SPEC® OMPG2012 Result

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IBM
(Test Sponsor: Indiana University)

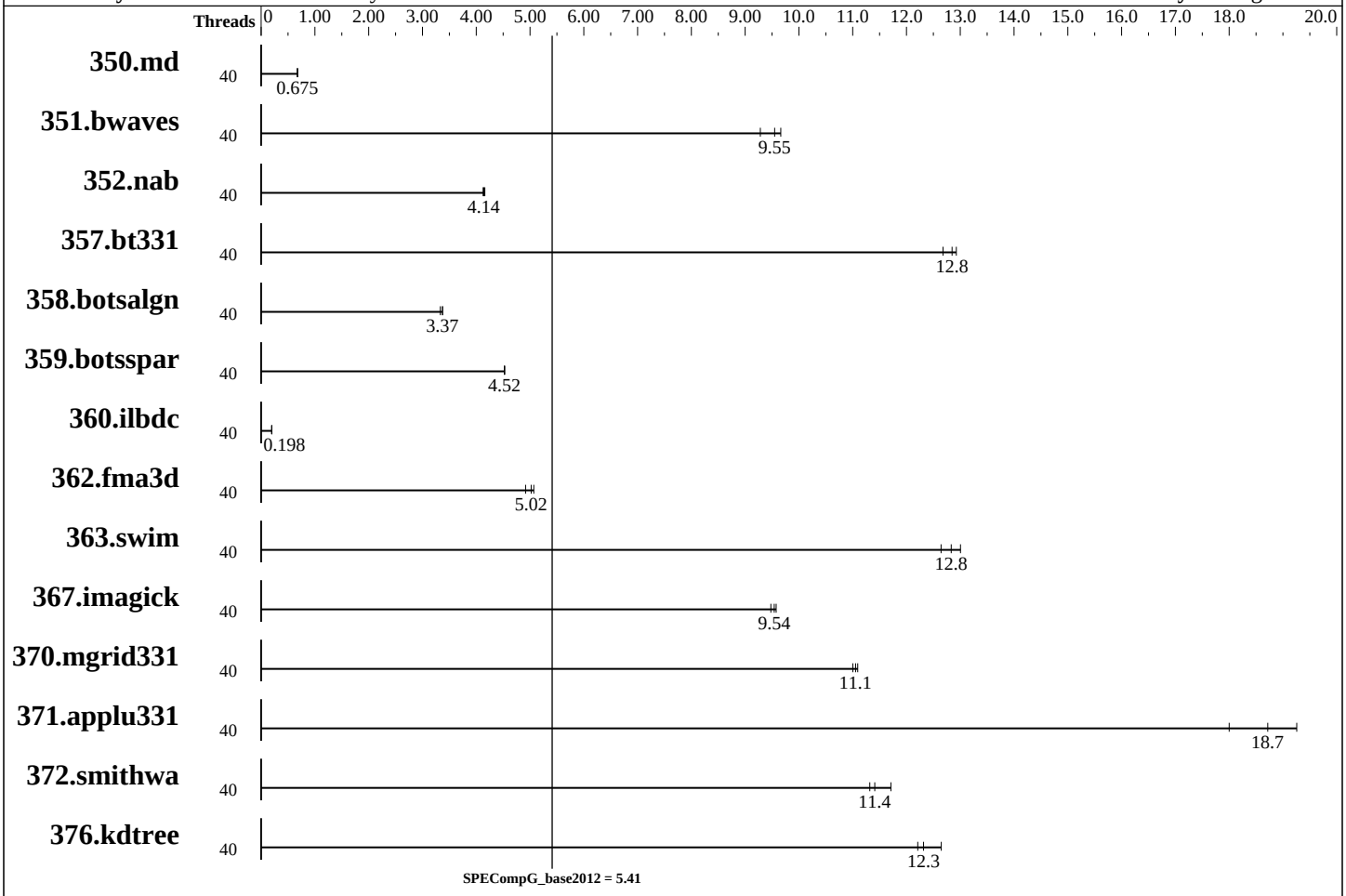
IBM S822LC for HPC
(Power8 with NVLink, 2.860 GHz)

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 5.41

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

Test date: Jan-2018
Hardware Availability: Sep-2017
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:	40

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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	40	**6858**	**0.675**	6855	0.675	6858	0.675							
351.bwaves	40	488	9.28	469	9.66	**474**	**9.55**							
352.nab	40	935	4.16	**940**	**4.14**	942	4.13							
357.bt331	40	**369**	**12.8**	367	12.9	374	12.7							
358.botsalgn	40	1290	3.37	1306	3.33	**1290**	**3.37**							
359.botsspar	40	**1160**	**4.52**	1159	4.53	1161	4.52							
360.ilbdc	40	18012	0.198	18021	0.198	**18019**	**0.198**							
362.fma3d	40	750	5.07	773	4.92	**757**	**5.02**							
363.swim	40	**353**	**12.8**	358	12.6	348	13.0							
367.imagick	40	**737**	**9.54**	742	9.48	734	9.58							
370.mgrid331	40	**400**	**11.1**	398	11.1	402	11.0							
371.applu331	40	**324**	**18.7**	315	19.3	337	18.0							
372.smithwa	40	**470**	**11.4**	474	11.3	458	11.7							
376.kdtree	40	356	12.6	369	12.2	**365**	**12.3**							

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 Sun Jan 21 22:42:52 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
```

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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 13:40

   SPEC is set to: /gpfs/homeb/padc/padc021/spec/omp2012-1.1-run
      Filesystem     Type  Size  Used Avail Use% Mounted on
      homeb          gpfs  609T  579T   30T  96% /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`

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

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