



SPEC ACCEL™ OMP Result

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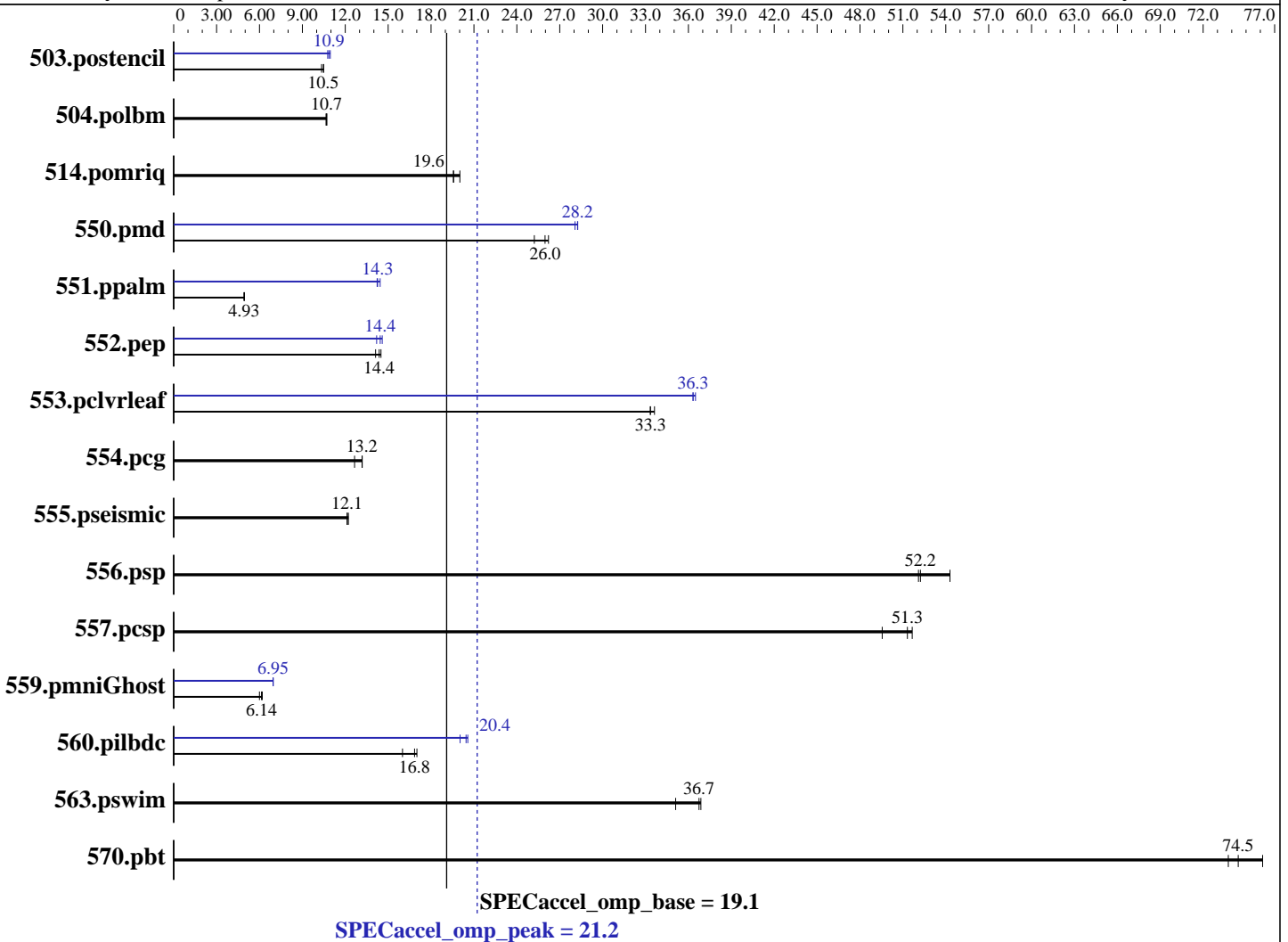
Supermicro
Intel Xeon Platinum 8592+
GPU SuperServer SYS-741GE-TNRT

SPECaccel_omp_peak = 21.2

SPECaccel_omp_base = 19.1

ACCEL license: 6569
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Jan-2024
Hardware Availability: Dec-2023
Software Availability: Oct-2023



