



SPEC ACCEL™ OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28

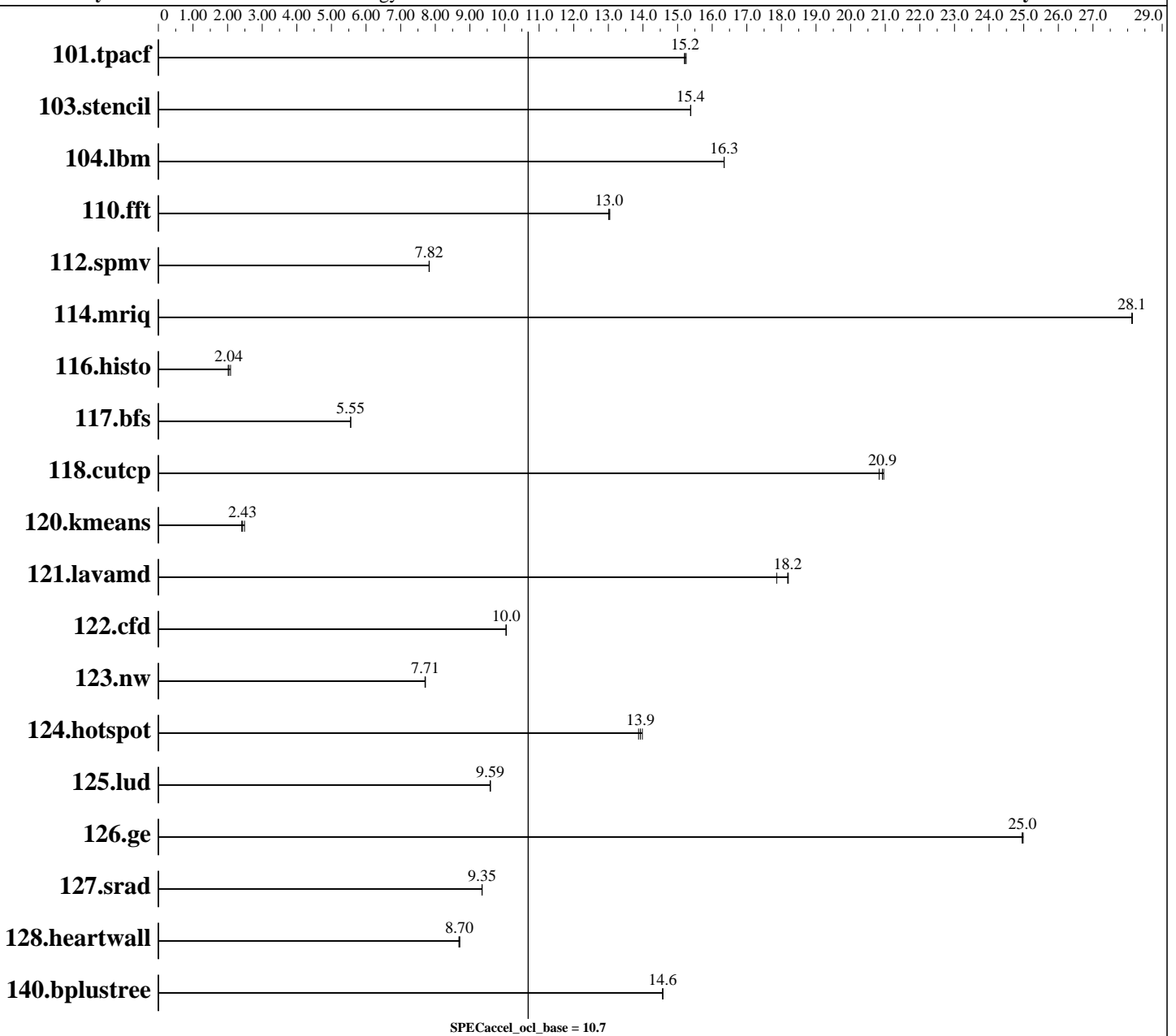
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Feb-2019





SPEC ACCEL OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28	Test date: Feb-2019
Test sponsor: Lenovo Global Technology	Hardware Availability: Feb-2019
Tested by: Lenovo Global Technology	Software Availability: Feb-2019

Hardware

CPU Name: Intel Xeon Gold 6142
 CPU Characteristics:
 CPU MHz: 2600
 CPU MHz Maximum: 3700
 FPU: Integrated
 CPU(s) enabled: 32 cores, 2 chips, 16 cores/chip
 CPU(s) orderable: 2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: 22 MB I+D on chip per chip
 Other Cache: None
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2666V)
 Disk Subsystem: Micron 480 GB 6 Gbps SATA 2.5" SSD (4XB7A10153)
 Other Hardware: None

Accelerator

Accel Model Name: Tesla V100
 Accel Vendor: NVIDIA
 Accel Name: Tesla V100-PCIE-16GB
 Type of Accel: GPU
 Accel Connection: PCIe 3.0 16x
 Does Accel Use ECC: Yes
 Accel Description: Tesla V100-PCIE-16GB
 Accel Driver: NVIDIA UNIX x86_64 Kernel Module 396.26

Software

Operating System: Red Hat Enterprise Linux Server release 7.5 (Maipo)
 3.10.0-862.el7.x86_64
 Compiler: PGI Accelerator Server Complete, Release 18.7
 File System: xfs
 System State: Run level 3 (Multi-User)
 Other Software: CUDA 9.2 SDK



