



# SPEC ACCEL™ OMP Result

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## Intel Intel Xeon Platinum 8480+

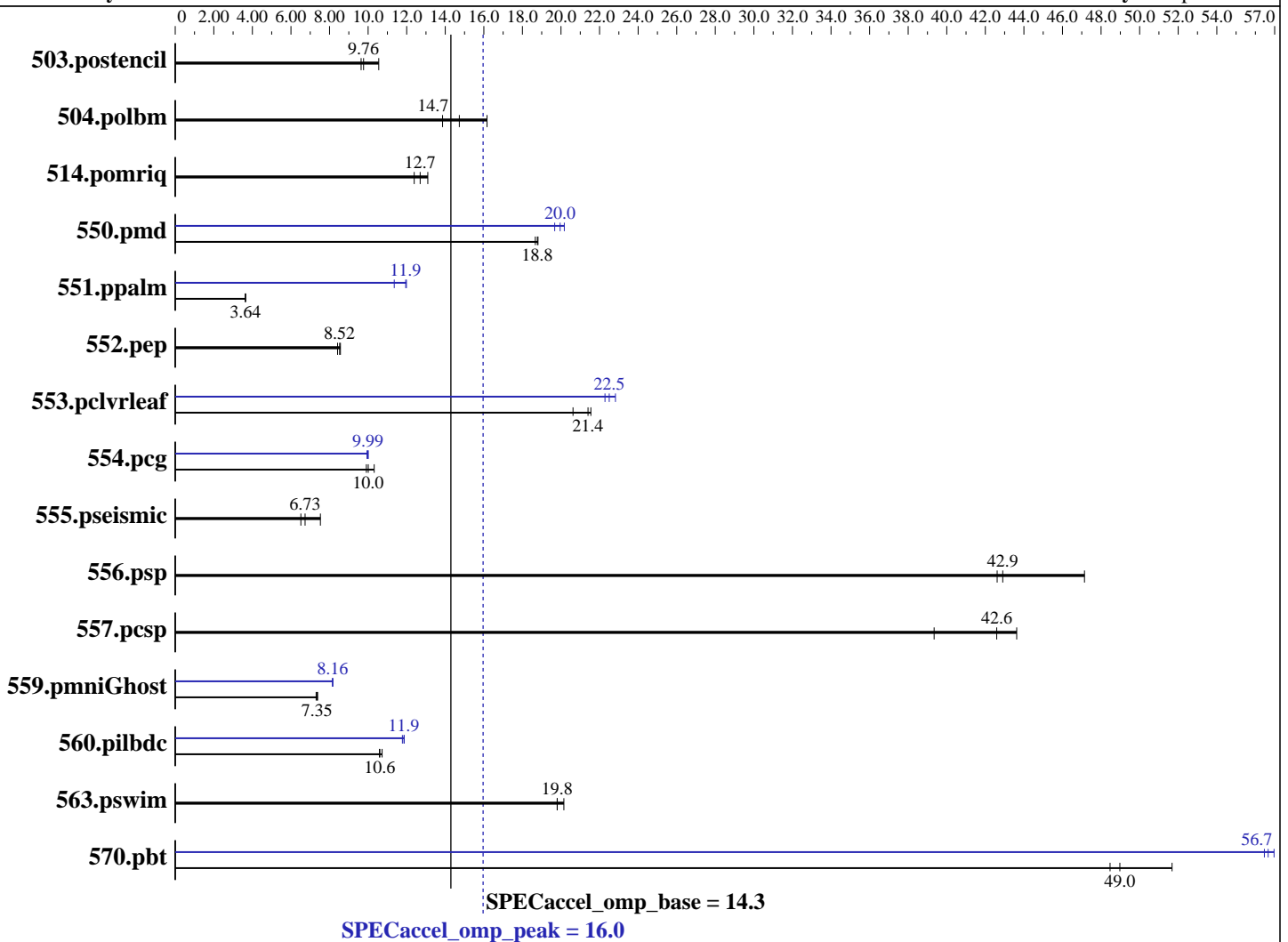
Intel Server D50DNP2MFALACB (2 x Intel Xeon Platinum 8480+, 2.0GHz, SMT ON, Turbo OFF)