Hardware

CPU Name: Intel Xeon Platinum 8592+
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz
 CPU MHz: 1900
 CPU MHz Maximum: 3900
 FPU: Integrated
 CPU(s) enabled: 128 cores, 2 chips, 64 cores/chip, 2 threads/core
 CPU(s) orderable: 2 chips
 Primary Cache: 32 KB I + 48 KB D on chip per core
 Secondary Cache: 2 MB I+D on chip per core
 L3 Cache: 320 MB I+D on chip per chip
 Other Cache: None

Continued on next page

Accelerator

Accel Model Name: Intel Xeon Platinum 8592+
 Accel Vendor: Intel
 Accel Name: Intel Xeon Platinum 8592+
 Type of Accel: CPU
 Accel Connection: N/A
 Does Accel Use ECC: Yes
 Accel Description: 2 x Intel Xeon Platinum 8592+
 Accel Driver: N/A



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Hardware (Continued)

Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R)
Disk Subsystem: 1 x 512 GB NVMe SSD
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 15 SP5
Kernel 5.14.21-150500.53-default
Compiler: C/C++/Fortran: Version 2024.0.0.20231017 of Intel
oneAPI DPC++/C++
File System: xfs
System State: Run-level 3 (multi-user)
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	10.4	10.5	10.5	10.3	10.4	10.5	9.95	11.0	10.0	10.9	10.1	10.8
504.polbm	11.4	10.7	11.4	10.7	11.5	10.7	11.4	10.7	11.4	10.7	11.5	10.7
514.pomriq	31.7	19.6	31.7	19.6	31.0	20.0	31.7	19.6	31.7	19.6	31.0	20.0
550.pmd	9.19	26.2	9.28	26.0	9.55	25.2	8.53	28.2	8.53	28.3	8.59	28.1
551.ppalm	110	4.93	110	4.92	110	4.95	38.2	14.2	38.1	14.3	37.7	14.4
552.pep	15.9	14.5	16.1	14.4	16.4	14.1	16.0	14.4	15.8	14.6	16.3	14.2
553.pclvrleaf	34.3	33.3	34.0	33.6	34.3	33.3	31.5	36.3	31.4	36.5	31.5	36.3
554.pcg	26.3	12.7	25.3	13.2	25.3	13.2	26.3	12.7	25.3	13.2	25.3	13.2
555.pseismic	23.2	12.1	23.2	12.1	23.1	12.2	23.2	12.1	23.2	12.1	23.1	12.2
556.psp	15.7	52.2	15.1	54.3	15.7	52.1	15.7	52.2	15.1	54.3	15.7	52.1
557.pcsp	16.7	51.3	17.3	49.6	16.6	51.7	16.7	51.3	17.3	49.6	16.6	51.7
559.pmniGhost	64.7	6.14	64.1	6.20	66.2	6.00	57.1	6.95	57.1	6.95	57.0	6.96
560.pilbdc	38.8	16.8	40.8	16.0	38.4	17.0	31.9	20.4	31.7	20.6	32.6	20.0
563.pswim	4.33	36.7	4.31	36.9	4.53	35.1	4.33	36.7	4.31	36.9	4.53	35.1
570.pbt	10.6	73.8	10.5	74.5	10.2	76.2	10.6	73.8	10.5	74.5	10.2	76.2

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

Platform Notes

```
Sysinfo program /home/accel/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on 135-172-248 Mon Jan 8 18:52:07 2024
```

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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Platform Notes (Continued)

<http://www.spec.org/accel/Docs/config.html#sysinfo>

From /proc/cpuinfo

```
model name : INTEL(R) XEON(R) PLATINUM 8592+
 2 "physical id"s (chips)
256 "processors"
```

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 64
siblings  : 128
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
```

cache size : 327680 KB

From /proc/meminfo

```
MemTotal:      1056415796 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="SLES"
VERSION="15-SP5"
VERSION_ID="15.5"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP5"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp5"
```

uname -a:

```
Linux 135-172-248 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10
07:56:26 UTC 2023 (b630043) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jan 4 16:13

SPEC is set to: /home/accel

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0nlp2  xfs   475G   71G  404G  15% /
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to

