SPEC® MPIM2007 Result

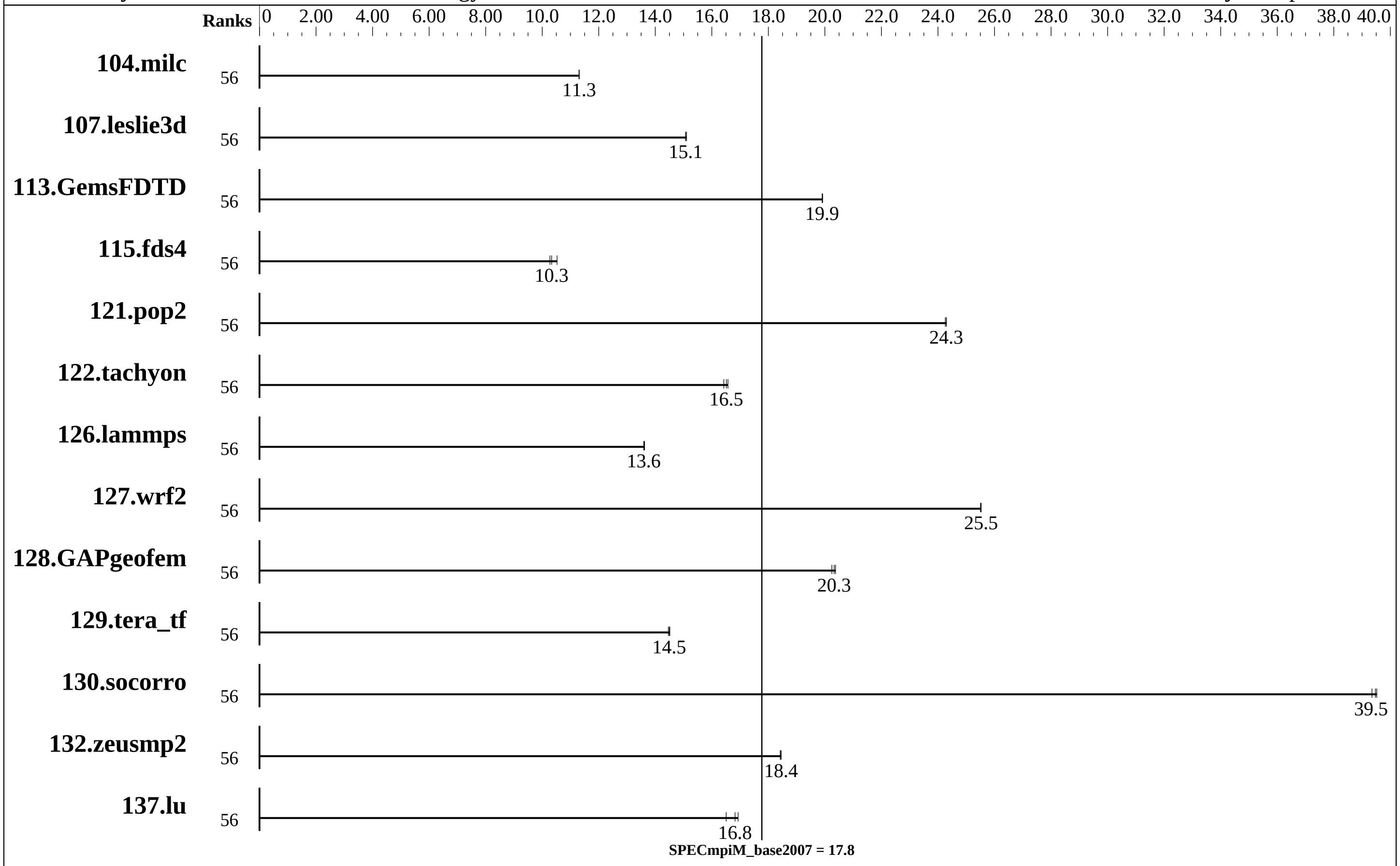
Lenovo Global Technology

ThinkSystem SR650
(Intel Xeon Platinum 8180 CPU, 2.50GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 17.8

MPI2007 license:	9017	**Test date:**	Jun-2017
Test sponsor:	Lenovo Global Technology	**Hardware Availability:**	Aug-2017
Tested by:	Lenovo Global Technology	**Software Availability:**	Apr-2017



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	56	138	11.3	138	11.3	**138**	**11.3**							
107.leslie3d	56	346	15.1	346	15.1	**346**	**15.1**							
113.GemsFDTD	56	**317**	**19.9**	317	19.9	317	19.9							
115.fds4	56	185	10.5	**189**	**10.3**	190	10.3							
121.pop2	56	170	24.3	170	24.3	**170**	**24.3**							
122.tachyon	56	170	16.4	**169**	**16.5**	169	16.6							
126.lammps	56	214	13.6	214	13.6	**214**	**13.6**							
127.wrf2	56	**305**	**25.5**	306	25.5	305	25.5							
128.GAPgeofem	56	102	20.2	**102**	**20.3**	101	20.4							
129.tera_tf	56	191	14.5	191	14.5	**191**	**14.5**							

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)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	56	97.0	39.4	**96.7**	**39.5**	96.6	39.5							
132.zeusmp2	56	168	18.4	**168**	**18.4**	168	18.5							
137.lu	56	223	16.5	**219**	**16.8**	217	16.9							

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 SR650
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 4 for Linux Version 17.0.4 Buiild 20170411
C++ Compiler:	Intel C++ Compiler 17.0 Update 4 for Linux Version 17.0.4 Build 20170411
Fortran Compiler:	Intel Fortran Compiler 17.0 Update 4 for Linux Version 17.0.4 Build 20170411
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	Intel MPI Library for Linux* OS Version 2017 Update 3 Build 20170405
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 8180
CPU(s) orderable:	2 chips
Chips enabled:	2
Cores enabled:	56
Cores per chip:	56
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:	38.5 MB I+D on chip per chip shared / 28 cores
Other Cache:	None
Memory:	768 GB (24 x 32GB 2Rx4 PC4-2666V)
Disk Subsystem:	2 x 800 GB 12 Gbps SAS 2.5" SSD (RAID 1)
Other Hardware:	ThinkSystem RAID 930-8i 2GB Flash
Adapter:	N/A
Number of Adapters:	0
Slot Type:	N/A
Data Rate:	N/A

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Software

Adapter:	N/A
Adapter Driver:	N/A
Adapter Firmware:	N/A
Operating System:	Red Hat Enterprise Linux Server release 7.3, Kernel 3.10.0-514.el7.x86_64
Local File System:	xfs
Shared File System:	None
System State:	N/A
Other Software:	NONE

Node Description: ThinkSystem SR650

Ports Used:	0
Interconnect Type:	None

Interconnect Description: N/A

Hardware

Vendor:	N/A
Model:	N/A
Switch Model:	N/A
Number of Switches:	0
Number of Ports:	0
Data Rate:	N/A
Firmware:	N/A
Topology:	N/A
Primary Use:	N/A

Software

Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
MPI startup command:
  mpiexec.hydra command was used to start MPI jobs.

RAM configuration:
  Compute nodes have 2x32GB 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
  Intel Turbo Boost Technology (Turbo)  : Enabled
  SNC : Enable
```

Base Compiler Invocation

C benchmarks:
`mpiicc`

C++ benchmarks:

Continued on next page

Base Compiler Invocation (Continued)

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 file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20170711.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20170711.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 Jul 12 12:45:51 2017 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 11 July 2017.