SPEC® ACCEL_OCL Result

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Cray
(Test Sponsor: Indiana University)

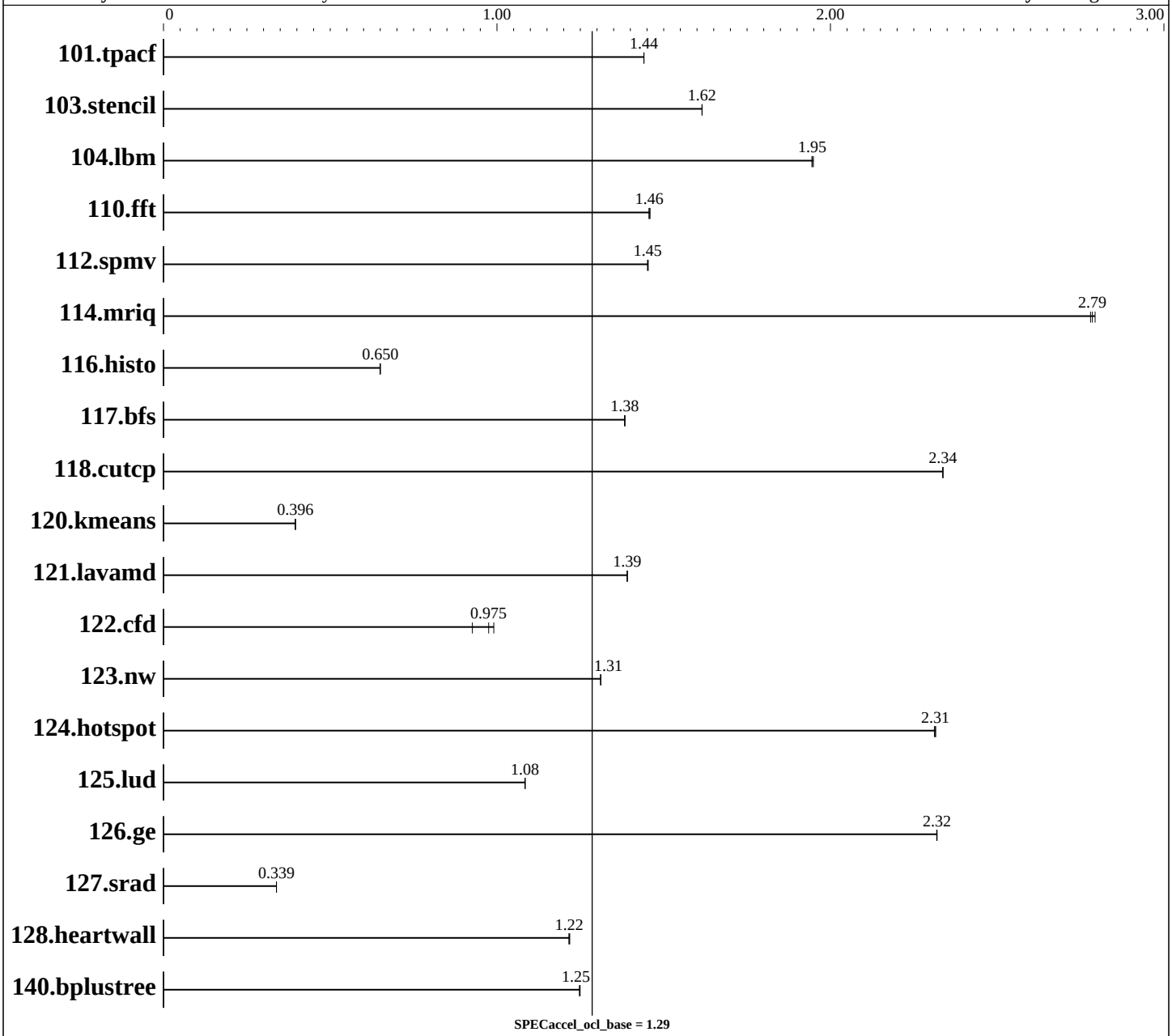
NVIDIA Tesla K20
Cray XK7

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 1.29

ACCEL license: 3440A
Test sponsor: Indiana University
Tested by: Indiana University

Test date: Feb-2014
Hardware Availability: Apr-2013
Software Availability: Aug-2013



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Hardware

CPU Name:	AMD Opteron 6276
CPU Characteristics:	AMD Turbo CORE Technology up to 3.2GHz, Turbo CORE off
CPU MHz:	2300
CPU MHz Maximum:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 1 chip, 16 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 16 KB D on chip per core
Secondary Cache:	16 MB I+D on chip per chip, 2 MB shared / 2 cores
L3 Cache:	16 MB I+D on chip per chip, 8 MB shared / 8 cores
Other Cache:	None
Memory:	32 GB (4 x 8 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem:	NONE
Other Hardware:	None

