



SPEC® ACCEL_OCL Result

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Cray

(Test Sponsor: Indiana University)

NVIDIA Tesla K20

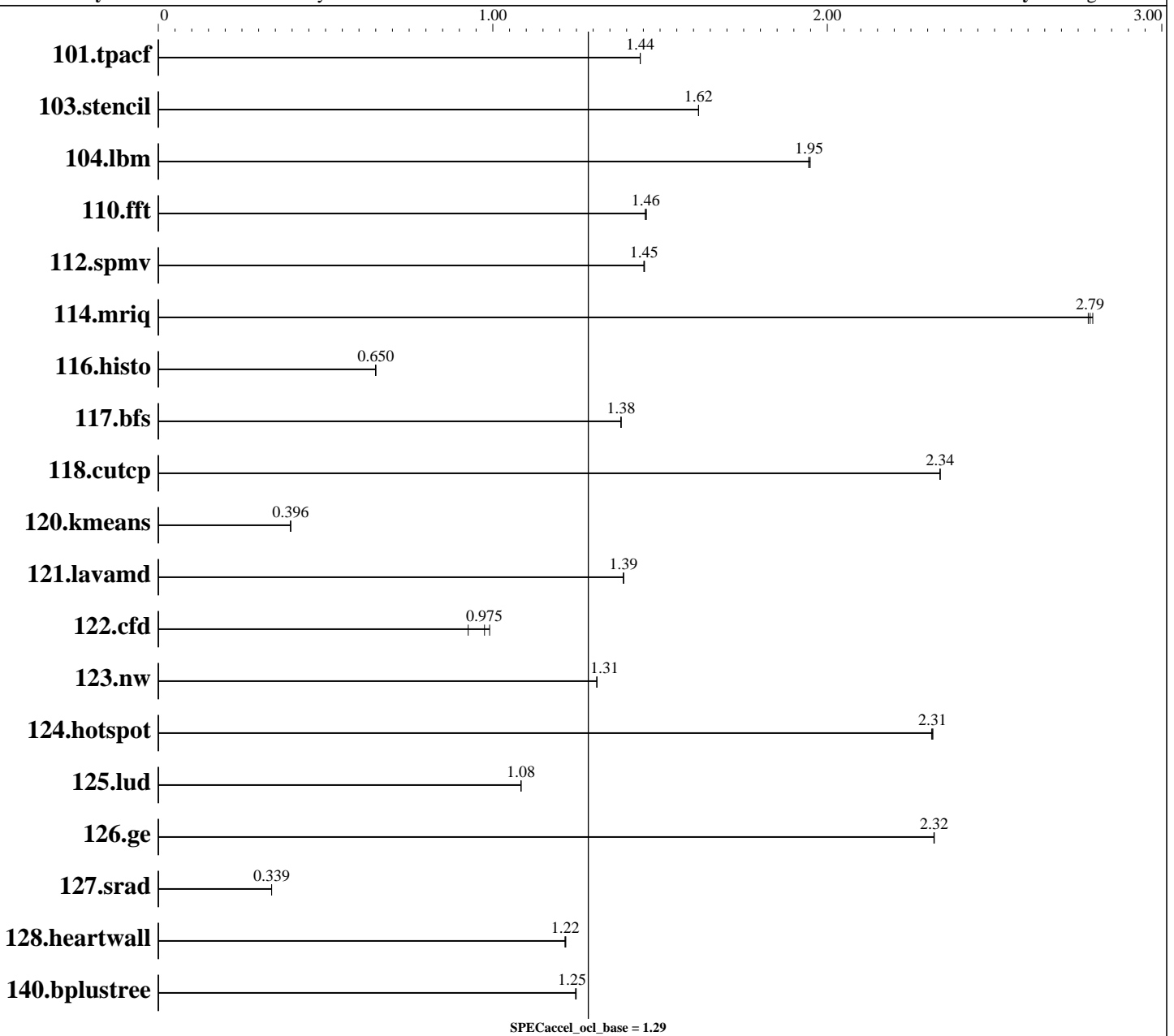
Cray XK7

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

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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



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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.

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