



SPEC ACCEL™ OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

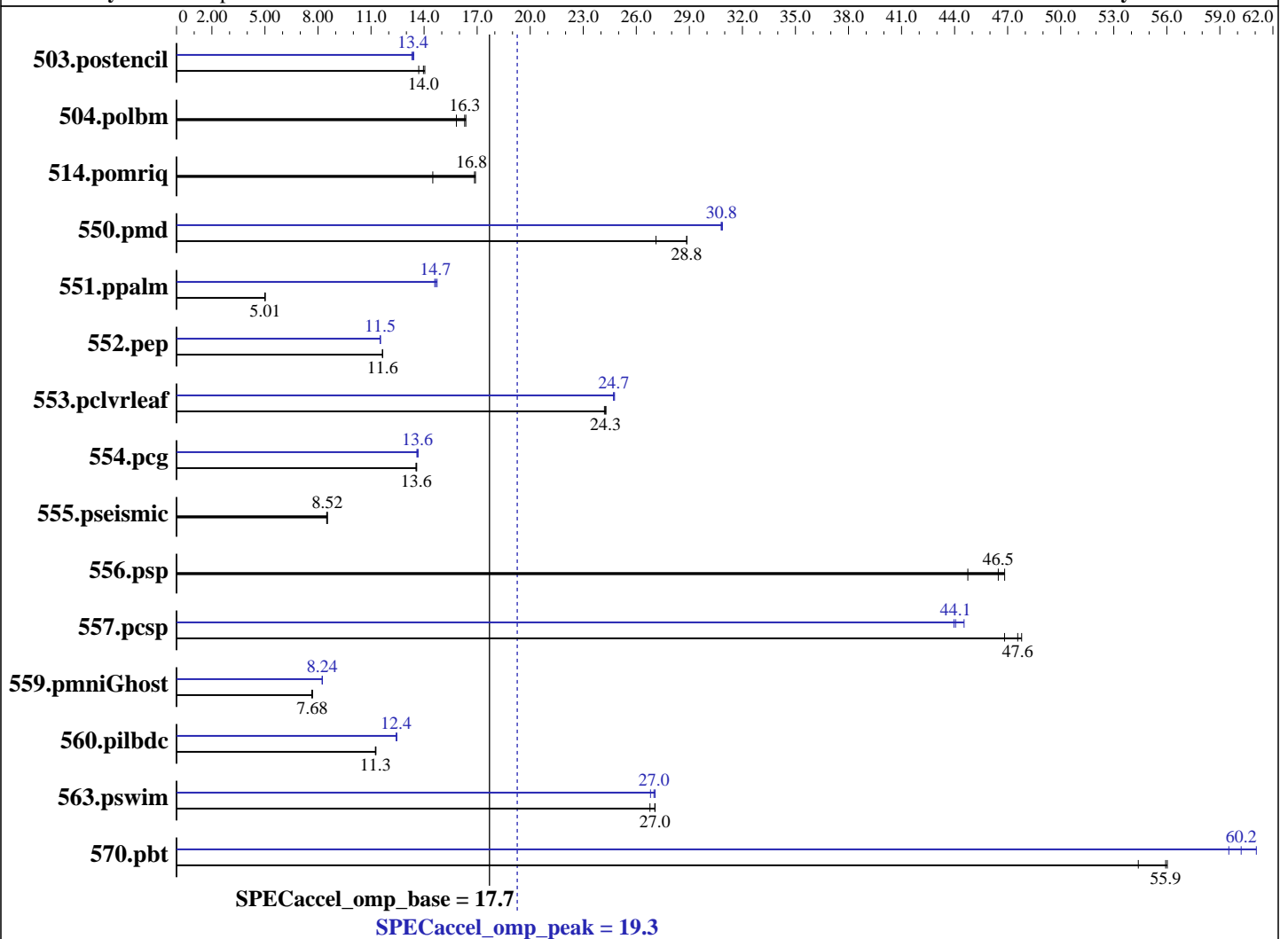
Supermicro
Intel Xeon Platinum 8490H
SuperServer SYS-221H-TNR

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-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

Continued on next page

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



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

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

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

Hardware (Continued)

Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Disk Subsystem: 1 x 960 GB NVMe SSD
Other Hardware: None

