SPEC ACCEL™ ACC Result

Supermicro
(Test Sponsor: NVIDIA Corporation)

Tesla V100-PCIE-16GB
SYS-1029GQ-TRT

SPECaccel_acc_peak = 12.0
SPECaccel_acc_base = 12.0

ACCEL license: 019
Test sponsor: NVIDIA Corporation
Tested by: NVIDIA Corporation

Test date: May-2019
Hardware Availability: Nov-2017
Software Availability: Apr-2019

303.ostencil 15.5
304.olbm 11.8
314.omriq 23.0
350.md 23.5
351.palm 3.43
352.ep 10.1
353.clvrleaf 12.3
354.cg 13.7
355.seismic 14.5
356.sp 12.2
357.csp 13.5
359.miniGhost 9.53
360.ilbdc 12.4
363.swim 4.19
370.bt 23.5

SPECaccel_acc_base = 12.0:
SPECaccel_acc_peak = 12.0

Hardware
CPU Name: Intel Xeon Gold 6148
CPU Characteristics:
CPU MHz: 2400
CPU MHz Maximum: 2400
FPU: Integrated
CPU(s) enabled: 40 cores, 2 chips, 40 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: 1 MB I+D on chip per core
L3 Cache: 28160 KB I+D on chip per chip
Other Cache: None

Accelerator
Accel Model Name: Tesla V100
Accel Vendor: NVIDIA Corporation
Accel Name: Tesla V100-PCIE-16GB
Type of Accel: GPU
Accel Connection: PCIe
Does Accel Use ECC: Yes
Accel Description: See notes
Accel Driver: NVIDIA UNIX x86_64 Kernel Module 410.79

Continued on next page
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**Hardware (Continued)**

- **Memory:** 384 GB (12 x 32 GB 2Rx8 PC4-2666V-R)
- **Disk Subsystem:** Micron 51000 ECO M.2 480GB SATA SSD
- **Other Hardware:** None

**Software**

- **Operating System:** CentOS Linux release 7.6.1810 (Core) 3.10.0-957.1.3.el7.x86_64
- **Compiler:** PGI Professional Edition, Release 19.4
- **File System:** xfs
- **System State:** Run level 3 (add definition here)

**Other Software:** None

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## Results Table

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<td>53.6</td>
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</tbody>
</table>

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

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**Submit Notes**

The config file option 'submit' was used.
## SPEC ACCEL ACC Result

### Platform Notes

Sysinfo program /local/home/toepfer/SPECACCEL/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on perf-sky6 Thu May 30 13:32:23 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 6148 CPU @ 2.40GHz
- 2 "physical id"s (chips)
- 80 "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 : 20
  - siblings : 40
- physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- cache size : 28160 KB

From /proc/meminfo

- MemTotal: 394869788 kB
- HugePages_Total: 20
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
CentOS Linux release 7.6.1810 (Core)

From /etc/*release* /etc/*version*
- centos-release: CentOS Linux release 7.6.1810 (Core)
- centos-release-upstream: Derived from Red Hat Enterprise Linux 7.6 (Source)
- os-release:
  - NAME="CentOS Linux"
  - VERSION="7 (Core)"
  - ID="centos"
  - ID_LIKE="rhel fedora"
  - VERSION_ID="7"
  - PRETTY_NAME="CentOS Linux 7 (Core)"
  - ANSI_COLOR="0;31"
  - CPE_NAME="cpe:/o:centos:centos:7"
- redhat-release: CentOS Linux release 7.6.1810 (Core)
- system-release: CentOS Linux release 7.6.1810 (Core)
- system-release-cpe: cpe:/o:centos:centos:7

### Operating System Notes

Stacksize set to 'unlimited'

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<p>| | |</p>
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<tr>
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Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
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Platform Notes (Continued)

uname -a:
Linux perf-sky6 3.10.0-957.1.3.el7.x86_64 #1 SMP Thu Nov 29 14:49:43 UTC 2018
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 28 10:37
SPEC is set to: /local/home/toepfer/SPECACCEL

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/centos_perf--sky6-root xfs 443G 32G 411G 8% /

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.

(End of data from sysinfo program)
Information from pgaccelinfo

CUDA Driver Version: 10000
NVRM version: NVIDIA UNIX x86_64 Kernel Module 410.79 Thu Nov 15 10:41:04 CST 2018

Device Number: 0
Device Name: Tesla V100-PCIE-16GB
Device Revision Number: 7.0
Global Memory Size: 16914055168
Number of Multiprocessors: 80
Concurrent Copy and Execution: Yes
Total Constant Memory: 65536
Total Shared Memory per Block: 49152
Registers per Block: 65536
Warp Size: 32
Maximum Threads per Block: 1024
Maximum Block Dimensions: 1024, 1024, 64
Maximum Grid Dimensions: 2147483647 x 65535 x 65535
Maximum Memory Pitch: 2147483647B
Texture Alignment: 512B
Clock Rate: 1380 MHz
Execution Timeout: No
Integrated Device: No
Can Map Host Memory: Yes
Compute Mode: default
Concurrent Kernels: Yes
ECC Enabled: Yes
Memory Clock Rate: 877 MHz
Memory Bus Width: 4096 bits
L2 Cache Size: 6291456 bytes

Continued on next page
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Platform Notes (Continued)

Max Threads Per SMP: 2048
Async Engines: 7
Unified Addressing: Yes
Managed Memory: Yes
Concurrent Managed Memory: Yes
Preemption Supported: Yes
Cooperative Launch: Yes
Multi-Device: Yes
PGI Default Target: -ta=tesla:cc70

Base Compiler Invocation

C benchmarks:
pgcc
Fortran benchmarks:
pgfortran
Benchmarks using both Fortran and C:
pgcc pgfortran

Base Optimization Flags

C benchmarks:
-fast -Mnouniform -Mhugetlb -acc -ta=tesla:cc70
Fortran benchmarks:
-fast -Mnouniform -Mhugetlb -acc -ta=tesla:cc70
Benchmarks using both Fortran and C:
353.clvrleaf: -fast -Mnouniform -Mhugetlb -acc -ta=tesla:cc70
359.miniGhost: -fast -Mnouniform -Mhugetlb -acc -ta=tesla:cc70 -Mnomain

Peak Optimization Flags

C benchmarks:
303.ostencil: basepeak = yes
304.olbm: basepeak = yes

Continued on next page
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Peak Optimization Flags (Continued)

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352.ep: basepeak = yes
354.cg: basepeak = yes
357.csp: basepeak = yes
370.bt: basepeak = yes

Fortran benchmarks:
350.md: basepeak = yes
351.palm: basepeak = yes
355.seismic: basepeak = yes
356.sp: basepeak = yes
360.ilbdc: basepeak = yes
363.swim: basepeak = yes

Benchmarks using both Fortran and C:
353.clvrleaf: basepeak = yes
359.miniGhost: basepeak = yes

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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 v1.2.
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