



# SPEC ACCEL™ ACC Result

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IBM

(Test Sponsor: Oak Ridge National Laboratory)

## NVIDIA Tesla P100

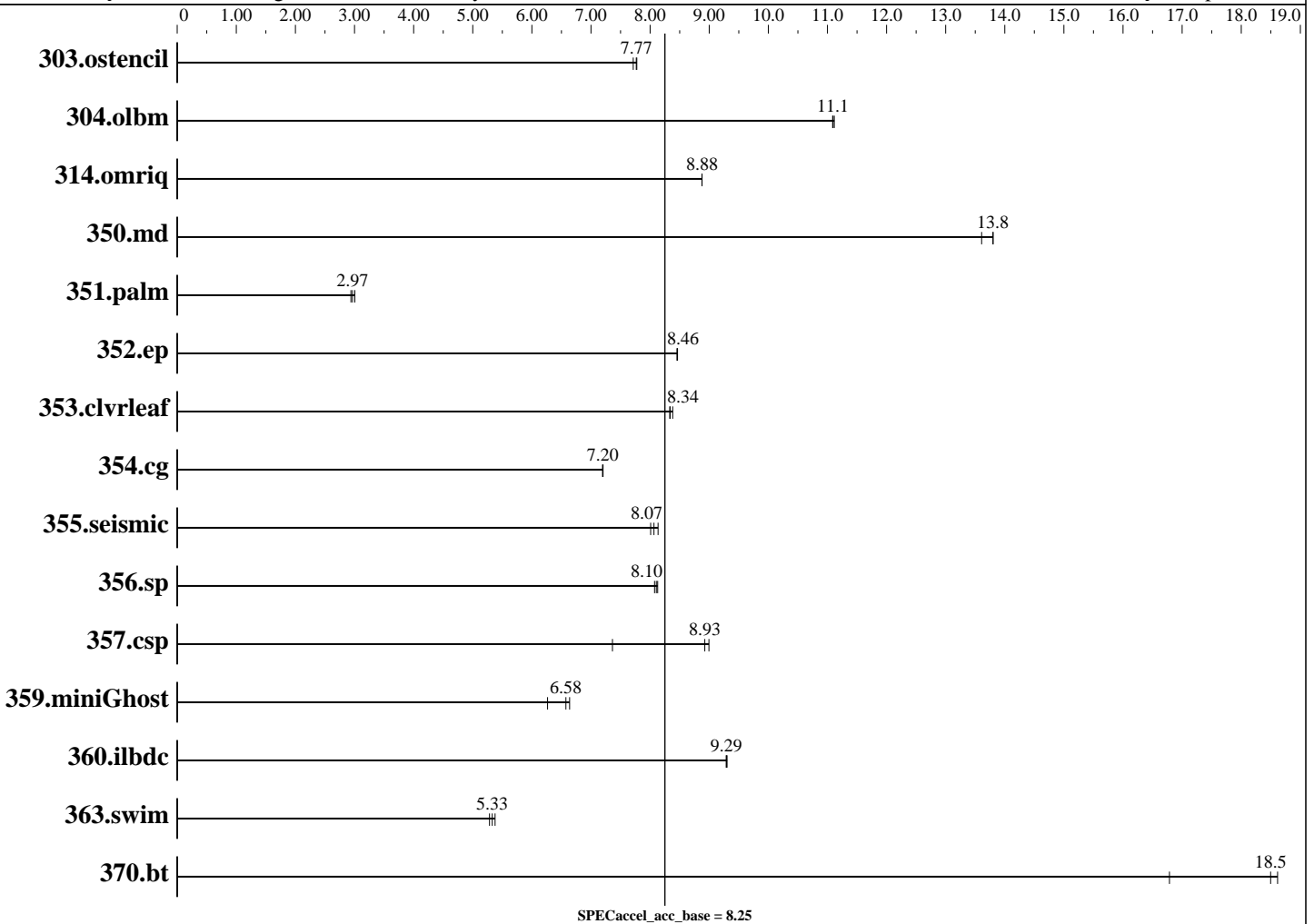
## IBM POWER8 S822LC

SPECaccel\_acc\_peak = Not Run

SPECaccel\_acc\_base = 8.25

ACCEL license: 054A  
Test sponsor: Oak Ridge National Laboratory  
Tested by: Oak Ridge National Laboratory

Test date: May-2017  
Hardware Availability: Dec-2016  
Software Availability: Apr-2017



