



SPEC ACCEL™ ACC Result

Copyright 2015-2018 Standard Performance Evaluation Corporation

IBM Corporation
(Test Sponsor: NVIDIA Corporation)

SPECaccel_acc_peak = 3.02

Power9

IBM Power Systems AC922 for High Performance Computing (8335-GTH)

SPECaccel_acc_base = 3.02

ACCEL license: 019

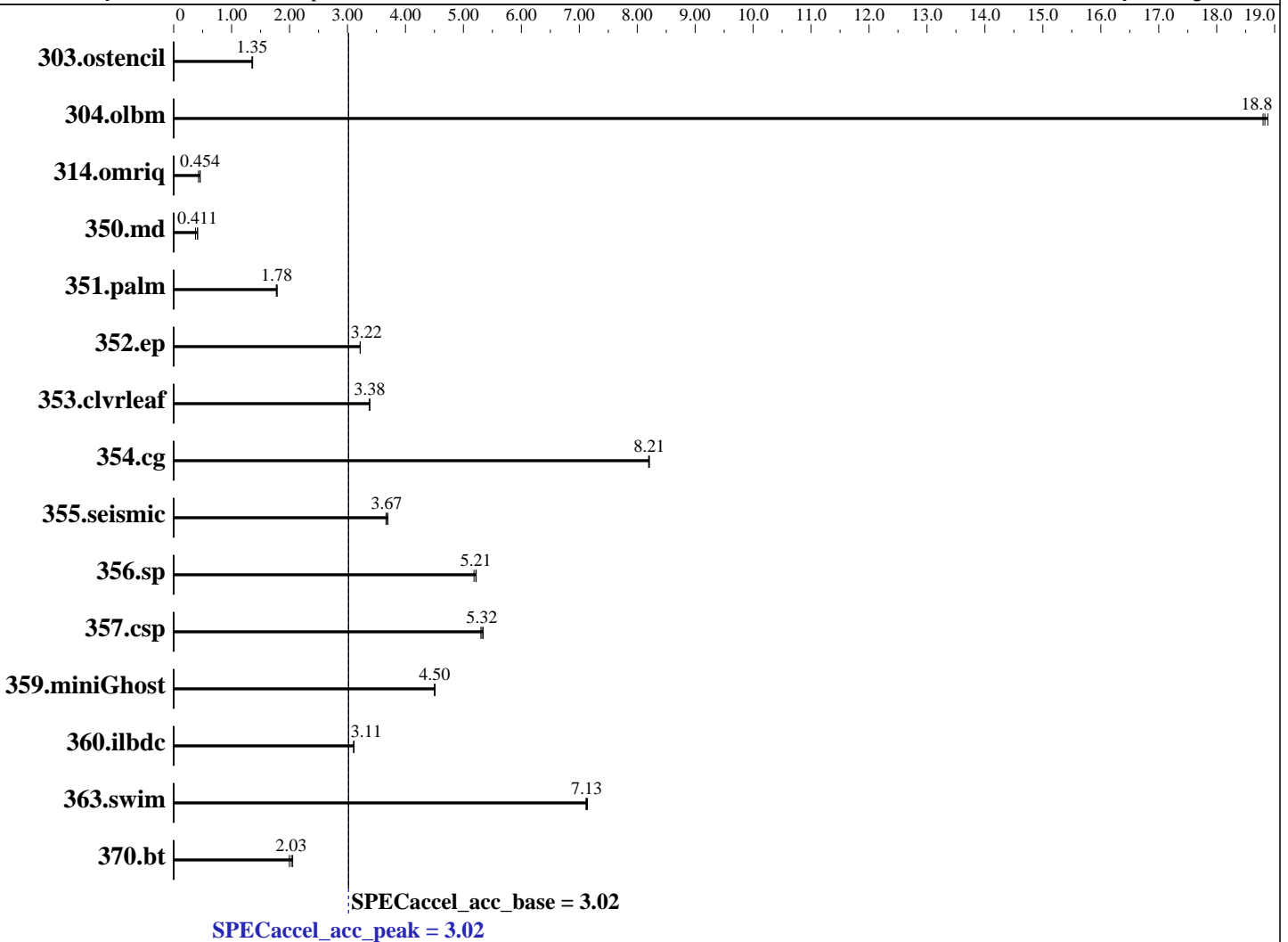
Test date: Aug-2018

Test sponsor: NVIDIA Corporation

Hardware Availability: May-2018

Tested by: NVIDIA Corporation

Software Availability: Aug-2018



Hardware

CPU Name: POWER9, altivec supported
 CPU Characteristics:
 CPU MHz: 3400
 CPU MHz Maximum: 3800
 FPU: Integrated
 CPU(s) enabled: 40 cores, 2 chips, 20 cores/chip, 4 threads/core
 CPU(s) orderable: 1,2 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 100 MB I+D on chip per chip shared NUCA / 20 cores
 Other Cache: 16 MB I+D off chip per 2 DIMMs

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Accelerator

Accel Model Name: Power9
 Accel Vendor: IBM Corporation
 Accel Name: Power9
 Type of Accel: CPU
 Accel Connection: Not Applicable
 Does Accel Use ECC: Yes
 Accel Description: Power9, altivec supported
 Accel Driver: Not Applicable



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Hardware (Continued)

