SPEC® OMPG2012 Result

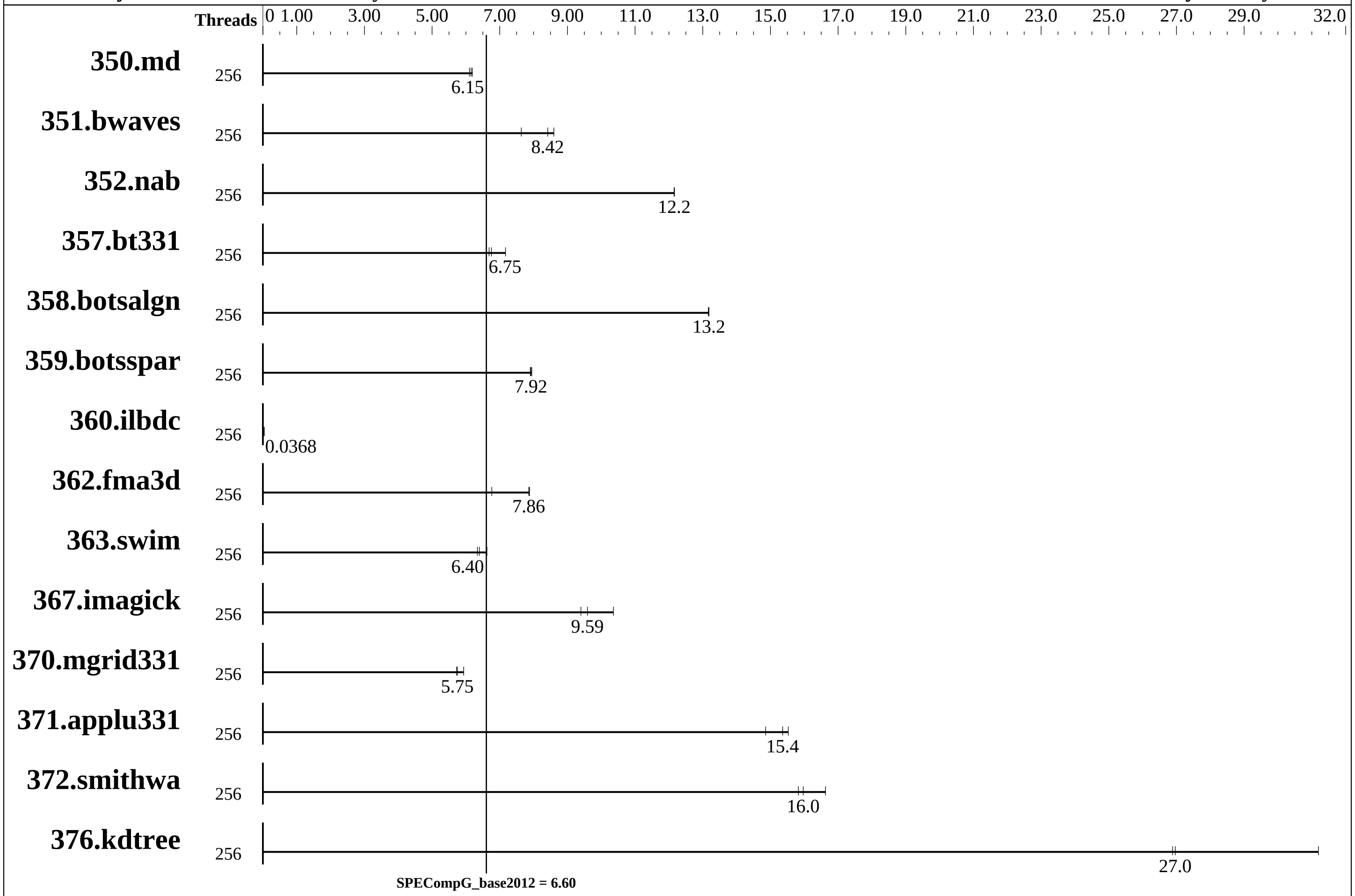
Hewlett Packard Enterprise
(Test Sponsor: Indiana University)

Apollo 70
(Marvell ThunderX2 CN9980 v2.1, 2.20GHz)

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 6.60

OMP2012 license: 3440A		**Test date:**	Aug-2019
Test sponsor:	Indiana University	**Hardware Availability:**	Jun-2019
Tested by:	Indiana University	**Software Availability:**	May-2019



Hardware

CPU Name:	Cavium ThunderX2 CN9980 v2.1
CPU Characteristics:	4-way SMT on, Turbo on
CPU MHz:	2200
CPU MHz Maximum:	2500
FPU:	Integrated
CPU(s) enabled:	64 cores, 2 chips, 32 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:	256 KB I+D on chip per core
L3 Cache:	32 MB I+D on chip per core
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx8 PC4-2666V-RE2-12)
Disk Subsystem:	1x(HPE VK000960GWSRT 960GB) SSD
Other Hardware:	None
Base Threads Run:	256
Minimum Peak Threads:	--

