SPEC ACCEL™ OCL Result

Copyright 2015-2017 Standard Performance Evaluation Corporation

Asus
(Test Sponsor: HZDR)

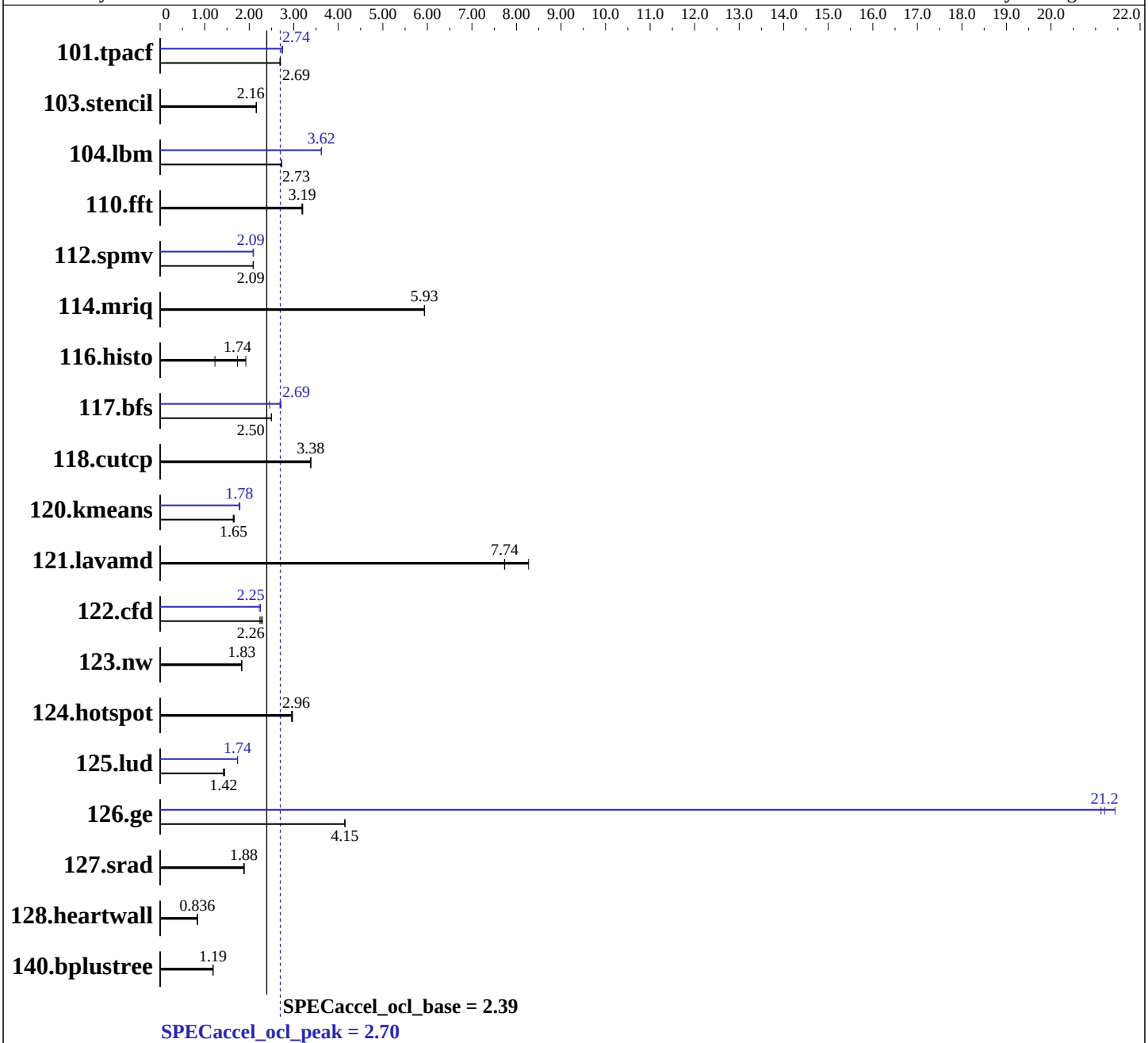
NVIDIA Tesla K80
ASUS ESC4000 G3 Series

SPECaccel_ocl_peak = 2.70

SPECaccel_ocl_base = 2.39

ACCEL license: 65A
Test sponsor: HZDR
Tested by: HZDR

Test date: Aug-2017
Hardware Availability: Nov-2014
Software Availability: Aug-2016



SPEC ACCEL OCL Result

Copyright 2015-2017 Standard Performance Evaluation Corporation

Asus
(Test Sponsor: HZDR)

NVIDIA Tesla K80
ASUS ESC4000 G3 Series

SPECaccel_ocl_peak = 2.70

SPECaccel_ocl_base = 2.39

ACCEL license: 65A
Test sponsor: HZDR
Tested by: HZDR

Test date: Aug-2017
Hardware Availability: Nov-2014
Software Availability: Aug-2016

