**IBM Corporation**  
(Test Sponsor: NVIDIA Corporation)

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

<table>
<thead>
<tr>
<th>Test sponsor</th>
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<tbody>
<tr>
<td>Tested by</td>
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<tr>
<td>ACCEL license</td>
<td>019</td>
</tr>
<tr>
<td>Test date</td>
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### SPECaccel_acc_peak = Not Run

### SPECaccel_acc_base = 7.87

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
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<tbody>
<tr>
<td>303.ostencil</td>
<td>7.48</td>
</tr>
<tr>
<td>304.olbm</td>
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</tr>
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<tr>
<td>355.seismic</td>
<td>8.25</td>
</tr>
<tr>
<td>356.sp</td>
<td>7.30</td>
</tr>
<tr>
<td>357.csp</td>
<td>8.79</td>
</tr>
<tr>
<td>359.miniGhost</td>
<td>6.93</td>
</tr>
<tr>
<td>360.ilbdc</td>
<td>8.89</td>
</tr>
<tr>
<td>363.swim</td>
<td>4.63</td>
</tr>
<tr>
<td>370.bt</td>
<td>17.8</td>
</tr>
</tbody>
</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 Driver:** NVIDIA UNIX ppc64le Kernel Module 361.85

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**SPEC accel acc peak** = Not Run

**SPEC accel acc base** = 7.87

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

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### 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

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### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
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<tr>
<td>303.ostencil</td>
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<td>50.0</td>
<td>4.60</td>
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<td>370.bt</td>
<td>12.5</td>
<td>17.8</td>
</tr>
</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.
<table>
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<tr>
<th>SPEC ACCEL ACC Result</th>
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### Platform Notes

Sysinfo program /home/user/SPECACCEL/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bb534c6de3f831
running on gar1 Fri Sep 2 21:51:47 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 : 2360.000000MHz
- clock : 2593.000000MHz
- clock : 2693.000000MHz
- 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.

128 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

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

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

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

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**Platform Notes (Continued)**

```bash
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
    Filesystem                Type  Size  Used  Avail  Use%  Mounted on
    /dev/mapper/g82L--vg-root ext4  788G  232G  517G  31%  /
```

Information from pgaccelinfo

- CUDA Driver Version: 8000
- 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
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**SPECaccel_acc_peak = Not Run**

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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`

- **Fortran benchmarks:**
  - `-fast -acc -ta=tesla:cc60`

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

The flags file that was used to format this result can be browsed at

You can also download the XML flags source by saving the following link:

---

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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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