SPEC ACCEL™ ACC Result

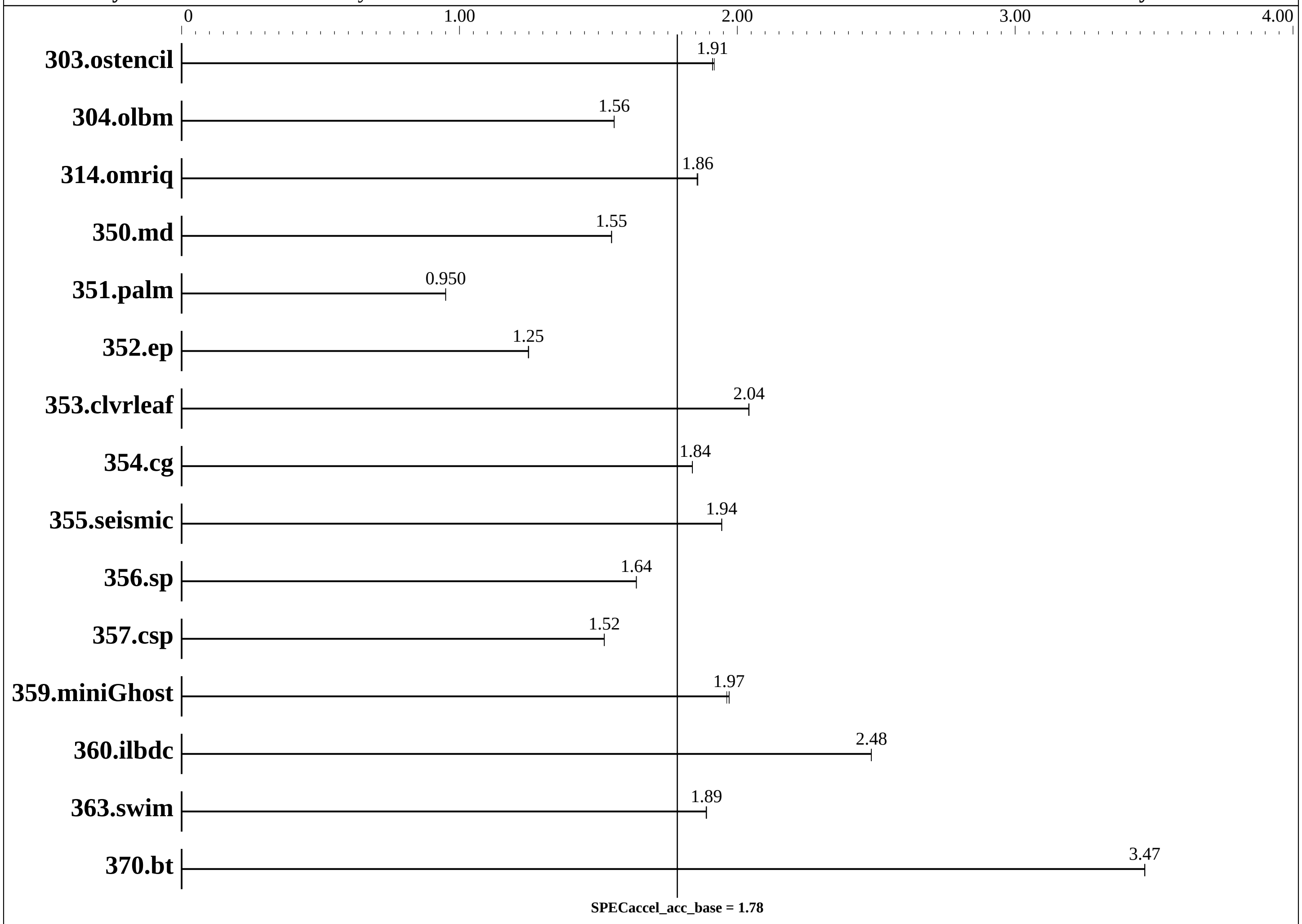
Cray
(Test Sponsor: Indiana University)

NVIDIA Tesla K20
Cray XK7

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 1.78

ACCEL license:	3440A	**Test date:**	May-2018
Test sponsor:	Indiana University	**Hardware Availability:**	Apr-2013
Tested by:	Indiana University	**Software Availability:**	Feb-2018



