SPEC ACCEL™ ACC Result

Supermicro

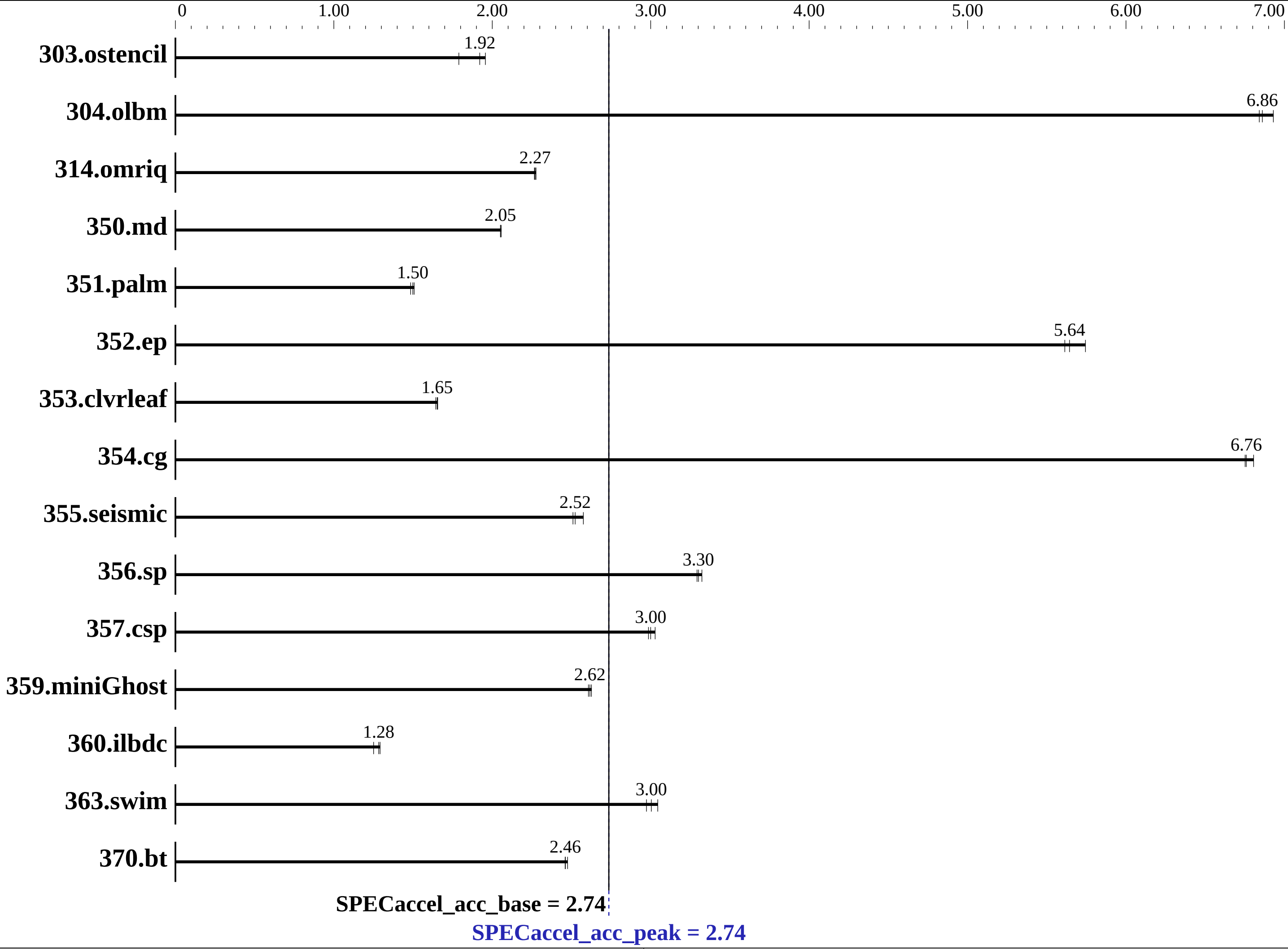
(Test Sponsor: NVIDIA Corporation)

Xeon E5-2698 v4 SuperServer 1028GR-TR

SPECaccel_acc_peak = 2.74

SPECaccel_acc_base = 2.74

ACCEL license:	019	**Test date:**	Aug-2018
Test sponsor:	NVIDIA Corporation	**Hardware Availability:**	Jul-2017
Tested by:	NVIDIA Corporation	**Software Availability:**	Aug-2018



Hardware

CPU Name:	Intel Xeon E5-2698 v4
CPU Characteristics:	
CPU MHz:	2200
CPU MHz Maximum:	3600
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:	256 KB I+D on chip per core
L3 Cache:	50 MB I+D on chip per chip
Other Cache:	None

