



SPEC ACCEL™ OMP Result

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Intel Intel Xeon E5-2697 v4

Endeavour Node(Intel Xeon E5-2697 v4, 2.3GHz,
DDR4-2400 MHz, SMT ON, Turbo OFF)

SPECaccel_omp_peak = 3.56

SPECaccel_omp_base = 3.29

ACCEL license: 13

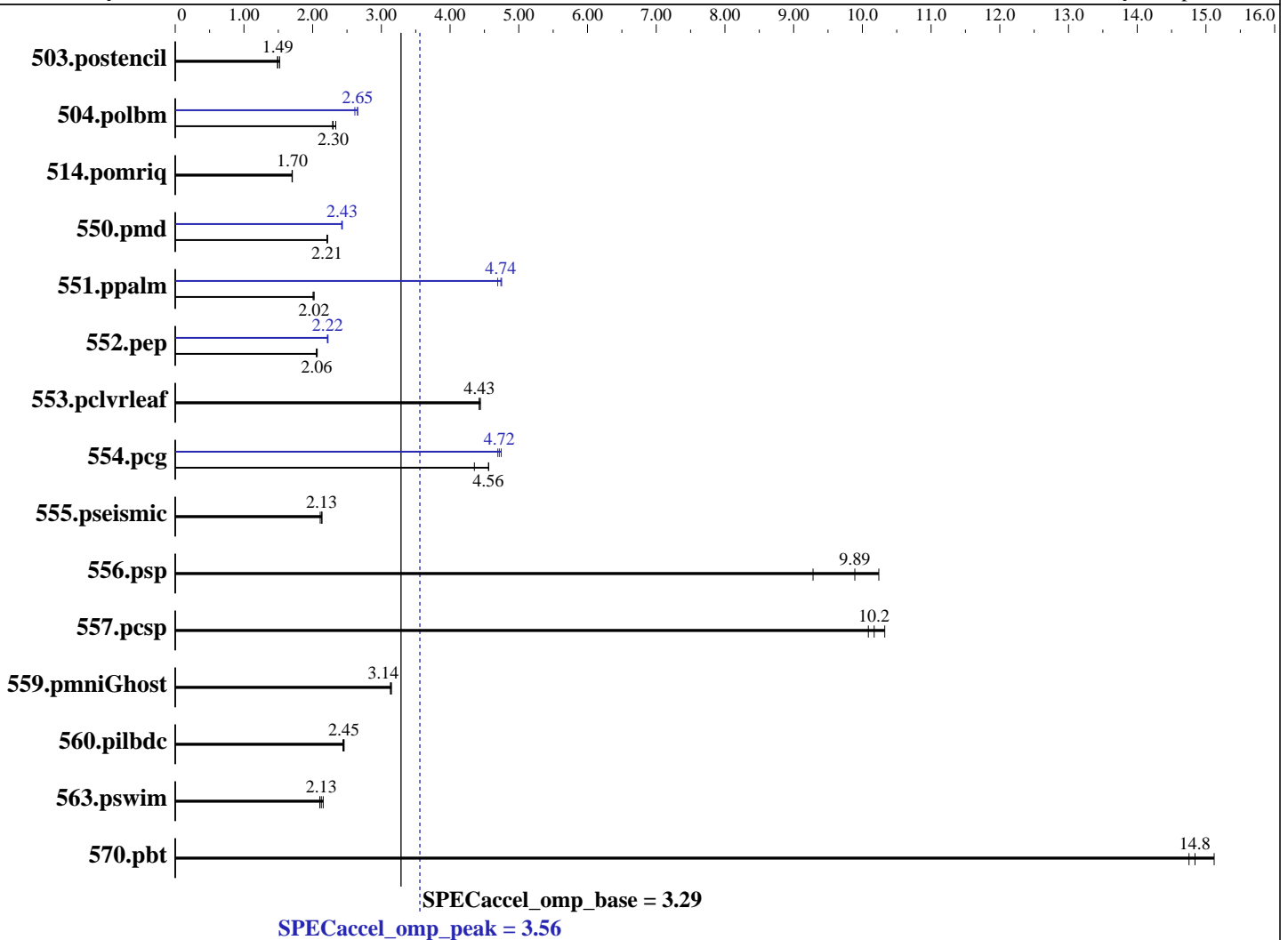
Test sponsor: Intel

Tested by: Intel

Test date: May-2017

Hardware Availability: Mar-2016

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon E5-2697 v4
 CPU Characteristics: SMT is on, Turbo is off
 CPU MHz: 2300
 CPU MHz Maximum: 2300
 FPU: Integrated
 CPU(s) enabled: 36 cores, 2 chips, 18 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: 256 KB I+D on chip per core
 L3 Cache: 45 MB I+D on chip per chip
 Other Cache: None

Continued on next page

Accelerator

Accel Model Name: Intel Xeon E5-2697 v4
 Accel Vendor: Intel
 Accel Name: Intel Xeon E5-2697 v4
 Type of Accel: CPU
 Accel Connection: N/A
 Does Accel Use ECC: yes
 Accel Description: 2x Intel Xeon E5-2697 v4 CPUs with Hyper-Threading
 Accel Driver: N/A



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Hardware (Continued)

Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400U-R)
Disk Subsystem: Panasas File System
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.3
(Maipo)
3.10.0-514.6.2.0.1.el7.x86_64.knl1
Compiler: C/C++/Fortran: Version 17.0.3.191 of Intel
Composer XE for Linux Build 20170404
File System: panfs
System State: Default
Other Software: FFTW 3.3.6

