SPEC ACCEL™ ACC Result

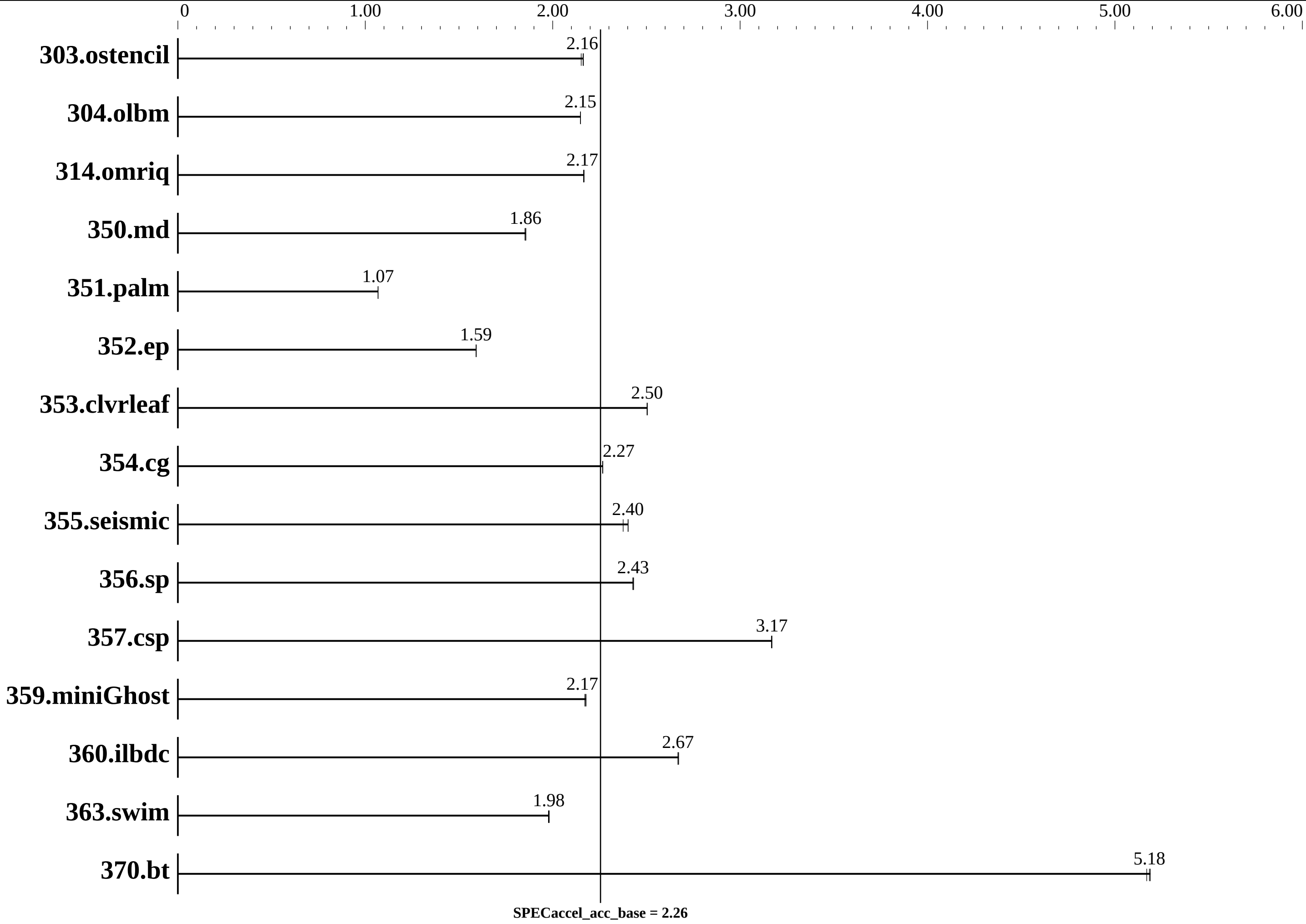
Cray
(Test Sponsor: Oak Ridge National Laboratory)

