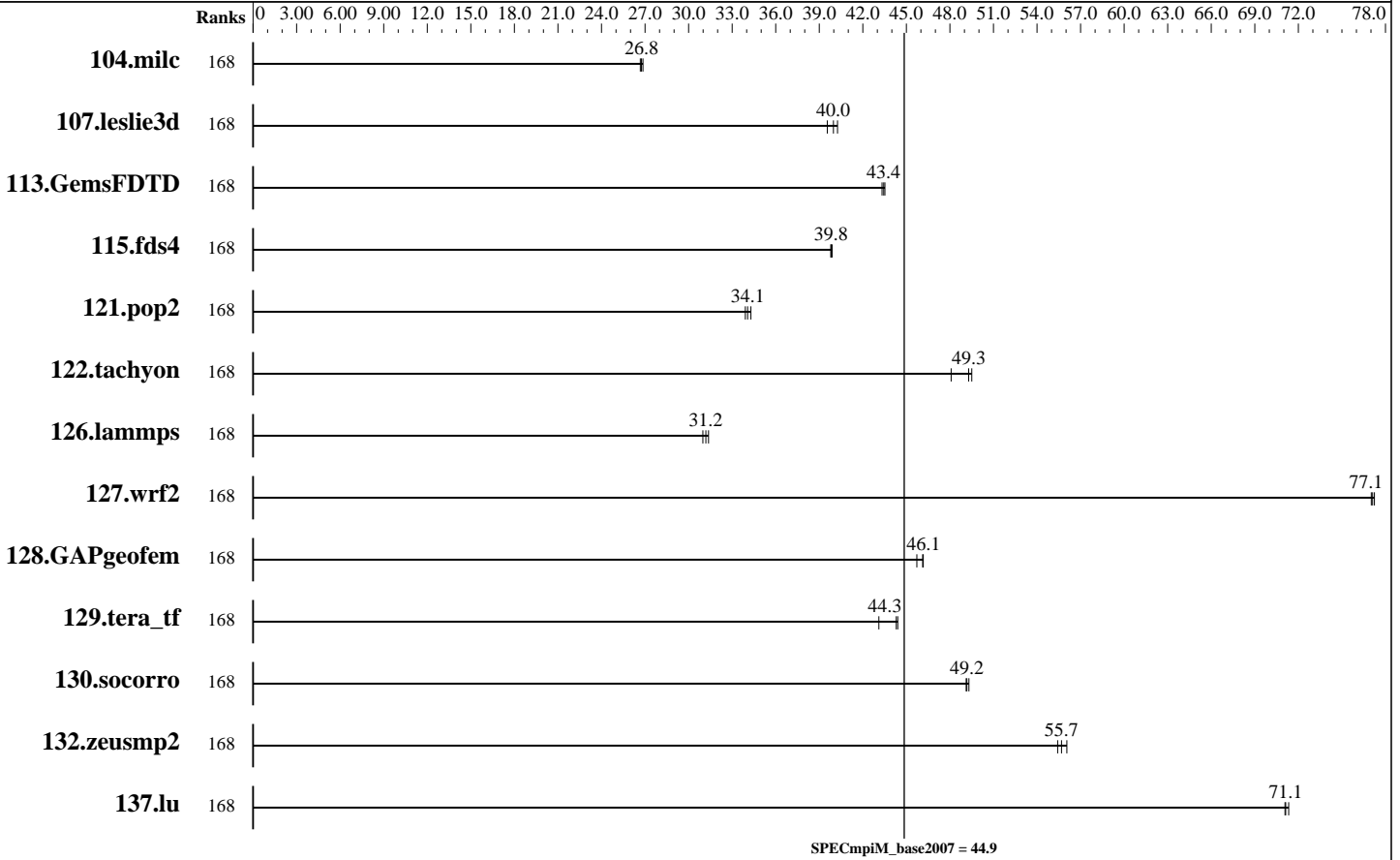
Test sponsor: Lenovo Global Technology

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      | 168   | 58.7        | 26.7        | 58.3        | 26.9        | <b>58.5</b> | <b>26.8</b> |       |         |       |         |       |         |       |  |  |
| 107.leslie3d  | 168   | 130         | 40.3        | <b>131</b>  | <b>40.0</b> | 132         | 39.6        |       |         |       |         |       |         |       |  |  |
| 113.GemsFDTD  | 168   | 145         | 43.5        | <b>145</b>  | <b>43.4</b> | 146         | 43.3        |       |         |       |         |       |         |       |  |  |
| 115.fds4      | 168   | 48.9        | 39.9        | 49.0        | 39.8        | <b>49.0</b> | <b>39.8</b> |       |         |       |         |       |         |       |  |  |
| 121.pop2      | 168   | <b>121</b>  | <b>34.1</b> | 122         | 33.9        | 120         | 34.3        |       |         |       |         |       |         |       |  |  |
| 122.tachyon   | 168   | 56.5        | 49.5        | <b>56.7</b> | <b>49.3</b> | 58.2        | 48.1        |       |         |       |         |       |         |       |  |  |
| 126.lammps    | 168   | 94.1        | 31.0        | <b>93.5</b> | <b>31.2</b> | 92.9        | 31.4        |       |         |       |         |       |         |       |  |  |
| 127.wrf2      | 168   | 101         | 77.2        | 101         | 77.0        | <b>101</b>  | <b>77.1</b> |       |         |       |         |       |         |       |  |  |
| 128.GAPgeofem | 168   | 44.7        | 46.2        | 45.2        | 45.7        | <b>44.8</b> | <b>46.1</b> |       |         |       |         |       |         |       |  |  |
| 129.tera_tf   | 168   | <b>62.5</b> | <b>44.3</b> | 62.3        | 44.4        | 64.2        | 43.1        |       |         |       |         |       |         |       |  |  |

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



# 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 = 44.9

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 (Continued)

| Benchmark   | Base  |             |             |             |             |         |       | Peak  |         |       |         |       |         |       |
|-------------|-------|-------------|-------------|-------------|-------------|---------|-------|-------|---------|-------|---------|-------|---------|-------|
