## SPEC® OMPG2012 Result

### Hewlett Packard Enterprise

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

| SPECCompG_peak2012 = Not Run  
| SPECCompG_base2012 = 9.60  

### OMP2012 license: 3440A  
**Test date:** Jul-2019  
**Hardware Availability:** Jun-2019  
**Software Availability:** Jun-2019

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### 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:** --

### 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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Continued on next page
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 sponsor: Indiana University
Tested by: Indiana University

Maximum Peak Threads: --

Results Table

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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.)

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 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

Continued on next page
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 sponsor: Indiana University
Tested by: Indiana University

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
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Tested with SPEC OMP2012 v1.1.
Originally published on 4 September 2019.

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

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