



SPEC ACCEL™ OMP Result

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Intel Intel Xeon Platinum 8358

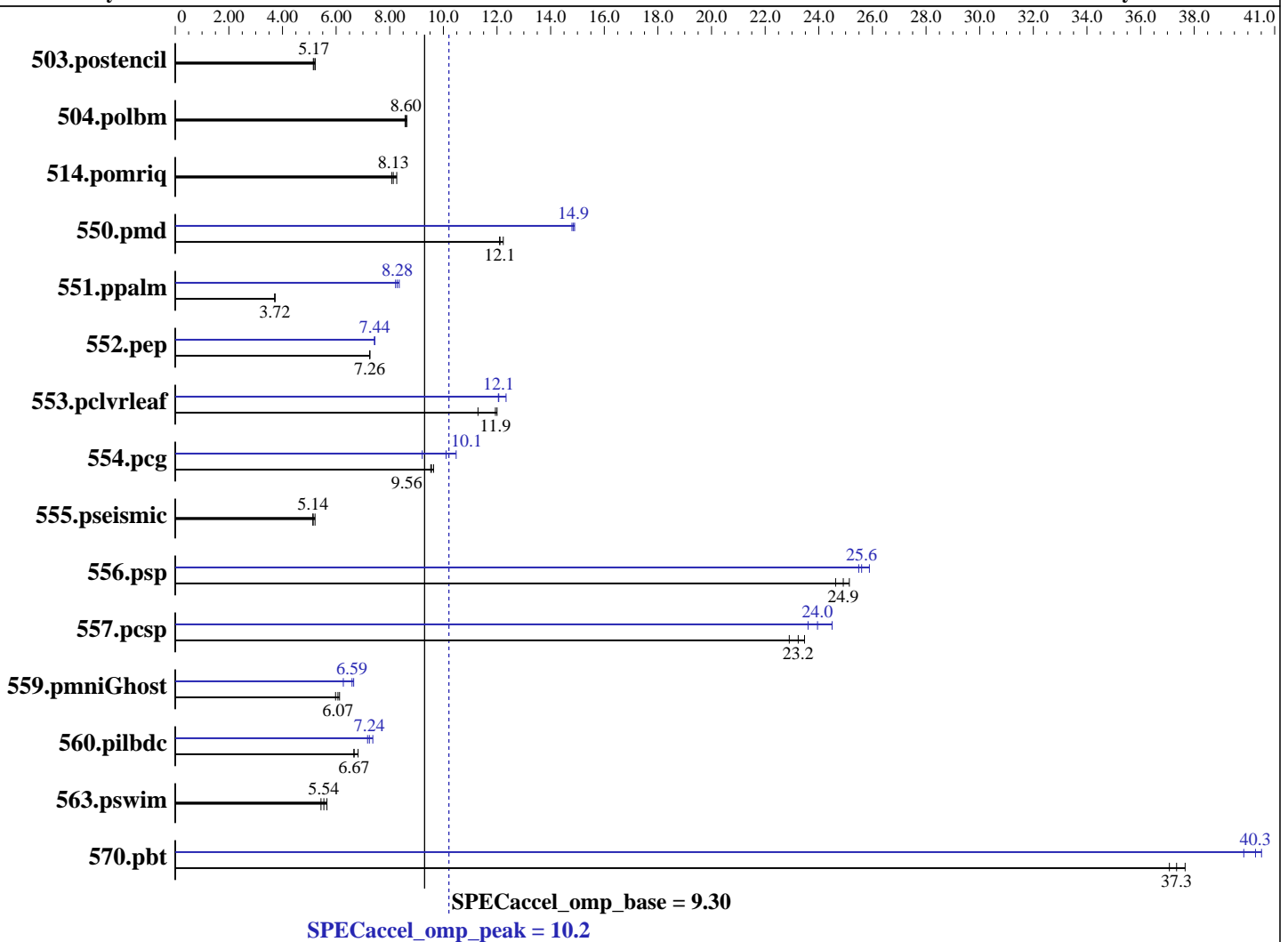
Intel Server System M50CYP2SBSTD (Intel Xeon Platinum 8358, 2.60 GHz)