SPECaccel\_omp\_peak = 16.0

SPECaccel\_omp\_base = 14.3

ACCEL license: 13  
Test sponsor: Intel  
Tested by: Intel

Test date: Jun-2023  
Hardware Availability: Jan-2023  
Software Availability: Apr-2023



### Hardware

CPU Name: Intel Xeon Platinum 8480+  
 CPU Characteristics: Simultaneous multithreading (SMT) ON, Turbo OFF  
 CPU MHz: 2000  
 CPU MHz Maximum: 3800  
 FPU: Integrated  
 CPU(s) enabled: 112 cores, 2 chips, 56 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: 105 MB I+D on chip per chip  
 Other Cache: None

Continued on next page

### Accelerator

Accel Model Name: Intel Xeon Platinum 8480+  
 Accel Vendor: Intel  
 Accel Name: Intel Xeon Platinum 8480+  
 Type of Accel: CPU  
 Accel Connection: N/A  
 Does Accel Use ECC: yes  
 Accel Description: Intel Xeon Platinum 8480+  
 SMT ON, Turbo OFF  
 Accel Driver: N/A



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### Hardware (Continued)

Memory: 512 GB (16 x 32 GB 2Rx8 PC5-4800B)  
Disk Subsystem: 1 x 1 TB NVMe U.2 2.5" SSD  
Other Hardware: None

### Software

Operating System: Rocky Linux 8.7 (Green Obsidian)  
Rocky Linux release 8.8 (Green Obsidian)  
4.18.0-477.13.1.el8\_8.x86\_64  
Compiler: Intel oneAPI Compiler 2023.1.0  
File System: PANASAS FS  
System State: Run level 3  
Other Software: FFTW 3.3.10

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	10.3	10.6	<b><u>11.2</u></b>	<b><u>9.76</u></b>	11.3	9.64	10.3	10.6	<b><u>11.2</u></b>	<b><u>9.76</u></b>	11.3	9.64
504.polbm	7.55	16.2	8.80	13.9	<b><u>8.28</u></b>	<b><u>14.7</u></b>	7.55	16.2	8.80	13.9	<b><u>8.28</u></b>	<b><u>14.7</u></b>
514.pomriq	47.4	13.1	50.1	12.4	<b><u>48.9</u></b>	<b><u>12.7</u></b>	47.4	13.1	50.1	12.4	<b><u>48.9</u></b>	<b><u>12.7</u></b>
550.pmd	<b><u>12.8</u></b>	<b><u>18.8</u></b>	12.8	18.8	12.9	18.7	12.2	19.7	11.9	20.2	<b><u>12.1</u></b>	<b><u>20.0</u></b>
551.ppalm	150	3.63	149	3.65	<b><u>150</u></b>	<b><u>3.64</u></b>	47.9	11.4	<b><u>45.5</u></b>	<b><u>11.9</u></b>	45.4	12.0
552.pep	<b><u>27.1</u></b>	<b><u>8.52</u></b>	27.4	8.42	27.0	8.57	<b><u>27.1</u></b>	<b><u>8.52</u></b>	27.4	8.42	27.0	8.57
553.pclvrleaf	<b><u>53.5</u></b>	<b><u>21.4</u></b>	53.1	21.5	55.5	20.6	51.4	22.3	50.2	22.8	<b><u>50.9</u></b>	<b><u>22.5</u></b>
554.pcg	<b><u>33.3</u></b>	<b><u>10.0</u></b>	32.3	10.3	33.6	9.91	33.5	9.94	33.3	10.0	<b><u>33.3</u></b>	<b><u>9.99</u></b>
555.pseismic	37.5	7.53	<b><u>41.9</u></b>	<b><u>6.73</u></b>	43.3	6.51	37.5	7.53	<b><u>41.9</u></b>	<b><u>6.73</u></b>	43.3	6.51
556.psp	19.2	42.6	<b><u>19.1</u></b>	<b><u>42.9</u></b>	17.4	47.1	19.2	42.6	<b><u>19.1</u></b>	<b><u>42.9</u></b>	17.4	47.1
557.pcsp	<b><u>20.2</u></b>	<b><u>42.6</u></b>	21.8	39.3	19.7	43.6	<b><u>20.2</u></b>	<b><u>42.6</u></b>	21.8	39.3	19.7	43.6
559.pmiGhost	53.8	7.38	54.4	7.30	<b><u>54.0</u></b>	<b><u>7.35</u></b>	48.7	8.16	<b><u>48.7</u></b>	<b><u>8.16</u></b>	48.6	8.17
560.pilbdc	<b><u>61.5</u></b>	<b><u>10.6</u></b>	60.9	10.7	61.7	10.6	<b><u>55.1</u></b>	<b><u>11.9</u></b>	55.4	11.8	55.0	11.9
563.pswim	<b><u>8.03</u></b>	<b><u>19.8</u></b>	7.89	20.1	8.03	19.8	<b><u>8.03</u></b>	<b><u>19.8</u></b>	7.89	20.1	8.03	19.8
570.pbt	<b><u>15.9</u></b>	<b><u>49.0</u></b>	15.1	51.7	16.1	48.5	13.8	56.5	13.7	57.0	<b><u>13.8</u></b>	<b><u>56.7</u></b>

