



SPEC® MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

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

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 2.84

MPI2007 license: 28

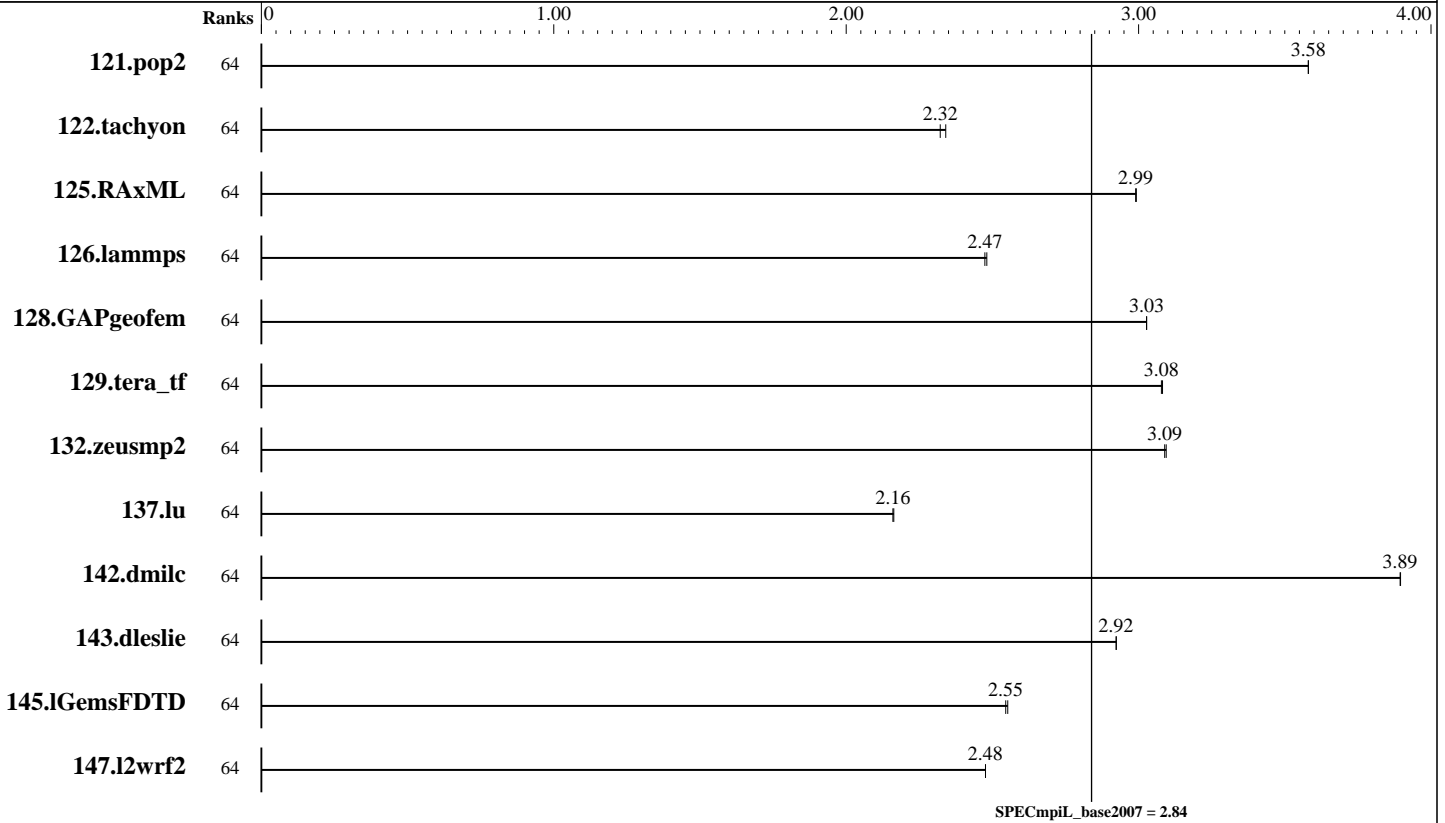
Test sponsor: Lenovo Global Technology

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

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

Standard Performance Evaluation Corporation

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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.



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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



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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

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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.