SPEC ACCEL™ ACC Result

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Bull

(Test Sponsor: Technische Universitaet Dresden)

NVIDIA Tesla K20X

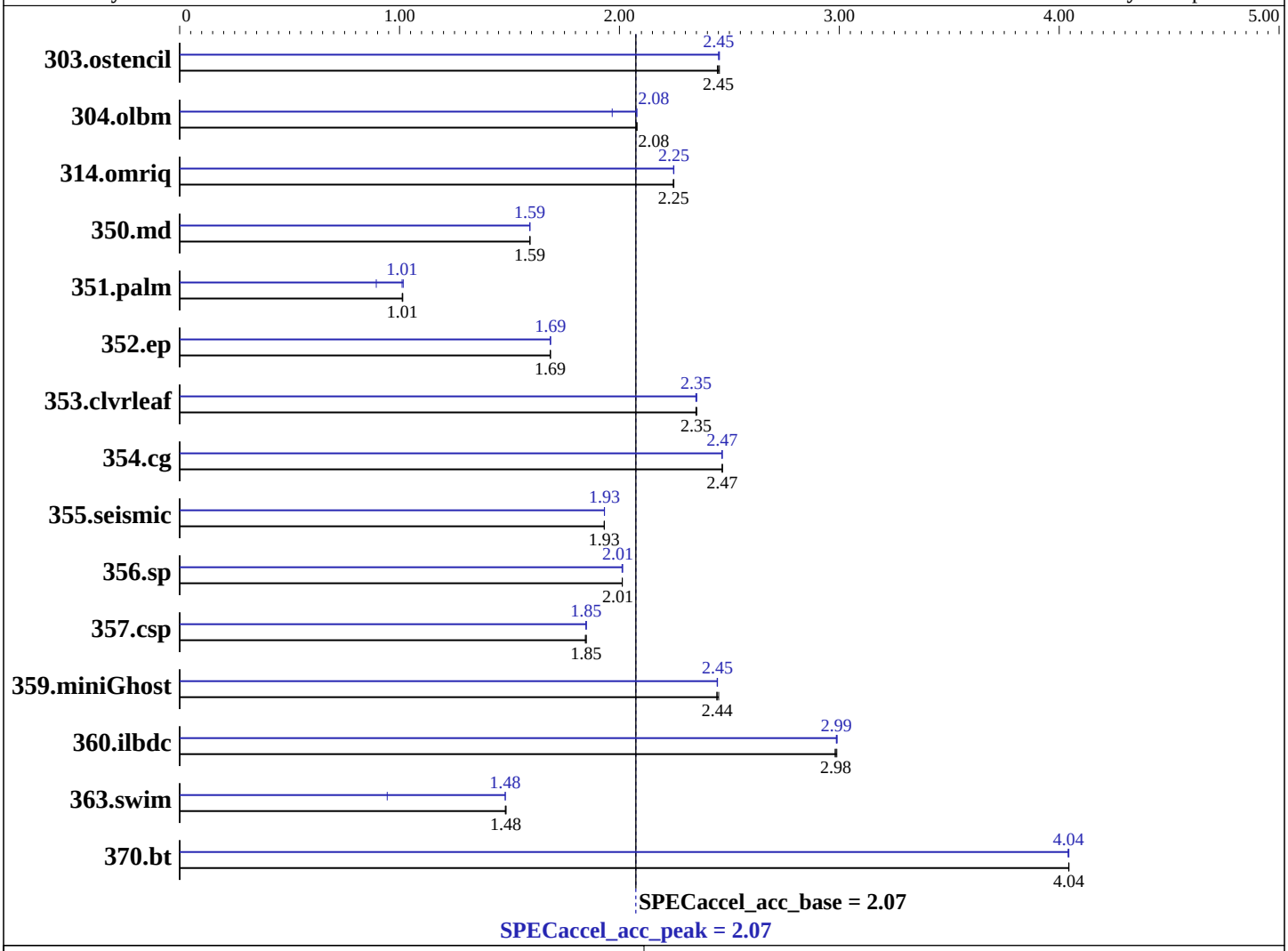
Bull B515

SPECaccel_acc_peak = 2.07

SPECaccel_acc_base = 2.07

ACCEL license: 37A
Test sponsor: Technische Universitaet Dresden
Tested by: Technische Universitaet Dresden

Test date: Dec-2015
Hardware Availability: Jul-2013
Software Availability: Sep-2015



Hardware

CPU Name:	Intel Xeon E5-2450 0
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2100
CPU MHz Maximum:	2900
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
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:	20 MB I+D on chip per chip
Other Cache:	None

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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, 2688 CUDA cores, 732 MHz 6 GB GDDR5 RAM (Kepler Generation)
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 346.46

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Hardware (Continued)

Memory: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11)
Disk Subsystem: 62 GB SSD
Other Hardware: --

