



SPEC® MPIL2007 Result

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Lenovo Global Technology

ThinkSystem SR860 V2
(Intel Xeon Platinum 8380H CPU, 2.90 GHz)

SPECmpiL_peak2007 = 7.02

SPECmpiL_base2007 = 7.02

MPI2007 license: 28

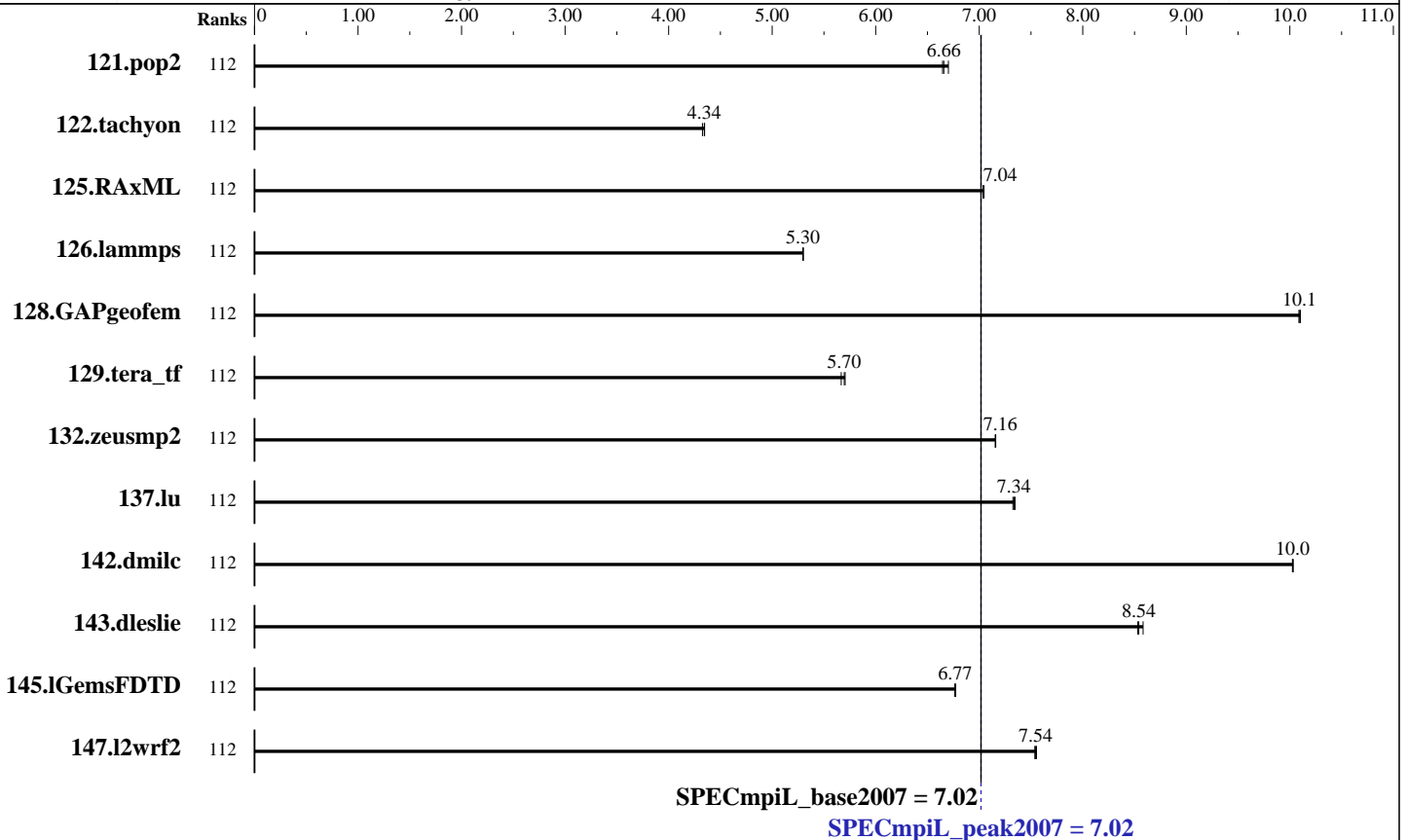
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-2020

Hardware Availability: Oct-2020

Software Availability: Oct-2020



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	112	584	6.66	585	6.65	581	6.70	112	584	6.66	585	6.65	581	6.70
122.tachyon	112	449	4.33	447	4.34	447	4.35	112	449	4.33	447	4.34	447	4.35
125.RAxML	112	415	7.04	415	7.04	414	7.05	112	415	7.04	415	7.04	414	7.05
126.lammps	112	464	5.30	464	5.30	464	5.30	112	464	5.30	464	5.30	464	5.30
128.GAPgeofem	112	587	10.1	588	10.1	588	10.1	112	587	10.1	588	10.1	588	10.1
129.tera_tf	112	193	5.70	194	5.67	193	5.70	112	193	5.70	194	5.67	193	5.70
132.zeusmp2	112	296	7.16	296	7.16	296	7.15	112	296	7.16	296	7.16	296	7.15
137.lu	112	573	7.34	574	7.33	572	7.35	112	573	7.34	574	7.33	572	7.35
142.dmilc	112	367	10.0	367	10.0	367	10.0	112	367	10.0	367	10.0	367	10.0
143.dleslie	112	363	8.53	361	8.58	363	8.54	112	363	8.53	361	8.58	363	8.54
145.lGemsFDTD	112	652	6.77	652	6.76	651	6.77	112	652	6.77	652	6.76	651	6.77
147.l2wrf2	112	1087	7.54	1086	7.55	1089	7.54	112	1087	7.54	1086	7.55	1089	7.54

