



# SPEC ACCEL™ OMP Result

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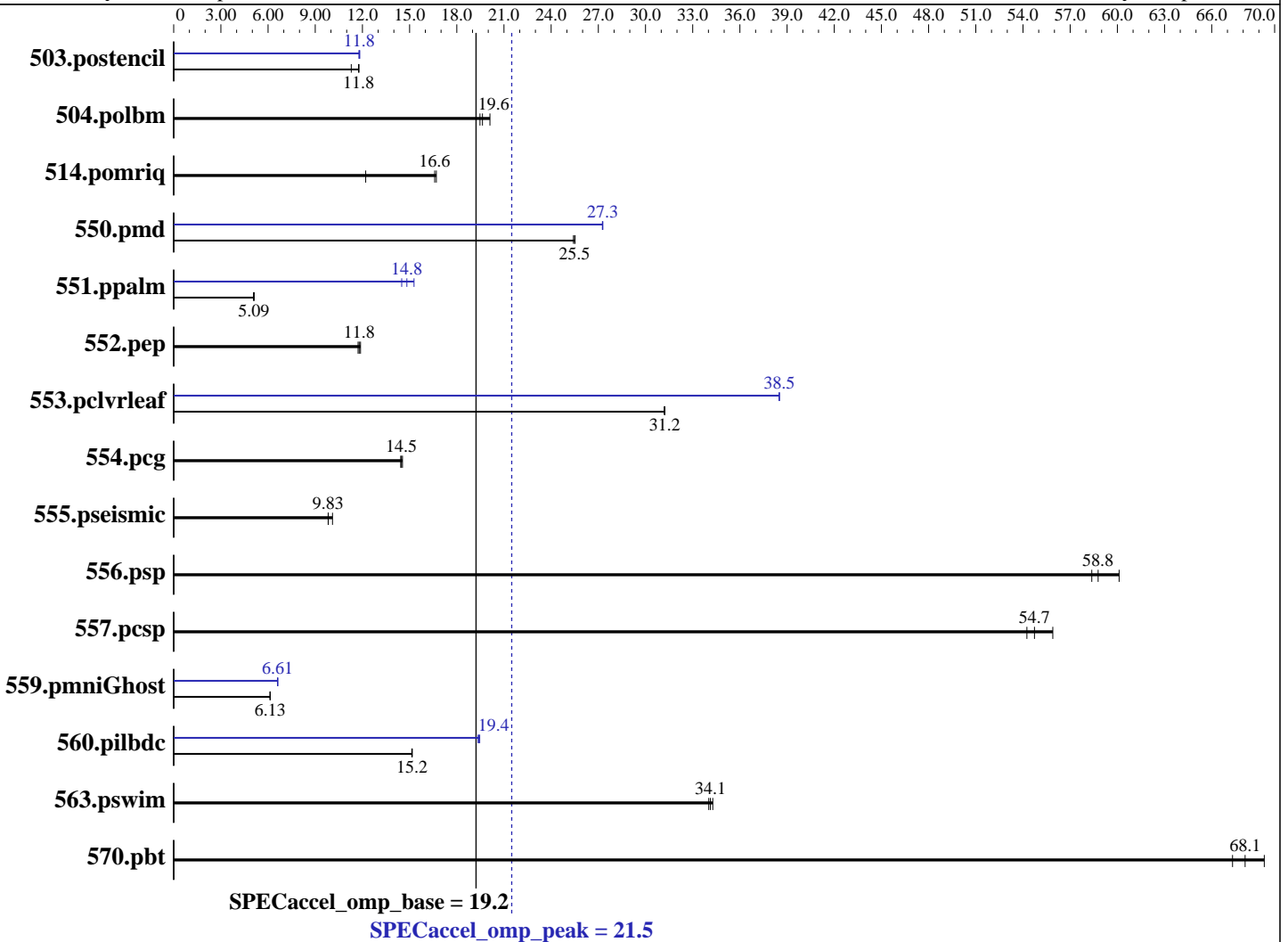
Supermicro  
Intel Xeon Platinum 8592+  
SuperServer SYS-221H-TN24R

SPECaccel\_omp\_peak = 21.5

SPECaccel\_omp\_base = 19.2

ACCEL license: 001176  
Test sponsor: Supermicro  
Tested by: Supermicro

Test date: Nov-2023  
Hardware Availability: Oct-2023  
Software Availability: Apr-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: 1,2 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 960 GB NVMe SSD  
Other Hardware: None

