SPEC® ACCEL_OCL Result

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SuperMicro

(Test Sponsor: KIT Institute for Data Processing and Electronics)

NVIDIA Tesla K20Xm

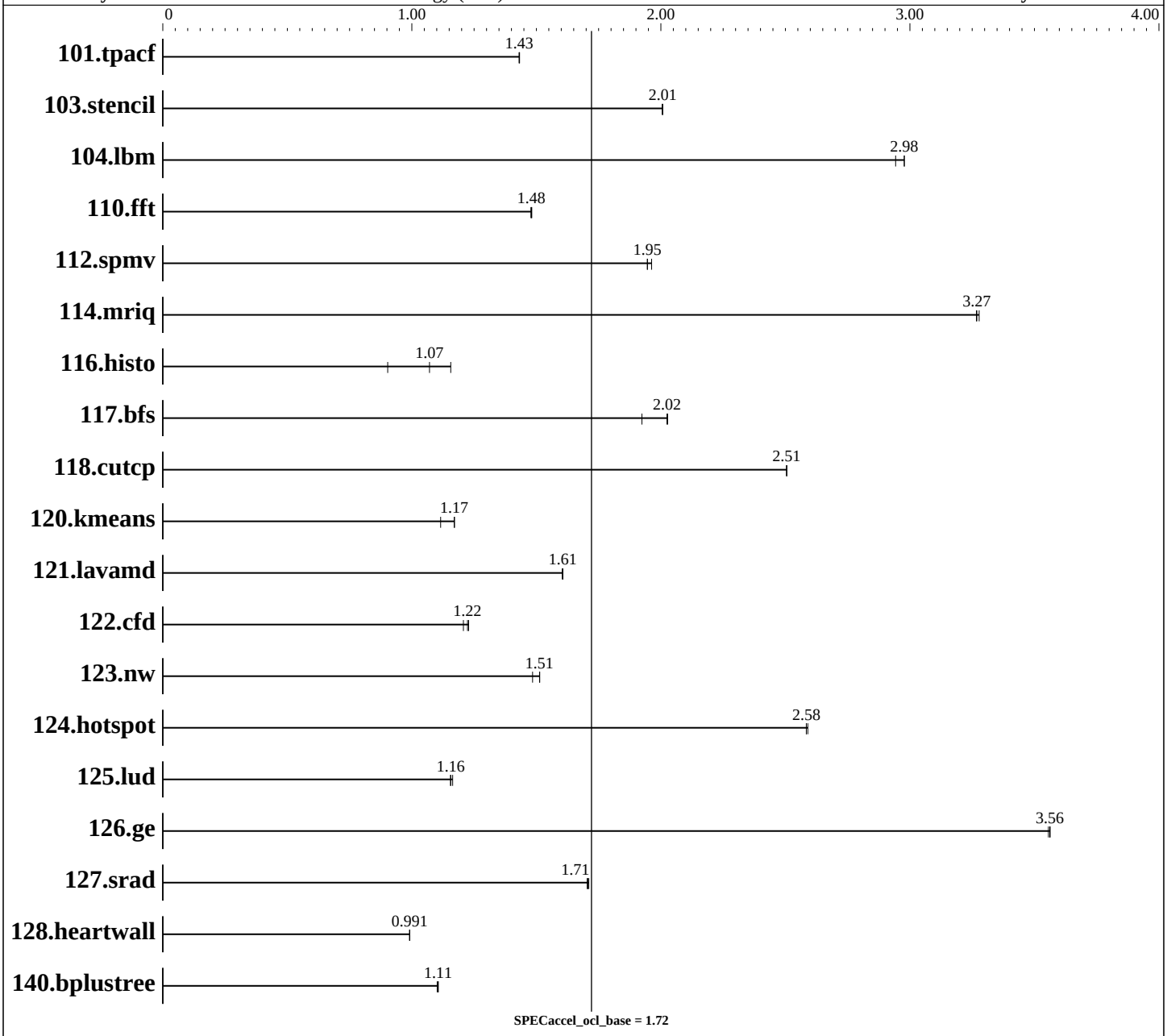
7047GR-TRF

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 1.72

ACCEL license: HPG-052A
Test sponsor: KIT Institute for Data Processing and Electronics
Tested by: Karlsruhe Institute of Technology (KIT)

Test date: Jun-2014
Hardware Availability: Nov-2012
Software Availability: Feb-2014



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Hardware

CPU Name:	Intel Xeon E5-2640
CPU Characteristics:	
CPU MHz:	2500
CPU MHz Maximum:	3000
FPU:	--
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	2
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx8 PC3-12800R-9, ECC, running at 1333 MHz)
Disk Subsystem:	19 TB GlusterFS network storage 2 mirroring nodes with 16 disks hardware RAID6 each
Other Hardware:	--

