SPEC® MPIL2007 Result

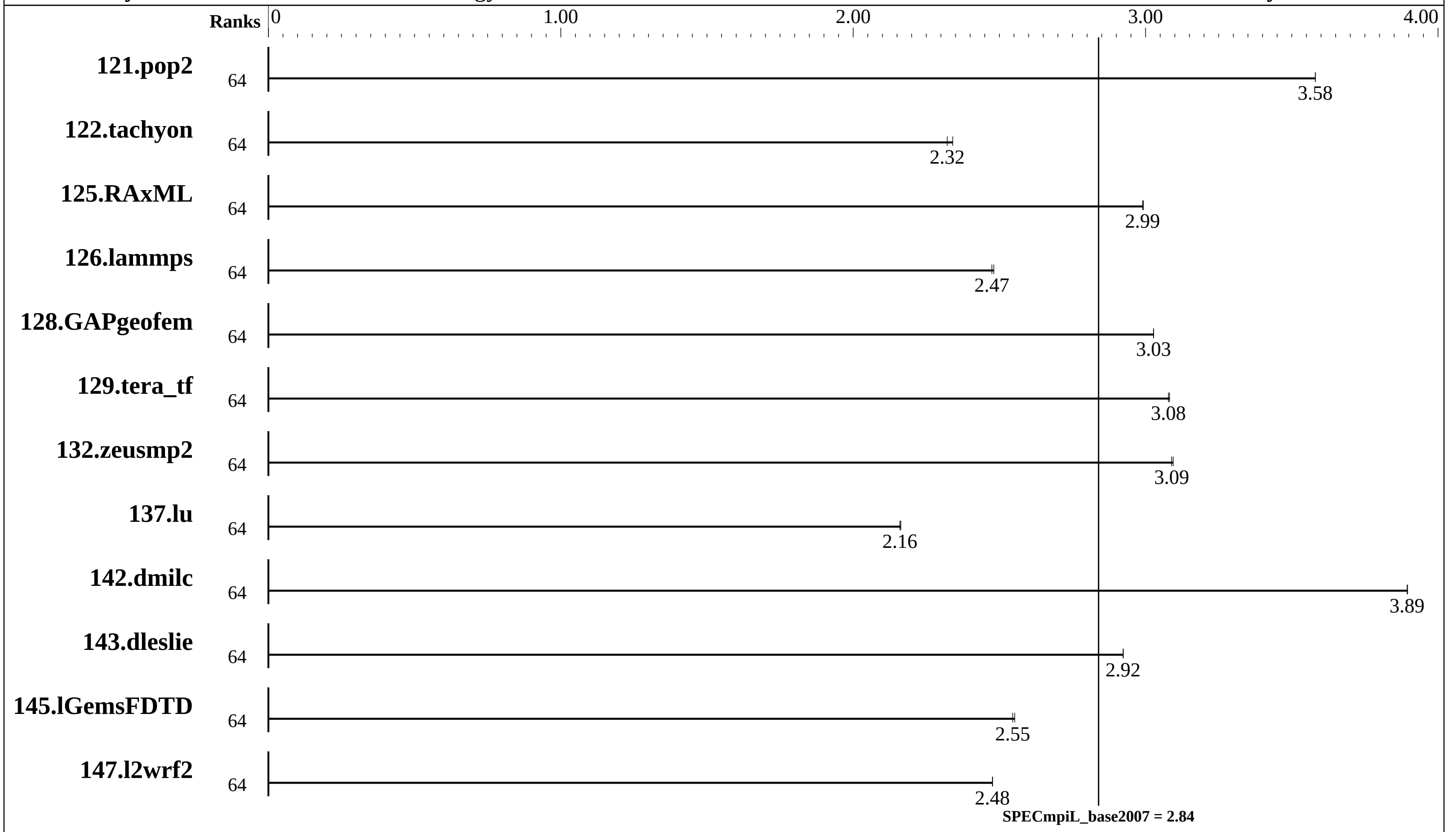
Lenovo Global Technology

ThinkSystem SR655
(AMD EPYC 7H12 CPU, 2.6 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 2.84

MPI2007 license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Test date: Jan-2020
Hardware Availability: Jun-2020
Software Availability: Jun-2020



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	64	**1087**	**3.58**	1087	3.58									
122.tachyon	64	831	2.34	**837**	**2.32**									
125.RAxML	64	**976**	**2.99**	976	2.99									
126.lammps	64	**994**	**2.47**	991	2.48									
128.GAPgeofem	64	1960	3.03	**1960**	**3.03**									
129.tera_tf	64	357	3.08	**357**	**3.08**									
132.zeusmp2	64	685	3.09	**686**	**3.09**									
137.lu	64	**1946**	**2.16**	1943	2.16									
142.dmilc	64	946	3.90	**946**	**3.89**									
143.dleslie	64	**1061**	**2.92**	1060	2.92									
145.lGemsFDTD	64	1728	2.55	**1733**	**2.55**									
147.l2wrf2	64	3313	2.48	**3313**	**2.48**									

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

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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 20.0 for Linux Version 19.1.0.166 Build 20191121
C++ Compiler:	Intel C++ Compiler 20.0 for Linux Version 19.1.0.166 Build 20191121
Fortran Compiler:	Intel Fortran Compiler 20.0 for Linux Version 19.1.0.166 Build 20191121
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	Open MPI Library Version 4.0.2
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 7H12 CPU
CPU(s) orderable:	1 chip
Chips enabled:	1
Cores enabled:	64
Cores per chip:	64
Threads per core:	1
CPU Characteristics:	None
CPU MHz:	2600
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
Ports Used:	0
Interconnect Type:	None

Software

Adapter:	None
Adapter Driver:	None
Adapter Firmware:	None
Operating System:	Red Hat Enterprise Linux Server release 8.1 4.18.0-147.el8.x86_64
Local File System:	xfs
Shared File System:	None
System State:	Multi-user, run level 3
Other Software:	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.

Add "idle=poll" into grub

BIOS settings:
  Operating Mode : Maximum Performance Mode
  Hyper-Threading Technology (SMT): Disabled
  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:
/opt/OMPI/O402_I20_H47_R81/bin/mpicc

C++ benchmarks:

126.lammps: /opt/OMPI/O402_I20_H47_R81/bin/mpicxx

Fortran benchmarks:
/opt/OMPI/O402_I20_H47_R81/bin/mpif90

Benchmarks using both Fortran and C:
/opt/OMPI/O402_I20_H47_R81/bin/mpicc
/opt/OMPI/O402_I20_H47_R81/bin/mpif90

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG
126.lammps: -DMPICH_IGNORE_CXX_SEEK

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 file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20200408.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20200408.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.
Report generated on Wed Apr 8 12:13:42 2020 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 8 April 2020.