SPECaccel_omp_peak = 10.2

SPECaccel_omp_base = 9.30

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

Test date: May-2021
Hardware Availability: Apr-2021
Software Availability: Feb-2021



Hardware

CPU Name: Intel Xeon Platinum 8358
 CPU Characteristics: Simultaneous multithreading (SMT) ON, Turbo ON
 CPU MHz: 2600
 CPU MHz Maximum: 3400
 FPU: Integrated
 CPU(s) enabled: 64 cores, 2 chips, 32 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: 1280 KB I+D on chip per core
 L3 Cache: 48 MB I+D on chip per chip
 Other Cache: None

Continued on next page

Accelerator

Accel Model Name: Intel Xeon Platinum 8358
 Accel Vendor: Intel
 Accel Name: Intel Xeon Platinum 8358
 Type of Accel: CPU
 Accel Connection: N/A
 Does Accel Use ECC: yes
 Accel Description: 3rd Generation Intel Xeon Scalable Processor
 SMT ON, Turbo ON
 Accel Driver: N/A



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Hardware (Continued)

Memory: 256 GB (16 x 16 GB 2Rx8 DDR4-3200Y-R
ECC Registered)
Disk Subsystem: 269 TB Panasas ActiveStor 20
Other Hardware: None

Software

Operating System: CentOS Linux release 8.3.2011
4.18.0-240.22.1.el8_3.crt1.x86_64
Compiler: C/C++/Fortran: Version 2021.2.0 of Intel Classic
Compiler
for Linux Build
File System: panfs
System State: Run level 3 (default)
Other Software: FFTW 3.3.9

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	21.2	5.15	<u>21.1</u>	<u>5.17</u>	20.9	5.22	21.2	5.15	<u>21.1</u>	<u>5.17</u>	20.9	5.22
504.polbm	14.1	8.64	14.2	8.57	<u>14.2</u>	<u>8.60</u>	14.1	8.64	14.2	8.57	<u>14.2</u>	<u>8.60</u>
514.pomriq	75.2	8.26	<u>76.4</u>	<u>8.13</u>	76.9	8.07	75.2	8.26	<u>76.4</u>	<u>8.13</u>	76.9	8.07
550.pmd	<u>19.9</u>	<u>12.1</u>	19.7	12.2	19.9	12.1	16.2	14.9	<u>16.2</u>	<u>14.9</u>	16.3	14.8
551.ppalm	146	3.72	146	3.71	<u>146</u>	<u>3.72</u>	65.1	8.35	66.2	8.22	<u>65.7</u>	<u>8.28</u>
552.pep	31.9	7.25	<u>31.8</u>	<u>7.26</u>	31.8	7.26	31.0	7.44	<u>31.1</u>	<u>7.44</u>	31.1	7.43
553.pclvrleaf	95.4	12.0	101	11.3	<u>95.9</u>	<u>11.9</u>	92.8	12.3	<u>94.9</u>	<u>12.1</u>	95.0	12.1
554.pcg	<u>34.8</u>	<u>9.56</u>	34.9	9.53	34.6	9.64	<u>33.0</u>	<u>10.1</u>	36.2	9.21	31.8	10.5
555.pseismic	<u>54.8</u>	<u>5.14</u>	54.1	5.21	54.9	5.13	<u>54.8</u>	<u>5.14</u>	54.1	5.21	54.9	5.13
556.psp	<u>32.8</u>	<u>24.9</u>	32.5	25.1	33.2	24.6	<u>32.0</u>	<u>25.6</u>	31.6	25.9	32.1	25.5
557.pcsp	<u>37.0</u>	<u>23.2</u>	36.6	23.5	37.5	22.9	35.1	24.5	36.4	23.6	<u>35.9</u>	<u>24.0</u>
559.pmniGhost	<u>65.4</u>	<u>6.07</u>	66.4	5.98	64.8	6.13	63.3	6.27	<u>60.2</u>	<u>6.59</u>	59.7	6.66
560.pilbdc	98.0	6.66	95.8	6.82	<u>97.9</u>	<u>6.67</u>	88.6	7.37	<u>90.2</u>	<u>7.24</u>	91.0	7.17
563.pswim	28.1	5.66	29.2	5.44	<u>28.7</u>	<u>5.54</u>	28.1	5.66	29.2	5.44	<u>28.7</u>	<u>5.54</u>
570.pbt	<u>20.9</u>	<u>37.3</u>	21.0	37.1	20.7	37.7	19.3	40.5	<u>19.4</u>	<u>40.3</u>	19.6	39.8