Software

Operating System: Ubuntu 22.04.2 LTS
5.15.0-76-generic
Compiler: C/C++/Fortran: Version 2023.1 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	7.96	13.7	7.81	14.0	7.76	14.0	8.13	13.4	8.15	13.4	8.19	13.3
504.polbm	7.46	16.4	7.49	16.3	7.71	15.8	7.46	16.4	7.49	16.3	7.71	15.8
514.pomriq	36.9	16.8	36.7	16.9	42.8	14.5	36.9	16.8	36.7	16.9	42.8	14.5
550.pmd	8.89	27.1	8.35	28.8	8.35	28.9	7.82	30.8	7.81	30.9	7.82	30.8
551.ppalm	109	5.01	109	4.99	108	5.01	37.1	14.7	37.3	14.6	36.9	14.7
552.pep	19.8	11.6	19.8	11.7	19.8	11.6	20.0	11.5	20.1	11.5	20.0	11.5
553.pclvrleaf	47.3	24.2	47.2	24.3	47.2	24.3	46.3	24.7	46.2	24.8	46.3	24.7
554.pcg	24.5	13.6	24.6	13.5	24.6	13.6	24.4	13.7	24.4	13.6	24.5	13.6
555.pseismic	33.1	8.52	33.2	8.49	33.0	8.53	33.1	8.52	33.2	8.49	33.0	8.53
556.psp	17.5	46.8	17.6	46.5	18.3	44.7	17.5	46.8	17.6	46.5	18.3	44.7
557.pcsp	18.0	47.8	18.1	47.6	18.3	46.8	19.5	44.1	19.3	44.5	19.5	44.0
559.pmniGhost	51.7	7.69	51.9	7.65	51.7	7.68	48.1	8.25	48.2	8.24	48.2	8.24
560.pilbdc	58.0	11.3	57.9	11.3	58.1	11.2	52.4	12.5	52.5	12.4	52.5	12.4
563.pswim	5.87	27.1	5.94	26.8	5.88	27.0	5.93	26.8	5.88	27.1	5.89	27.0
570.pbt	13.9	55.9	13.9	56.0	14.3	54.4	12.8	61.1	13.1	59.5	13.0	60.2

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 lab Sat Jul 1 02:57:01 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



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

**Supermicro
Intel Xeon Platinum 8490H
SuperServer SYS-221H-TNR**

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

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:      1056462068 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

/usr/bin/lsb_release -d

Ubuntu 22.04.2 LTS

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

```
debian_version: bookworm/sid
os-release:
PRETTY_NAME="Ubuntu 22.04.2 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.2 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
```

uname -a:

```
Linux lab 5.15.0-76-generic #83-Ubuntu SMP Thu Jun 15 19:16:32 UTC 2023
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 5 Jul 1 02:41

SPEC is set to: /home/accel

```
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4      879G      130G    705G  16% /
```

Additional information from dmidecode:

Continued on next page



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

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

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

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. 1.3 06/01/2023

Memory:

16x NO DIMM NO DIMM

16x SK Hynix HMC94MEBRA109N 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

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



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

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

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

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.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
```

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 (except as noted below):

icc

557.pfsp: icx

Continued on next page



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

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

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

Peak Compiler Invocation (Continued)

570.pbt: icx

Fortran benchmarks:
ifort

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.ppalp: -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: -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.pep: -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
-qopt-streaming-stores always -fimf-precision=low

Continued on next page



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

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

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

Peak Optimization Flags (Continued)

554.pcg: Same as 503.postencil

557.pcsp: -O3 -Ofast -xCORE-AVX512 -mprefer-vector-width=512
-qopt-multiple-gather-scatter-by-shuffles -fiopenmp
-ffast-math -flto -funroll-loops -fimf-precision=low

570.pbt: Same as 557.pcsp

Fortran benchmarks:

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-3.3.10/include -L/home/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: Same as 560.pilbdc

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



SPEC ACCEL OMP Result

Copyright 2015-2023 Standard Performance Evaluation Corporation

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

SPECaccel_omp_peak = 19.3

SPECaccel_omp_base = 17.7

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

Test date: Jul-2023
Hardware Availability: Jun-2023
Software Availability: Dec-2022

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-revC.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-revC.xml>

SPEC ACCEL is a trademark 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 ACCEL v1.4.
Report generated on Wed Jul 26 17:18:02 2023 by SPEC ACCEL PS/PDF formatter v1290.
Originally published on 26 July 2023.