SPEC ACCEL™ OCL Result

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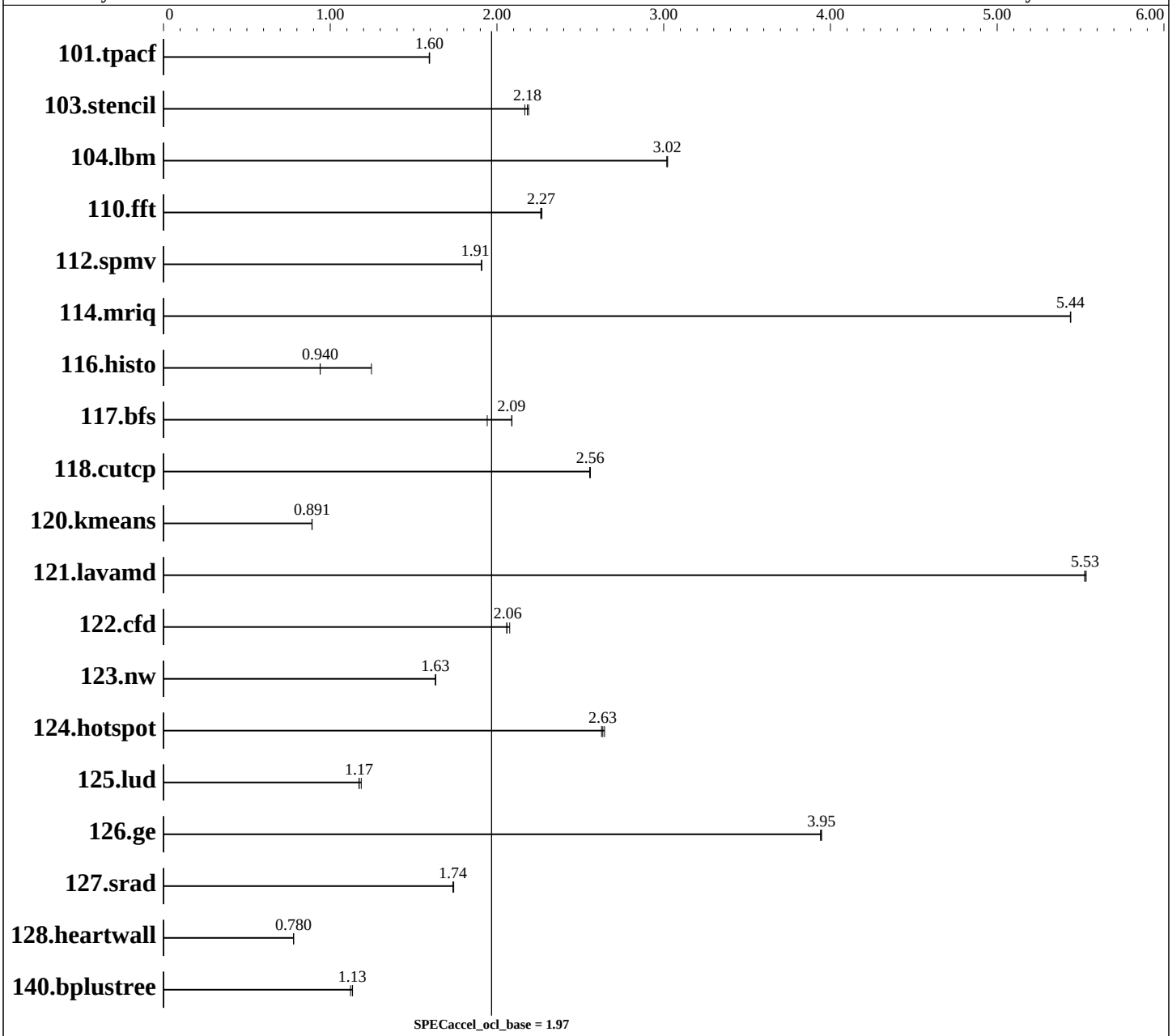
Bull
(Test Sponsor: Technische Universitaet Dresden)

NVIDIA Tesla K20X
Bull B515

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 1.97

ACCEL license:	37A	**Test date:**	Sep-2015
Test sponsor:	Technische Universitaet Dresden	**Hardware Availability:**	Jul-2013
Tested by:	Technische Universitaet Dresden	**Software Availability:**	Mar-2015