Continued on next page

Software

Operating System:	CentOS Linux release 7.6.1810 (AltArch) 4.14.0-115.8.1.el7a.aarch64
Compiler:	C/C++/Fortran: Version 9.1.0 of gcc
Auto Parallel:	No
File System:	XFS
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other Software:	None

SPEC OMPG2012 Result

Hewlett Packard Enterprise
(Test Sponsor: Indiana University)
Apollo 70
(Marvell ThunderX2 CN9980 v2.1, 2.20GHz)

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 6.60

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

Test date: Aug-2019
Hardware Availability: Jun-2019
Software Availability: May-2019

Maximum Peak Threads: --

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	256	758	6.11	**753**	**6.15**	748	6.19							
351.bwaves	256	593	7.64	**538**	**8.42**	527	8.60							
352.nab	256	**320**	**12.2**	320	12.2	320	12.2							
357.bt331	256	**702**	**6.75**	661	7.17	709	6.69							
358.botsalgn	256	330	13.2	330	13.2	**330**	**13.2**							
359.botsspar	256	**663**	**7.92**	661	7.95	664	7.90							
360.ilbdc	256	97359	0.0366	**96713**	**0.0368**	95996	0.0371							
362.fma3d	256	482	7.88	**483**	**7.86**	562	6.76							
363.swim	256	714	6.34	**708**	**6.40**	684	6.62							
367.imagick	256	**733**	**9.59**	679	10.4	748	9.40							
370.mgrid331	256	745	5.93	**769**	**5.75**	772	5.72							
371.applu331	256	390	15.5	408	14.9	**395**	**15.4**							
372.smithwa	256	339	15.8	**336**	**16.0**	322	16.6							
376.kdtree	256	144	31.2	167	26.9	**167**	**27.0**							

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

Platform Notes

```
Sysinfo program /home/lijunj/spec/omp2012-1.1/Docs/sysinfo
Revision 563 of 2016-06-10 (097295389cf6073d8c3b03fa376740a5)
running on armstrong.sca.iu.edu Mon Aug  5 11:59:17 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/omp2012/Docs/config.html#sysinfo

From /proc/cpuinfo
*
* Did not identify cpu model.  If you would
* like to write your own sysinfo program, see
* www.spec.org/omp2012/config.html#sysinfo
*
*
* 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.
*
      256 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
```

Continued on next page

Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       133322880 kB
   HugePages_Total:       0
   Hugepagesize:     524288 kB

From /etc/*release* /etc/*version*
   centos-release: CentOS Linux release 7.6.1810 (AltArch)
   centos-release-upstream: Derived from Red Hat Enterprise Linux 7.6 (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 7.6.1810 (AltArch)
   system-release: CentOS Linux release 7.6.1810 (AltArch)
   system-release-cpe: cpe:/o:centos:centos:7

uname -a:
   Linux armstrong.sca.iu.edu 4.14.0-115.8.1.el7a.aarch64 #1 SMP Wed Jun 5
   15:01:21 UTC 2019 aarch64 aarch64 aarch64 GNU/Linux

run-level 3 Jul 2 15:36

SPEC is set to: /home/lijunj/spec/omp2012-1.1
   Filesystem              Type  Size  Used Avail Use% Mounted on
   /dev/mapper/centos-root xfs   256G   86G  171G  34% /
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.


(End of data from sysinfo program)
```

General Notes

```
Environment Variables:
    OMP_STACKSIZE=2G
    ulimit -s unlimited

BIOS Info:
     Version: L50_5.13_1.0.6
     Release Date: 07/10/2018
```

Continued on next page

General Notes (Continued)

```
BIOS Settings:
     Turbo/CPPC Mode:  Autonomous Turbo

Spectre & Meltdown:
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:
`gcc`

C++ benchmarks:
`g++`

Fortran benchmarks:
`gfortran`

Base Portability Flags

350.md: `-ffree-form -fno-range-check`
363.swim: `-mcmodel=large`
367.imagick: `-std=c99`

Base Optimization Flags

C benchmarks:
`-O3 -ffast-math -mcpu=native -fopenmp -fsigned-char`

C++ benchmarks:
`-O3 -ffast-math -mcpu=native -fopenmp`

Fortran benchmarks:
`-O3 -ffast-math -mcpu=native -fopenmp`

The flags files that were used to format this result can be browsed at
http://www.spec.org/omp2012/flags/hpe_apollo70_bios.html
http://www.spec.org/omp2012/flags/gcc-linux64.20190904.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/omp2012/flags/hpe_apollo70_bios.xml
http://www.spec.org/omp2012/flags/gcc-linux64.20190904.xml

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

Tested with SPEC OMP2012 v1.1.
Report generated on Wed Sep 4 19:07:03 2019 by SPEC OMP2012 PS/PDF formatter v541.
Originally published on 4 September 2019.