



# SPEC ACCEL™ OMP Result

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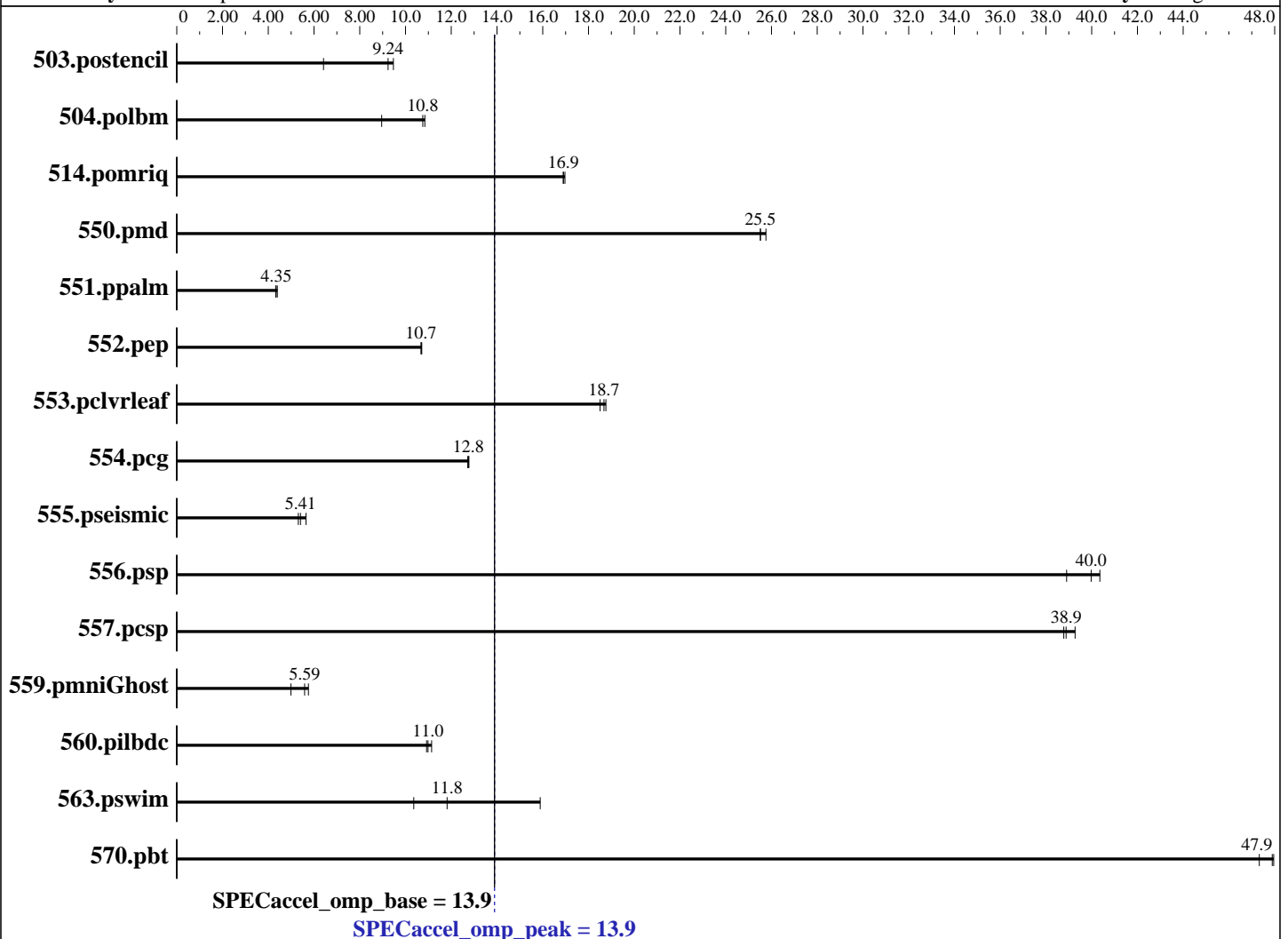
Supermicro  
Intel Xeon Platinum 8490H  
SuperServer SYS-221H-TN24R

SPECaccel\_omp\_peak = 13.9

SPECaccel\_omp\_base = 13.9

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

Test date: Jan-2023  
Hardware Availability: Jan-2023  
Software Availability: Aug-2022



### Hardware

CPU Name: Intel Xeon Platinum 8490H  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 1900  
 CPU MHz Maximum: 3500  
 FPU: Integrated  
 CPU(s) enabled: 120 cores, 2 chips, 60 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: 115200 KB I+D on chip per chip  
 Other Cache: None

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### Accelerator

Accel Model Name: Intel Xeon Platinum 8490H  
 Accel Vendor: Intel  
 Accel Name: Intel Xeon Platinum 8490H  
 Type of Accel: CPU  
 Accel Connection: N/A  
 Does Accel Use ECC: Yes  
 Accel Description: 2 x Intel Xeon Platinum 8490H  
 Accel Driver: N/A



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### Hardware (Continued)

Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)  
Disk Subsystem: 1 x 1.92 TB M.2 NVME SSD  
Other Hardware: None

