



SPEC[®] MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Supermicro

SPECmpiL_peak2007 = 20.7

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9755)

SPECmpiL_base2007 = 20.7

MPI2007 license: 6569

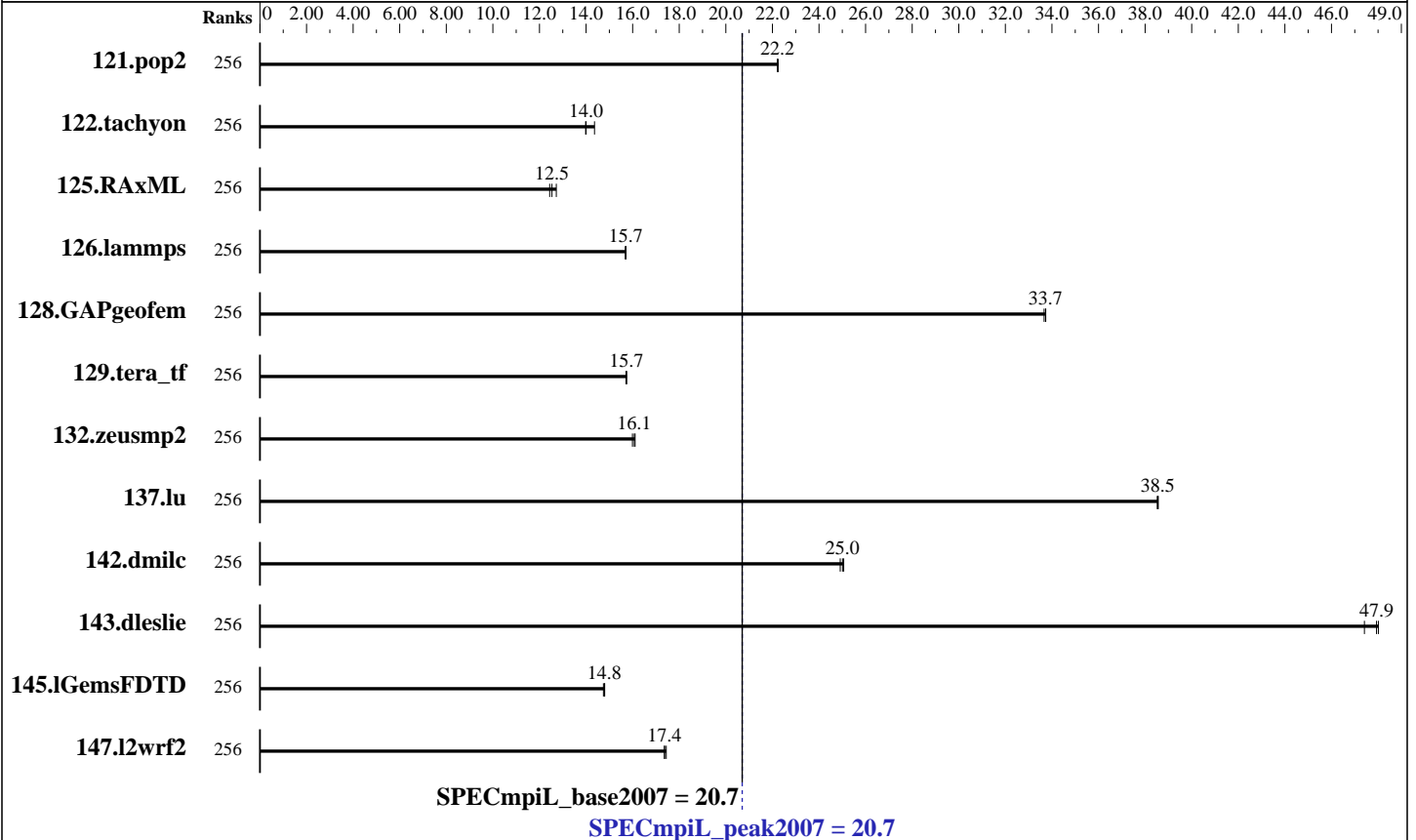
Test date: Sep-2024

Test sponsor: Supermicro

Hardware Availability: Oct-2024

Tested by: Supermicro

Software Availability: Apr-2024



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	256	175	22.2	175	22.2	175	22.2	256	175	22.2	175	22.2	175	22.2
122.tachyon	256	135	14.4	139	14.0	139	14.0	256	135	14.4	139	14.0	139	14.0
125.RAxML	256	229	12.7	233	12.5	235	12.4	256	229	12.7	233	12.5	235	12.4
126.lammps	256	157	15.7	157	15.7	157	15.7	256	157	15.7	157	15.7	157	15.7
128.GAPgeofem	256	176	33.7	176	33.7	176	33.7	256	176	33.7	176	33.7	176	33.7
129.tera_tf	256	69.9	15.7	69.9	15.7	69.8	15.7	256	69.9	15.7	69.9	15.7	69.8	15.7
132.zeusmp2	256	132	16.1	132	16.1	133	16.0	256	132	16.1	132	16.1	133	16.0
137.lu	256	109	38.6	109	38.5	109	38.5	256	109	38.6	109	38.5	109	38.5
142.dmilc	256	148	24.9	147	25.1	147	25.0	256	148	24.9	147	25.1	147	25.0
143.dleslie	256	64.6	48.0	64.7	47.9	65.4	47.4	256	64.6	48.0	64.7	47.9	65.4	47.4
145.lGemsFDTD	256	298	14.8	298	14.8	299	14.7	256	298	14.8	298	14.8	299	14.7
147.l2wrf2	256	472	17.4	470	17.4	473	17.4	256	472	17.4	470	17.4	473	17.4

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/



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Supermicro

SPECmpiL_peak2007 = 20.7

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9755)

SPECmpiL_base2007 = 20.7

MPI2007 license: 6569

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2024

Hardware Availability: Oct-2024

Software Availability: Apr-2024

Hardware Summary

Type of System: Homogeneous
 Compute Node: Hyper A+ Server AS -2126HS-TN
 Total Compute Nodes: 1
 Total Chips: 2
 Total Cores: 256
 Total Threads: 256
 Total Memory: 1536 GB
 Base Ranks Run: 256
 Minimum Peak Ranks: 256
 Maximum Peak Ranks: 256

Software Summary

