



# SPEC® MPIM2007 Result

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## Lenovo Global Technology

SPECmpiM\_peak2007 = Not Run

ThinkSystem SR650  
(Intel Xeon Platinum 8180 CPU, 2.50GHz)

SPECmpiM\_base2007 = 17.8

MPI2007 license: 9017

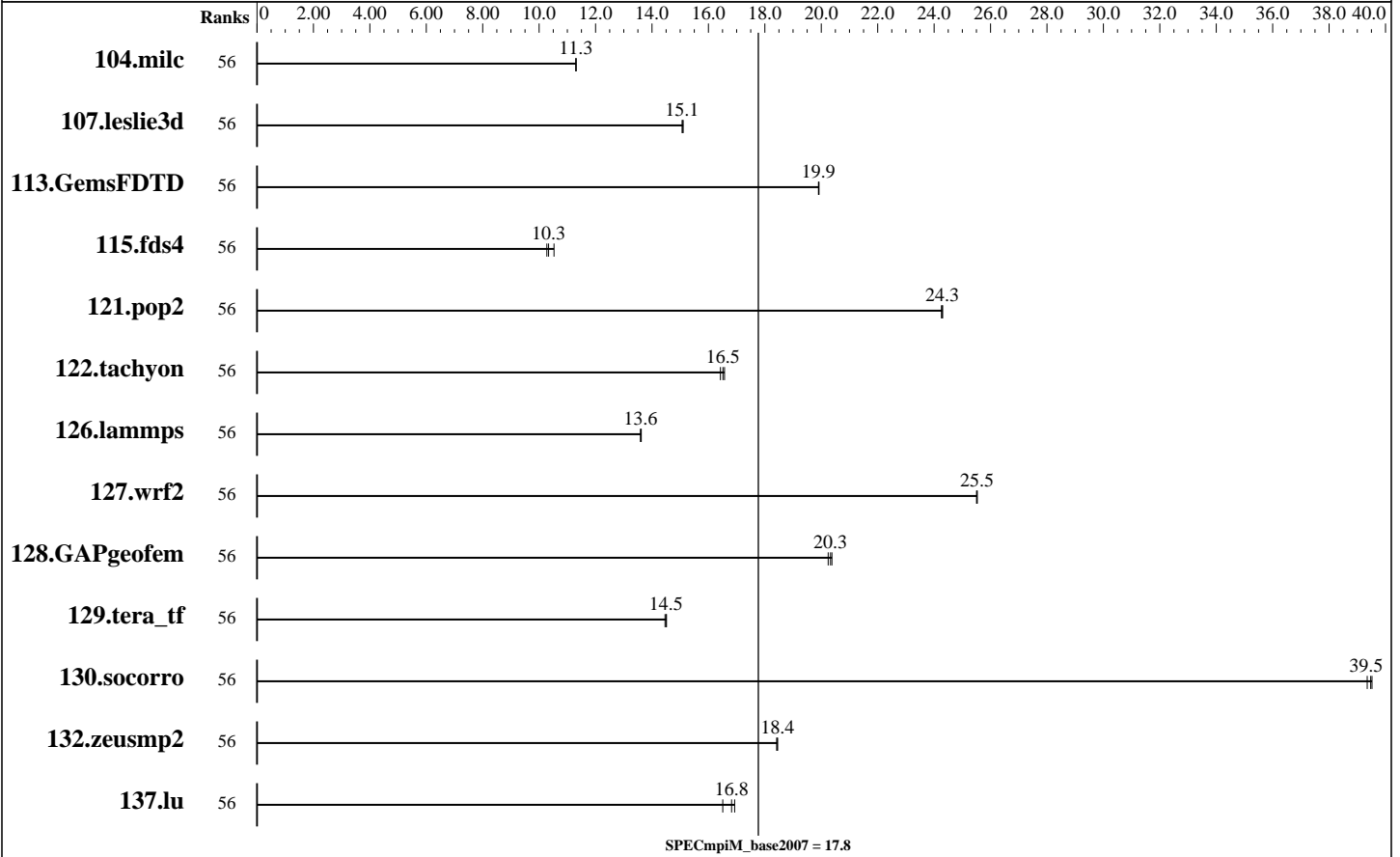
Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017



## Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	56	138	11.3	138	11.3	<b>138</b>	<b>11.3</b>									
107.leslie3d	56	346	15.1	346	15.1	<b>346</b>	<b>15.1</b>									
113.GemsFDTD	56	<b>317</b>	<b>19.9</b>	317	19.9	317	19.9									
115.fds4	56	185	10.5	<b>189</b>	<b>10.3</b>	190	10.3									
121.pop2	56	170	24.3	170	24.3	<b>170</b>	<b>24.3</b>									
122.tachyon	56	170	16.4	<b>169</b>	<b>16.5</b>	169	16.6									
126.lammps	56	214	13.6	214	13.6	<b>214</b>	<b>13.6</b>									
127.wrf2	56	<b>305</b>	<b>25.5</b>	306	25.5	305	25.5									
128.GAPgeofem	56	102	20.2	<b>102</b>	<b>20.3</b>	101	20.4									
129.tera_tf	56	191	14.5	191	14.5	<b>191</b>	<b>14.5</b>									

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	97.0	39.4	<u>96.7</u>	<u>39.5</u>	96.6	39.5									
132.zeusmp2	56	168	18.4	<u>168</u>	<u>18.4</u>	168	18.5									
137.lu	56	223	16.5	<u>219</u>	<u>16.8</u>	217	16.9									

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 4 for Linux  
 Version 17.0.4 Build 20170411  
 C++ Compiler: Intel C++ Compiler 17.0 Update 4 for Linux  
 Version 17.0.4 Build 20170411  
 Fortran Compiler: Intel Fortran Compiler 17.0 Update 4 for Linux  
 Version 17.0.4 Build 20170411  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 MPI Library: Intel MPI Library for Linux\* OS  
 Version 2017 Update 3 Build 20170405  
 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 8180  
 CPU(s) orderable: 2 chips  
 Chips enabled: 2  
 Cores enabled: 56  
 Cores per chip: 56  
 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: 38.5 MB I+D on chip per chip  
 shared / 28 cores  
 Other Cache: None  
 Memory: 768 GB (24 x 32GB 2Rx4 PC4-2666V)  
 Disk Subsystem: 2 x 800 GB 12 Gbps SAS 2.5" SSD (RAID 1)  
 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.el7.x86\_64  
 Local File System: xfs  
 Shared File System: None  
 System State: N/A  
 Other Software: NONE

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### Node Description: ThinkSystem SR650

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.hydra command was used to start MPI jobs.

RAM configuration:  
Compute nodes have 2x32GB 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  
Intel Turbo Boost Technology (Turbo) : Enabled  
SNC : Enable

### Base Compiler Invocation

C benchmarks:  
mpiicc

C++ benchmarks:

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## Base Compiler Invocation (Continued)

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 file that was 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/EM64T_Intel121_flags.20170711.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel121\\_flags.20170711.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](mailto:webmaster@spec.org).

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