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Accelerator

Accel Model Name:	Intel Xeon CPU E5-2698 v4
Accel Vendor:	Intel Corporation
Accel Name:	Xeon E5-2698 v4
Type of Accel:	CPU
Accel Connection:	Not applicable
Does Accel Use ECC:	Yes
Accel Description:	Intel Xeon CPU E5-2698 v4
Accel Driver:	Not applicable

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Hardware (Continued)

Memory:	256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem:	480GB Intel SSD DC S3520
Other Hardware:	None

Software

Operating System:	CentOS Linux release 7.4.1708 (Core) 3.10.0-693.11.6.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

	Base						Peak					
Benchmark	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
303.ostencil	81.1	1.79	74.1	1.96	**75.5**	**1.92**	81.1	1.79	74.1	1.96	**75.5**	**1.92**
304.olbm	66.5	6.84	65.7	6.93	**66.3**	**6.86**	66.5	6.84	65.7	6.93	**66.3**	**6.86**
314.omriq	**421**	**2.27**	422	2.27	420	2.28	**421**	**2.27**	422	2.27	420	2.28
350.md	**123**	**2.05**	123	2.05	123	2.06	**123**	**2.05**	123	2.05	123	2.06
351.palm	246	1.51	**247**	**1.50**	249	1.48	246	1.51	**247**	**1.50**	249	1.48
352.ep	**93.9**	**5.64**	92.3	5.74	94.4	5.61	**93.9**	**5.64**	92.3	5.74	94.4	5.61
353.clvrleaf	**269**	**1.65**	269	1.66	271	1.64	**269**	**1.65**	269	1.66	271	1.64
354.cg	59.9	6.81	60.4	6.75	**60.4**	**6.76**	59.9	6.81	60.4	6.75	**60.4**	**6.76**
355.seismic	144	2.57	147	2.51	**147**	**2.52**	144	2.57	147	2.51	**147**	**2.52**
356.sp	83.1	3.32	**83.6**	**3.30**	83.8	3.29	83.1	3.32	**83.6**	**3.30**	83.8	3.29
357.csp	89.2	3.03	90.4	2.99	**90.0**	**3.00**	89.2	3.03	90.4	2.99	**90.0**	**3.00**
359.miniGhost	141	2.63	142	2.61	**141**	**2.62**	141	2.63	142	2.61	**141**	**2.62**
360.ilbdc	293	1.25	**286**	**1.28**	284	1.29	293	1.25	**286**	**1.28**	284	1.29
363.swim	**76.6**	**3.00**	77.4	2.97	75.5	3.04	**76.6**	**3.00**	77.4	2.97	75.5	3.04
370.bt	90.6	2.46	90.1	2.48	**90.6**	**2.46**	90.6	2.46	90.1	2.48	**90.6**	**2.46**

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-accel2017/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on perf-bdw3 Wed Aug  1 17:08:56 2018

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
```

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2698 v4 @ 2.20GHz
      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 : 51200 KB

From /proc/meminfo
   MemTotal:       264034224 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-bdw3 3.10.0-693.11.6.el7.x86_64 #1 SMP Thu Jan 4 01:06:37 UTC 2018
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 21 06:36

SPEC is set to: /local/home/aglobus/spec-accel2017
   Filesystem                      Type  Size  Used Avail Use% Mounted on
   /dev/mapper/centos_bdw3-root xfs   443G   58G  385G  13% /
Additional information from dmidecode:
```

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ACCEL license: 019		**Test date:**	Aug-2018
Test sponsor: NVIDIA Corporation		**Hardware Availability:**	Jul-2017
Tested by: NVIDIA Corporation		**Software Availability:**	Aug-2018

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"

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 Optimization Flags

C benchmarks:
`-fast -Mnouniform -Mhugetlb -acc -ta=multicore`

Continued on next page

Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast -Mnouniform -Mhugetlb -acc -ta=multicore`

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mnouniform -Mhugetlb -acc -ta=multicore`

359.miniGhost: `-fast -Mnouniform -Mhugetlb -acc -ta=multicore -Mnomain`

Peak Optimization Flags

C benchmarks:

303.ostencil: `basepeak = yes`

304.olbm: `basepeak = yes`

314.omriq: `basepeak = yes`

352.ep: `basepeak = yes`

354.cg: `basepeak = yes`

357.csp: `basepeak = yes`

370.bt: `basepeak = yes`

Fortran benchmarks:

350.md: `basepeak = yes`

351.palm: `basepeak = yes`

355.seismic: `basepeak = yes`

356.sp: `basepeak = yes`

360.ilbdc: `basepeak = yes`

363.swim: `basepeak = yes`

Benchmarks using both Fortran and C:

353.clvrleaf: `basepeak = yes`

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Peak Optimization Flags (Continued)

359.miniGhost: `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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