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	71.7	1.52	73.0	1.49	73.2	1.49	71.7	1.52	73.0	1.49	73.2	1.49
504.polbm	53.1	2.30	53.3	2.29	52.2	2.34	46.0	2.65	46.7	2.61	46.0	2.65
514.pomriq	365	1.70	364	1.70	365	1.70	365	1.70	364	1.70	365	1.70
550.pmd	109	2.22	109	2.21	109	2.21	99.1	2.43	99.5	2.42	99.2	2.43
551.ppalm	269	2.02	270	2.02	271	2.01	115	4.74	116	4.69	115	4.75
552.pep	112	2.05	112	2.06	112	2.07	104	2.22	104	2.21	104	2.22
553.pclvrleaf	258	4.44	259	4.42	259	4.43	258	4.44	259	4.42	259	4.43
554.pcg	76.5	4.35	73.1	4.56	73.0	4.56	70.9	4.69	70.6	4.72	70.2	4.74
555.pseismic	132	2.14	134	2.11	132	2.13	132	2.14	134	2.11	132	2.13
556.psp	79.9	10.2	82.7	9.89	88.1	9.28	79.9	10.2	82.7	9.89	88.1	9.28
557.pcsp	85.2	10.1	83.2	10.3	84.4	10.2	85.2	10.1	83.2	10.3	84.4	10.2
559.pmniGhost	126	3.15	127	3.14	127	3.13	126	3.15	127	3.14	127	3.13
560.pilbdc	266	2.46	266	2.45	268	2.44	266	2.46	266	2.45	268	2.44
563.pswim	73.8	2.15	74.8	2.13	75.6	2.10	73.8	2.15	74.8	2.13	75.6	2.10
570.pbt	51.6	15.1	52.6	14.8	52.9	14.8	51.6	15.1	52.6	14.8	52.9	14.8

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.

```
submit = LD_PRELOAD=/opt/intel/compiler/2017u3/tbb/lib/intel64/gcc4.7/libtbbmalloc_proxy.so.2 $command  
used Intel(R) TBB malloc
```



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Platform Notes

Sysinfo program

/panfs/projects/innl/abobyr/SpecACCEL_OMP/kits/kit75_broadwell/Docs/sysinfo

\$Rev: 6965 \$ \$Date:: 2015-04-21 #\$ c05a7f14b1b1765e3feldf68447e8a35

running on ebwk01 Mon May 15 15:50:51 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(R) CPU E5-2697 v4 @ 2.30GHz

2 "physical id"s (chips)

72 "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 : 18

siblings : 36

physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

cache size : 46080 KB

From /proc/meminfo

MemTotal: 131915832 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

oracle-release: Oracle Linux Server release 7.3

os-release:

NAME="Oracle Linux Server"

VERSION="7.3"

ID="ol"

VERSION_ID="7.3"

PRETTY_NAME="Oracle Linux Server 7.3"

ANSI_COLOR="0;31"

CPE_NAME="cpe:/o:oracle:linux:7:3:server"

HOME_URL="https://linux.oracle.com/"

redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

ssf-release:

SSF_VERSION=core-2016.0:hpc-cluster-2016.0:compat-base-2016.0:compat-hpc-2016.0

system-release: Oracle Linux Server release 7.3

system-release-cpe: cpe:/o:oracle:linux:7:3:server

uname -a:

Linux ebwk01 3.10.0-514.6.2.0.1.el7.x86_64.knl1 #1 SMP Thu Mar 2 10:19:17 MST

2017 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 15 12:34

Continued on next page

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Page 3



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Platform Notes (Continued)

SPEC is set to: /panfs/projects/innl/abobyr/SpecACCEL_OMP/kits/kit75_broadwell
Filesystem Type Size Used Avail Use% Mounted on
panfs://36.101.211.31/ panfs 251T 70T 182T 28% /global/panfs01
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

Used Environment Variables:

ENV_KMP_AFFINITY=compact,0 - assign OpenMP Threads continuously
ENV_OMP_NUM_THREADS=72 - limits number of Threads to be started to 72
ENV_KMP_HW_SUBSET=2S,18C,2T - control Thread distribution across sockets, cores and hw threads
ENV_FORT_BUFFERED=true - enables buffered I/O for Fortran

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

Continued on next page



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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 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log,/

```

Fortran benchmarks:

```

-O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log,/

```

Benchmarks using both Fortran and C:

```

-O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log,/

```

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.ppalm: -DSPEC_USE_INNER_SIMD -DSPEC_HOST_FFTW3
552.pep: -DSPEC_USE_INNER_SIMD

```

Continued on next page



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Peak Portability Flags (Continued)

```

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: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log, /

514.pomriq: basepeak = yes

552.pep: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log, /
-qopt-streaming-stores always

554.pcg: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log, / -qopt-prefetch=5

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

550.pmd: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log, / -qopt-prefetch=2

551.ppalm: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log, /
-I/home/aboby/FFTW-3.3.6/include
-L/home/aboby/FFTW-3.3.6/lib

555.pseismic: basepeak = yes

556.psp: basepeak = yes

Continued on next page



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Peak Optimization Flags (Continued)

560.pilbdc: basepeak = yes

563.pswim: basepeak = yes

Benchmarks using both Fortran and C:

553.pclvrleaf: basepeak = yes

559.pmniGhost: basepeak = yes

Peak Other Flags

Fortran benchmarks:

551.ppalms: -lfftw3

The flags file that was used to format this result can be browsed at

<https://www.spec.org/accel/flags/Intel-icc17.0-linux64.html>

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

<https://www.spec.org/accel/flags/Intel-icc17.0-linux64.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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