# SPEC® OMPG2012 Result



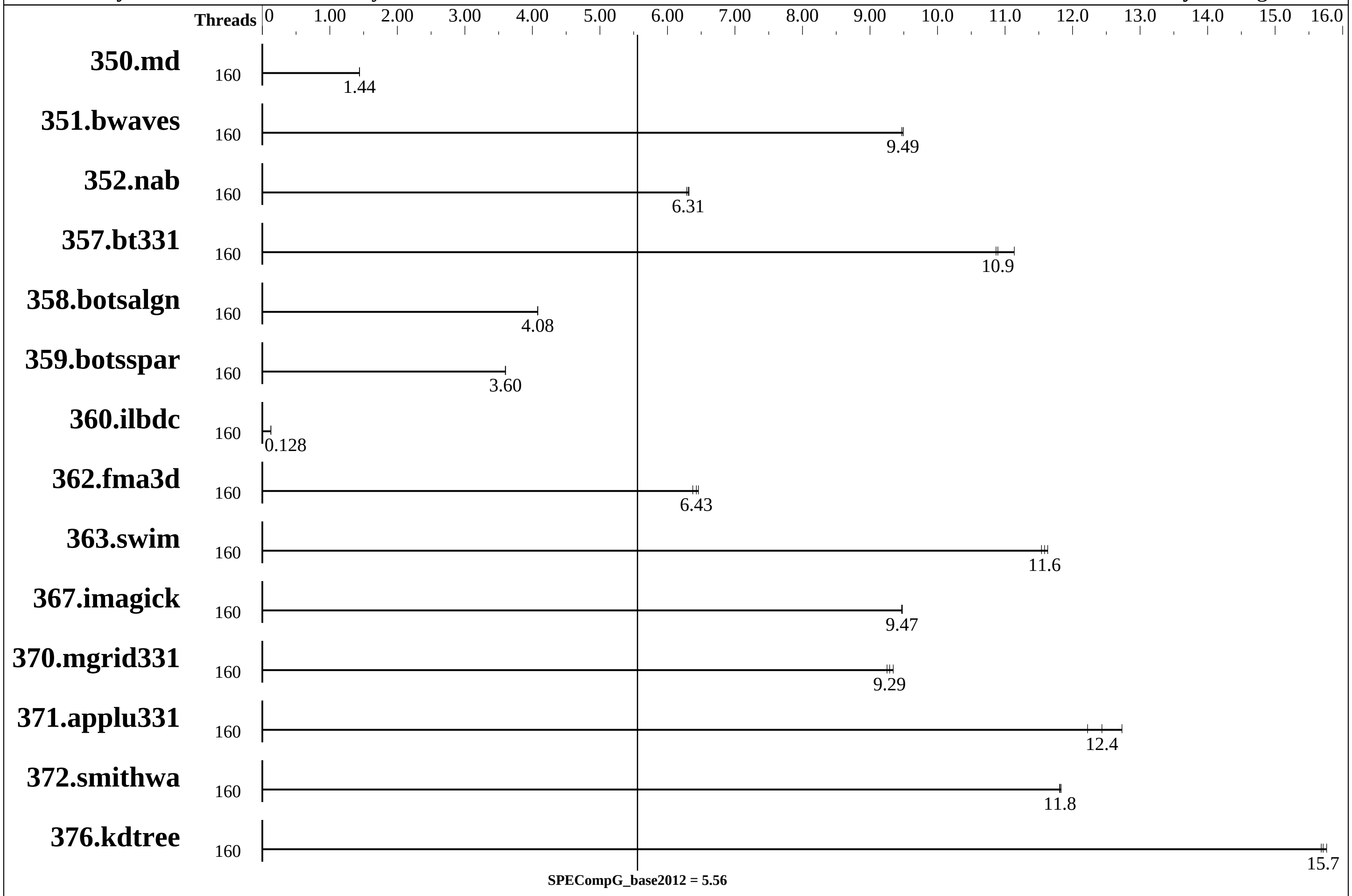
IBM
(Test Sponsor: Indiana University)

IBM S822LC for HPC
(Power8 with NVLink, 2.860 GHz)

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 5.56

| | | | |
|---|---|---|---|
| **OMP2012 license:** | 3440A | **Test date:** | Jan-2018 |
| **Test sponsor:** | Indiana University | **Hardware Availability:** | Sep-2017 |
| **Tested by:** | Indiana University | **Software Availability:** | Aug-2017 |




