SPEC® ACCEL_OCL Result

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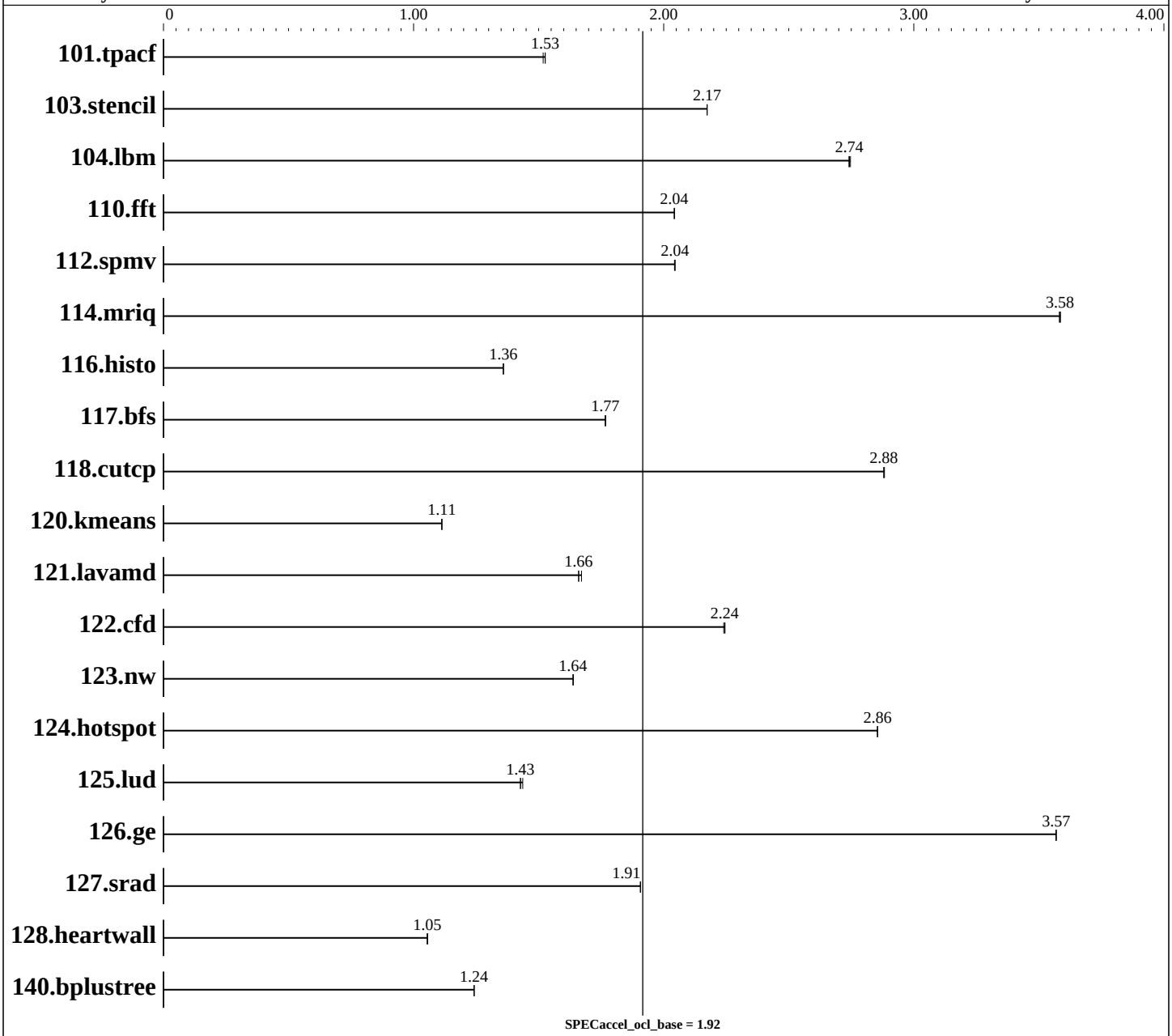
SGI
NVIDIA Tesla K40m

SGI Rackable C2110G-RP5 (Intel Xeon E5-2697 v2, 2.70 GHz)

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 1.92

ACCEL license:	14	**Test date:**	Feb-2014
Test sponsor:	SGI	**Hardware Availability:**	Nov-2013
Tested by:	SGI	**Software Availability:**	Nov-2013



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Hardware

CPU Name:	Intel Xeon E5-2697 v2
CPU Characteristics:	Twelve Core, 2.7 GHz, 8.0 GT/s QPI
CPU MHz:	2700
CPU MHz Maximum:	3500
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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:	30 MB I+D on chip per chip, 30 MB shared / 12 cores
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	15 TB 3x 6+2 RAID6, 24 x 900 GB SAS (Western Digital WD9001BKHG02D22, 10K RPM)
Other Hardware:	None