Hardware

CPU Name:	Intel Xeon E5-2630 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz AVX clock: 2100 MHz
CPU MHz:	2400
CPU MHz Maximum:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
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:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-E, running at 1866 MHz)
Disk Subsystem:	128 GB Samsung SSD 850 PRO
Other Hardware:	None

Accelerator

Accel Model Name:	Tesla K80
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K80
Type of Accel:	GPU
Accel Connection:	PCIe 3.0 x16
Does Accel Use ECC:	yes
Accel Description:	NVIDIA Tesla K80, 2496 CUDA cores, 875 MHz 12 GB GDDR5 RAM (Kepler Generation)
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 367.48

Software

Operating System:	Ubuntu 14.04.5 LTS 4.4.0-38-generic
Compiler:	GNU Compiler C/C++ Version 6.2.0
File System:	ext3
System State:	Run level 5 (user-level)
Other Software:	NVIDIA Cuda SDK 7.0, driver version 367.48

SPEC ACCEL OCL Result

Copyright 2015-2017 Standard Performance Evaluation Corporation

Asus
(Test Sponsor: HZDR)

NVIDIA Tesla K80
ASUS ESC4000 G3 Series

SPECaccel_ocl_peak = 2.70

SPECaccel_ocl_base = 2.39

ACCEL license: 65A
Test sponsor: HZDR
Tested by: HZDR

Test date: Aug-2017
Hardware Availability: Nov-2014
Software Availability: Aug-2016

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
101.tpacf	**39.7**	**2.69**	39.8	2.69	39.6	2.70	38.9	2.75	**39.0**	**2.74**	39.1	2.74
103.stencil	57.8	2.16	**57.9**	**2.16**	58.0	2.16	57.8	2.16	**57.9**	**2.16**	58.0	2.16
104.lbm	41.0	2.73	41.1	2.73	**41.0**	**2.73**	**30.9**	**3.62**	30.9	3.62	31.0	3.62
110.fft	**34.8**	**3.19**	34.7	3.20	34.9	3.18	**34.8**	**3.19**	34.7	3.20	34.9	3.18
112.spmv	70.4	2.09	70.3	2.09	**70.4**	**2.09**	70.2	2.09	70.5	2.08	**70.3**	**2.09**
114.mriq	**18.4**	**5.93**	18.4	5.93	18.4	5.94	**18.4**	**5.93**	18.4	5.93	18.4	5.94
116.histo	92.6	1.23	**65.7**	**1.74**	59.3	1.92	92.6	1.23	**65.7**	**1.74**	59.3	1.92
117.bfs	48.9	2.39	**46.9**	**2.50**	46.9	2.50	47.6	2.46	43.1	2.71	**43.5**	**2.69**
118.cutcp	**29.3**	**3.38**	29.3	3.38	29.3	3.38	**29.3**	**3.38**	29.3	3.38	29.3	3.38
120.kmeans	**60.7**	**1.65**	61.0	1.64	60.0	1.67	56.3	1.78	55.8	1.79	**56.2**	**1.78**
121.lavamd	14.1	7.73	**14.1**	**7.74**	13.2	8.27	14.1	7.73	**14.1**	**7.74**	13.2	8.27
122.cfd	**55.6**	**2.26**	54.8	2.30	56.2	2.24	**55.9**	**2.25**	56.6	2.23	55.9	2.25
123.nw	62.8	1.83	**62.8**	**1.83**	62.9	1.83	62.8	1.83	**62.8**	**1.83**	62.9	1.83
124.hotspot	38.6	2.95	**38.5**	**2.96**	38.4	2.97	38.6	2.95	**38.5**	**2.96**	38.4	2.97
125.lud	82.1	1.45	83.7	1.42	**83.6**	**1.42**	68.4	1.74	**68.5**	**1.74**	68.5	1.74
126.ge	37.4	4.15	37.4	4.15	**37.4**	**4.15**	7.34	21.1	**7.31**	**21.2**	7.23	21.4
127.srad	60.6	1.88	**60.6**	**1.88**	60.4	1.89	60.6	1.88	**60.6**	**1.88**	60.4	1.89
128.heartwall	**127**	**0.836**	127	0.837	127	0.836	**127**	**0.836**	127	0.837	127	0.836
140.bplustree	91.0	1.19	**91.0**	**1.19**	91.0	1.19	91.0	1.19	**91.0**	**1.19**	91.0	1.19

