

# SPEC ACCEL™ OMP Result

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IBM

(Test Sponsor: NVIDIA Corporation)

## IBM POWER9 CPU

## Power System AC922

SPECaccel\_omp\_peak = 3.86

SPECaccel\_omp\_base = 3.86

ACCEL license: 019

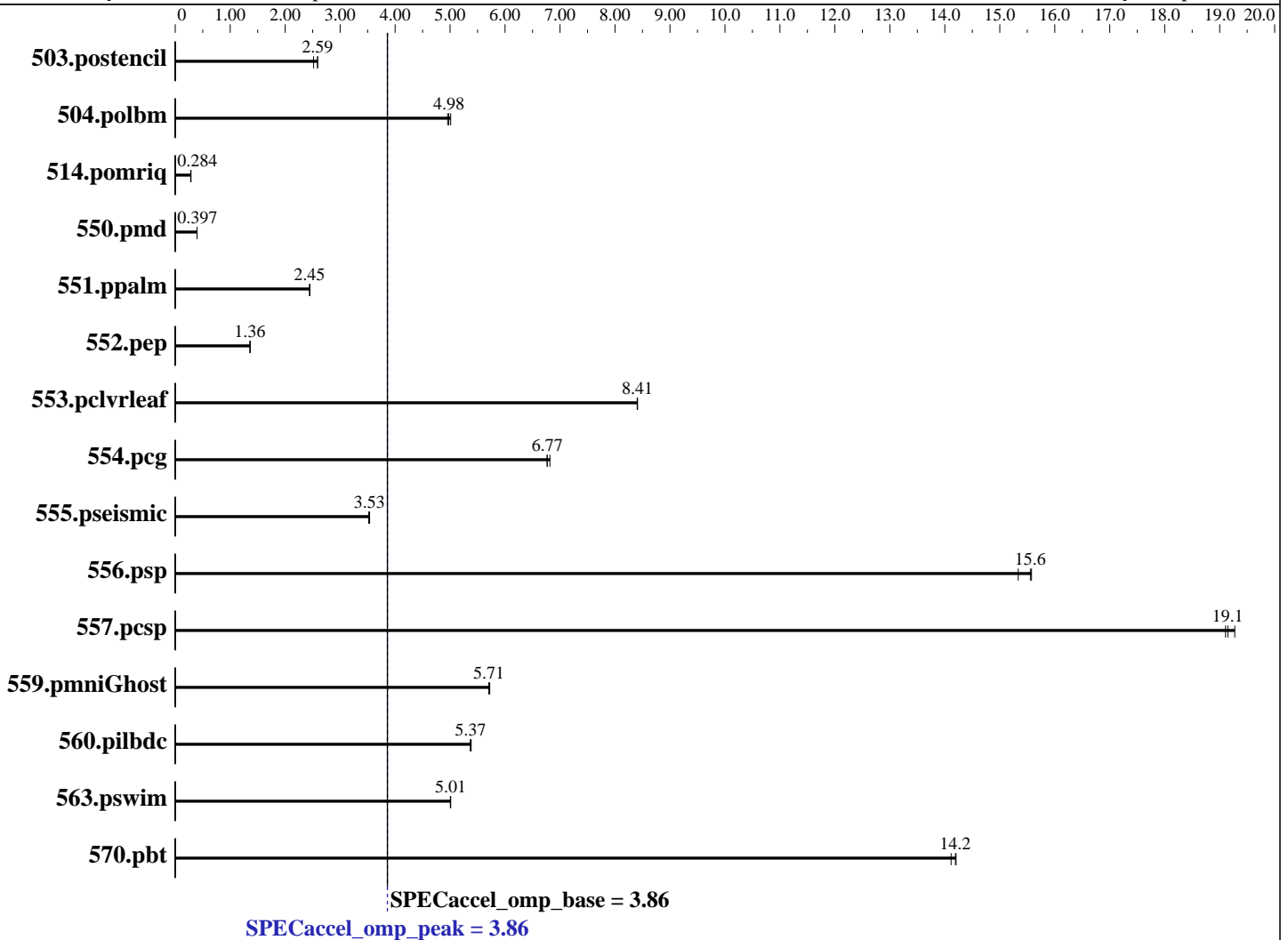
Test sponsor: NVIDIA Corporation

Tested by: NVIDIA Corporation

Test date: Jun-2019

Hardware Availability: Aug-2018

Software Availability: Apr-2019



### 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: --

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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
503.postencil	42.1	2.59	43.3	2.52	<b>42.1</b>	<b>2.59</b>	42.1	2.59	43.3	2.52	<b>42.1</b>	<b>2.59</b>
504.polbm	<b>24.5</b>	<b>4.98</b>	24.6	4.96	24.3	5.01	<b>24.5</b>	<b>4.98</b>	24.6	4.96	24.3	5.01
514.pomriq	<b>2188</b>	<b>0.284</b>	2210	0.281	2164	0.287	<b>2188</b>	<b>0.284</b>	2210	0.281	2164	0.287
550.pmd	607	0.397	608	0.396	<b>608</b>	<b>0.397</b>	607	0.397	608	0.396	<b>608</b>	<b>0.397</b>
551.ppalm	<b>222</b>	<b>2.45</b>	223	2.44	222	2.45	<b>222</b>	<b>2.45</b>	223	2.44	222	2.45
552.pep	169	1.36	<b>170</b>	<b>1.36</b>	170	1.36	169	1.36	<b>170</b>	<b>1.36</b>	170	1.36
553.pclvrleaf	<b>136</b>	<b>8.41</b>	136	8.41	136	8.40	<b>136</b>	<b>8.41</b>	136	8.41	136	8.40
554.pcg	48.9	6.82	49.2	6.77	<b>49.2</b>	<b>6.77</b>	48.9	6.82	49.2	6.77	<b>49.2</b>	<b>6.77</b>
555.pseismic	79.7	3.54	80.1	3.52	<b>79.9</b>	<b>3.53</b>	79.7	3.54	80.1	3.52	<b>79.9</b>	<b>3.53</b>
556.psp	53.3	15.3	<b>52.6</b>	<b>15.6</b>	52.5	15.6	53.3	15.3	<b>52.6</b>	<b>15.6</b>	52.5	15.6
557.pcsp	45.0	19.1	44.6	19.3	<b>44.9</b>	<b>19.1</b>	45.0	19.1	44.6	19.3	<b>44.9</b>	<b>19.1</b>
559.pmniGhost	69.6	5.70	69.4	5.72	<b>69.5</b>	<b>5.71</b>	69.6	5.70	69.4	5.72	<b>69.5</b>	<b>5.71</b>
560.pilbdc	<b>122</b>	<b>5.37</b>	121	5.38	122	5.37	<b>122</b>	<b>5.37</b>	121	5.38	122	5.37
563.pswim	<b>31.7</b>	<b>5.01</b>	31.7	5.01	31.8	5.00	<b>31.7</b>	<b>5.01</b>	31.7	5.01	31.8	5.00
570.pbt	54.9	14.2	55.3	14.1	<b>55.0</b>	<b>14.2</b>	54.9	14.2	55.3	14.1	<b>55.0</b>	<b>14.2</b>

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

## Operating System Notes

Stacksize set to 'unlimited'

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## Platform Notes

Sysinfo program /local/home/toepfer/SPECACCEL/Docs/sysinfo  
\$Rev: 6965 \$ \$Date:: 2015-04-21 #\$ c05a7f14b1b1765e3feldf68447e8a35  
running on perf-wsn1 Thu Jun 6 08:30:15 2019

