## Lenovo Global Technology
**ThinkSystem SR950**
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

**SPECmpiM_peak2007** = **Not Run**

**SPECmpiM_base2007** = **27.1**

**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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ranks</td>
<td>Seconds</td>
</tr>
<tr>
<td>104.milc</td>
<td>84</td>
<td><strong>92.9</strong></td>
</tr>
<tr>
<td>107.leslie3d</td>
<td>84</td>
<td>238</td>
</tr>
<tr>
<td>113.GemsFDTD</td>
<td>84</td>
<td><strong>242</strong></td>
</tr>
<tr>
<td>115.fds4</td>
<td>84</td>
<td>113</td>
</tr>
<tr>
<td>121.pop2</td>
<td>84</td>
<td>138</td>
</tr>
<tr>
<td>122.tachyon</td>
<td>84</td>
<td>113</td>
</tr>
<tr>
<td>126.lammps</td>
<td>84</td>
<td><strong>143</strong></td>
</tr>
<tr>
<td>127.wrf2</td>
<td>84</td>
<td>193</td>
</tr>
<tr>
<td>128.GAPgeofem</td>
<td>84</td>
<td>66.3</td>
</tr>
<tr>
<td>129.tera_tf</td>
<td>84</td>
<td>108</td>
</tr>
</tbody>
</table>

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

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

SPECMpiM_peak2007 = Not Run
SPECMpiM_base2007 = 27.1

Hardware Summary

Type of System: Homogeneous
Compute Node: ThinkSystem SR950
Interconnect: N/A
Total Compute Nodes: 1
Total Chips: 3
Total Cores: 84
Total Threads: 84
Total Memory: 576 GB
Base Ranks Run: 84
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: 3
Cores enabled: 84
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: 576 GB (36 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

Results Table (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Ranks</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>130.socorro</td>
<td>84</td>
<td>73.2</td>
<td>52.1</td>
<td>73.4</td>
<td>52.0</td>
<td>73.5</td>
<td>51.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>132.zeusmp2</td>
<td>84</td>
<td>108</td>
<td>28.8</td>
<td>108</td>
<td>28.8</td>
<td>108</td>
<td>28.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>137.lu</td>
<td>84</td>
<td>105</td>
<td>34.9</td>
<td>105</td>
<td>35.0</td>
<td>105</td>
<td>35.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Spec Inc.
Copyright 2006-2010 Standard Performance Evaluation Corporation

info@spec.org
http://www.spec.org/
**Lenovo Global Technology**

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

<table>
<thead>
<tr>
<th>SPECmpiM_peak2007 = Not Run</th>
<th>SPECmpiM_base2007 = 27.1</th>
</tr>
</thead>
</table>

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

### Node Description: ThinkSystem SR950

- Ports Used: 0
- Interconnect Type: None

### Interconnect Description: N/A

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor: N/A</td>
<td></td>
</tr>
<tr>
<td>Model: N/A</td>
<td></td>
</tr>
<tr>
<td>Switch Model: N/A</td>
<td></td>
</tr>
<tr>
<td>Number of Switches: 0</td>
<td></td>
</tr>
<tr>
<td>Number of Ports: 0</td>
<td></td>
</tr>
<tr>
<td>Data Rate: N/A</td>
<td></td>
</tr>
<tr>
<td>Firmware: N/A</td>
<td></td>
</tr>
<tr>
<td>Topology: N/A</td>
<td></td>
</tr>
<tr>
<td>Primary Use: N/A</td>
<td></td>
</tr>
</tbody>
</table>

### 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.
Lenovo Global Technology
ThinkSystem SR950
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

SPECmpiM_peak2007 = Not Run
SPECmpiM_base2007 = 27.1

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_CXXSEEK
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
## Lenovo Global Technology

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

<table>
<thead>
<tr>
<th>SPECmpiM_peak2007 = Not Run</th>
<th>SPECmpiM_base2007 = 27.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPI2007 license: 28</td>
<td>Test date: Aug-2018</td>
</tr>
<tr>
<td>Test sponsor: Lenovo Global Technology</td>
<td>Hardware Availability: Aug-2017</td>
</tr>
<tr>
<td>Tested by: Lenovo Global Technology</td>
<td>Software Availability: Jul-2018</td>
</tr>
</tbody>
</table>

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.

Tested with SPEC MPI2007 v2.0.1.
Originally published on 12 September 2018.