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

Platform Notes

```
Sysinfo program /tmp/spec/1.2/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on kepler020 Thu Aug 24 13:14:25 2017

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 E5-2630 v3 @ 2.40GHz
      2 "physical id"s (chips)
      32 "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 : 8
        siblings  : 16
        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:       264058968 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Ubuntu 14.04.5 LTS

  From /etc/*release* /etc/*version*
     debian_version: jessie/sid
     os-release:
        NAME="Ubuntu"
        VERSION="14.04.5 LTS, Trusty Tahr"
        ID=ubuntu
        ID_LIKE=debian
        PRETTY_NAME="Ubuntu 14.04.5 LTS"
        VERSION_ID="14.04"
        HOME_URL="http://www.ubuntu.com/"
        SUPPORT_URL="http://help.ubuntu.com/"
     rh-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

  uname -a:
     Linux kepler020 4.4.0-38-generic #57~14.04.1-Ubuntu SMP Tue Sep 6 17:20:43
     UTC 2016 x86_64 x86_64 x86_64 GNU/Linux

  run-level 5 Apr 10 07:27

  SPEC is set to: /tmp/spec/1.2
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda1      ext3   44G   14G   28G  34% /

  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 1.2 CUDA 8.0.44
    OpenCL Device #0: Tesla K80, v 367.48
```

Continued on next page

Copyright 2015-2017 Standard Performance Evaluation Corporation

Asus
(Test Sponsor: HZDR)
NVIDIA Tesla K80
ASUS ESC4000 G3 Series

SPECaccel_ocl_peak = 2.70

SPECaccel_ocl_base = 2.39

ACCEL license: 65A
Test sponsor: HZDR
Tested by: HZDR

Test date: Aug-2017
Hardware Availability: Nov-2014
Software Availability: Aug-2016

Base Runtime Environment (Continued)

C++ benchmarks:
```
OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 8.0.44
OpenCL Device #0: Tesla K80, v 367.48
```

Base Compiler Invocation

C benchmarks:
```
gcc
```

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

Base Portability Flags

116.histo: `-DSPEC_LOCAL_MEMORY_HEADROOM=2`
122.cfd: `-std=gnu++98`

Base Optimization Flags

C benchmarks:
```
-O2 -march=haswell -I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL
```

C++ benchmarks:
```
-O2 -march=haswell -I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL
```

Peak Runtime Environment

C benchmarks:
```
OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 8.0.44
OpenCL Device #0: Tesla K80, v 367.48
```

C++ benchmarks:
```
OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 8.0.44
OpenCL Device #0: Tesla K80, v 367.48
```

Copyright 2015-2017 Standard Performance Evaluation Corporation

Asus
(Test Sponsor: HZDR)
NVIDIA Tesla K80
ASUS ESC4000 G3 Series

SPECaccel_ocl_peak = 2.70

SPECaccel_ocl_base = 2.39

ACCEL license: 65A
Test sponsor: HZDR
Tested by: HZDR

Test date: Aug-2017
Hardware Availability: Nov-2014
Software Availability: Aug-2016

Peak Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Peak Portability Flags

116.histo: -DSPEC_LOCAL_MEMORY_HEADROOM=2
122.cfd: -std=gnu++98

Peak Optimization Flags

C benchmarks:

110.fft: basepeak = yes

114.mriq: basepeak = yes

116.histo: basepeak = yes

117.bfs: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=64
-DSPEC_ACCEL_WG_SIZE_1_0=64 -I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

118.cutcp: basepeak = yes

121.lavamd: basepeak = yes

124.hotspot: basepeak = yes

127.srad: basepeak = yes

128.heartwall: basepeak = yes

140.bplustree: basepeak = yes

C++ benchmarks:

101.tpacf: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=1024
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

Continued on next page

Peak Optimization Flags (Continued)

103.stencil: basepeak = yes

104.lbm: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=32
-DSPEC_ACCEL_WG_SIZE_0_1=1 -DSPEC_ACCEL_WG_SIZE_0_2=1
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

112.spmv: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=96
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

120.kmeans: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=288
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

122.cfd: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_3_0=288
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

123.nw: basepeak = yes

125.lud: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=32
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

126.ge: -O2 -march=haswell -DSPEC_ACCEL_WG_SIZE_0_0=512
-DSPEC_ACCEL_WG_SIZE_1_0=1 -DSPEC_ACCEL_WG_SIZE_1_1=512
-I/opt/pkg/devel/cuda/7.0/include
-L/opt/pkg/devel/cuda/7.0/libb64 -lcuda -lOpenCL

The flags file that was used to format this result can be browsed at
https://www.spec.org/accel/flags/flags-advanced.20170929.html

You can also download the XML flags source by saving the following link:
https://www.spec.org/accel/flags/flags-advanced.20170929.xml

SPEC ACCEL is a trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC ACCEL v1.2.
Report generated on Fri Sep 29 13:32:03 2017 by SPEC ACCEL PS/PDF formatter v1290.
Originally published on 28 September 2017.