SPEC® ACCEL_ACC Result

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Bull

(Test Sponsor: RWTH Aachen University)

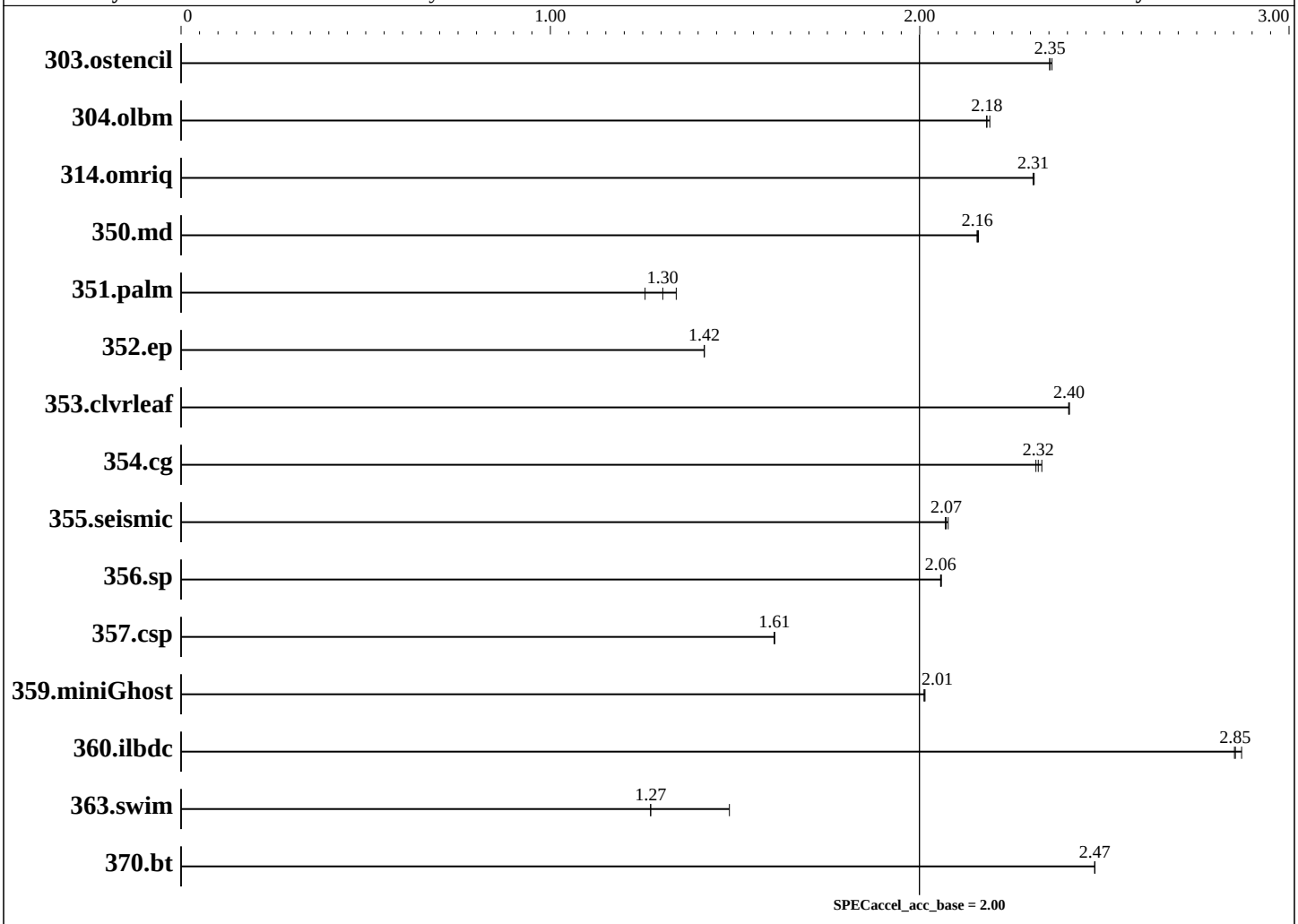
NVIDIA Tesla K20Xm
bullx R421-E3

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 2.00

ACCEL license: 055A
Test sponsor: RWTH Aachen University
Tested by: RWTH Aachen University

