SPEC ACCEL™ OMP Result

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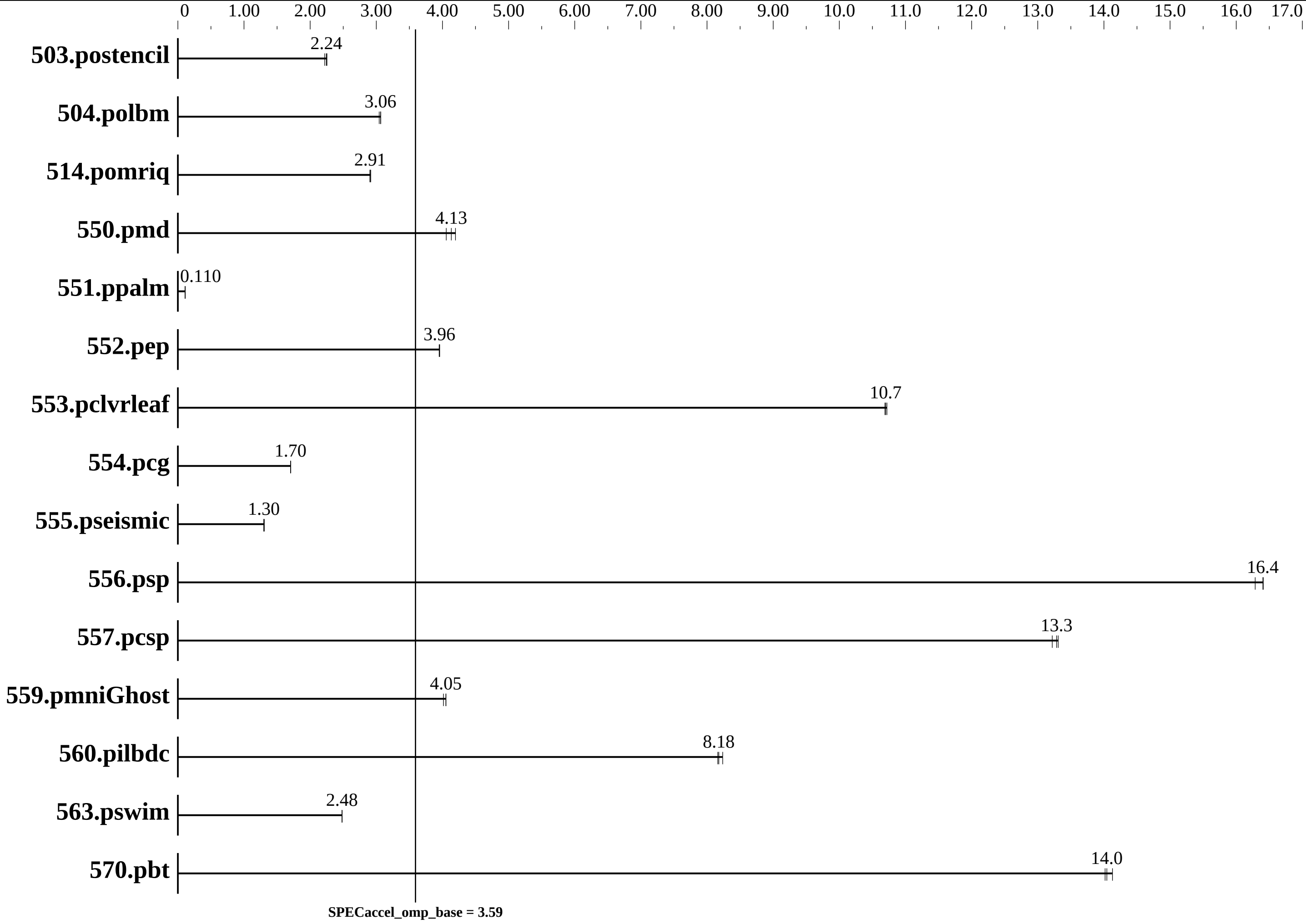
Cray
(Test Sponsor: Oak Ridge National Laboratory)
Intel Xeon Phi CPU 7230
Cray XC40 Intel Xeon Phi series

SPECaccel_omp_peak = Not Run

SPECaccel_omp_base = 3.59

ACCEL license:	054A	**Test date:**	May-2017
Test sponsor:	Oak Ridge National Laboratory	**Hardware Availability:**	Jun-2016
Tested by:	Oak Ridge National Laboratory	**Software Availability:**	Jul-2017



Hardware

CPU Name:	Intel Xeon Phi CPU 7230 @ 1.30GHz
CPU Characteristics:	Simultaneous multithreading (SMT) on, Turbo off.
CPU MHz:	1300
CPU MHz Maximum:	1300
FPU:	Integrated
CPU(s) enabled:	64 cores, 1 chip, 64 cores/chip, 4 threads/core
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per tile (2 cores)
L3 Cache:	None
Other Cache:	None