### Hardware

CPU Name: POWER8NVL (raw), altivec supported  
 CPU Characteristics: Simultaneous Multithreading (SMT) on  
 CPU MHz: 3259  
 CPU MHz Maximum: 3857  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 8 threads/core  
 CPU(s) orderable: 1,2 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: NVIDIA Tesla P100  
 Type of Accel: GPU  
 Accel Connection: NVLink 1.0  
 Does Accel Use ECC: yes  
 Accel Description: NVIDIA Tesla P100 "Pascal" GPU  
 Accel Driver: NVIDIA CUDA driver 375.51



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### Hardware (Continued)

Memory: 256 GB DDR4 1600 MHz  
Disk Subsystem: 14P Lustre  
Other Hardware: --

### Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)  
3.10.0-514.el7.ppc64le  
Compiler: PGI Premier Edition, Release 17.4  
File System: lustre  
System State: Run level 5 (Multi-user, graphical)  
Other Software: NVIDIA CUDA Toolkit 8.0.54

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	18.6	7.77	<u>18.7</u>	<u>7.77</u>	18.8	7.71						
304.olbm	41.0	11.1	<u>41.0</u>	<u>11.1</u>	40.9	11.1						
314.omriq	108	8.88	108	8.88	<u>108</u>	<u>8.88</u>						
350.md	18.5	13.6	18.3	13.8	<u>18.3</u>	<u>13.8</u>						
351.palm	126	2.94	123	3.01	<u>125</u>	<u>2.97</u>						
352.ep	62.6	8.46	62.7	8.46	<u>62.7</u>	<u>8.46</u>						
353.clvleaf	<u>53.4</u>	<u>8.34</u>	53.4	8.33	53.1	8.38						
354.cg	56.6	7.20	<u>56.7</u>	<u>7.20</u>	56.7	7.20						
355.seismic	45.5	8.13	46.2	8.01	<u>45.9</u>	<u>8.07</u>						
356.sp	<u>34.1</u>	<u>8.10</u>	34.2	8.07	34.0	8.13						
357.csp	<u>30.3</u>	<u>8.93</u>	36.7	7.36	30.0	9.00						
359.miniGhost	<u>56.1</u>	<u>6.58</u>	58.9	6.27	55.6	6.64						
360.ilbdc	<u>39.5</u>	<u>9.29</u>	39.5	9.29	39.5	9.30						
363.swim	42.8	5.38	43.5	5.28	<u>43.2</u>	<u>5.33</u>						
370.bt	12.0	18.6	13.3	16.8	<u>12.1</u>	<u>18.5</u>						

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

## Platform Notes

```
Sysinfo program
/lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75summitdev/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on summitdev-r0c2n09 Tue May 9 19:25:53 2017
```

This section contains SUT (System Under Test) info as seen by

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## Platform Notes (Continued)

some common utilities. To remove or add to this section, see:  
<http://www.spec.org/accel/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
clock : 2394.000000MHz
clock : 2427.000000MHz
clock : 2460.000000MHz
clock : 2626.000000MHz
clock : 2726.000000MHz
clock : 2926.000000MHz
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.
*
```

```
160 "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: 266799296 kB
HugePages_Total: 0
Hugepagesize: 16384 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server
```

```
uname -a:
Linux summitdev-r0c2n09 3.10.0-514.el7.ppc64le #1 SMP Wed Oct 19 11:27:06 EDT
2016 ppc64le ppc64le ppc64le GNU/Linux
```

```
run-level 5 Apr 26 16:49
```

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## Platform Notes (Continued)

```
SPEC is set to: /lustre/atlas2/stf006/scratch/vgv/spec/accel/kit75summitdev
Filesystem      Type      Size  Used Avail Use% Mounted on
10.36.226.77@o2ib:/atlas2 lustre    14P   7.3P  5.9P  56% /lustre/atlas2
```

(End of data from sysinfo program)

## Base Compiler Invocation

C benchmarks:  
pgcc

Fortran benchmarks:  
pgfortran

Benchmarks using both Fortran and C:  
pgcc pgfortran

## Base Optimization Flags

C benchmarks:  
-fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

Fortran benchmarks:  
-fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

Benchmarks using both Fortran and C:

353.cvrleaf: -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

359.miniGhost: -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0  
-Mnomain

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

[https://www.spec.org/accel/flags/pgi2017\\_flags.20170621.html](https://www.spec.org/accel/flags/pgi2017_flags.20170621.html)

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

[https://www.spec.org/accel/flags/pgi2017\\_flags.20170621.xml](https://www.spec.org/accel/flags/pgi2017_flags.20170621.xml)



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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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