SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

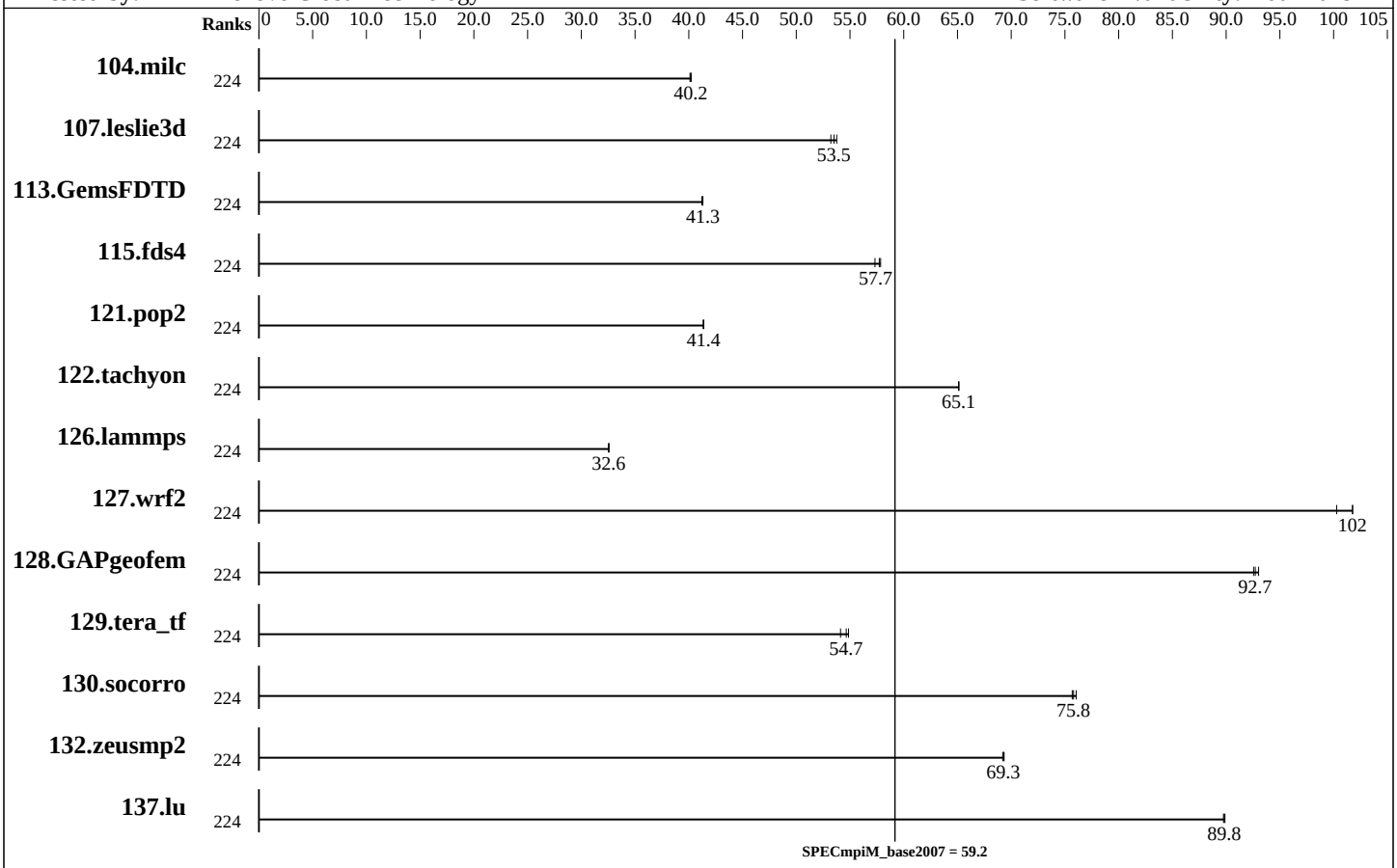
ThinkSystem SD650
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 59.2

MPI2007 license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test date: Jul-2018
Hardware Availability: Mar-2018
Software Availability: Jul-2018



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	224	38.9	40.2	**38.9**	**40.2**	39.0	40.1							
107.leslie3d	224	**97.6**	**53.5**	98.1	53.2	97.1	53.8							
113.GemsFDTD	224	153	41.3	**153**	**41.3**	153	41.2							
115.fds4	224	**33.8**	**57.7**	34.0	57.3	33.7	57.9							
121.pop2	224	99.9	41.3	99.7	41.4	**99.8**	**41.4**							
122.tachyon	224	**43.0**	**65.1**	43.0	65.1	42.9	65.1							
126.lammps	224	89.6	32.5	89.5	32.6	**89.5**	**32.6**							
127.wrf2	224	77.7	100	76.6	102	**76.6**	**102**							
128.GAPgeofem	224	22.3	92.6	22.2	93.0	**22.3**	**92.7**							
129.tera_tf	224	50.5	54.9	**50.6**	**54.7**	51.1	54.1							

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

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SD650
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 59.2

MPI2007 license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test date: Jul-2018
Hardware Availability: Mar-2018
Software Availability: Jul-2018

Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	224	50.4	75.7	**50.4**	**75.8**	50.2	76.0							
132.zeusmp2	224	44.8	69.3	**44.8**	**69.3**	44.8	69.2							
137.lu	224	41.0	89.8	40.9	89.9	**40.9**	**89.8**							

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 SD650
Interconnect:	Intel Omni-Path
Total Compute Nodes:	4
Total Chips:	8
Total Cores:	224
Total Threads:	224
Total Memory:	1536 GB
Base Ranks Run:	224
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 SD650

Hardware

Number of nodes:	4
Uses of the node:	compute
Vendor:	Lenovo Global Technology
Model:	SD650
CPU Name:	Intel Xeon Platinum 8180
CPU(s) orderable:	2 chips
Chips enabled:	2
Cores enabled:	56
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:	384 GB (12 x 32 GB 2Rx4 PC4-2666V)
Disk Subsystem:	480 GB SATA 2.5" SSD
Other Hardware:	None
Adapter:	Intel Omni-Path Fabric Adapter 100 Series
Number of Adapters:	1
Slot Type:	PCI-Express x16
Data Rate:	100 Gb/s

Continued on next page

Software

Adapter:	Intel Omni-Path Fabric Adapter 100 Series
Adapter Driver:	IFS 10.4.2.0.7
Adapter Firmware:	10.4.0.0.146
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:	nfs
System State:	Multi-user
Other Software:	None

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SD650
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 59.2

MPI2007 license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test date: Jul-2018
Hardware Availability: Mar-2018
Software Availability: Jul-2018

Node Description: ThinkSystem SD650

Ports Used:	1
Interconnect Type:	Intel Omni-Path

Interconnect Description: Intel Omni-Path

Hardware

Vendor:	Intel
Model:	Intel Omni-Path Fabric Adapter 100 Series
Switch Model:	Intel Omni-Path 100 Series
Number of Switches:	1
Number of Ports:	48
Data Rate:	100 Gb/s
Firmware:	10.3.0.0.60
Topology:	Mesh
Primary Use:	MPI Traffic

Software

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 "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.
```

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 -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

Copyright 2006-2010 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SD650
(Intel Xeon Platinum 8180 CPU, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 59.2

MPI2007 license:	28	**Test date:**	Jul-2018
Test sponsor:	Lenovo Global Technology	**Hardware Availability:**	Mar-2018
Tested by:	Lenovo Global Technology	**Software Availability:**	Jul-2018

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.
Report generated on Wed Sep 12 12:24:43 2018 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 12 September 2018.