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 : 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.ibmnvidia.6.1.ppc64le #1 SMP Tue Jun 5
```

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## Platform Notes (Continued)

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

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel_wsn1-root	xfs	927G	117G	811G	13%	/

(End of data from sysinfo program)

## General Notes

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

KMP\_ALL\_THREADS = "80"

OMP\_NUM\_THREADS = "80"

OMP\_PROC\_BIND = "true"

551.ppalm (base): "advec\_ws\_private" src.alt was used.

## Base Compiler Invocation

C benchmarks:

pgcc

Fortran benchmarks:

pgfortran

Benchmarks using both Fortran and C:

pgcc pgfortran

## Base Portability Flags

503.postencil: -DSPEC\_USE\_INNER\_SIMD

504.polbm: -DSPEC\_USE\_INNER\_SIMD

514.pomriq: -DSPEC\_USE\_INNER\_SIMD

550.pmd: -DSPEC\_USE\_INNER\_SIMD

551.ppalm: -DSPEC\_USE\_INNER\_SIMD

552.pep: -DSPEC\_USE\_INNER\_SIMD

553.pclvrleaf: -DSPEC\_USE\_INNER\_SIMD

554.pcg: -DSPEC\_USE\_INNER\_SIMD

555.pseismic: -DSPEC\_USE\_INNER\_SIMD

556.psp: -DSPEC\_USE\_INNER\_SIMD

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## Base Portability Flags (Continued)

557.pcsp: -DSPEC\_USE\_INNER\_SIMD  
559.pmniGhost: -DSPEC\_USE\_INNER\_SIMD  
560.pilbdc: -DSPEC\_USE\_INNER\_SIMD  
563.pswim: -DSPEC\_USE\_INNER\_SIMD  
570.pbt: -DSPEC\_USE\_INNER\_SIMD

## Base Optimization Flags

C benchmarks:

-fast -mp -Mnouniform -Mfprelaxed

Fortran benchmarks:

-fast -mp -Mnouniform -Mfprelaxed

Benchmarks using both Fortran and C:

553.pclvrleaf: -fast -mp -Mnouniform -Mfprelaxed

559.pmniGhost: -fast -mp -Mnouniform -Mfprelaxed -Mnomain

## Peak Optimization Flags

C benchmarks:

503.postencil: basepeak = yes

504.polbm: basepeak = yes

514.pomriq: basepeak = yes

552.pep: basepeak = yes

554.pcg: basepeak = yes

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

550.pmd: basepeak = yes

551.ppalms: basepeak = yes

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## Peak Optimization Flags (Continued)

555.pseismic: basepeak = yes

556.psp: basepeak = yes

560.pilbdc: basepeak = yes

563.pswim: basepeak = yes

Benchmarks using both Fortran and C:

553.pclvrleaf: basepeak = yes

559.pmniGhost: 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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