Hardware

CPU Name:	AMD Opteron 6276
CPU Characteristics:	AMD Turbo CORE Technology up to 3.2GHz, Turbo CORE off
CPU MHz:	2300
CPU MHz Maximum:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 1 chip, 16 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 16 KB D on chip per core
Secondary Cache:	16 MB I+D on chip per chip, 2 MB shared / 2 cores
L3 Cache:	16 MB I+D on chip per chip, 8 MB shared / 8 cores

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Accelerator

Accel Model Name:	Tesla K20
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K20
Type of Accel:	GPU
Accel Connection:	PCIe 2.0 16x
Does Accel Use ECC:	yes
Accel Description:	NVIDIA Tesla K20m GPU, 2496 CUDA cores, 706 MHz, 5 GB GDDR5 RAM
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 352.68

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Hardware (Continued)

Other Cache:	None
Memory:	32 GB (4 x 8 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem:	None
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Cray 3.0.101-0.46.1_1.0502.8871-cray_gem_c
Compiler:	PGI Accelerator Fortran/C/C++ Server, Release 15.3
File System:	lustre NFSv3 (DDN SFA12KE) over 10GB Ethernet
System State:	Run level 3 (multi-user)
Other Software:	NVIDIA CUDA 6.5.14

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
303.ostencil	75.6	1.92	**75.9**	**1.91**	75.9	1.91						
304.olbm	292	1.56	**292**	**1.56**	292	1.56						
314.omriq	514	1.86	**515**	**1.86**	515	1.86						
350.md	163	1.55	163	1.55	**163**	**1.55**						
351.palm	389	0.951	**389**	**0.950**	389	0.950						
352.ep	**425**	**1.25**	424	1.25	425	1.25						
353.clvrleaf	218	2.04	**218**	**2.04**	218	2.04						
354.cg	222	1.84	222	1.84	**222**	**1.84**						
355.seismic	190	1.94	190	1.94	**190**	**1.94**						
356.sp	169	1.64	169	1.64	**169**	**1.64**						
357.csp	177	1.52	178	1.52	**178**	**1.52**						
359.miniGhost	188	1.96	**187**	**1.97**	187	1.97						
360.ilbdc	**148**	**2.48**	148	2.48	148	2.48						
363.swim	122	1.89	122	1.89	**122**	**1.89**						
370.bt	64.3	3.47	**64.3**	**3.47**	64.3	3.47						

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

Platform Notes

```
Sysinfo program
/N/dc2/projects/hpc/lijunj/SPEC/accel-1.2-run/br2/cuda65/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on nid00692 Wed May  2 10:43:38 2018
```

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Platform Notes (Continued)

```
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 : AMD Opteron(TM) Processor 6276
      1 "physical id"s (chips)
      16 "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 : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
   cache size : 2048 KB

From /proc/meminfo
   MemTotal:        33083668 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux nid00692 3.0.101-0.46.1_1.0502.8871-cray_gem_c #1 SMP Mon Feb 12
   13:56:55 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux


SPEC is set to: /N/dc2/projects/hpc/lijunj/SPEC/accel-1.2-run/br2/cuda65
   Filesystem                             Type    Size  Used Avail Use% Mounted
   on
   10.10.0.171@o2ib:10.10.0.172@o2ib:/dc2 lustre  5.3P  4.4P  787T  86% /N/dc2

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

(End of data from sysinfo program)
(End of data from sysinfo program)
```

General Notes

```
No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
No: 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.
No: 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.

This benchmark result is intended to provide perspective on
past performance using the historical hardware and/or
software described on this result page.

The system 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

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.
```

Base Compiler Invocation

C benchmarks:
    pgcc

Fortran benchmarks:
    pgfortran

Benchmarks using both Fortran and C:
    pgcc pgfortran

Base Optimization Flags

C benchmarks:
    -fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda6.5

Fortran benchmarks:
    -fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda6.5

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda6.5`

359.miniGhost: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda6.5 -Mnomain`

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

You can also download the XML flags source by saving the following link:
`https://www.spec.org/accel/flags/pgi_flags.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC ACCEL v1.2.
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