SPEC ACCEL™ OMP Result

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Supermicro
(Test Sponsor: NVIDIA Corporation)

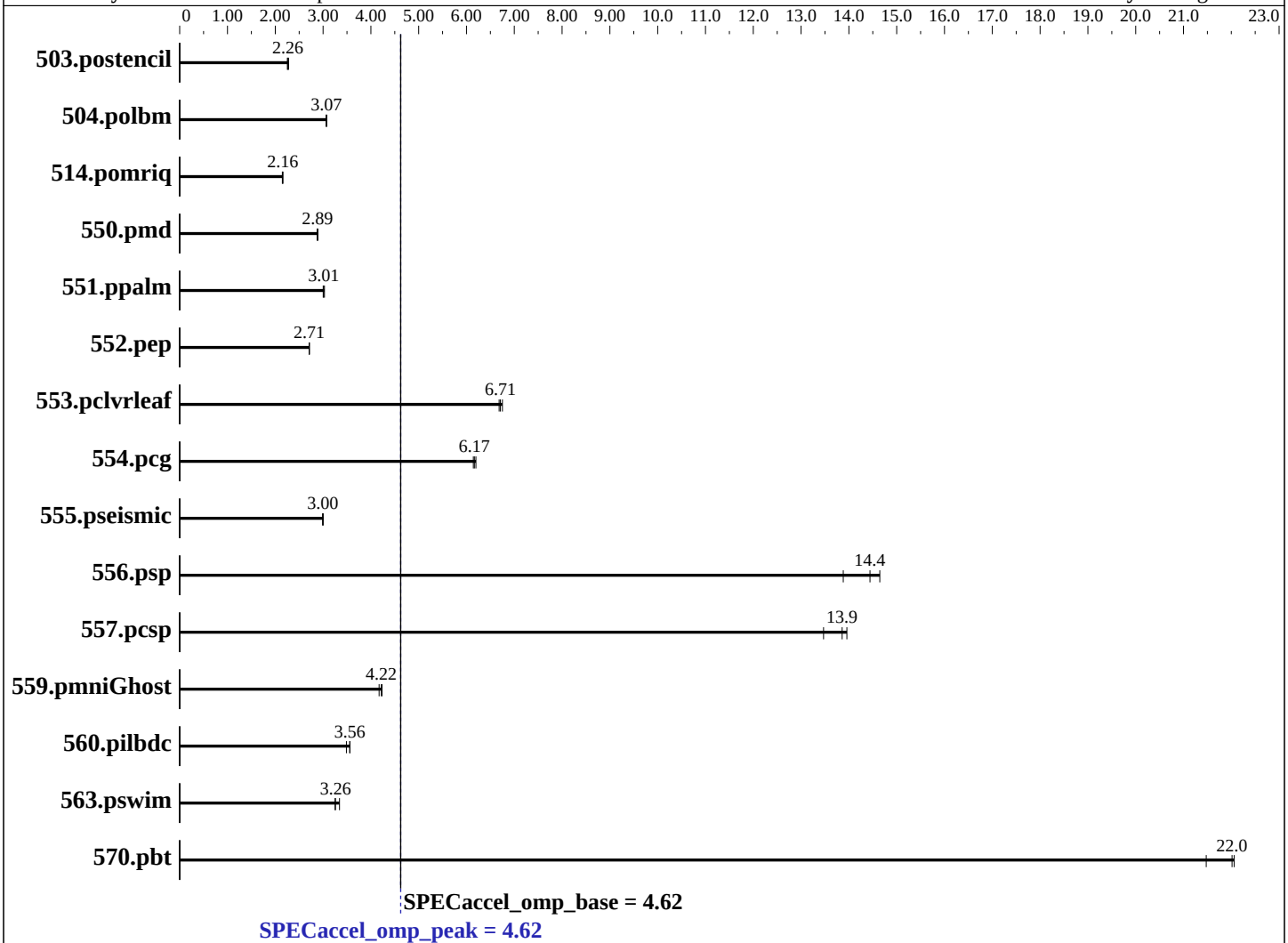
Xeon Gold 6148
SuperServer 1029GQ-TRT

SPECaccel_omp_peak = 4.62

SPECaccel_omp_base = 4.62

ACCEL license: 019
Test sponsor: NVIDIA Corporation
Tested by: NVIDIA Corporation

Test date: Jul-2018
Hardware Availability: Nov-2017
Software Availability: Aug-2018



Hardware

CPU Name:	Intel Xeon Gold 6148
CPU Characteristics:	
CPU MHz:	2400
CPU MHz Maximum:	3700
FPU:	Integrated
CPU(s) enabled:	40 cores, 2 chips, 20 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	28160 KB I+D on chip per chip
Other Cache:	None

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Accelerator

Accel Model Name:	Intel Xeon CPU Gold 6148
Accel Vendor:	Intel Corporation
Accel Name:	Xeon Gold 6148
Type of Accel:	CPU
Accel Connection:	Not applicable
Does Accel Use ECC:	Yes
Accel Description:	Intel Xeon CPU Gold 6148
Accel Driver:	Not applicable

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Hardware (Continued)

Memory: 384 GB (12 x 32 GB 2Rx8 PC4-2666V-R)
Disk Subsystem: 512GB Samsung 960 PRO M.2 PCIe 3.0 x4 NVMe Solid State Drive
Other Hardware: None