Test date: Mar-2014
Hardware Availability: Jun-2013
Software Availability: Feb-2014



Hardware

CPU Name:	Intel Xeon E5-2680
CPU Characteristics:	
CPU MHz:	2700
CPU MHz Maximum:	2700
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	20 MB I+D on chip per chip
Other Cache:	None

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Accelerator

Accel Model Name:	Tesla K20Xm
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K20Xm
Type of Accel:	GPU
Accel Connection:	PCIe 3.0 16x
Does Accel Use ECC:	Yes
Accel Description:	NVIDIA Tesla K20Xm, 2688 CUDA cores, 732 MHz, 6 GB GDDR5 RAM (Kepler Generation)
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 331.49

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Tested by:	RWTH Aachen University	**Software Availability:**	Feb-2014

Memory:	64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	80 TB Netapp 6280 RAID 6 mixed 2 TB SATA disks
Other Hardware:	None

Software

Operating System:	Scientific Linux release 6.4 (Carbon) 2.6.32-358.23.2.el6.x86_64
Compiler:	PGI Accelerator Server Complete, Release 14.2
File System:	NFSv3 over Gb ethernet
System State:	Run level 5 (GPU driver loaded, no X11-Desktop running)
Other Software:	NVIDIA CUDA 5.5, driver 331.49

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	**61.6**	**2.35**	61.5	2.36	61.7	2.35						
304.olbm	**209**	**2.18**	208	2.19	209	2.18						
314.omriq	414	2.31	414	2.31	**414**	**2.31**						
350.md	**117**	**2.16**	117	2.16	117	2.16						
351.palm	**284**	**1.30**	294	1.26	276	1.34						
352.ep	**374**	**1.42**	374	1.42	374	1.42						
353.clvrleaf	185	2.40	185	2.41	**185**	**2.40**						
354.cg	176	2.31	**176**	**2.32**	175	2.33						
355.seismic	178	2.08	**179**	**2.07**	179	2.07						
356.sp	134	2.06	**134**	**2.06**	134	2.06						
357.csp	168	1.61	**168**	**1.61**	168	1.61						
359.miniGhost	**183**	**2.01**	183	2.01	183	2.01						
360.ilbdc	128	2.87	129	2.85	**129**	**2.85**						
363.swim	**181**	**1.27**	155	1.48	181	1.27						
370.bt	90.1	2.47	**90.1**	**2.47**	90.1	2.47						

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

Platform Notes

```
Sysinfo program /work/fr356676/ACCEL_39/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on linuxnvc02.rz.RWTH-Aachen.DE Wed Mar  5 14:14:53 2014

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 E5-2680 0 @ 2.70GHz
      2 "physical id"s (chips)
      32 "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
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB
```

Continued on next page

Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       65937832 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Scientific Linux release 6.4 (Carbon)

From /etc/*release* /etc/*version*
   redhat-release: Scientific Linux release 6.4 (Carbon)
   system-release: Scientific Linux release 6.4 (Carbon)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6.4:ga

uname -a:
   Linux linuxnvc02.rz.RWTH-Aachen.DE 2.6.32-358.23.2.el6.x86_64 #1 SMP Wed Oct
   16 11:13:47 CDT 2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 26 13:39

SPEC is set to: /work/fr356676/ACCEL_39
   Filesystem                          Type  Size  Used Avail Use% Mounted on
   na6280-5.rz.RWTH-Aachen.DE:/vol/work3 nfs   500G  423G   78G  85%
   /rwthfs/rz/na6280-5/work3

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

(End of data from sysinfo program)
```

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:cuda5.5

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda5.5`

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda5.5`

359.miniGhost: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda5.5 -Mnomain`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/accel/flags/pgi2014_flags.20150303.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/accel/flags/pgi2014_flags.20150303.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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