### Software

Operating System: Ubuntu 22.04.3 LTS  
6.2.0-37-generic  
Compiler: C/C++/Fortran: Version 2023.1 of Intel  
oneAPI DPC++/C++  
File System: ext4  
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	9.65	11.3	9.25	11.8	<b>9.27</b>	<b>11.8</b>	<b>9.23</b>	<b>11.8</b>	9.21	11.8	9.25	11.8
504.polbm	6.07	20.1	<b>6.21</b>	<b>19.6</b>	6.26	19.5	6.07	20.1	<b>6.21</b>	<b>19.6</b>	6.26	19.5
514.pomriq	37.2	16.7	50.9	12.2	<b>37.4</b>	<b>16.6</b>	37.2	16.7	50.9	12.2	<b>37.4</b>	<b>16.6</b>
550.pmd	9.48	25.4	<b>9.45</b>	<b>25.5</b>	9.44	25.5	8.84	27.3	8.83	27.3	<b>8.84</b>	<b>27.3</b>
551.ppalm	106	5.12	107	5.09	<b>107</b>	<b>5.09</b>	35.6	15.3	37.5	14.5	<b>36.7</b>	<b>14.8</b>
552.pep	<b>19.6</b>	<b>11.8</b>	19.4	11.9	19.7	11.7	<b>19.6</b>	<b>11.8</b>	19.4	11.9	19.7	11.7
553.pclvrleaf	36.7	31.2	36.7	31.2	<b>36.7</b>	<b>31.2</b>	29.7	38.5	29.7	38.5	<b>29.7</b>	<b>38.5</b>
554.pcg	<b>23.0</b>	<b>14.5</b>	22.9	14.5	23.1	14.4	<b>23.0</b>	<b>14.5</b>	22.9	14.5	23.1	14.4
555.pseismic	<b>28.7</b>	<b>9.83</b>	27.9	10.1	28.7	9.82	<b>28.7</b>	<b>9.83</b>	27.9	10.1	28.7	9.82
556.psp	<b>13.9</b>	<b>58.8</b>	13.6	60.1	14.0	58.4	<b>13.9</b>	<b>58.8</b>	13.6	60.1	14.0	58.4
557.pcsp	15.4	55.9	15.8	54.2	<b>15.7</b>	<b>54.7</b>	15.4	55.9	15.8	54.2	<b>15.7</b>	<b>54.7</b>
559.pmniGhost	<b>64.8</b>	<b>6.13</b>	64.8	6.13	64.7	6.14	60.1	6.61	60.0	6.62	<b>60.0</b>	<b>6.61</b>
560.pilbdc	<b>43.1</b>	<b>15.2</b>	43.1	15.2	43.1	15.1	<b>33.6</b>	<b>19.4</b>	33.7	19.4	33.6	19.5
563.pswim	<b>4.66</b>	<b>34.1</b>	4.67	34.0	4.64	34.3	<b>4.66</b>	<b>34.1</b>	4.67	34.0	4.64	34.3
570.pbt	11.2	69.3	11.6	67.3	<b>11.4</b>	<b>68.1</b>	11.2	69.3	11.6	67.3	<b>11.4</b>	<b>68.1</b>

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 mingyuan-Super-Server Mon Nov 27 11:30:32 2023

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

Continued on next page



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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:      1056462728 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
Ubuntu 22.04.3 LTS

```

```

From /etc/*release* /etc/*version*
debian_version: bookworm/sid
os-release:
PRETTY_NAME="Ubuntu 22.04.3 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.3 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"

```

```

uname -a:
Linux mingyuan-Super-Server 6.2.0-37-generic #38~22.04.1-Ubuntu SMP
PREEMPT_DYNAMIC Thu Nov  2 18:01:13 UTC 2 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Nov 27 11:26

```

SPEC is set to: /home/accel
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4      879G      230G    605G  28% /

```

Additional information from dmidecode:

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## Platform Notes (Continued)

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

BIOS American Megatrends International, LLC. 2.0 10/07/2023

Memory:

16x Micron Technology MTC40F2046S1RC56BD1 64 GB 2 rank 5600 MT/s  
16x NO DIMM NO DIMM

(End of data from sysinfo program)

## General Notes

=====  
BIOS Setting:

Power Performance Tuning = BIOS Controls EPB  
ENERGY\_PERF\_BIAS\_CFG Mode = Extreme Performance  
UMA-Based Clustering = Disable (All2All)

=====  
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:

icc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc 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 -80  
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:

-Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt -qopenmp  
-qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log

Fortran benchmarks:

-Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt -qopenmp  
-qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log

Benchmarks using both Fortran and C:

-Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt -qopenmp  
-qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log

## Peak Compiler Invocation

C benchmarks:

icc

Fortran benchmarks:

ifort

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## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:  
icc ifort

## Peak 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 -80
551.ppalm: -DSPEC_USE_INNER_SIMD -DSPEC_HOST_FFTW3
552.pcp: -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.pfsp: -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: -Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt
-qopenmp -qopenmp-offload=host -ipo -ansi-alias
-qopt-multiple-gather-scatter-by-shuffles
-fimf-precision=low:exp,sin,cos,sincos,log
```

504.polbm: basepeak = yes

514.pomriq: basepeak = yes

552.pcp: basepeak = yes

554.pcg: basepeak = yes

557.pfsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

550.pmd: -Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt  
-qopenmp -qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log  
-fimf-precision=low -ip

551.ppalm: -Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt  
-qopenmp -qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log  
-I/home/FFTW/fftw-3.3.10/include -L/home/FFTW/fftw-3.3.10/lib

555.pseismic: basepeak = yes

556.psp: basepeak = yes

560.pilbdc: -Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt  
-qopenmp -qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log

563.pswim: basepeak = yes

Benchmarks using both Fortran and C:

-Ofast -xCORE-AVX512 -qopt-zmm-usage=high -no-prec-sqrt -qopenmp  
-qopenmp-offload=host -ipo -ansi-alias  
-qopt-multiple-gather-scatter-by-shuffles  
-fimf-precision=low:exp,sin,cos,sincos,log

## 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](mailto:webmaster@spec.org).

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