## Lenovo Global Technology

**ThinkSystem SR650**  
(Intel Xeon Platinum 8280 CPU, 2.70 GHz)

**SPECmpiM**

### SPECmpiM_base2007 = 19.1

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<th>Ranks</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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**RESULTS 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 SR650  
(Intel Xeon Platinum 8280 CPU, 2.70 GHz)

**SPECmpiM_peak2007 = Not Run**

**SPECmpiM_base2007 = 19.1**

MP2007 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 (Continued)

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<th>Benchmark</th>
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<th>Ratio</th>
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<th>Seconds</th>
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</tbody>
</table>

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

### Hardware Summary

- **Type of System:** Homogeneous  
- **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 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 SR650

#### Hardware

- **Number of nodes:** 1  
- **Uses of the node:** compute  
- **Vendor:** Lenovo Global Technology  
- **Model:** SR650  
- **CPU Name:** Intel Xeon Platinum 8280  
- **CPU(s) orderable:** 1-2 chips  
- **Chips enabled:** 2  
- **Cores enabled:** 56  
- **Threads per core:** 1  
- **CPU Characteristics:** None  
- **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  
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)  
- **Disk Subsystem:** 1 x 1 TB 12 Gbps SAS 2.5” SSD (JBOD)  
- **Other Hardware:** ThinkSystem RAID 530-8i  
- **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

Continued on next page
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Test date: Mar-2019
Hardware Availability: Apr-2019
Software Availability: Apr-2019

Node Description: ThinkSystem SR650

Interconnect Type: None

Interconnect Description: N/A

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<tr>
<th>Hardware</th>
<th>Software</th>
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<td>Topology:</td>
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<tr>
<td>Primary Use:</td>
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</tr>
</tbody>
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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 32 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.
**SPEC MPIM2007 Result**

**Lenovo Global Technology**

ThinkSystem SR650  
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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_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.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.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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