Accelerator

Accel Model Name:	Tesla K20
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K20
Type of Accel:	GPU
Accel Connection:	PCIe 2.0 16x
Does Accel Use ECC:	yes
Accel Description:	NVIDIA Tesla K20m GPU, 2496 CUDA cores, 706MHz, 5 GB GDDR5 RAM
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 304.47

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Cray Linux Environment 4.1 SUSE Linux Enterprise Server 11 (x86_64) 2.6.32.59-0.7.1_1.0401.6845-cray_gem_c
Compiler:	GNU Fortran (GCC) 4.8.1
File System:	NFSv3 (IBM N5500 NAS) over Gb ethernet
System State:	Multi-user, run level 3
Other Software:	NVIDIA CUDA 5.0.35

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
101.tpacf	74.3	1.44	**74.3**	**1.44**	74.3	1.44						
103.stencil	77.4	1.61	77.4	1.62	**77.4**	**1.62**						
104.lbm	57.5	1.95	**57.6**	**1.95**	57.6	1.94						
110.fft	76.1	1.46	76.2	1.46	**76.2**	**1.46**						
112.spmv	101	1.45	**101**	**1.45**	101	1.45						
114.mriq	39.2	2.78	**39.1**	**2.79**	39.0	2.79						
116.histo	176	0.649	**175**	**0.650**	175	0.650						
117.bfs	**84.6**	**1.38**	84.6	1.38	84.6	1.38						
118.cutcp	42.4	2.34	42.4	2.34	**42.4**	**2.34**						
120.kmeans	253	0.396	253	0.395	**253**	**0.396**						
121.lavamd	78.4	1.39	78.4	1.39	**78.4**	**1.39**						
122.cfd	127	0.991	136	0.926	**129**	**0.975**						
123.nw	**87.7**	**1.31**	87.7	1.31	87.7	1.31						
124.hotspot	49.2	2.32	49.3	2.31	**49.2**	**2.31**						
125.lud	110	1.08	110	1.08	**110**	**1.08**						
126.ge	66.8	2.32	66.8	2.32	**66.8**	**2.32**						
127.srad	**337**	**0.339**	337	0.339	336	0.339						
128.heartwall	**87.1**	**1.22**	87.2	1.22	87.0	1.22						
140.bplustree	86.4	1.25	**86.5**	**1.25**	86.6	1.25						

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

Platform Notes

```
Sysinfo program /N/soft/mason/specaccelv1-039/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on nid00858 Fri Feb 28 08:32:06 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 : AMD Opteron(TM) Processor 6276
      1 "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.)
```

Continued on next page

Platform Notes (Continued)

```
        cpu cores : 16
        siblings  : 16
        physical 0: cores 0 1 2 3 4 5 6 7
     cache size : 2048 KB

  From /proc/meminfo
     MemTotal:       33084660 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     SUSE Linux Enterprise Server 11 (x86_64)

  From /etc/*release* /etc/*version*
     SuSE-release:
        SUSE Linux Enterprise Server 11 (x86_64)
        VERSION = 11
        PATCHLEVEL = 1
     mazama-release:
        Mazama Wed Aug 28 02:06:30 CDT 2013 on hssbld0 by bwdev
        lsb-cray-mazama-7.1.0

  uname -a:
     Linux nid00858 2.6.32.59-0.7.1_1.0401.6845-cray_gem_c #1 SMP Thu Nov 15
     00:24:59 UTC 2012 x86_64 x86_64 x86_64 GNU/Linux


  SPEC is set to: /N/soft/mason/specaccelv1-039
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /N/soft        dvs   1.7T  1.5T  107G  94% /N/soft

  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 4.2.1
    OpenCL Device #0: Tesla K20, v 304.47.25
```

C++ benchmarks:

```
    OpenCL Platform: NVIDIA CUDA, OpenCL 1.1 CUDA 4.2.1
    OpenCL Device #0: Tesla K20, v 304.47.25
```

Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Base Optimization Flags

C benchmarks:
-O2 -I/opt/nvidia/cudatoolkit/default/include
-L/opt/cray/nvidia/default/lib64 -lcuda -lOpenCL

C++ benchmarks:
-O2 -I/opt/nvidia/cudatoolkit/default/include
-L/opt/cray/nvidia/default/lib64 -lcuda -lOpenCL

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

You can also download the XML flags source by saving the following link:
http://www.spec.org/accel/flags/flags-advanced.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 v39.
Report generated on Tue Mar 3 14:20:52 2015 by SPEC ACCEL PS/PDF formatter v1212.
Originally published on 17 March 2014.