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

Platform Notes

```
Sysinfo program /panfs/projects/innl/abobyr/SpecACCEL_OMP/kits/8358/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on eif371 Wed May 5 01:40:36 2021
```

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Platform Notes (Continued)

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(R) Xeon(R) Platinum 8358 CPU @ 2.60GHz
    2 "physical id"s (chips)
    128 "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 : 32
    siblings  : 64
    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
    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
  cache size : 49152 KB
```

```
From /proc/meminfo
MemTotal:      263790792 kB
HugePages_Total:    0
Hugepagesize:   2048 kB
```

```
From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 8.3.2011
centos-release-upstream: Derived from Red Hat Enterprise Linux 8.3
os-release:
  NAME="CentOS Linux"
  VERSION="8"
  ID="centos"
  ID_LIKE="rhel fedora"
  VERSION_ID="8"
  PLATFORM_ID="platform:el8"
  PRETTY_NAME="CentOS Linux 8"
  ANSI_COLOR="0;31"
redhat-release: CentOS Linux release 8.3.2011
system-release: CentOS Linux release 8.3.2011
system-release-cpe: cpe:/o:centos:centos:8
```

```
uname -a:
Linux eif371 4.18.0-240.22.1.el8_3.crt1.x86_64 #1 SMP Thu Apr 8 10:38:43 MDT
2021 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 May 4 10:10

```
SPEC is set to: /panfs/projects/innl/abobyrr/SpecACCEL_OMP/kits/8358
Filesystem      Type      Size  Used Avail Use% Mounted on
panfs://36.101.212.1/innl panfs 269T 206T  64T  77% /global/panfs02/innl
```

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Platform Notes (Continued)

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

Spectre and Meltdown

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

Yes: The test sponsor attests, as of date of publication, that 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.

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
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

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Base Portability Flags (Continued)

557.pbsp: -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 Compiler Invocation

C benchmarks:

icc

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.ppalms: -DSPEC_USE_INNER_SIMD -DSPEC_HOST_FFTW3

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Peak Portability Flags (Continued)

```
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: -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
-qopt-streaming-stores always -fimf-precision=low
```

```
554.pcg: -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 -ip -ipo
```

557.pcsp: Same as 554.pcg

```
570.pbt: -qopenmp -qopenmp-offload=host -Ofast -xCORE-AVX512
-fimf-precision=low:exp,sin,cos,sincos,log -no-prec-sqrt
-qopt-multiple-gather-scatter-by-shuffles
```

Fortran benchmarks:

```
550.pmd: -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 -fimf-precision=low
-ip -ipo
```

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Peak Optimization Flags (Continued)

551.ppalm: -qopenmp -qopenmp-offload=host -Ofast -xCORE-AVX512
-fimf-precision=low:exp,sin,cos,sincos,log -no-prec-sqrt
-qopt-multiple-gather-scatter-by-shuffles
-I/home/aboby/FFTW-3.3.9/include
-L/home/aboby/FFTW-3.3.9/lib

555.pseismic: basepeak = yes

556.psp: -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 -ip -ipo

560.pilbdc: -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
-qopt-streaming-stores always -qopt-prefetch=5

563.pswim: basepeak = yes

Benchmarks using both Fortran and C:

553.pclvrleaf: -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
-qopt-streaming-stores always

559.pmniGhost: -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 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.html>



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

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

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