IBM Corporation  
(Test Sponsor: NVIDIA Corporation)

Power9
IBM Power Systems AC922 for High Performance Computing (8335-GTH)

**SPECaccel_acc_peak = 3.02**

**SPECaccel_acc_base = 3.02**

ACCEL license: 019  
Test sponsor: NVIDIA Corporation  
Tested by: NVIDIA Corporation  
Test date: Aug-2018  
Hardware Availability: May-2018  
Software Availability: Aug-2018

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<th>Benchmark</th>
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<th>SPECaccel_acc_base</th>
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<td>363.swim</td>
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</tr>
<tr>
<td>370.bt</td>
<td>2.03</td>
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</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** POWER9, altivec supported
- **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

**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
IBM Corporation
(Test Sponsor: NVIDIA Corporation)

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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)
File System: xfs
System State: Run level 3 (muilt-user)
Other Software: None

Results Table

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<th>Seconds</th>
<th>Ratio</th>
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</table>

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 wsn1 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:

Continued on next page
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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.ibmnvidia.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
  Continued on next page
IBM Corporation
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SPECaccel_acc_peak = 3.02
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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.clvrleaf: -fast -Mnouniform -Mfprelaxed=intrinsic -acc -ta=multicore

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Base Optimization Flags (Continued)
359.miniGhost: -fast -Mnouniform -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.clvrleaf: 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
**IBM Corporation**
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**Power9**
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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/PGI-Platform-Multicore-OMP.xml)
- [https://www.spec.org/accel/flags/pgi2018_flags.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.

Tested with SPEC ACCEL v1.2.
Report generated on Thu Sep 6 10:56:18 2018 by SPEC ACCEL PS/PDF formatter v1290.
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