IBM Corporation
(Test Sponsor: NVIDIA Corporation)

**Tesla P100**
IBM Power Systems S822LC for High Performance Computing (8335-GBT)

| SPECaccel_acc_base = 7.16 |

**ACCEL license:** 019  
**Test sponsor:** NVIDIA Corporation  
**Tested by:** IBM Corporation  
**Test date:** Sep-2016  
**Hardware Availability:** Sep-2016  
**Software Availability:** Sep-2016

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
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<tbody>
<tr>
<td>303.ostencil</td>
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<tr>
<td>370.bt</td>
<td>17.6</td>
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</table>

**Hardware**
- **CPU Name:** POWER8 with NVLink
- **CPU Characteristics:**
  - **CPU MHz:** 3259
  - **CPU MHz Maximum:** 3857
  - **FPU:** Integrated
  - **CPU(s) enabled:** 16 cores, 2 chips, 8 cores/chip, 8 threads/core
  - **CPU(s) orderable:** 2 chips
  - **Primary Cache:** 32 KB I \& 64 KB D on chip per core
  - **Secondary Cache:** 512 KB I+D on chip per core
  - **L3 Cache:** 8 MB I+D on chip per chip
  - **Other Cache:** 16 MB I+D off chip per 4 DIMMs

**Accelerator**
- **Accel Model Name:** Tesla P100
- **Accel Vendor:** NVIDIA
- **Accel Name:** Tesla P100
- **Type of Accel:** GPU
- **Accel Connection:** NVLink
- **Does Accel Use ECC:** Yes
- **Accel Description:** See Notes
- **Accel Driver:** NVIDIA UNIX ppc64le Kernel Module 361.85
IBM Corporation
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Tesla P100
IBM Power Systems S822LC for High Performance Computing (8335- GTB)

SPECaccel_acc_peak = Not Run
SPECaccel_acc_base = 7.16

ACCEL license: 019
Test sponsor: NVIDIA Corporation
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Hardware (Continued)
Memory: 512 GB (16 x 32 GB RDIMMs) DDR4 1600 MHz
Disk Subsystem: 2x 1TB SATA 6.0Gb/s 7200 RPM
Other Hardware: No

Software
Operating System: Ubuntu 16.04.1 LTS 4.4.0-34-generic
Compiler: PGI Accelerator Fortran/C/C++ Server, Release 16.9
File System: ext4
System State: Run level 5 (multi-user)
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.
IBM Corporation  
(Test Sponsor: NVIDIA Corporation)  

**SPEC ACCEL ACC Result**

**IBM Power Systems S822LC for High Performance Computing (8335-GTB)**

<table>
<thead>
<tr>
<th>ACCEL license</th>
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<tr>
<td>019</td>
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**SPECaccel_acc_peak = Not Run**

**SPECaccel_acc_base = 7.16**

**Platform Notes**

Sysinfo program /home/user/SPECACCEL/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on gar1 Fri Sep  2 20:50:00 2016

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
- clock : 2061.000000MHz
- clock : 2094.000000MHz
- clock : 2128.000000MHz
- clock : 2194.000000MHz
- clock : 2360.000000MHz
- clock : 2527.000000MHz
- clock : 4023.000000MHz
- machine : PowerNV 8335-GTB
- model : 8335-GTB
- platform : PowerNV
- revision : 1.0 (pvr 004c 0100)
- cpu : POWER8NVL (raw), altivec supported

* 0 "physical id" tags found. Perhaps this is an older system, or a virtualized system. Not attempting to guess how to count chips/cores for this system.

From /proc/meminfo
- MemTotal: 535690880 kB
- HugePages_Total: 0
- Hugepagesize: 16384 kB

From /usr/bin/lsb_release -d
- Ubuntu 16.04.1 LTS

From /etc/*release* /etc/*version*
- debian_version: stretch/sid
- os-release:
  NAME="Ubuntu"
  VERSION="16.04.1 LTS (Xenial Xerus)"
  ID=ubuntu
  ID_LIKE=debian
  PRETTY_NAME="Ubuntu 16.04.1 LTS"
  VERSION_ID="16.04"
  HOME_URL="http://www.ubuntu.com/"

Continued on next page
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Platform Notes (Continued)

SUPPORT_URL="http://help.ubuntu.com/"

uname -a:
Linux gar1 4.4.0-34-generic #53-Ubuntu SMP Wed Jul 27 16:04:07 UTC 2016
ppc64le ppc64le ppc64le GNU/Linux
run-level 5 Sep 2 16:36

SPEC is set to: /home/user/SPECACCEL

Information from pgaccelinfo
CUDA Driver Version: 8000
NVRM version: NVIDIA UNIX ppc64le Kernel Module 361.85
Device Number: 0
Device Name: Tesla P100-SXM2-16GB
Device Revision Number: 6.0
Global Memory Size: 17071669248
Number of Multiprocessors: 56
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: 1480 MHz
Execution Timeout: No
Integrated Device: No
Can Map Host Memory: Yes
Compute Mode: default
Concurrent Kernels: Yes
ECC Enabled: Yes
Memory Clock Rate: 715 MHz
Memory Bus Width: 4096 bits
L2 Cache Size: 4194304 bytes
Max Threads Per SMP: 2048
Async Engines: 3
Unified Addressing: Yes
Managed Memory: Yes
PGI Compiler Option: -ta=tesla:cc60
SPEC ACCEL ACC Result

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Base Compiler Invocation

C benchmarks:
pgcc

Fortran benchmarks:
pgfortran

Benchmarks using both Fortran and C:
pgcc pgfortran

Base Optimization Flags

C benchmarks:
-fast -acc -ta=tesla:cc60 -ta=tesla:managed

Fortran benchmarks:
-fast -acc -ta=tesla:cc60 -ta=tesla:managed

Benchmarks using both Fortran and C:
353.clvrleaf: -fast -acc -ta=tesla:cc60 -ta=tesla:managed
359.miniGhost: -fast -acc -ta=tesla:cc60 -ta=tesla:managed -Mnomain

The flags file that was used to format this result can be browsed at
http://www.spec.org/accel/flags/pgi2016_flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/accel/flags/pgi2016_flags.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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