C Compiler: Intel oneAPI DPC++/C++ Compiler 2024.2.1
 C++ Compiler: Intel oneAPI DPC++/C++ Compiler 2024.2.1
 Fortran Compiler: Intel oneAPI DPC++/C++ Compiler 2024.2.1
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: Intel MPI Version 2021.13
 Other MPI Info: None
 Pre-processors: No
 Other Software: Jemalloc-5.3.0

Node Description: Hyper A+ Server AS -2126HS-TN

Hardware

Number of nodes: 1
 Uses of the node: compute
 Vendor: Supermicro
 Model: Hyper A+ Server AS -2126HS-TN
 CPU Name: AMD EPYC 9755
 CPU(s) orderable: 1,2 chips
 Chips enabled: 2
 Cores enabled: 256
 Cores per chip: 128
 Threads per core: 1
 CPU Characteristics: Max. Boost Clock upto 4.1GHz
 CPU MHz: 2700
 Primary Cache: 32 KB I + 48 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: 512 MB I+D on chip per chip,
 32 MB shared / 8 cores
 Other Cache: None
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R,
 running at 6000)
 Disk Subsystem: 1 x 3.5 TB NVMe SSD
 Other Hardware: None
 Adapter: None
 Number of Adapters: 1
 Slot Type: None
 Data Rate: None
 Ports Used: 0
 Interconnect Type: None

Software

Adapter: None
 Adapter Driver: None
 Adapter Firmware: None
 Operating System: Ubuntu 24.04 LTS
 6.8.0-44-generic
 Local File System: ext4
 Shared File System: None
 System State: Multi-user, run level 3
 Other Software: None

Submit Notes

The config file option 'submit' was used.

mpixec.hydra -bootstrap ssh -hosts localhost -genv I_MPI_COMPATIBILITY=3 -np \$ranks -ppn \$ranks \$command



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Supermicro

SPECmpiL_peak2007 = 20.7

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9755)

SPECmpiL_base2007 = 20.7

MPI2007 license: 6569

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2024

Hardware Availability: Oct-2024

Software Availability: Apr-2024

General Notes

MPI startup command:

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

RAM configuration:

Compute nodes have 1 x 64 GB RDIMM on each memory channel.