Accelerator

Accel Model Name:	Tesla K20Xm
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K20Xm
Type of Accel:	GPU
Accel Connection:	PCIe 2.0 16x
Does Accel Use ECC:	Yes
Accel Description:	NVIDIA Tesla K20Xm GPU, 2688 CUDA cores, 732 MHz 5.6 GiB GDDR5 RAM - ECC activated
Accel Driver:	NVIDIA CUDA 6.0rc Driver Version 331.44

Software

Operating System:	openSUSE 12.2 (x86_64) Kernel 3.4.47-2.38-desktop
Compiler:	Version 4.7.1 of GCC
File System:	fuse.glusterfs
System State:	Run level 3 (multi-user)
Other Software:	NVIDIA CUDA 6.0rc Driver Version 331.44

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
101.tpacf	74.8	1.43	**74.7**	**1.43**	74.7	1.43						
103.stencil	62.3	2.01	**62.3**	**2.01**	62.3	2.01						
104.lbm	37.6	2.98	**37.6**	**2.98**	38.1	2.94						
110.fft	74.9	1.48	**75.0**	**1.48**	75.1	1.48						
112.spmv	74.9	1.96	**75.5**	**1.95**	75.5	1.95						
114.mriq	33.3	3.28	**33.3**	**3.27**	33.4	3.27						
116.histo	**106**	**1.07**	98.6	1.16	126	0.903						
117.bfs	**57.8**	**2.02**	60.8	1.92	57.7	2.03						
118.cutcp	**39.5**	**2.51**	39.5	2.51	39.5	2.50						
120.kmeans	89.6	1.12	85.4	1.17	**85.5**	**1.17**						
121.lavamd	67.8	1.61	68.0	1.60	**67.8**	**1.61**						
122.cfd	103	1.23	104	1.21	**103**	**1.22**						
123.nw	76.0	1.51	77.4	1.48	**76.0**	**1.51**						
124.hotspot	44.1	2.58	**44.1**	**2.58**	44.0	2.59						
125.lud	**103**	**1.16**	102	1.16	103	1.16						
126.ge	43.5	3.56	43.6	3.56	**43.5**	**3.56**						
127.srad	66.6	1.71	66.9	1.70	**66.8**	**1.71**						
128.heartwall	107	0.992	107	0.991	**107**	**0.991**						
140.bplustree	**97.7**	**1.11**	98.0	1.10	97.6	1.11						

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

Platform Notes

```
Sysinfo program
/pdv/home/student/users/609bc1b89b8a955fb5270ebe25f0c37d/server2/ACCELV1/install/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on ipepdvcompute2 Wed Jun  4 23:21:13 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 E5-2640 0 @ 2.50GHz
      2 "physical id"s (chips)
      24 "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 : 6
         siblings  : 12
         physical 0: cores 0 1 2 3 4 5
         physical 1: cores 0 1 2 3 4 5
      cache size : 15360 KB

   From /proc/meminfo
      MemTotal:       264648676 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      openSUSE 12.2 (x86_64)

   From /etc/*release* /etc/*version*
      SuSE-release:
         openSUSE 12.2 (x86_64)
         VERSION = 12.2
         CODENAME = Mantis
      os-release:
         NAME=openSUSE
         VERSION="12.2 (Mantis)"
         VERSION_ID="12.2"
         PRETTY_NAME="openSUSE 12.2 (Mantis) (x86_64)"
         ID=opensuse
         ANSI_COLOR="0;32"
         CPE_NAME="cpe:/o:opensuse:opensuse:12.2"

   uname -a:
      Linux ipepdvcompute2 3.4.47-2.38-desktop #1 SMP PREEMPT Fri May 31 20:17:40
      UTC 2013 (3961086) x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Apr 14 19:59

   SPEC is set to:
   /pdv/home/student/users/609bc1b89b8a955fb5270ebe25f0c37d/server2/ACCELV1/install
      Filesystem           Type            Size  Used Avail Use% Mounted on
      192.168.11.1:storage fuse.glusterfs   19T   16T  3.0T  84% /pdv

   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 6.0.1
OpenCL Device #0: Tesla K20Xm, v 331.44
```

C++ benchmarks:
```
OpenCL Platform: NVIDIA CUDA, OpenCL 1.1 CUDA 6.0.1
OpenCL Device #0: Tesla K20Xm, v 331.44
```

Base Compiler Invocation

C benchmarks:
```
gcc
```

C++ benchmarks:
```
g++
```

Base Optimization Flags

C benchmarks:
```
-O2 -lOpenCL
```

C++ benchmarks:
```
-O2 -lOpenCL
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/accel/flags/gcc_flags.20150303.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/accel/flags/gcc_flags.20150303.00.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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