

# SPEC ACCEL™ ACC Result

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IBM

(Test Sponsor: NVIDIA Corporation)

## IBM POWER9 CPU

## Power System AC922

SPECaccel\_acc\_peak = 3.03

SPECaccel\_acc\_base = 3.03

ACCEL license: 019

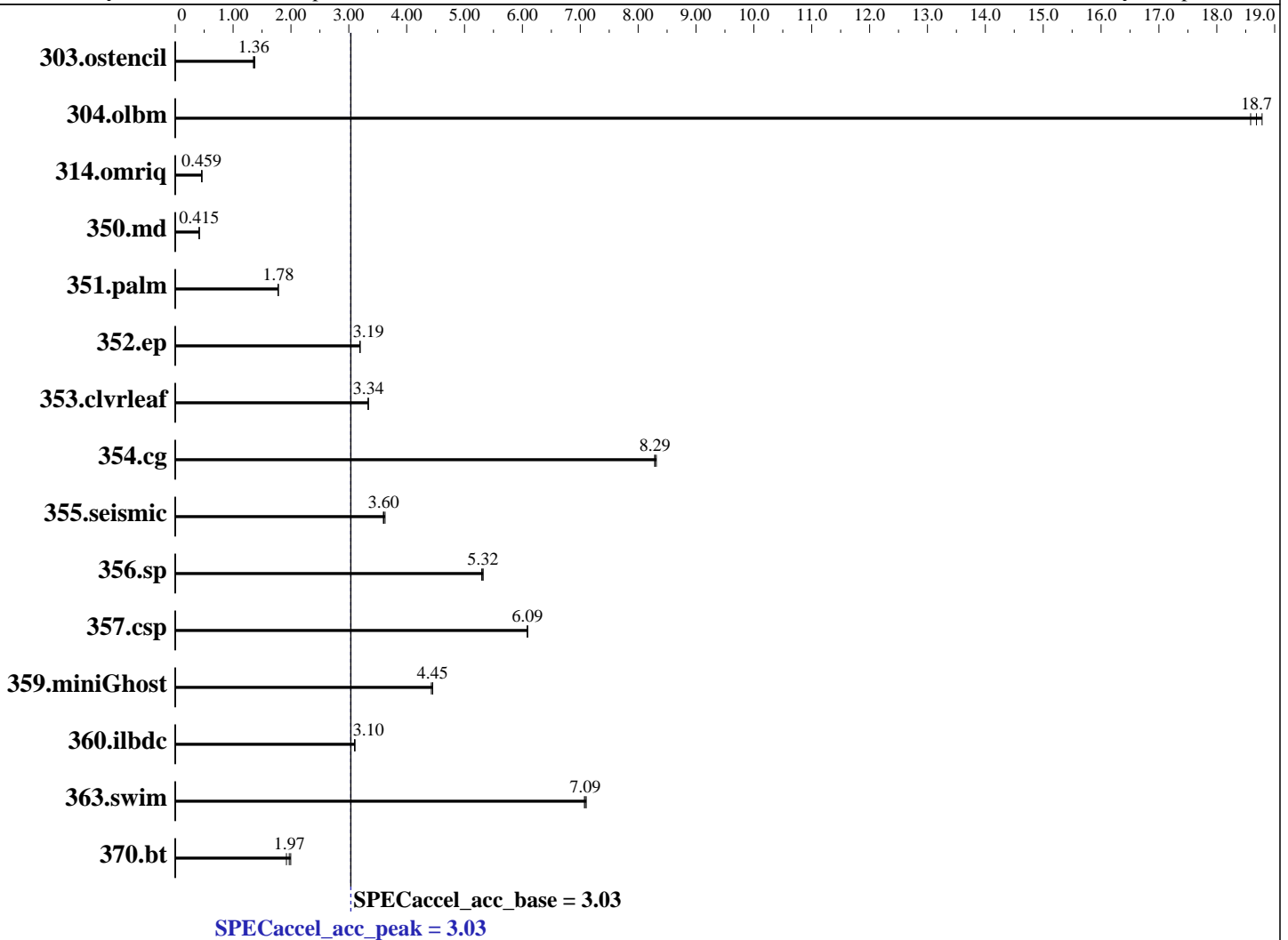
Test sponsor: NVIDIA Corporation

Tested by: NVIDIA Corporation

Test date: May-2019

Hardware Availability: Aug-2018

Software Availability: Apr-2018



### Hardware

CPU Name: POWER9 2.2 (pvr 004e 1202), altivec supported  
CPU Characteristics:  
CPU MHz: 2300  
CPU MHz Maximum: 3800  
FPU: Integrated  
CPU(s) enabled: 20 cores, 2 chips, 20 cores/chip, 4 threads/core  
CPU(s) orderable: 1,2 chips  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 512 KB I+D on chip per core  
L3 Cache: 120 MB I+D on chip per chip  
Other Cache: None

