



SPEC ACCEL™ ACC Result

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IBM Corporation
(Test Sponsor: NVIDIA Corporation)

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

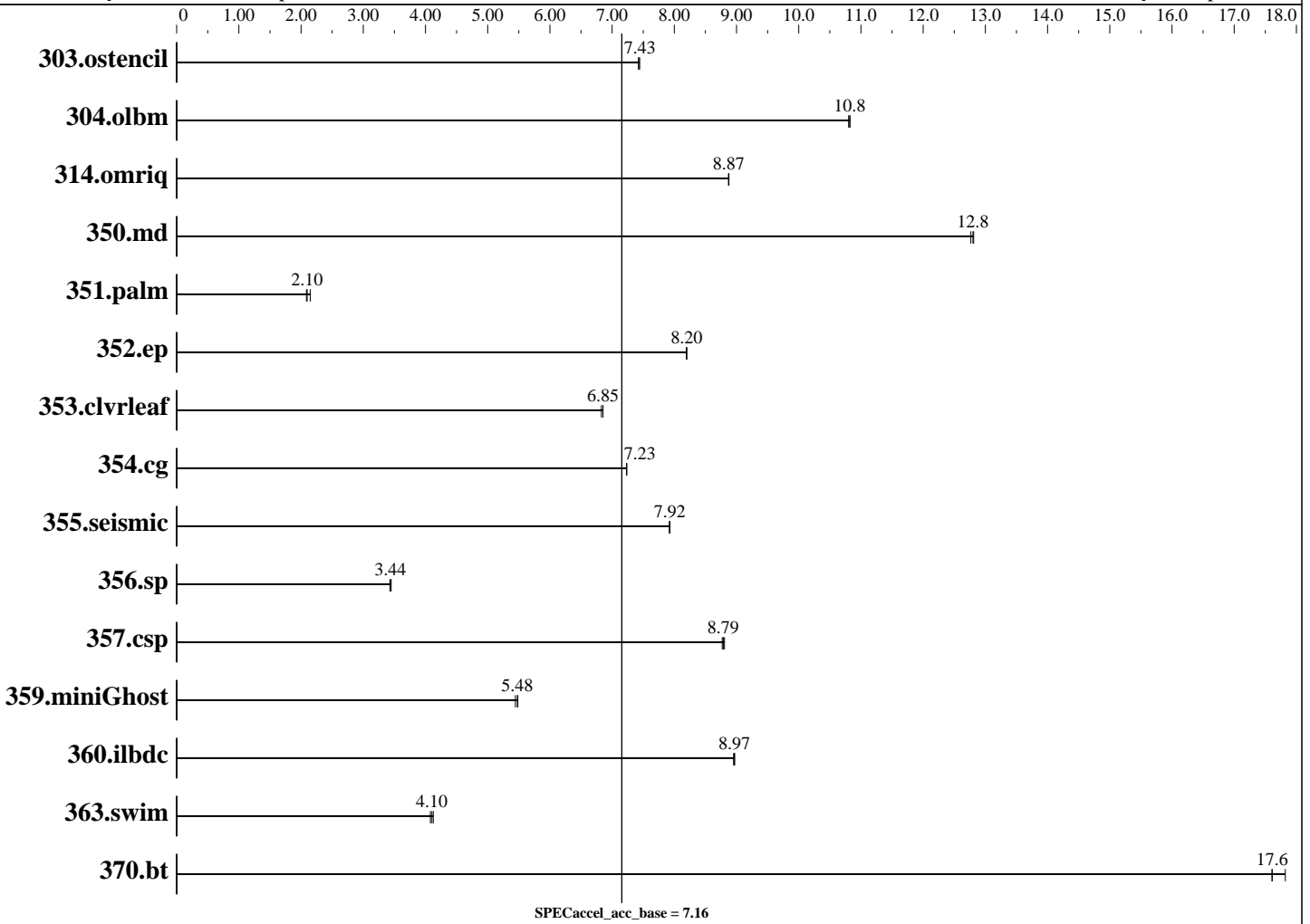
Test sponsor: NVIDIA Corporation

Tested by: IBM Corporation

Test date: Sep-2016

Hardware Availability: Sep-2016

Software Availability: Sep-2016



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

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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



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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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	19.5	7.44	19.5	7.42	19.5	7.43						
304.olbm	42.1	10.8	42.1	10.8	42.0	10.8						
314.omriq	108	8.87	108	8.88	108	8.87						
350.md	19.7	12.8	19.7	12.8	19.7	12.8						
351.palm	177	2.09	172	2.15	176	2.10						
352.ep	64.7	8.20	64.6	8.20	64.7	8.19						
353.clvleaf	65.2	6.83	64.9	6.85	64.9	6.85						
354.cg	56.4	7.23	56.4	7.23	56.4	7.24						
355.seismic	46.7	7.92	46.7	7.92	46.7	7.93						
356.sp	80.0	3.45	80.3	3.44	80.5	3.43						
357.csp	30.7	8.79	30.8	8.77	30.7	8.81						
359.miniGhost	67.3	5.48	67.4	5.48	67.8	5.44						
360.ilbdc	40.9	8.97	40.9	8.97	41.0	8.95						
363.swim	56.4	4.08	55.7	4.13	56.0	4.10						
370.bt	12.7	17.6	12.5	17.8	12.7	17.6						

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.



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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.

*
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/"
```

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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
Filesystem                Type      Size  Used Avail Use% Mounted on
/dev/mapper/g82L--vg-root ext4      788G  231G  517G  31% /
```

```
(End of data from sysinfo program)
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
```



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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.cvlrleaf: -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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