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Hardware

CPU Name:	Intel Xeon E5-2450
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
Memory:	48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	29 TB NetApp FAS6280
Other Hardware:	--

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

Software

Operating System:	bullx Linux Server release 6.3 (V1) 2.6.32-279.5.2.bl6.Bull.35_restricted.x86_64
Compiler:	GNU Compiler C/C++ Version 4.9.1
File System:	nfs
System State:	Run level 3 (Multi-User)
Other Software:	NVIDIA Cuda SDK 7.0, driver version 346.46

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
101.tpacf	**67.1**	**1.60**	67.1	1.59	67.0	1.60						
103.stencil	57.7	2.17	57.1	2.19	**57.3**	**2.18**						
104.lbm	**37.1**	**3.02**	37.0	3.02	37.1	3.02						
110.fft	49.1	2.26	48.9	2.27	**49.0**	**2.27**						
112.spmv	77.0	1.91	**77.1**	**1.91**	77.1	1.91						
114.mriq	20.0	5.44	20.0	5.44	**20.0**	**5.44**						
116.histo	121	0.940	**121**	**0.940**	91.4	1.25						
117.bfs	**56.0**	**2.09**	56.0	2.09	60.3	1.94						
118.cutcp	**38.7**	**2.56**	38.7	2.56	38.7	2.56						
120.kmeans	112	0.890	112	0.891	**112**	**0.891**						
121.lavamd	19.7	5.53	**19.7**	**5.53**	19.7	5.53						
122.cfd	**61.2**	**2.06**	60.7	2.08	61.2	2.06						
123.nw	70.5	1.63	**70.5**	**1.63**	70.5	1.63						
124.hotspot	**43.3**	**2.63**	43.1	2.65	43.4	2.63						
125.lud	101	1.17	**101**	**1.17**	100	1.19						
126.ge	39.3	3.95	**39.3**	**3.95**	39.3	3.94						
127.srad	**65.6**	**1.74**	65.5	1.74	65.7	1.74						
128.heartwall	**136**	**0.780**	136	0.781	136	0.779						
140.bplustree	**95.4**	**1.13**	95.2	1.13	96.3	1.12						

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 /home/s1428123/spec-accel/Docs/sysinfo
 $Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
 running on taurusi2001 Tue Sep  8 11:03:54 2015

 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
```

Continued on next page

Platform Notes (Continued)

```
      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:       49396228 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      bullx Linux Server release 6.3 (V1)

   From /etc/*release* /etc/*version*
      bull-release: bullx Linux Server release 6.3 (V1)
      redhat-release: bullx Linux Server release 6.3 (V1)
      system-release: bullx Linux Server release 6.3 (V1)
      system-release-cpe: cpe:/o:bullx:linux:6server:ga:server

   uname -a:
      Linux taurusi2001 2.6.32-279.5.2.bl6.Bull.35_restricted.x86_64 #1 SMP Wed Apr
      24 14:29:54 CEST 2013 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Aug 13 17:30

   SPEC is set to: /home/s1428123/spec-accel
      Filesystem     Type    Size  Used Avail Use% Mounted on
      172.26.75.132:/hrsk_userhome
                     nfs      29T   24T  5.3T  82% /home

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

   (End of data from sysinfo program)
```

Base Runtime Environment

C benchmarks:

```
    OpenCL Platform: NVIDIA CUDA, OpenCL 1.1 CUDA 7.0.28
    OpenCL Device #0: Tesla K20Xm, v 346.46
```

C++ benchmarks:

```
    OpenCL Platform: NVIDIA CUDA, OpenCL 1.1 CUDA 7.0.28
    OpenCL Device #0: Tesla K20Xm, v 346.46
```

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Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Base Optimization Flags

C benchmarks:
-O2 -I/sw/taurus/libraries/cuda/7.0.28/include
-L/sw/taurus/libraries/cuda/7.0.28/lib64 -lOpenCL

C++ benchmarks:
-O2 -I/sw/taurus/libraries/cuda/7.0.28/include
-L/sw/taurus/libraries/cuda/7.0.28/lib64 -lOpenCL

The flags file that was used to format this result can be browsed at
http://www.spec.org/accel/flags/flags-advanced.20150930.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/accel/flags/flags-advanced.20150930.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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