NVIDIA Tesla K20X
Cray XK7 system

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 2.26

ACCEL license:	054A	**Test date:**	May-2017
Test sponsor:	Oak Ridge National Laboratory	**Hardware Availability:**	Apr-2013
Tested by:	Oak Ridge National Laboratory	**Software Availability:**	Mar-2017



Hardware

CPU Name:	AMD Opteron 6274
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:	64 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

Continued on next page

Accelerator

Accel Model Name:	Tesla K20X
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K20X
Type of Accel:	GPU
Accel Connection:	PCIe 2.0 16x
Does Accel Use ECC:	yes
Accel Description:	NVIDIA Tesla K20X GPU, 2688 CUDA cores, 732MHz, 6 GB GDDR5 RAM
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 352.101

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Hardware (Continued)

Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: 14P Lustre parallel file system
Other Hardware: N/A

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) 3.0.101-0.46.1_1.0502.8871-cray_gem_c
Compiler: PGI Premier Edition, Release 17.3
File System: lustre
System State: Run level 3 (multi-user, non-graphical)
Other Software: None

Results Table

	Base						Peak					
Benchmark	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	67.4	2.15	67.0	2.16	**67.1**	**2.16**						
304.olbm	212	2.15	**212**	**2.15**	212	2.15						
314.omriq	**442**	**2.17**	442	2.16	441	2.17						
350.md	136	1.85	**136**	**1.86**	136	1.86						
351.palm	**346**	**1.07**	346	1.07	346	1.07						
352.ep	333	1.59	**333**	**1.59**	333	1.59						
353.clvrleaf	178	2.50	**178**	**2.50**	178	2.51						
354.cg	180	2.27	180	2.27	**180**	**2.27**						
355.seismic	156	2.38	154	2.40	**154**	**2.40**						
356.sp	114	2.43	**114**	**2.43**	113	2.43						
357.csp	**85.2**	**3.17**	85.2	3.17	85.3	3.17						
359.miniGhost	170	2.17	**170**	**2.17**	169	2.18						
360.ilbdc	138	2.67	**138**	**2.67**	137	2.67						
363.swim	116	1.98	**116**	**1.98**	116	1.98						
370.bt	43.1	5.17	**43.0**	**5.18**	43.0	5.19						

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.
```

Platform Notes

```
Sysinfo program /var//opt/cray/alps/spool/14533706/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on nid03790 Mon Jun  5 16:59:06 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 : AMD Opteron(TM) Processor 6274
      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:       33083764 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 nid03790 3.0.101-0.46.1_1.0502.8871-cray_gem_c #1 SMP Sat Oct 22
   15:26:43 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux


SPEC is set to: /lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75chester
   Filesystem                     Type    Size  Used Avail Use% Mounted on
   10.36.226.77@o2ib200:/atlas2 lustre   14P  7.4P  5.8P  56% /lustre/atlas2

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

(End of data from sysinfo program)
```

General Notes

```
Hardware no longer GA. Result shown for historical purposes.
```

Base Compiler Invocation

C benchmarks:
`cc`

Fortran benchmarks:
`ftn`

Benchmarks using both Fortran and C:
`cc ftn`

Base Optimization Flags

C benchmarks:
`-fast -Mfprelaxed  -acc -ta=tesla:cc35 -ta=tesla:cuda7.5`

Fortran benchmarks:
`-fast -Mfprelaxed  -acc -ta=tesla:cc35 -ta=tesla:cuda7.5`

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mfprelaxed  -acc -ta=tesla:cc35 -ta=tesla:cuda7.5`

359.miniGhost: `-fast -Mfprelaxed  -acc -ta=tesla:cc35 -ta=tesla:cuda7.5 -Mnomain`

The flags file that was used to format this result can be browsed at
`https://www.spec.org/accel/flags/pgi2017_flags.20170621.00.html`

You can also download the XML flags source by saving the following link:
`https://www.spec.org/accel/flags/pgi2017_flags.20170621.00.xml`

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

Tested with SPEC ACCEL v75.
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