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

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



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Hardware Summary

Type of System: Homogeneous
 Compute Node: ThinkSystem SR860 V2
 Interconnect: Intel Omni-Path
 File Server Node: NFS
 Total Compute Nodes: 1
 Total Chips: 4
 Total Cores: 112
 Total Threads: 112
 Total Memory: 1536 GB
 Base Ranks Run: 112
 Minimum Peak Ranks: 112
 Maximum Peak Ranks: 112

Software Summary

C Compiler: Intel C++ Compiler 2020 Update 1 for Linux
 Version 19.1.1.217 Build 20200306
 C++ Compiler: Intel C++ Compiler 2020 Update 1 for Linux
 Version 19.1.1.217 Build 20200306
 Fortran Compiler: Intel Fortran Compiler 2020 Update 1 for Linux
 Version 19.1.1.217 Build 20200306
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 MPI Library: Intel MPI Library for Linux* OS
 Version 2019 Update 7 Build 20200312
 Other MPI Info: None
 Pre-processors: No
 Other Software: None

Node Description: ThinkSystem SR860 V2

Hardware

Number of nodes: 1
 Uses of the node: compute
 Vendor: Lenovo Global Technology
 Model: ThinkSystem SR860 V2
 CPU Name: Intel Xeon Platinum 8380H
 CPU(s) orderable: 2,4 chips
 Chips enabled: 4
 Cores enabled: 112
 Cores per chip: 28
 Threads per core: 1
 CPU Characteristics: None
 CPU MHz: 2900
 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
 Other Cache: None
 Memory: 1536 GB (48 x 32 GB 2Rx8 PC4-3200AA)
 Disk Subsystem: 1 x 1 TB SATA 2.5" SSD
 Other Hardware: N/A
 Adapter: Intel Omni-Path Fabric Adapter 100 Series
 Number of Adapters: 1
 Slot Type: PCI-Express 3.0 x16
 Data Rate: 100 Gb/s
 Ports Used: 1
 Interconnect Type: Intel Omni-Path

Software

Adapter: Intel Omni-Path Fabric Adapter 100 Series
 Adapter Driver: 10.10.2.0.46
 Adapter Firmware: 10.4.0.0.146
 Operating System: Red Hat Enterprise Linux Server release 8.2,
 Kernel 4.18.0-193.el8.x86_64
 Local File System: xfs
 Shared File System: None
 System State: Multi-user, run level 3
 Other Software: None

Node Description: NFS

Hardware

Number of nodes: 1
 Uses of the node: Fileserver

Software

Adapter: Intel Omni-Path Fabric Adapter 100 Series
 Adapter Driver: 10.10.2.0.46

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Software Availability: Oct-2020

Node Description: NFS

Vendor: Lenovo Global Technology
 Model: ThinkSystem SR860 V2
 CPU Name: Intel Xeon Platinum 8380H
 CPU(s) orderable: 2,4 chips
 Chips enabled: 4
 Cores enabled: 112
 Cores per chip: 28
 Threads per core: 1
 CPU Characteristics: None
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 Primary Cache: 32 KB I + 32 KB D on chip per core
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 Memory: 1536 GB (48 x 32 GB 2Rx8 PC4-3200AA-R)
 Disk Subsystem: 1 x 1 TB SATA 2.5" SSD
 Other Hardware: None
 Adapter: Intel Omni-Path Fabric Adapter 100 Series
 Number of Adapters: 1
 Slot Type: PCI-Express 3.0 x16
 Data Rate: 100 Gb/s
 Ports Used: 1
 Interconnect Type: Intel Omni-Path

Adapter Firmware: 10.4.0.0.146
 Operating System: Red Hat Enterprise Linux Server release 7.8
 Local File System: None
 Shared File System: NFS
 System State: Multi-User, run level 3
 Other Software: None

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:

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General Notes (Continued)

Compute nodes have 2 x 32 GB RDIMM on each memory channel.
 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

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



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Peak Optimization Flags

C benchmarks:

122.tachyon: basepeak = yes

125.RAxML: basepeak = yes

142.dmilc: basepeak = yes

C++ benchmarks:

126.lammps: basepeak = yes

Fortran benchmarks:

129.tera_tf: basepeak = yes

137.lu: basepeak = yes

143.dleslie: basepeak = yes

145.lGemsFDTD: basepeak = yes

Benchmarks using both Fortran and C:

121.pop2: basepeak = yes

128.GAPgeofem: basepeak = yes

132.zeusmp2: basepeak = yes

147.l2wrf2: basepeak = yes

The flags files that were used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20201007.html

http://www.spec.org/mpi2007/flags/Lenovo-SPECmpiM_Platform_Flags.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/mpi2007/flags/EM64T_Intel121_flags.20201007.xml

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

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