SPEC® ACCEL_OCL Result

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 date:** Jun-2014
Test sponsor: KIT Institute for Data Processing and Electronics	**Hardware Availability:** Nov-2012
Tested by: Karlsruhe Institute of Technology (KIT)	**Software Availability:** Feb-2014

101.tpacf 1.43
103.stencil 2.01
104.lbm 2.98
110.fft 1.48
112.spmv 1.95
114.mriq 3.27
116.histo 1.07
117.bfs 2.02
118.cutcp 2.51
120.kmeans 1.17
121.lavamd 1.61
122.cfd 1.22
123.nw 1.51
124.hotspot 2.58
125.lud 1.16
126.ge 3.56
127.srad 1.71
128.heartwall 0.991
140.bplustree 1.11

SPECaccel_ocl_base = 1.72

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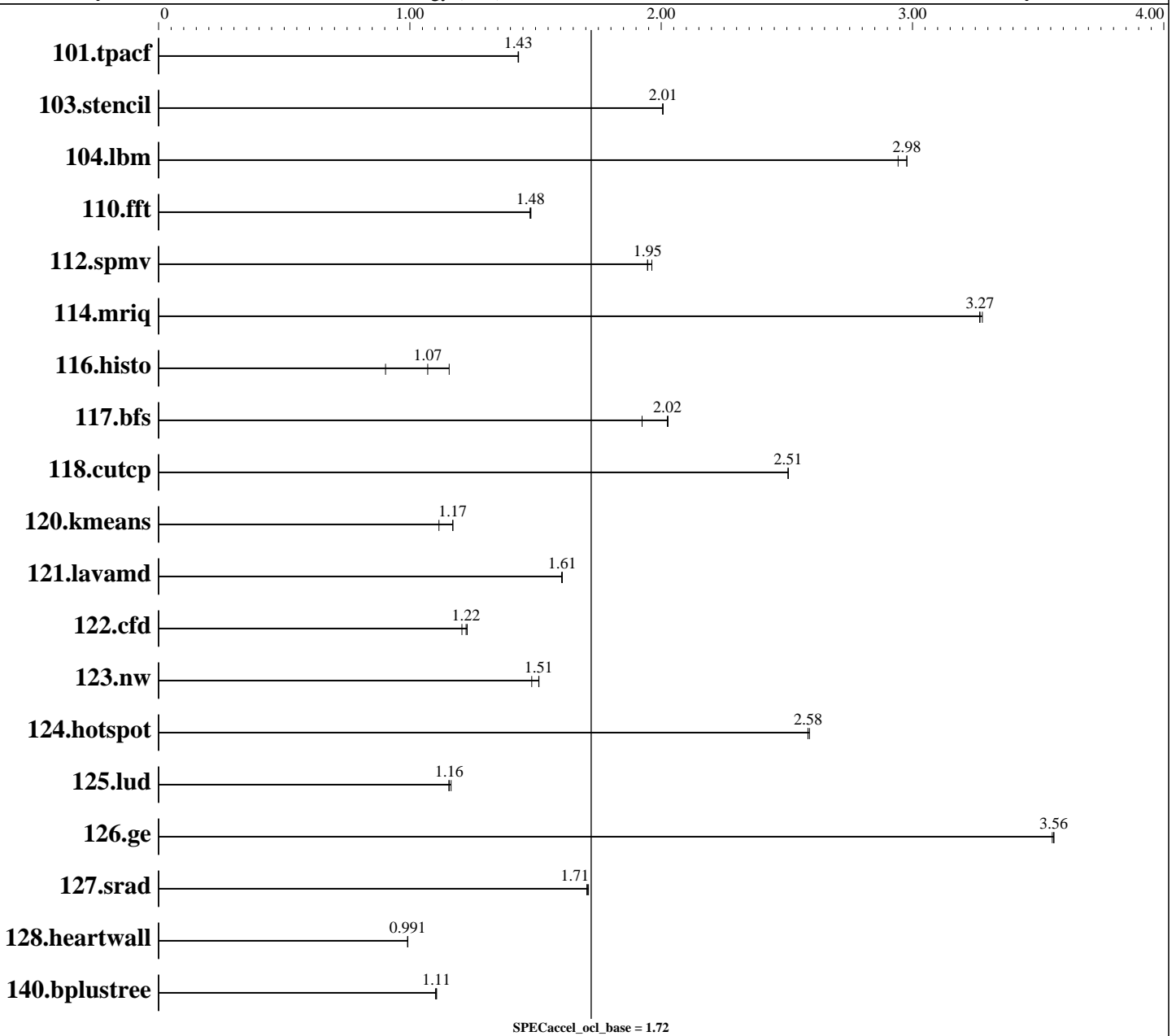
SPECaccel_ocl_base = 1.72

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

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

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http://www.spec.org/

Page 3

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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)
```

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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.

Tested with SPEC ACCEL v1.0.
Report generated on Tue Mar 3 14:21:38 2015 by SPEC ACCEL PS/PDF formatter v1212.
Originally published on 20 August 2014.