Software

Operating System: bullx Linux Server release 6.3 (V1)
Red Hat Enterprise Linux Server release 6.4 (Santiago)
2.6.32-504.12.2.el6.x86_64
Compiler: PGI Accelerator Server Complete, Release 15.9
File System: ext4
System State: Run Level 3 (Multi-User)
Other Software: NVIDIA Cuda SDK 7.0, driver version 346.46

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	**59.2**	**2.45**	59.3	2.45	59.1	2.45	**59.1**	**2.45**	59.2	2.45	59.1	2.45
304.olbm	219	2.08	219	2.08	**219**	**2.08**	219	2.08	**219**	**2.08**	231	1.97
314.omriq	426	2.24	425	2.25	**425**	**2.25**	425	2.25	426	2.25	**425**	**2.25**
350.md	158	1.59	158	1.59	**158**	**1.59**	158	1.59	**158**	**1.59**	158	1.59
351.palm	**365**	**1.01**	365	1.01	365	1.01	**366**	**1.01**	364	1.02	414	0.894
352.ep	**314**	**1.69**	314	1.69	315	1.68	314	1.69	**314**	**1.69**	314	1.69
353.clvrleaf	189	2.35	190	2.35	**189**	**2.35**	189	2.35	**189**	**2.35**	190	2.35
354.cg	165	2.47	**165**	**2.47**	165	2.47	165	2.47	165	2.47	**165**	**2.47**
355.seismic	192	1.93	**192**	**1.93**	192	1.93	**192**	**1.93**	192	1.93	192	1.93
356.sp	137	2.01	**137**	**2.01**	137	2.01	137	2.01	137	2.01	**137**	**2.01**
357.csp	146	1.84	146	1.85	**146**	**1.85**	146	1.85	146	1.85	**146**	**1.85**
359.miniGhost	151	2.45	**151**	**2.44**	151	2.44	151	2.45	**151**	**2.45**	151	2.44
360.ilbdc	123	2.98	123	2.99	**123**	**2.98**	123	2.99	123	2.99	**123**	**2.99**
363.swim	**155**	**1.48**	155	1.48	155	1.48	**155**	**1.48**	244	0.944	155	1.48
370.bt	55.1	4.04	**55.1**	**4.04**	55.2	4.04	55.2	4.04	55.1	4.04	**55.2**	**4.04**

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

Platform Notes

```
MultiThreading disabled in BIOS
Sysinfo program /tmp/spec-accel/1.1/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on taurusi2019 Sat Dec 19 08:24:28 2015
```

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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 : Intel(R) Xeon(R) CPU E5-2450 0 @ 2.10GHz
      2 "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  : 8
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       49390188 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux taurusi2019 2.6.32-504.12.2.el6.x86_64 #1 SMP Sun Feb 1 12:14:02 EST
   2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 30 18:11

SPEC is set to: /tmp/spec-accel/1.1
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      ext4   62G  4.3G   55G   8% /tmp

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

(End of data from sysinfo program)
```

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Base Compiler Invocation

C benchmarks:
pgcc

Fortran benchmarks:
pgfortran

Benchmarks using both Fortran and C:
pgcc pgfortran

Base Optimization Flags

C benchmarks:
-V15.9 -fast -acc -ta=tesla:tesla -ta=tesla:cuda7.0 -tp=sandybridge

Fortran benchmarks:
-V15.9 -fast -acc -ta=tesla:tesla -ta=tesla:cuda7.0 -tp=sandybridge

Benchmarks using both Fortran and C:

353.clvrleaf: -V15.9 -fast -acc -ta=tesla:tesla -ta=tesla:cuda7.0 -tp=sandybridge

359.miniGhost: -V15.9 -fast -acc -ta=tesla:tesla -ta=tesla:cuda7.0 -tp=sandybridge -Mnomain

Peak Compiler Invocation

C benchmarks:
pgcc

Fortran benchmarks:
pgfortran

Benchmarks using both Fortran and C:
pgcc pgfortran

Peak Optimization Flags

C benchmarks:
-V15.9 -fast -acc -ta=tesla:beta -ta=tesla:cuda7.0 -tp=sandybridge

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Peak Optimization Flags (Continued)

Fortran benchmarks:
`-V15.9 -fast -acc -ta=tesla:beta -ta=tesla:cuda7.0 -tp=sandybridge`

Benchmarks using both Fortran and C:

353.clvrleaf: `-V15.9 -fast -acc -ta=tesla:beta -ta=tesla:cuda7.0 -tp=sandybridge`

359.miniGhost: `-V15.9 -fast -acc -ta=tesla:beta -ta=tesla:cuda7.0 -tp=sandybridge -Mnomain`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/accel/flags/pgi2014_flags.20160120.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/accel/flags/pgi2014_flags.20160120.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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