|             | Ranks | Seconds     | Ratio       | Seconds     | Ratio       | Seconds | Ratio | Ranks | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 130.socorro | 168   | <u>77.6</u> | <u>49.2</u> | 77.4        | 49.3        | 77.7    | 49.1  |       |         |       |         |       |         |       |
| 132.zeusmp2 | 168   | 56.0        | 55.4        | <u>55.7</u> | <u>55.7</u> | 55.4    | 56.1  |       |         |       |         |       |         |       |
| 137.lu      | 168   | <u>51.7</u> | <u>71.1</u> | 51.5        | 71.3        | 51.7    | 71.1  |       |         |       |         |       |         |       |

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: 6  
 Total Cores: 168  
 Total Threads: 168  
 Total Memory: 1152 GB  
 Base Ranks Run: 168  
 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: 6  
 Cores enabled: 168  
 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: 1152 GB (72 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

Continued on next page



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECmpiM\_peak2007 = Not Run

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

SPECmpiM\_base2007 = 44.9

MPI2007 license: 28

Test date: Aug-2018

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Jul-2018

### Node Description: ThinkSystem SR950

Ports Used: 0  
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 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.



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECmpiM\_peak2007 = Not Run

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

SPECmpiM\_base2007 = 44.9

MPI2007 license: 28

Test date: Aug-2018

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Jul-2018

## 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/Lenovo-SPECmpiM_Platform_Flags.20180912.html)  
[http://www.spec.org/mpi2007/flags/EM64T\\_Intel121\\_flags.20170711.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/Lenovo-SPECmpiM_Platform_Flags.20180912.xml)  
[http://www.spec.org/mpi2007/flags/EM64T\\_Intel121\\_flags.20170711.xml](http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20170711.xml)



# SPEC MPI2007 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 = 44.9

**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

SPEC and SPEC MPI are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC MPI2007 v2.0.1.  
Report generated on Wed Sep 12 12:24:30 2018 by SPEC MPI2007 PS/PDF formatter v1463.  
Originally published on 12 September 2018.