## SPEC® OMPG2012 Result

**IBM**  
(Test Sponsor: Indiana University)  
IBM S822LC for HPC  
(Power8 with NVLink, 2.860 GHz)

<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>Indiana University</th>
<th>Hardware Availability</th>
<th>Apr-2018</th>
<th>Sep-2017</th>
</tr>
</thead>
</table>

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 6.06

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>POWER8 with NVLink</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>IBM Intelligent Energy Optimization enabled, up to 3.492 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2860</td>
</tr>
<tr>
<td>CPU MHz Maximum</td>
<td>3492</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>20 cores, 2 chips, 10 cores/chip, 8 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1-2 chips</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 64 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>512 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>8 MB I+D on chip per core</td>
</tr>
<tr>
<td>Other Cache</td>
<td>16 MB I+D off chip per 4 DIMMs</td>
</tr>
<tr>
<td>Memory</td>
<td>256 GB (32 x 8 GB DIMMs DDR4 1600 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>609TB GPFS</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
</tr>
<tr>
<td>Base Threads Run</td>
<td>80</td>
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</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>CentOS Linux release 7.4.1708 (AltArch)</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 4.0.1 of Clang</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>No</td>
</tr>
<tr>
<td>File System</td>
<td>GPFS 4.2.3.6</td>
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<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>Not Applicable</td>
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<tr>
<td>Other Software</td>
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Continued on next page
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>350.md</td>
<td>80</td>
<td>1048</td>
<td>4.42</td>
<td>1048</td>
<td>4.42</td>
<td>1060</td>
<td>4.37</td>
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<td>351.bwaves</td>
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<td>2.18</td>
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<td>2.18</td>
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<td>4.82</td>
<td>803</td>
<td>4.84</td>
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<td>357.bt331</td>
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<td>537</td>
<td>8.83</td>
<td>546</td>
<td>8.68</td>
<td>550</td>
<td>8.62</td>
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<tr>
<td>358.botsalgn</td>
<td>80</td>
<td>899</td>
<td>4.84</td>
<td>900</td>
<td>4.83</td>
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<td>359.botspar</td>
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<td>376.kdtree</td>
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<td>1115</td>
<td>4.04</td>
<td>1095</td>
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</tbody>
</table>

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

### Platform Notes

Sysinfo program /gpfs/homeb/padc/padc021/spec/omp2012-1.1-run/Docs/sysinfo
Revision 563 of 2016-06-10 (097295389cf6073d8c3b03fa376740a5)
running on juronc13.juron.dns.zone Tue Apr 24 04:07:10 2018

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/omp2012/Docs/config.html#sysinfo

From /proc/cpuinfo
- clock : 4023.0000000MHz
- 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
Continued on next page
SPEC OMPG2012 Result

IBM
(Test Sponsor: Indiana University)
IBM S822LC for HPC
(Power8 with NVLink, 2.860 GHz)

SPECompG_peak2012 = Not Run
SPECompG_base2012 = 6.06

OMP2012 license: 3440A
Test sponsor: Indiana University
Tested by: Indiana University

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

From /proc/meminfo
MemTotal: 267801664 kB
HugePages_Total: 0
Hugepagesize: 16384 kB

From /etc/*release*/etc/*version*
centos-release: CentOS Linux release 7.4.1708 (AltArch)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.4 (Source)
src-release:
NAME="CentOS Linux"
VERSION="7 (AltArch)"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (AltArch)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"
redhat-release: CentOS Linux release 7.4.1708 (AltArch)
system-release: CentOS Linux release 7.4.1708 (AltArch)
system-release-cpe: cpe:/o:centos:centos:7

uname -a:
Linux juronc13.juron.dns.zone 3.10.0-693.11.1.el7.ppc64le #1 SMP Mon Dec 4
15:48:14 GMT 2017 ppc64le ppc64le ppc64le GNU/Linux

run-level 3 Apr 10 19:42

SPEC is set to: /gpfs/homeb/padc/padc021/spec/omp2012-1.1-run
Filesystem Type Size Used Avail Use% Mounted on
homeb gpfs 609T 499T 110T 82% /gpfs/homeb

(End of data from sysinfo program)

General Notes

Environment Variables:
OMP_STACKSIZE=1G
ulimit -s unlimited

Base Compiler Invocation

C benchmarks:
clang

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(Power8 with NVLink, 2.860 GHz)

SPECompG_peak2012 = Not Run
SPECompG_base2012 = 6.06

OMP2012 license: 3440A
Test sponsor: Indiana University
Tested by: Indiana University

Test date: Apr-2018
Hardware Availability: Sep-2017
Software Availability: Dec-2017

Base Compiler Invocation (Continued)

C++ benchmarks:
  clang++

Fortran benchmarks:
  flang

Base Portability Flags

  350.md: -Mfreeform
  357.bt331: -mcmodel=medium

Base Optimization Flags

C benchmarks:
  -Ofast -fopenmp -fs signed-char

C++ benchmarks:
  -Ofast -fopenmp

Fortran benchmarks:
  -Ofast -fopenmp

The flags file that was used to format this result can be browsed at
http://www.spec.org/omp2012/flags/llvm40.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/omp2012/flags/llvm40.xml

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC OMP2012 v1.1.