SPEC® OMPG2012 Result

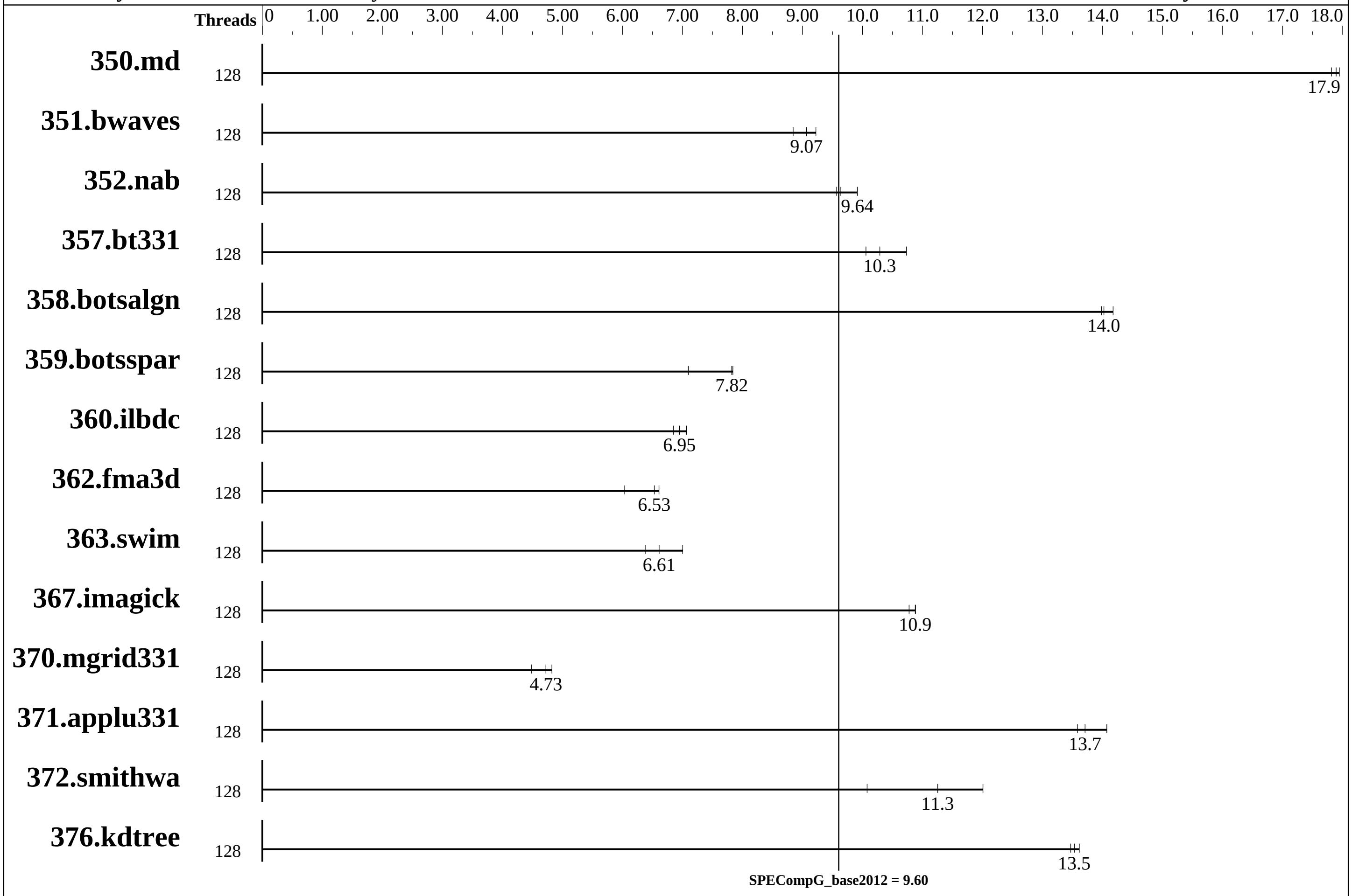
Hewlett Packard Enterprise
(Test Sponsor: Indiana University)

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

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 9.60

OMP2012 license:	3440A	**Test date:**	Jul-2019
Test sponsor:	Indiana University	**Hardware Availability:**	Jun-2019
Tested by:	Indiana University	**Software Availability:**	Jun-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:	128
Minimum Peak Threads:	--

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Software

Operating System:	CentOS Linux release 7.6.1810 (AltArch) 4.14.0-115.8.1.el7a.aarch64
Compiler:	C/C++/Fortran: Version 19.2 of ARM Compiler Build 155 (based on LLVM 7.1.0)
Auto Parallel:	No
File System:	XFS
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other Software:	None

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Maximum Peak Threads: --

Results Table

	Base							Peak						
Benchmark	**Threads**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Threads**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
350.md	128	258	17.9	260	17.8	**259**	**17.9**							
351.bwaves	128	**500**	**9.07**	512	8.84	491	9.22							
352.nab	128	407	9.57	**404**	**9.64**	392	9.91							
357.bt331	128	**461**	**10.3**	471	10.1	442	10.7							
358.botsalgn	128	307	14.2	**310**	**14.0**	311	14.0							
359.botsspar	128	670	7.84	**671**	**7.82**	740	7.10							
360.ilbdc	128	504	7.07	520	6.85	**512**	**6.95**							
362.fma3d	128	**582**	**6.53**	629	6.04	575	6.61							
363.swim	128	709	6.39	647	7.00	**685**	**6.61**							
367.imagick	128	646	10.9	652	10.8	**646**	**10.9**							
370.mgrid331	128	916	4.83	**935**	**4.73**	986	4.48							
371.applu331	128	431	14.1	**442**	**13.7**	446	13.6							
372.smithwa	128	446	12.0	**476**	**11.3**	532	10.1							
376.kdtree	128	331	13.6	334	13.5	**333**	**13.5**							

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 Wed Jul 10 10:25:29 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.)
```

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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   75G  182G  30% /
 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
```

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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:
`armclang`

C++ benchmarks:
`armclang++`

Fortran benchmarks:
`armflang`

Base Portability Flags

350.md: `-Mfreeform`
357.bt331: `-mcmodel=large`
363.swim: `-mcmodel=large`

Base Optimization Flags

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

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

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

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/arm_compiler.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/arm_compiler.xml
```


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

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