Accelerator

Accel Model Name:	Tesla K40m
Accel Vendor:	NVIDIA
Accel Name:	NVIDIA Tesla K40m
Type of Accel:	GPU
Accel Connection:	PCIe 3.0 16x
Does Accel Use ECC:	Yes
Accel Description:	Nvidia Tesla K40m, 12GB GDDR5 RAM, 745MHz, 2880 CUDA Cores.
Accel Driver:	NVIDIA UNIX x86_64 Kernel Module 331.20

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) Kernel 2.6.32-358.el6.x86_64
Compiler:	Intel c/c++/Fortran Compiler XE, Version 14.0.1.106
File System:	NFSv3 IPoIB
System State:	Run level 5 (Multi-users)
Other Software:	CUDA 5.5

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
101.tpacf	70.5	1.52	**70.1**	**1.53**	70.1	1.53						
103.stencil	57.5	2.17	57.5	2.17	**57.5**	**2.17**						
104.lbm	40.8	2.75	**40.8**	**2.74**	40.9	2.74						
110.fft	54.3	2.04	54.3	2.04	**54.3**	**2.04**						
112.spmv	71.9	2.04	**71.9**	**2.04**	71.9	2.05						
114.mriq	**30.4**	**3.58**	30.4	3.58	30.4	3.59						
116.histo	83.9	1.36	**83.9**	**1.36**	83.9	1.36						
117.bfs	66.2	1.77	66.2	1.77	**66.2**	**1.77**						
118.cutcp	**34.4**	**2.88**	34.4	2.88	34.3	2.88						
120.kmeans	89.8	1.11	**89.9**	**1.11**	89.9	1.11						
121.lavamd	65.2	1.67	**65.7**	**1.66**	65.7	1.66						
122.cfd	56.2	2.24	56.1	2.25	**56.1**	**2.24**						
123.nw	70.2	1.64	**70.2**	**1.64**	70.2	1.64						
124.hotspot	39.9	2.85	**39.9**	**2.86**	39.9	2.86						
125.lud	82.8	1.44	83.4	1.43	**83.4**	**1.43**						
126.ge	43.4	3.57	43.4	3.57	**43.4**	**3.57**						
127.srad	59.8	1.91	**59.8**	**1.91**	59.8	1.91						
128.heartwall	100	1.06	101	1.05	**100**	**1.05**						
140.bplustree	86.9	1.24	**86.9**	**1.24**	87.0	1.24						

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

Operating System Notes

```
Transparent Hugepage: disabled
  Transparent Hugepage is disabled by
  echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Platform Notes

```
Sysinfo program /store/hfeng/Accel/kit-39/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on n009 Thu Feb 27 20:17:18 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
```

Continued on next page

Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2697 v2 @ 2.70GHz
      2 "physical id"s (chips)
      48 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
   cache size : 30720 KB

From /proc/meminfo
   MemTotal:       132131352 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   sgi-accelerate-release: SGI Accelerate 1.6, Build 708r13.rhel6-1304102350
   sgi-foundation-release: SGI Foundation Software 2.8, Build
   708r13.rhel6-1304102350
   sgi-mpi-release: SGI MPI 1.6, Build 708r13.rhel6-1304102350
   sgi-release: SGI Performance Suite 1.6, Build 708r13.rhel6-1304102350
   sgi-upc-release: SGI UPC 1.6, Build 708r13.rhel6-1304102350
   sgi-xfs_xvm-release: SGI XFS-XVM 3.0, Build 707rp29.rhel6-1306102001
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux n009 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64
   x86_64 x86_64 GNU/Linux

run-level 5 Feb 18 14:36

SPEC is set to: /store/hfeng/Accel/kit-39
   Filesystem     Type    Size  Used Avail Use% Mounted on
   service1-ib:/nas
                  nfs      15T  1.3T   14T   9% /nas

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 K40m, v 331.20
```

C++ benchmarks:
```
OpenCL Platform: NVIDIA CUDA, OpenCL 1.1 CUDA 6.0.1
OpenCL Device #0: Tesla K40m, v 331.20
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Base Optimization Flags

C benchmarks:
```
-O3
```

C++ benchmarks:
```
-O3
```

Base Other Flags

C benchmarks:
```
-I/usr/local/cuda/include -L/usr/local/cuda/lib64 -lOpenCL
```

C++ benchmarks:
```
-I/usr/local/cuda/include -L/usr/local/cuda/lib64 -lOpenCL
```

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

You can also download the XML flags source by saving the following link:
`http://www.spec.org/accel/flags/SGI-Accel-OpenCL.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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