### Software

Operating System: Ubuntu 22.04.1 LTS  
5.15.0-58-generic  
Compiler: C/C++/Fortran: Version 2023.0.0.20221208 of Intel  
oneAPI DPC++/C++  
File System: ext4  
System State: Run-level 5 (multi-user)  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	11.5	9.47	<b>11.8</b>	<b>9.24</b>	17.0	6.42	11.5	9.47	<b>11.8</b>	<b>9.24</b>	17.0	6.42
504.polbmb	<b>11.3</b>	<b>10.8</b>	13.6	8.96	11.2	10.8	<b>11.3</b>	<b>10.8</b>	13.6	8.96	11.2	10.8
514.pomriq	36.6	17.0	36.8	16.9	<b>36.7</b>	<b>16.9</b>	36.6	17.0	36.8	16.9	<b>36.7</b>	<b>16.9</b>
550.pmd	<b>9.44</b>	<b>25.5</b>	9.36	25.8	9.45	25.5	<b>9.44</b>	<b>25.5</b>	9.36	25.8	9.45	25.5
551.ppalm	<b>125</b>	<b>4.35</b>	126	4.33	124	4.40	<b>125</b>	<b>4.35</b>	126	4.33	124	4.40
552.pep	<b>21.6</b>	<b>10.7</b>	21.6	10.7	21.6	10.7	<b>21.6</b>	<b>10.7</b>	21.6	10.7	21.6	10.7
553.pclvrleaf	61.0	18.8	61.9	18.5	<b>61.3</b>	<b>18.7</b>	61.0	18.8	61.9	18.5	<b>61.3</b>	<b>18.7</b>
554.pcg	26.2	12.7	<b>26.1</b>	<b>12.8</b>	26.1	12.8	26.2	12.7	<b>26.1</b>	<b>12.8</b>	26.1	12.8
555.pseismic	<b>52.1</b>	<b>5.41</b>	53.1	5.31	49.9	5.65	<b>52.1</b>	<b>5.41</b>	53.1	5.31	49.9	5.65
556.psp	21.0	38.9	20.3	40.4	<b>20.5</b>	<b>40.0</b>	21.0	38.9	20.3	40.4	<b>20.5</b>	<b>40.0</b>
557.pcsp	21.9	39.3	22.2	38.8	<b>22.1</b>	<b>38.9</b>	21.9	39.3	22.2	38.8	<b>22.1</b>	<b>38.9</b>
559.pmniGhost	79.5	4.99	<b>71.0</b>	<b>5.59</b>	69.0	5.76	79.5	4.99	<b>71.0</b>	<b>5.59</b>	69.0	5.76
560.pilbdc	<b>59.4</b>	<b>11.0</b>	59.8	10.9	58.6	11.1	<b>59.4</b>	<b>11.0</b>	59.8	10.9	58.6	11.1
563.pswim	15.3	10.4	<b>13.5</b>	<b>11.8</b>	10.0	15.9	15.3	10.4	<b>13.5</b>	<b>11.8</b>	10.0	15.9
570.pbt	16.5	47.3	<b>16.3</b>	<b>47.9</b>	16.3	48.0	16.5	47.3	<b>16.3</b>	<b>47.9</b>	16.3	48.0

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 lab Sat Jan 21 03:36:06 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 8490H
 2 "physical id"s (chips)
 240 "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    : 60
  siblings     : 120
  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
  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
cache size     : 115200 KB

```

```

From /proc/meminfo
MemTotal:      1056094820 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsb_release -d
Ubuntu 22.04.1 LTS

```

```

From /etc/*release* /etc/*version*
debian_version: bookworm/sid
os-release:
PRETTY_NAME="Ubuntu 22.04.1 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.1 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"

```

```

uname -a:
Linux lab 5.15.0-58-generic #64-Ubuntu SMP Thu Jan 5 11:43:13 UTC 2023 x86_64
x86_64 x86_64 GNU/Linux

```

run-level 5 Jan 21 02:22

```

SPEC is set to: /home/accel
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4      1.8T      27G  1.7T   2% /

```

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 Supermicro X13DEM 1.1 01/20/2023

Memory:

16x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800 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  
LLC Dead Line Alloc = Auto  
NUMA = Disabled  
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"

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## Peak Optimization Flags

C benchmarks:

503.postencil: basepeak = yes  
504.polbm: basepeak = yes  
514.pomriq: basepeak = yes

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## Peak Optimization Flags (Continued)

552.pep: basepeak = yes

554.pcg: basepeak = yes

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

### Fortran benchmarks:

550.pmd: basepeak = yes

551.ppaln: basepeak = yes

555.pseismic: basepeak = yes

556.psp: basepeak = yes

560.pilbdc: basepeak = yes

563.pswim: basepeak = yes

### Benchmarks using both Fortran and C:

553.pclvrleaf: basepeak = yes

559.pmniGhost: basepeak = yes

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

<https://www.spec.org/accel/flags/Intel-compiler.20230208.html>

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

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

<https://www.spec.org/accel/flags/Intel-compiler.20230208.xml>

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

Tested with SPEC ACCEL v1.4.  
Report generated on Wed Feb 8 14:38:17 2023 by SPEC ACCEL PS/PDF formatter v1290.  
Originally published on 8 February 2023.