## Hardware

| | |
|---|---|
| CPU Name: | POWER8 with NVLink |
| CPU Characteristics: | IBM Intelligent Energy Optimization enabled, up to 3.492 GHz |
| CPU MHz: | 2860 |
| CPU MHz Maximum: | 3492 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 cores/chip, 8 threads/core |
| CPU(s) orderable: | 1-2 chips |
| Primary Cache: | 32 KB I + 64 KB D on chip per core |
| Secondary Cache: | 512 KB I+D on chip per core |
| L3 Cache: | 8 MB I+D on chip per core |
| Other Cache: | 16 MB I+D off chip per 4 DIMMs |
| Memory: | 256 GB (32 x 8 GB DIMMs DDR4 1600 MHz) |
| Disk Subsystem: | 609TB GPFS |
| Other Hardware: | None |
| Base Threads Run: | 160 |

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## Software

| | |
|---|---|
| Operating System: | CentOS Linux release 7.4.1708 (AltArch) 3.10.0-693.11.1.el7.ppc64le |
| Compiler: | C/C++/Fortran: Version 7.2.0 of gcc |
| Auto Parallel: | No |
| File System: | GPFS 4.2.3.6 |
| System State: | Run level 5 (Multi-user, graphical) |
| Base Pointers: | 64-bit |
| Peak Pointers: | Not Applicable |
| Other Software: | None |

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Minimum Peak Threads: --
Maximum Peak Threads: --

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 350.md | 160 | 3214 | 1.44 | 3215 | 1.44 | **3214** | **1.44** | | | | | | | |
| 351.bwaves | 160 | **477** | **9.49** | 478 | 9.47 | 477 | 9.49 | | | | | | | |
| 352.nab | 160 | 619 | 6.28 | **617** | **6.31** | 616 | 6.32 | | | | | | | |
| 357.bt331 | 160 | 426 | 11.1 | **435** | **10.9** | 436 | 10.9 | | | | | | | |
| 358.botsalgn | 160 | 1067 | 4.08 | 1066 | 4.08 | **1067** | **4.08** | | | | | | | |
| 359.botsspar | 160 | **1458** | **3.60** | 1459 | 3.60 | 1457 | 3.60 | | | | | | | |
| 360.ilbdc | 160 | 27801 | 0.128 | **27795** | **0.128** | 27792 | 0.128 | | | | | | | |
| 362.fma3d | 160 | 588 | 6.46 | 596 | 6.38 | **591** | **6.43** | | | | | | | |
| 363.swim | 160 | **391** | **11.6** | 389 | 11.6 | 393 | 11.5 | | | | | | | |
| 367.imagick | 160 | 742 | 9.48 | 743 | 9.47 | **742** | **9.47** | | | | | | | |
| 370.mgrid331 | 160 | 478 | 9.25 | **476** | **9.29** | 473 | 9.34 | | | | | | | |
| 371.applu331 | 160 | 476 | 12.7 | **487** | **12.4** | 496 | 12.2 | | | | | | | |
| 372.smithwa | 160 | **454** | **11.8** | 454 | 11.8 | 453 | 11.8 | | | | | | | |
| 376.kdtree | 160 | 287 | 15.7 | 285 | 15.8 | **286** | **15.7** | | | | | | | |

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 Fri Jan 19 08:31:34 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 : 4023.000000MHz
   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

## 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)
    os-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 5 Dec 15 13:41

 SPEC is set to: /gpfs/homeb/padc/padc021/spec/omp2012-1.1-run
    Filesystem     Type  Size  Used Avail Use% Mounted on
    homeb          gpfs  609T  578T   31T  95% /gpfs/homeb

 (End of data from sysinfo program)
```

## General Notes

```
Environment Variables:
    OMP_STACKSIZE=1G
    ulimit -s unlimited

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
No: 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.
No: 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.

This benchmark result is intended to provide perspective on
```

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## General Notes (Continued)

```
past performance using the historical hardware and/or
software described on this result page.

The system as described on this result page was formerly
generally available.  At the time of this publication, it may
not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the
SPEC HPG Policy document, http://www.spec.org/hpg/policy.html

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.
```

## Base Compiler Invocation

C benchmarks:
`gcc`

C++ benchmarks:
`g++`

Fortran benchmarks:
`gfortran`

## Base Portability Flags

350.md: `-ffree-form -fno-range-check`

## Base Optimization Flags

C benchmarks:
`-Ofast -fopenmp -fsigned-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/gcc-linux64.20180620.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/omp2012/flags/gcc-linux64.20180620.xml



For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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