Memory: 128 GB (16 x 8 GB 1Rx4 PC4-2666V-R)
Disk Subsystem: 1 x 1TB 7200 RPM SATA HDD
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.5 (Maipo)
4.14.0-49.8.1.el7a.ibmvidia.6.1.ppc64le
Compiler: PGI Professional Edition, Release 18.7
File System: xfs
System State: Run level 3 (mult-user)
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	<u>107</u>	<u>1.35</u>	106	1.36	107	1.35	<u>107</u>	<u>1.35</u>	106	1.36	107	1.35
304.olbm	24.2	18.8	<u>24.2</u>	<u>18.8</u>	24.1	18.9	24.2	18.8	<u>24.2</u>	<u>18.8</u>	24.1	18.9
314.omriq	2091	0.457	2239	0.427	<u>2104</u>	<u>0.454</u>	2091	0.457	2239	0.427	<u>2104</u>	<u>0.454</u>
350.md	612	0.412	<u>613</u>	<u>0.411</u>	669	0.377	612	0.412	<u>613</u>	<u>0.411</u>	669	0.377
351.palm	207	1.79	209	1.77	<u>208</u>	<u>1.78</u>	207	1.79	209	1.77	<u>208</u>	<u>1.78</u>
352.ep	<u>165</u>	<u>3.22</u>	165	3.22	165	3.22	<u>165</u>	<u>3.22</u>	165	3.22	165	3.22
353.clvleaf	132	3.38	132	3.38	<u>132</u>	<u>3.38</u>	132	3.38	132	3.38	<u>132</u>	<u>3.38</u>
354.cg	49.7	8.21	<u>49.7</u>	<u>8.21</u>	49.8	8.20	49.7	8.21	<u>49.7</u>	<u>8.21</u>	49.8	8.20
355.seismic	<u>101</u>	<u>3.67</u>	101	3.66	100	3.70	<u>101</u>	<u>3.67</u>	101	3.66	100	3.70
356.sp	53.3	5.18	<u>52.9</u>	<u>5.21</u>	52.9	5.22	53.3	5.18	<u>52.9</u>	<u>5.21</u>	52.9	5.22
357.csp	<u>50.7</u>	<u>5.32</u>	50.9	5.30	50.6	5.34	<u>50.7</u>	<u>5.32</u>	50.9	5.30	50.6	5.34
359.miniGhost	81.8	4.51	<u>81.9</u>	<u>4.50</u>	82.0	4.50	81.8	4.51	<u>81.9</u>	<u>4.50</u>	82.0	4.50
360.ilbdc	<u>118</u>	<u>3.11</u>	118	3.11	118	3.11	<u>118</u>	<u>3.11</u>	118	3.11	118	3.11
363.swim	32.2	7.14	32.3	7.11	<u>32.3</u>	<u>7.13</u>	32.2	7.14	32.3	7.11	<u>32.3</u>	<u>7.13</u>
370.bt	<u>110</u>	<u>2.03</u>	112	2.00	109	2.05	<u>110</u>	<u>2.03</u>	112	2.00	109	2.05

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

Platform Notes

Sysinfo program /local/home/colgrove/SPECACCEL/Docs/sysinfo
\$Rev: 6965 \$ \$Date:: 2015-04-21 #\$ c05a7f14b1b1765e3fe1df68447e8a35
running on wsnl Fri Aug 10 19:23:19 2018

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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Platform Notes (Continued)

<http://www.spec.org/accel/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  clock : 3616.000000MHz
  machine : PowerNV 8335-GTC.....
  model : 8335-GTC.....
  platform : PowerNV
  revision : 2.2 (pvr 004e 1202)
  cpu : POWER9, 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:      199796800 kB
  HugePages_Total:    0
  Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
  Red Hat Enterprise Linux Server release 7.5 (Maipo)

```

```

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.5 (Maipo)"
    ID="rhel"
    ID_LIKE="fedora"
    VARIANT="Server"
    VARIANT_ID="server"
    VERSION_ID="7.5"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
  redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
  system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:7.5:ga:server

```

```

uname -a:
  Linux wsn1 4.14.0-49.8.1.el7a.ibm.nvidia.6.1.ppc64le #1 SMP Tue Jun 5 13:56:12
  -03 2018 ppc64le ppc64le ppc64le GNU/Linux

```

run-level 3 Aug 6 09:38

```

SPEC is set to: /local/home/colgrove/SPECACCEL
  Filesystem                Type      Size  Used Avail Use% Mounted on

```

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Platform Notes (Continued)

/dev/mapper/rhel_wsn1-root xfs 927G 73G 855G 8% /

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

```
ACC_NUM_CORES = "80"
KMP_THREAD_LIMIT = "80"
OMP_NUM_THREADS = "80"
OMP_PROC_BIND = "true"
OMP_THREAD_LIMIT = "80"
```

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Base Compiler Invocation

C benchmarks:

pgcc

Fortran benchmarks:

pgfortran

Benchmarks using both Fortran and C:

pgcc pgfortran

Base Optimization Flags

C benchmarks:

-fast -Mnouniform -Mfprelaxed=intrinsic -acc -ta=multicore

Fortran benchmarks:

-fast -Mnouniform -Mfprelaxed=intrinsic -acc -ta=multicore

Benchmarks using both Fortran and C:

353.clvrlf: -fast -Mnouniform -Mfprelaxed=intrinsic -acc -ta=multicore

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Base Optimization Flags (Continued)

359.miniGhost: -fast -Mnuniform -Mfprelaxed=intrinsic -acc -ta=multicore -Mnomain

Peak Optimization Flags

C benchmarks:

303.ostencil: basepeak = yes
304.olbm: basepeak = yes
314.omriq: basepeak = yes
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.clvleaf: basepeak = yes
359.miniGhost: basepeak = yes

The flags files that were used to format this result can be browsed at

<https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.html>
https://www.spec.org/accel/flags/pgi2018_flags.html



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You can also download the XML flags sources by saving the following links:

<https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.xml>
https://www.spec.org/accel/flags/pgi2018_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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