BIOS settings:

SMT = Disabled

NUMA nodes per socket = NPS4

ACPI SRAT L3 Cache as NUMA Domain = Enabled

Determinism Control = Manual

Determinism Enable = Power

xGMI Link Configuration = 4 xGMI Links

4 Link xGMI max speed = 32Gbps

TDP Control = Manual

TDP = 500

Package Power Limit Control = Manual

Package Power Limit = 500

NA: 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 -cc=icx`

C++ benchmarks:

126.lammps: `mpiicpc -cxx=icpx`

Fortran benchmarks:

`mpiifort -fc=ifx`

Benchmarks using both Fortran and C:

`mpiicc -cc=icxmpiifort -fc=ifx`

Base Portability Flags

121.pop2: `-DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LP64`

122.tachyon: `-DSPEC_MPI_LP64`

125.RAxML: `-DSPEC_MPI_LP64`

126.lammps: `-DMPICH_IGNORE_CXX_SEEK`

128.GAPgeofem: `-DSPEC_MPI_LP64`

132.zeusmp2: `-DSPEC_MPI_LP64`

142.dmilc: `-DSPEC_MPI_LP64`

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 3



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Supermicro

SPECmpiL_peak2007 = 20.7

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9755)

SPECmpiL_base2007 = 20.7

MPI2007 license: 6569

Test date: Sep-2024

Test sponsor: Supermicro

Hardware Availability: Oct-2024

Tested by: Supermicro

Software Availability: Apr-2024

Base Portability Flags (Continued)

147.l2wrf2: -DSPEC_MPI_LP64

Base Optimization Flags

C benchmarks:

-Ofast -ipo -march=skylake-avx512 -mtune=skylake-avx512 -ansi-alias

C++ benchmarks:

126.lammps: -Ofast -ipo -march=skylake-avx512 -mtune=skylake-avx512
-ansi-alias

Fortran benchmarks:

-Ofast -ipo -march=skylake-avx512 -mtune=skylake-avx512
-nostandard-realloc-lhs -align array64byte

Benchmarks using both Fortran and C:

-Ofast -ipo -march=skylake-avx512 -mtune=skylake-avx512 -ansi-alias
-nostandard-realloc-lhs -align array64byte

Base Other Flags

C benchmarks (except as noted below):

-limf -Wl,--rpath=/usr/local/lib -ljemalloc

142.dmilc: -Wno-implicit-function-declaration -Wno-implicit-int -limf
-Wl,--rpath=/usr/local/lib -ljemalloc

C++ benchmarks:

126.lammps: -Wno-register -limf -Wl,--rpath=/usr/local/lib -ljemalloc

Fortran benchmarks:

-limf -Wl,--rpath=/usr/local/lib -ljemalloc

Benchmarks using both Fortran and C:

121.pop2: -limf -Wl,--rpath=/usr/local/lib -ljemalloc

128.GAPgeofem: -Wno-implicit-function-declaration -Wno-implicit-int -limf
-Wl,--rpath=/usr/local/lib -ljemalloc

132.zeusmp2: -Wno-implicit-function-declaration -limf
-Wl,--rpath=/usr/local/lib -ljemalloc

Continued on next page



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Supermicro

SPECmpiL_peak2007 = 20.7

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9755)

SPECmpiL_base2007 = 20.7

MPI2007 license: 6569

Test date: Sep-2024

Test sponsor: Supermicro

Hardware Availability: Oct-2024

Tested by: Supermicro

Software Availability: Apr-2024

Base Other Flags (Continued)

147.l2wrf2: -Wno-implicit-function-declaration -Wno-implicit-int -Wl,-z,muldefs
-Wl,-z,muldefs -limf -Wl,--rpath=/usr/local/lib -ljemalloc

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 file that was used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/Intel_compiler_flags_hpc.2024.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/mpi2007/flags/Intel_compiler_flags_hpc.2024.xml



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Supermicro

SPECmpiL_peak2007 = 20.7

Hyper A+ Server AS -2126HS-TN (AMD EPYC 9755)

SPECmpiL_base2007 = 20.7

MPI2007 license: 6569

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Sep-2024

Hardware Availability: Oct-2024

Software Availability: Apr-2024

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 Thu Oct 10 12:36:19 2024 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 10 October 2024.