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Accelerator

Accel Model Name:	Intel Xeon Phi CPU 7230
Accel Vendor:	Intel
Accel Name:	Intel Xeon Phi CPU 7230
Type of Accel:	CPU
Accel Connection:	N/A
Does Accel Use ECC:	Yes
Accel Description:	Second generation Intel Xeon Phi self-bootable CPU, SMT on, Turbo off, flat DDR4+MCDRAM
Accel Driver:	N/A

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Hardware (Continued)

Memory:	96 GB (6 x 16 GB 2Rx4 2400MHz DDR4 ECC Registered) + 16 GB MCDRAM (flat)
Disk Subsystem:	14P Lustre file system
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 3.12.51-52.31.1_1.0600.9146-cray_ari_s
Compiler:	Intel Compiler 17.0.0 20160721
File System:	lustre
System State:	Run level 3 (Multi-user, non-graphical)
Other Software:	craype-mic-knl

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	**48.6**	**2.24**	48.4	2.25	49.1	2.22						
504.polbm	**39.8**	**3.06**	39.8	3.07	40.1	3.04						
514.pomriq	213	2.92	**214**	**2.91**	214	2.90						
550.pmd	59.4	4.06	**58.3**	**4.13**	57.4	4.20						
551.ppalm	4961	0.110	4962	0.110	**4961**	**0.110**						
552.pep	**58.4**	**3.96**	58.5	3.95	58.4	3.96						
553.pclvrleaf	107	10.7	**107**	**10.7**	107	10.7						
554.pcg	195	1.70	**195**	**1.70**	195	1.70						
555.pseismic	**217**	**1.30**	217	1.30	216	1.31						
556.psp	50.2	16.3	49.9	16.4	**49.9**	**16.4**						
557.pcsp	64.5	13.3	65.0	13.2	**64.7**	**13.3**						
559.pmniGhost	98.9	4.01	**98.0**	**4.05**	97.9	4.05						
560.pilbdc	**79.8**	**8.18**	80.0	8.16	79.3	8.24						
563.pswim	64.1	2.48	64.1	2.48	**64.1**	**2.48**						
570.pbt	55.2	14.1	55.6	14.0	**55.5**	**14.0**						

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.
The following expression was used for the submit command:
    'aprun -n 1 -d 256 -j 4 -cc depth -q numactl -m 1 $command'
```

Platform Notes

```
Sysinfo program
/lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75percival/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on nid00004 Wed May 24 08:20:06 2017

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 Phi(TM) CPU 7230 @ 1.30GHz
      1 "physical id"s (chips)
      256 "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 : 64
      siblings  : 256
      physical 0: cores 0 1 2 3 6 7 10 11 12 13 14 15 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 56 57 58 59 60 61 62 63 64 65 68 69 70 71 72 73
   cache size : 1024 KB

From /proc/meminfo
   MemTotal:       115628772 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 0
      # This file is deprecated and will be removed in a future service pack or
      release.
      # Please check /etc/os-release for details about this release.
   os-release:
      NAME="SLES"
      VERSION="12"
      VERSION_ID="12"
      PRETTY_NAME="SUSE Linux Enterprise Server 12"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12"

uname -a:
```

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Platform Notes (Continued)

```
    Linux nid00004 3.12.51-52.31.1_1.0600.9146-cray_ari_c #1 SMP Sat Aug 27
    20:40:03 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Apr 23 00:46

 SPEC is set to: /lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75percival
    Filesystem                Type    Size  Used Avail Use% Mounted on
    10.36.226.77@o2ib:/atlas2 lustre   14P  7.4P  5.8P  57% /lustre/atlas2

 Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

 (End of data from sysinfo program)
```

General Notes

```
The following environment variables were used:
    OMP_NUM_THREADS=256
    KMP_HW_SUBSET=64C,4T

System settings:
    Memory mode: flat
```

Base Compiler Invocation

C benchmarks:
`cc`

Fortran benchmarks:
`ftn`

Benchmarks using both Fortran and C:
`cc ftn`

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

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Base Portability Flags (Continued)

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:
-O3 -xMIC-AVX512 -g -qopenmp -qopenmp-offload=host -qopt-report=5

Fortran benchmarks:
-O3 -xMIC-AVX512 -g -qopenmp -qopenmp-offload=host -qopt-report=5

Benchmarks using both Fortran and C:
-O3 -xMIC-AVX512 -g -qopenmp -qopenmp-offload=host -qopt-report=5

The flags file that was used to format this result can be browsed at
https://www.spec.org/accel/flags/percival_intel_17.0.0_flags.html

You can also download the XML flags source by saving the following link:
https://www.spec.org/accel/flags/percival_intel_17.0.0_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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