SPEC® MPIM2007 Result

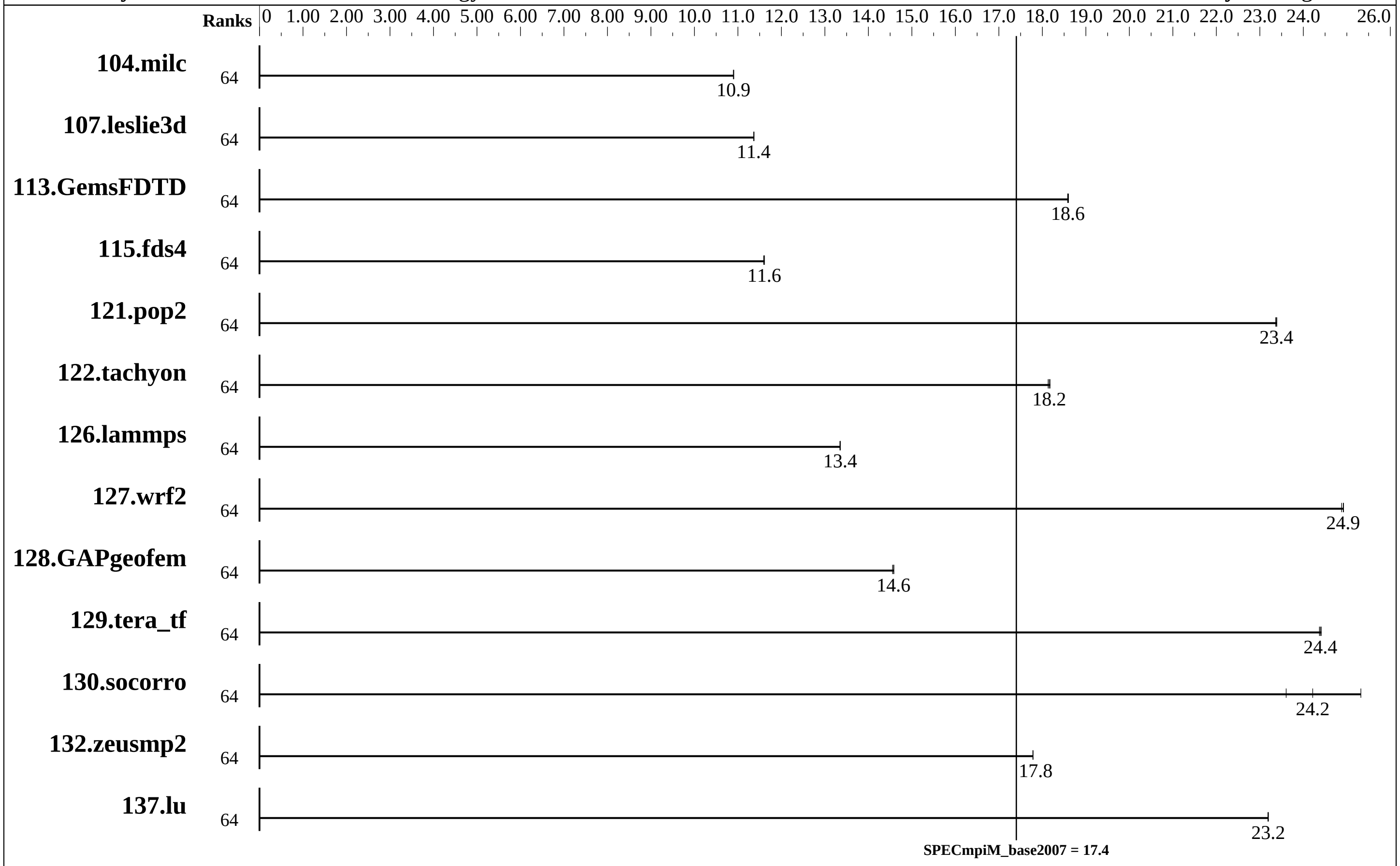
Lenovo Global Technology

ThinkSystem SR655
(AMD EPYC 7742 CPU, 2.25 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 17.4

MPI2007 license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Test date: Jul-2019
Hardware Availability: Aug-2019
Software Availability: Aug-2019



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	**144**	**10.9**	144	10.9	144	10.9							
107.leslie3d	64	**459**	**11.4**	459	11.4	459	11.4							
113.GemsFDTD	64	339	18.6	339	18.6	**339**	**18.6**							
115.fds4	64	**168**	**11.6**	168	11.6	168	11.6							
121.pop2	64	**177**	**23.4**	177	23.4	176	23.4							
122.tachyon	64	**154**	**18.2**	154	18.1	154	18.2							
126.lammps	64	**218**	**13.4**	218	13.4	218	13.3							
127.wrf2	64	**313**	**24.9**	313	24.9	313	24.9							
128.GAPgeofem	64	**142**	**14.6**	142	14.6	142	14.6							
129.tera_tf	64	**113**	**24.4**	113	24.4	114	24.4							

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)

	Base							Peak						
Benchmark	**Ranks**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Ranks**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
130.socorro	64	162	23.6	151	25.3	**158**	**24.2**							
132.zeusmp2	64	174	17.8	**174**	**17.8**	175	17.8							
137.lu	64	159	23.2	158	23.2	**158**	**23.2**							

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 SR655
Total Compute Nodes:	1
Total Chips:	1
Total Cores:	64
Total Threads:	64
Total Memory:	256 GB
Base Ranks Run:	64
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 SR655

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	Lenovo Global Technology
Model:	SR655
CPU Name:	AMD EPYC 7742 CPU
CPU(s) orderable:	1 chips
Chips enabled:	1
Cores enabled:	64
Cores per chip:	64
Threads per core:	1
CPU Characteristics:	Turbo up to 3.4 GHz
CPU MHz:	2250
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	256 MB I+D on chip per chip 16 MB shared / 4 cores
Other Cache:	None
Memory:	256 GB (8 x 32 GB 2Rx8 PC4-3200AA-R)
Disk Subsystem:	1 x 480 GB SATA 2.5" SSD
Other Hardware:	None
Adapter:	None
Number of Adapters:	0
Slot Type:	None
Data Rate:	None

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Software

Adapter:	None
Adapter Driver:	None
Adapter Firmware:	None
Operating System:	SUSE Linux Enterprise Linux Server 12 4.12.14-94.41-default
Local File System:	xfs
Shared File System:	None
System State:	Multi-user, run level 3
Other Software:	None

Node Description: ThinkSystem SR655

Ports Used:	0
Interconnect Type:	None

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 1 x 32 GB RDIMM on each memory channel.

BIOS settings:
  Operating Mode : Maximum Performance Mode
  Symmetric Multithreading: Disabled
  NUMA node per socket: NPS4


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.
```

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 -march=core-avx2 -no-prec-div -ipo`

C++ benchmarks:

126.lammps: `-O3 -march=core-avx2 -no-prec-div -ipo`

Fortran benchmarks:
`-O3 -march=core-avx2 -no-prec-div -ipo`

Benchmarks using both Fortran and C:
`-O3 -march=core-avx2 -no-prec-div -ipo`

The flags files that were used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20190807.html
http://www.spec.org/mpi2007/flags/Lenovo-SPECmpiM_Platform_Flags.20190807.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20190807.xml
http://www.spec.org/mpi2007/flags/Lenovo-SPECmpiM_Platform_Flags.20190807.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC MPI2007 v2.0.1.
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