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### Accelerator

Accel Model Name: POWER9 2.2 (pvr 004e 1202), altivec supported  
Accel Vendor: IBM  
Accel Name: IBM POWER9 CPU  
Type of Accel: CPU  
Accel Connection: Not Applicable  
Does Accel Use ECC: Yes  
Accel Description: --  
Accel Driver: Not applicable

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## Hardware (Continued)

Memory: 128 GB (16 x 8 GB PC4-21300)  
Disk Subsystem: 1 TB Seagate SATA HDD  
Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 7.5  
Red Hat Enterprise Linux Server release 7.5  
(Maipo)  
4.14.0-49.8.1.el7a.ibmvidia.6.1.ppc64le  
Compiler: PGI Community Edition, Release 19.4  
File System: xfs  
System State: Run level 3 (add definition here)  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	105	1.38	<u>107</u>	<u>1.36</u>	107	1.35	105	1.38	<u>107</u>	<u>1.36</u>	107	1.35
304.olbm	24.2	18.8	<u>24.4</u>	<u>18.7</u>	24.5	18.6	24.2	18.8	<u>24.4</u>	<u>18.7</u>	24.5	18.6
314.omriq	2098	0.456	<u>2085</u>	<u>0.459</u>	2069	0.462	2098	0.456	<u>2085</u>	<u>0.459</u>	2069	0.462
350.md	607	0.415	608	0.414	<u>608</u>	<u>0.415</u>	607	0.415	608	0.414	<u>608</u>	<u>0.415</u>
351.palm	208	1.78	<u>208</u>	<u>1.78</u>	208	1.78	208	1.78	<u>208</u>	<u>1.78</u>	208	1.78
352.ep	166	3.19	<u>166</u>	<u>3.19</u>	166	3.19	166	3.19	<u>166</u>	<u>3.19</u>	166	3.19
353.cvrleaf	133	3.34	<u>133</u>	<u>3.34</u>	133	3.34	133	3.34	<u>133</u>	<u>3.34</u>	133	3.34
354.cg	<u>49.2</u>	<u>8.29</u>	49.2	8.29	49.1	8.31	<u>49.2</u>	<u>8.29</u>	49.2	8.29	49.1	8.31
355.seismic	103	3.60	<u>103</u>	<u>3.60</u>	102	3.63	103	3.60	<u>103</u>	<u>3.60</u>	102	3.63
356.sp	<u>51.9</u>	<u>5.32</u>	51.9	5.32	52.1	5.30	<u>51.9</u>	<u>5.32</u>	51.9	5.32	52.1	5.30
357.csp	44.4	6.09	<u>44.4</u>	<u>6.09</u>	44.4	6.09	44.4	6.09	<u>44.4</u>	<u>6.09</u>	44.4	6.09
359.miniGhost	82.9	4.45	<u>83.0</u>	<u>4.45</u>	83.4	4.43	82.9	4.45	<u>83.0</u>	<u>4.45</u>	83.4	4.43
360.ilbdc	118	3.10	<u>118</u>	<u>3.10</u>	118	3.10	118	3.10	<u>118</u>	<u>3.10</u>	118	3.10
363.swim	32.4	7.10	32.5	7.07	<u>32.5</u>	<u>7.09</u>	32.4	7.10	32.5	7.07	<u>32.5</u>	<u>7.09</u>
370.bt	112	2.00	116	1.92	<u>113</u>	<u>1.97</u>	112	2.00	116	1.92	<u>113</u>	<u>1.97</u>

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

## Platform Notes

Sysinfo program /local/home/toepfer/SPECACCEL/Docs/sysinfo  
\$Rev: 6965 \$ \$Date:: 2015-04-21 # \$ c05a7f14b1b1765e3fe1df68447e8a35  
running on perf-wsn1 Fri May 31 11:09:59 2019

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 : 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: 150251584 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 perf-wsn1 4.14.0-49.8.1.el7a.ibmvidia.6.1.ppc64le #1 SMP Tue Jun 5
13:56:12 -03 2018 ppc64le ppc64le ppc64le GNU/Linux
```

run-level 3 May 24 11:17

SPEC is set to: /local/home/toepfer/SPECACCEL

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<http://www.spec.org/>

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## Platform Notes (Continued)

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel_wsn1-root	xfs	927G	116G	812G	13%	/

(End of data from sysinfo program)

## General Notes

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

ACC\_NUM\_CORES = "80"  
OMP\_PROC\_BIND = "true"

## 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 -acc -ta=multicore

Fortran benchmarks:  
-fast -Mnouniform -Mfprelaxed -acc -ta=multicore

Benchmarks using both Fortran and C:

353.clvleaf: -fast -Mnouniform -Mfprelaxed -acc -ta=multicore

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

## Peak Optimization Flags

C benchmarks:

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## Peak Optimization Flags (Continued)

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

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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).

Tested with SPEC ACCEL v1.2.  
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