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

## Submit Notes

The config file option 'submit' was used.



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### Platform Notes

```
Sysinfo program
/global/panfs02/innl/abobyr/SpecACCEL_OMP/kits/kit1.4_submission/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on eedq017 Thu Jun 29 14:29:02 2023
```

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/accel/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name : Intel Xeon Platinum 8480+
 2 "physical id"s (chips)
 224 "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 : 56
siblings : 112
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
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
cache size : 107520 KB
```

```
From /proc/meminfo
MemTotal: 528079220 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
From /etc/*release* /etc/*version*
centos-release: Rocky Linux release 8.8 (Green Obsidian)
os-release:
NAME="Rocky Linux"
VERSION="8.8 (Green Obsidian)"
ID="rocky"
ID_LIKE="rhel centos fedora"
VERSION_ID="8.8"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Rocky Linux 8.8 (Green Obsidian)"
ANSI_COLOR="0;32"
redhat-release: Rocky Linux release 8.8 (Green Obsidian)
rocky-release: Rocky Linux release 8.8 (Green Obsidian)
rocky-release-upstream: Derived from Red Hat Enterprise Linux 8.8
system-release: Rocky Linux release 8.8 (Green Obsidian)
system-release-cpe: cpe:/o:rocky:rocky:8:GA
```

uname -a:

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## Platform Notes (Continued)

```
Linux eedq017 4.18.0-477.13.1.el8_8.x86_64 #1 SMP Tue May 30 22:15:39 UTC
2023 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jun 29 14:23
```

```
SPEC is set to: /global/panfs02/innl/abobyr/SpecACCEL_OMP/kits/kit1.4_submission
Filesystem      Type  Size  Used Avail Use% Mounted on
panfs://36.101.212.1/innl panfs 269T 245T 25T 91% /global/panfs02/innl
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 hardware, firmware, and the "DMTF SMBIOS" standard.

(End of data from sysinfo program)

## General Notes

The PANASAS filesystem as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC HPG Policy document, <http://www.spec.org/hpg/policy.html>

## Base Compiler Invocation

C benchmarks:  
icc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icc ifort

## 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
```

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## Base Portability Flags (Continued)

```
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.pcp: -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  
  
570.pbt: icx

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icc ifort



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## 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.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: basepeak = yes
504.polbm: basepeak = yes
514.pomriq: basepeak = yes
552.pep: basepeak = yes
554.pcg: -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
557.pcsp: basepeak = yes
570.pbt: -O3 -Ofast -xCORE-AVX512 -mprefer-vector-width=512
-qopt-multiple-gather-scatter-by-shuffles -fiopenmp
-ffast-math -flto -funroll-loops -fimf-precision=low
```

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
```

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## Peak Optimization Flags (Continued)

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/abobyrr/FFTW-3.3.10/include  
-L/home/abobyrr/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 file that was used to format this result can be browsed at

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

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

<https://www.spec.org/accel/flags/Intel-icc2021.2-linux64.20230726.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 Aug 16 15:10:28 2023 by SPEC ACCEL PS/PDF formatter v1290.  
Originally published on 16 August 2023.