Software

Operating System: CentOS Linux release 7.4.1708 (Core) 3.10.0-693.17.1.el7.x86_64
Compiler: PGI Professional Edition, Release 18.7 LLVM
File System: xfs
System State: Run level 3 (multi-user)
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	**48.2**	**2.26**	48.4	2.25	47.8	2.28	**48.2**	**2.26**	48.4	2.25	47.8	2.28
504.polbm	39.7	3.08	39.8	3.06	**39.7**	**3.07**	39.7	3.08	39.8	3.06	**39.7**	**3.07**
514.pomriq	**288**	**2.16**	288	2.16	289	2.15	**288**	**2.16**	288	2.16	289	2.15
550.pmd	83.4	2.89	**83.5**	**2.89**	83.8	2.87	83.4	2.89	**83.5**	**2.89**	83.8	2.87
551.ppalm	**181**	**3.01**	181	3.00	180	3.03	**181**	**3.01**	181	3.00	180	3.03
552.pep	85.2	2.71	85.2	2.71	**85.2**	**2.71**	85.2	2.71	85.2	2.71	**85.2**	**2.71**
553.pclvrleaf	171	6.68	170	6.75	**171**	**6.71**	171	6.68	170	6.75	**171**	**6.71**
554.pcg	54.2	6.14	53.7	6.20	**54.0**	**6.17**	54.2	6.14	53.7	6.20	**54.0**	**6.17**
555.pseismic	**94.1**	**3.00**	94.3	2.99	93.9	3.00	**94.1**	**3.00**	94.3	2.99	93.9	3.00
556.psp	58.9	13.9	55.8	14.6	**56.6**	**14.4**	58.9	13.9	55.8	14.6	**56.6**	**14.4**
557.pcsp	**62.0**	**13.9**	61.5	14.0	63.8	13.5	**62.0**	**13.9**	61.5	14.0	63.8	13.5
559.pmniGhost	95.2	4.17	93.8	4.23	**94.1**	**4.22**	95.2	4.17	93.8	4.23	**94.1**	**4.22**
560.pilbdc	**184**	**3.56**	183	3.56	187	3.49	**184**	**3.56**	183	3.56	187	3.49
563.pswim	**48.8**	**3.26**	47.6	3.34	48.9	3.25	**48.8**	**3.26**	47.6	3.34	48.9	3.25
570.pbt	35.4	22.1	**35.4**	**22.0**	36.3	21.5	35.4	22.1	**35.4**	**22.0**	36.3	21.5

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

Platform Notes

```
Sysinfo program /local/home/aglobus/spec-accel/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on perf-sky2.pgi.net Thu Jul 26 15:28:54 2018

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

Platform Notes (Continued)

```
  http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) Gold 6148 CPU @ 2.40GHz
      2 "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
      physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
      physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
   cache size : 28160 KB

From /proc/meminfo
   MemTotal:       394873648 kB
   HugePages_Total:      20
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   CentOS Linux release 7.4.1708 (Core)

From /etc/*release* /etc/*version*
   centos-release: CentOS Linux release 7.4.1708 (Core)
   centos-release-upstream: Derived from Red Hat Enterprise Linux 7.4 (Source)
   os-release:
      NAME="CentOS Linux"
      VERSION="7 (Core)"
      ID="centos"
      ID_LIKE="rhel fedora"
      VERSION_ID="7"
      PRETTY_NAME="CentOS Linux 7 (Core)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:centos:centos:7"
   redhat-release: CentOS Linux release 7.4.1708 (Core)
   system-release: CentOS Linux release 7.4.1708 (Core)
   system-release-cpe: cpe:/o:centos:centos:7

uname -a:
   Linux perf-sky2.pgi.net 3.10.0-693.17.1.el7.x86_64 #1 SMP Thu Jan 25 20:13:58
   UTC 2018 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 29 15:36

SPEC is set to: /local/home/aglobus/spec-accel
   Filesystem                   Type  Size  Used Avail Use% Mounted on
   /dev/mapper/centos_sky2-root xfs   472G   60G  413G  13% /
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.


 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
ACC_NUM_CORES = "80"
HUGETLB_PATH = "/mnt/hugetlb"
KMP_AFFINITY = "granularity=fine,compact,1,0"
OMP_PLACES = "{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},{60},{61},{62},{63},{64},{65},{66},{67},{68},{69},{70},
    {71},{72},{73},{74},{75},{76},{77},{78},{79}"
OMP_PROC_BIND = "true"

551.ppalm (base): "advec_ws_private" src.alt was used.

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:
pgcc

Fortran benchmarks:
pgfortran

Benchmarks using both Fortran and C:
pgcc pgfortran

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
560.pilbdc: -DSPEC_USE_INNER_SIMD
563.pswim: -DSPEC_USE_INNER_SIMD
570.pbt: -DSPEC_USE_INNER_SIMD

Base Optimization Flags

C benchmarks:
-V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb

Fortran benchmarks:
-V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb

Benchmarks using both Fortran and C:

553.pclvrleaf: -V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb

559.pmniGhost: -V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb -Mnomain

Peak Optimization Flags

C benchmarks:

503.postencil: basepeak = yes

504.polbm: basepeak = yes

514.pomriq: basepeak = yes

552.pep: basepeak = yes

554.pcg: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

557.pcsp: `basepeak = yes`

570.pbt: `basepeak = yes`

Fortran benchmarks:

550.pmd: `basepeak = yes`

551.ppalm: `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/PGI-Platform-Multicore-OMP.html`
`https://www.spec.org/accel/flags/pgi2018_flags.html`

You can also download the XML flags sources by saving the following links:
`https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.xml`
`https://www.spec.org/accel/flags/pgi2018_flags.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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