SPEC ACCEL OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Feb-2019

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
101.tpacf	7.02	15.2	7.04	15.2	<u>7.03</u>	<u>15.2</u>						
103.stencil	<u>8.13</u>	<u>15.4</u>	8.13	15.4	8.13	15.4						
104.lbm	<u>6.85</u>	<u>16.3</u>	6.85	16.3	6.85	16.3						
110.fft	8.53	13.0	<u>8.52</u>	<u>13.0</u>	8.51	13.0						
112.spmv	<u>18.8</u>	<u>7.82</u>	18.8	7.82	18.8	7.83						
114.mriq	3.87	28.1	3.88	28.1	<u>3.88</u>	<u>28.1</u>						
116.histo	<u>56.0</u>	<u>2.04</u>	54.7	2.09	56.5	2.02						
117.bfs	21.0	5.56	21.1	5.55	<u>21.1</u>	<u>5.55</u>						
118.cutcp	4.72	21.0	<u>4.73</u>	<u>20.9</u>	4.75	20.8						
120.kmeans	41.5	2.41	<u>41.1</u>	<u>2.43</u>	40.2	2.49						
121.lavamd	<u>6.00</u>	<u>18.2</u>	5.99	18.2	6.10	17.9						
122.cfd	12.5	10.0	12.5	10.0	<u>12.5</u>	<u>10.0</u>						
123.nw	14.9	7.71	<u>14.9</u>	<u>7.71</u>	14.9	7.70						
124.hotspot	<u>8.19</u>	<u>13.9</u>	8.22	13.9	8.15	14.0						
125.lud	12.4	9.59	12.4	9.58	<u>12.4</u>	<u>9.59</u>						
126.ge	6.21	25.0	<u>6.21</u>	<u>25.0</u>	6.20	25.0						
127.srad	<u>12.2</u>	<u>9.35</u>	12.2	9.35	12.2	9.35						
128.heartwall	12.2	8.68	12.2	8.71	<u>12.2</u>	<u>8.70</u>						
140.bplustree	7.41	14.6	<u>7.41</u>	<u>14.6</u>	7.41	14.6						

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

Platform Notes

```
Sysinfo program /home/ACCEL1.2/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on bannerrh75 Fri Feb 22 07:14:24 2019
```

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) Gold 6142 CPU @ 2.60GHz
 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



SPEC ACCEL OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Feb-2019

Platform Notes (Continued)

```
cpu cores : 16
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 22528 KB
```

```
From /proc/meminfo
MemTotal:      792040060 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 7.5 (Maipo)
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.5 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.5"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.5:ga:server
```

```
uname -a:
Linux bannerrh75 3.10.0-862.el7.x86_64 #1 SMP Wed Mar 21 18:14:51 EDT 2018
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Feb 22 05:06
```

```
SPEC is set to: /home/ACCEL1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs  192G   71G  121G  37% /home
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

```
BIOS Lenovo -[G1E105G-1.10]- 12/07/2018
Memory:
24x Micron 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz
```

(End of data from sysinfo program)



SPEC ACCEL OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Feb-2019

General Notes

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.
Run `nvidia-smi -pm 1` to enable persistence mode.
`-DSPEC_LOCAL_MEMORY_HEADROOM` works as a portability flag for `116.histo`, but misplaced under optimization flag. The flag does not affect performance of the benchmark.

Base Runtime Environment

C benchmarks:

OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 9.2.106
OpenCL Device #0: Tesla V100-PCIE-16GB, v 396.26

C++ benchmarks:

OpenCL Platform: NVIDIA CUDA, OpenCL 1.2 CUDA 9.2.106
OpenCL Device #0: Tesla V100-PCIE-16GB, v 396.26

Base Compiler Invocation

C benchmarks:

`pgcc`

C++ benchmarks:

`pgc++`

Base Portability Flags

116.histo: `-DSPEC_LOCAL_MEMORY_HEADROOM=2(*)`
118.cutcp: `-D__GNUC__`

(*) Indicates a portability flag that was found in a non-portability variable.

Base Optimization Flags

C benchmarks:

110.fft: `-fast -Mfprelaxed -DSPEC_LOCAL_MEMORY_HEADROOM=2`

Continued on next page



SPEC ACCEL OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Feb-2019

Base Optimization Flags (Continued)

114.mriq: Same as 110.fft

116.histo: -fast -Mfprelaxed

117.bfs: Same as 110.fft

118.cutcp: Same as 110.fft

121.lavamd: Same as 110.fft

124.hotspot: Same as 110.fft

127.srad: Same as 110.fft

128.heartwall: Same as 110.fft

140.bplustree: Same as 110.fft

C++ benchmarks:

-fast -Mfprelaxed -DSPEC_LOCAL_MEMORY_HEADROOM=2

Base Other Flags

C benchmarks:

-I/usr/local/cuda-9.2/targets/x86_64-linux/include/
-L/usr/local/cuda-9.2/targets/x86_64-linux/lib -lOpenCL

C++ benchmarks:

-I/usr/local/cuda-9.2/targets/x86_64-linux/include/
-L/usr/local/cuda-9.2/targets/x86_64-linux/lib -lOpenCL

The flags files that were used to format this result can be browsed at

https://www.spec.org/accel/flags/Lenovo-SPECACCEL1.2_Platform_Flags.html

https://www.spec.org/accel/flags/pgi2014_flags.20190321.html

You can also download the XML flags sources by saving the following links:

https://www.spec.org/accel/flags/Lenovo-SPECACCEL1.2_Platform_Flags.xml

https://www.spec.org/accel/flags/pgi2014_flags.20190321.xml



SPEC ACCEL OCL Result

Copyright 2015-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology
Tesla V100-PCIE-16GB
ThinkSystem SR670

SPECaccel_ocl_peak = Not Run

SPECaccel_ocl_base = 10.7

ACCEL license: 28
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test date: Feb-2019
Hardware Availability: Feb-2019
Software Availability: Feb-2019

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 Thu Mar 21 11:47:55 2019 by SPEC ACCEL PS/PDF formatter v1290.
Originally published on 21 March 2019.