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Platform Notes (Continued)

hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends International, LLC. 2.1 12/12/2023

Memory:

14x SK Hynix HMC94AGBRA181N 64 GB 2 rank 5600 MT/s

2x SK Hynix HMC94AGBRA184N 64 GB 2 rank 5600 MT/s

(End of data from sysinfo program)

General Notes

=====
BIOS Setting:

Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG Mode = Extreme Performance
SNC (Sub NUMA) = Enable SNC2 (2-clusters)
KTI Prefetch = Enable
DCU Streamer Prefetcher = Disable
LLC Dead Line Alloc = Disable
Stale AtoS = Disable

=====
Spectre and Meltdown

NA: The test sponsor attests, as of date of publication, the CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, the 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.

=====
OS tuning:

Stack size set to unlimited using "ulimit -s unlimited"

=====
IPMI setting:

Fan Mode: Full Speed

Base Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icx ifort



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Base Portability Flags

```
503.postencil: -DSPEC_USE_INNER_SIMD
504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD
550.pmd: -DSPEC_USE_INNER_SIMD
551.ppalm: -DSPEC_USE_INNER_SIMD
552.pep: -DSPEC_USE_INNER_SIMD
553.pclvrleaf: -DSPEC_USE_INNER_SIMD
554.pcg: -DSPEC_USE_INNER_SIMD
555.pseismic: -DSPEC_USE_INNER_SIMD
556.psp: -DSPEC_USE_INNER_SIMD
557.pcsp: -DSPEC_USE_INNER_SIMD
559.pmniGhost: -DSPEC_USE_INNER_SIMD -nofor-main
560.pilbdc: -DSPEC_USE_INNER_SIMD
563.pswim: -DSPEC_USE_INNER_SIMD
570.pbt: -DSPEC_USE_INNER_SIMD
```

Base Optimization Flags

C benchmarks:
-qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles

Fortran benchmarks:
-qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles

Benchmarks using both Fortran and C:
-qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles

Peak Compiler Invocation

C benchmarks:
icx

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icx ifort



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Peak Portability Flags

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504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD
550.pmd: -DSPEC_USE_INNER_SIMD
551.ppalms: -DSPEC_USE_INNER_SIMD -DSPEC_HOST_FFTW3
552.pep: -DSPEC_USE_INNER_SIMD
553.pclvrleaf: -DSPEC_USE_INNER_SIMD
554.pcg: -DSPEC_USE_INNER_SIMD
555.pseismic: -DSPEC_USE_INNER_SIMD
556.psp: -DSPEC_USE_INNER_SIMD
557.pcsp: -DSPEC_USE_INNER_SIMD
559.pmniGhost: -DSPEC_USE_INNER_SIMD -nofor-main
560.pilbdc: -DSPEC_USE_INNER_SIMD
563.pswim: -DSPEC_USE_INNER_SIMD
570.pbt: -DSPEC_USE_INNER_SIMD

Peak Optimization Flags

C benchmarks:

503.postencil: -qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles

504.polbm: basepeak = yes

514.pomriq: basepeak = yes

552.pep: Same as 503.postencil

554.pcg: basepeak = yes

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

550.pmd: -qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles -fimf-precision=low
-ip

551.ppalms: -qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles
-I/opt/fftw-3.3.10/include -L/opt/fftw-3.3.10/lib

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Peak Optimization Flags (Continued)

555.pseismic: basepeak = yes

556.psp: basepeak = yes

560.pilbdc: -qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles

563.pswim: basepeak = yes

Benchmarks using both Fortran and C:

-qopenmp -Ofast -xCORE-AVX512 -qopt-zmm-usage=high
-fimf-precision=low:exp,sin,cos,sincos,log
-qopt-multiple-gather-scatter-by-shuffles

Peak Other Flags

Fortran benchmarks:

551.ppalm: -lfftw3

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

<https://www.spec.org/accel/flags/Intel-icc2021.2-linux64.20230726.html>

<https://www.spec.org/accel/flags/Supermicro-Platform-Settings-V1.2-SPR-revF.html>

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

<https://www.spec.org/accel/flags/Intel-icc2021.2-linux64.20230726.xml>

<https://www.spec.org/accel/flags/Supermicro-Platform-Settings-V1.2-SPR-revF.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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