SPEC ACCEL™ OMP Result

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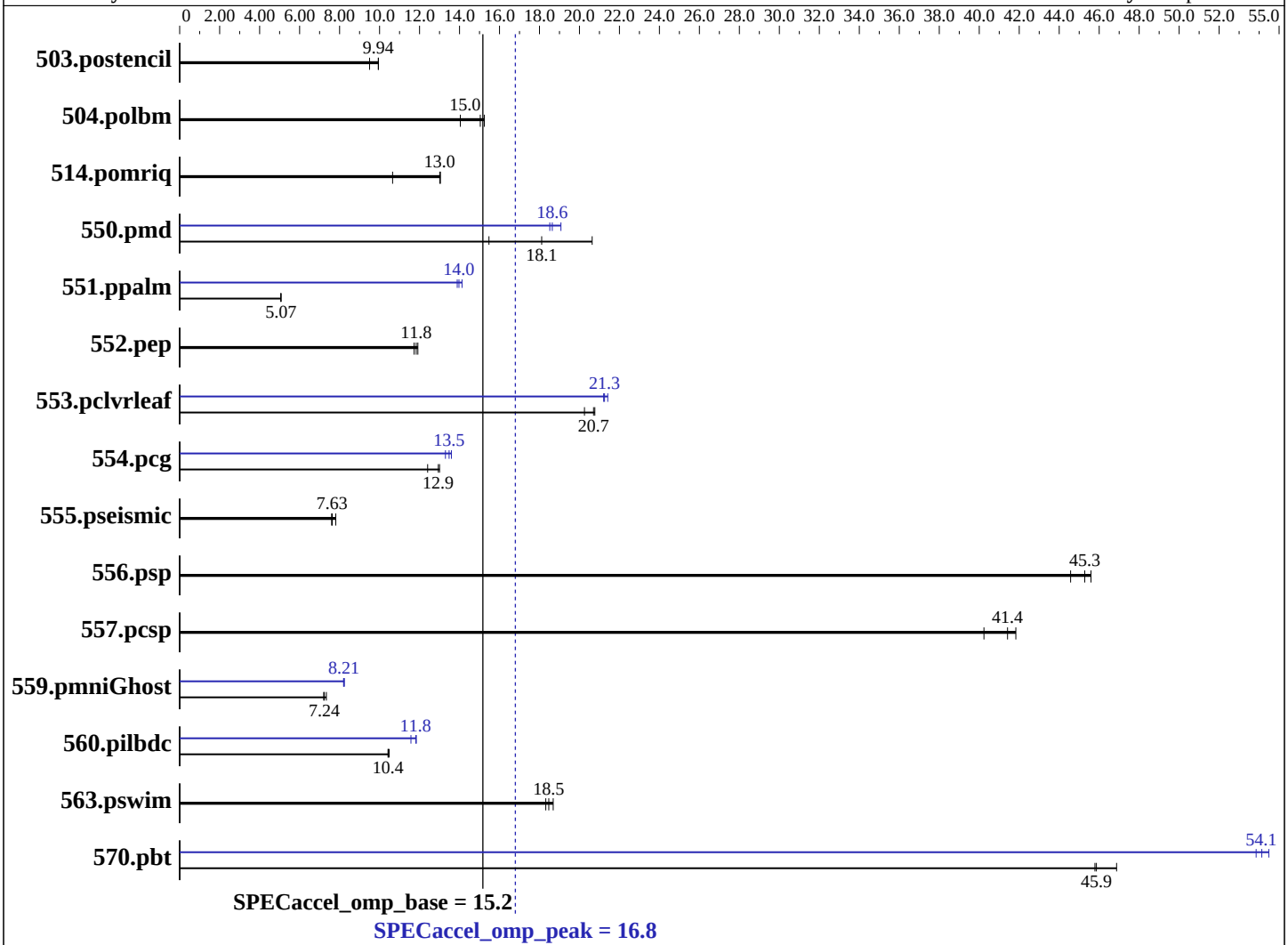
Intel
Intel Xeon Platinum 8480+

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

SPECaccel_omp_peak = 16.8

SPECaccel_omp_base = 15.2

ACCEL license:	13	**Test date:**	Jun-2023
Test sponsor:	Intel	**Hardware Availability:**	Jan-2023
Tested by:	Intel	**Software Availability:**	Apr-2023



Hardware

CPU Name:	Intel Xeon Platinum 8480+
CPU Characteristics:	Simultaneous multithreading (SMT) ON, Turbo ON
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

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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 ON
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	11.0	9.94	**11.0**	**9.94**	11.5	9.50	11.0	9.94	**11.0**	**9.94**	11.5	9.50
504.polbm	8.69	14.0	**8.11**	**15.0**	8.00	15.2	8.69	14.0	**8.11**	**15.0**	8.00	15.2
514.pomriq	58.3	10.7	47.6	13.0	**47.7**	**13.0**	58.3	10.7	47.6	13.0	**47.7**	**13.0**
550.pmd	**13.3**	**18.1**	15.6	15.5	11.7	20.6	13.0	18.5	**12.9**	**18.6**	12.6	19.1
551.ppalm	108	5.06	107	5.07	**107**	**5.07**	**38.9**	**14.0**	38.5	14.1	39.2	13.9
552.pep	19.4	11.9	19.7	11.7	**19.5**	**11.8**	19.4	11.9	19.7	11.7	**19.5**	**11.8**
553.pclvrleaf	55.1	20.8	56.5	20.3	**55.3**	**20.7**	54.0	21.2	**53.9**	**21.3**	53.5	21.4
554.pcg	26.8	12.4	25.6	13.0	**25.7**	**12.9**	24.5	13.6	**24.7**	**13.5**	25.0	13.3
555.pseismic	36.1	7.81	**37.0**	**7.63**	37.1	7.60	36.1	7.81	**37.0**	**7.63**	37.1	7.60
556.psp	17.9	45.6	18.4	44.6	**18.1**	**45.3**	17.9	45.6	18.4	44.6	**18.1**	**45.3**
557.pcsp	**20.7**	**41.4**	21.3	40.2	20.5	41.8	**20.7**	**41.4**	21.3	40.2	20.5	41.8
559.pmniGhost	54.1	7.34	55.1	7.20	**54.8**	**7.24**	**48.3**	**8.21**	48.2	8.24	48.4	8.20
560.pilbdc	**62.6**	**10.4**	62.3	10.5	62.6	10.4	56.4	11.6	**55.3**	**11.8**	55.2	11.8
563.pswim	**8.61**	**18.5**	8.51	18.7	8.68	18.3	**8.61**	**18.5**	8.51	18.7	8.68	18.3
570.pbt	16.6	46.9	**17.0**	**45.9**	17.0	45.8	14.3	54.5	**14.4**	**54.1**	14.5	53.9

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.
```

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 eedq012 Fri Jun 30 00:46:13 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:
```

Continued on next page

Platform Notes (Continued)

```
      Linux eedq012 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 30 00:41

   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  92% /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

Continued on next page

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.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 (except as noted below):
`icc`

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.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/abobyr/FFTW-3.3.10/include -L/home/abobyr/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.

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