SPEC® OMPG2012 Result

Colfax International

(Test Sponsor: Indiana University)

Intel Xeon Phi 7210, 1.30GHz,
SMT off, Turbo off, MCDRAM Cache

$SPECompG\_peak2012 =$ Not Run
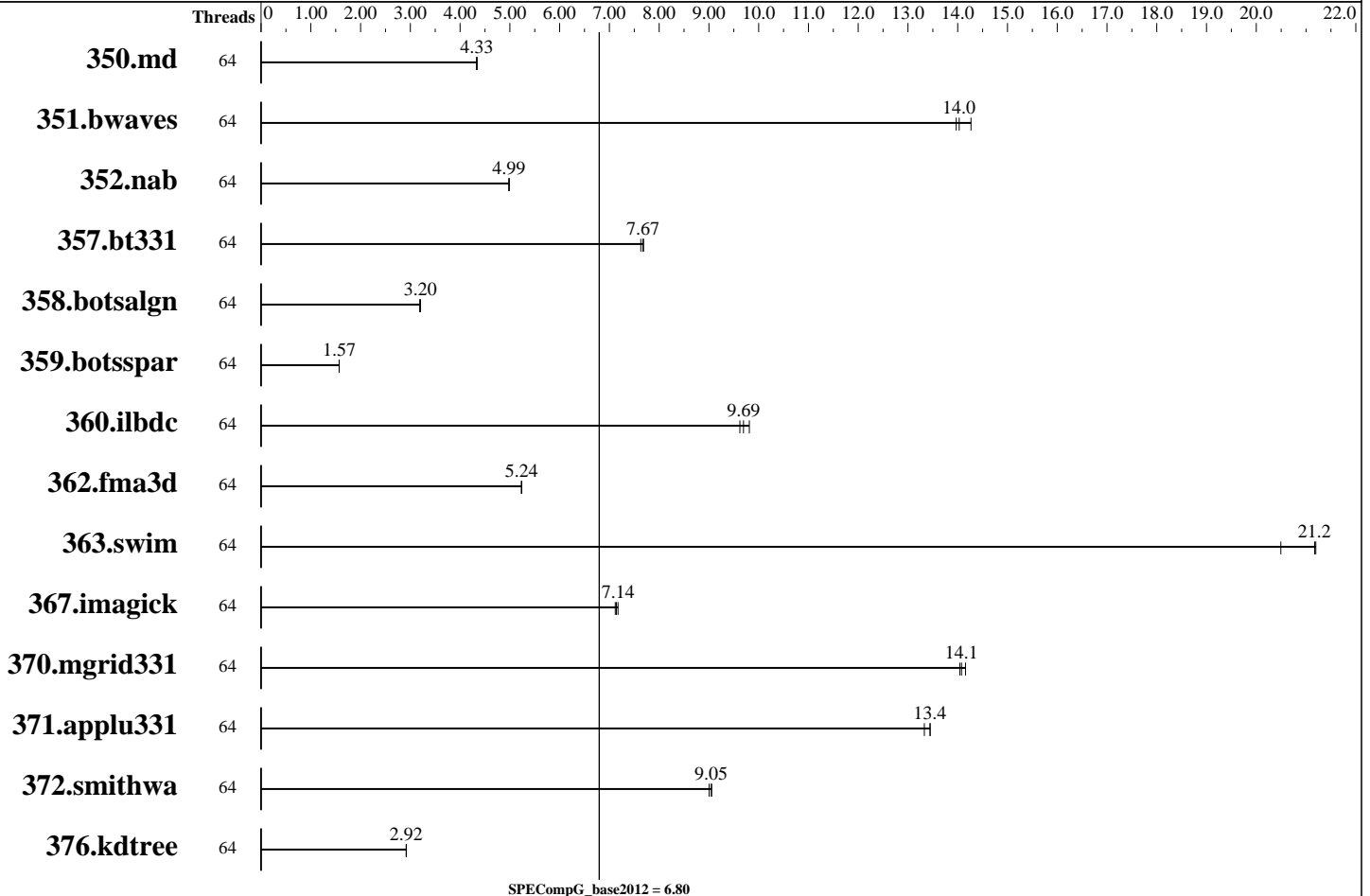
$SPECompG\_base2012 =$ 6.80

OMP2012 license: 3440A

Test sponsor: Indiana University

Tested by: Indiana University

Test date: Oct-2016

Hardware Availability: Aug-2016

Software Availability: Apr-2016

Threads	Benchmark	Result
350.md	64	4.33
351.bwaves	64	14.0
352.nab	64	4.99
357.bt331	64	7.67
358.botsalgn	64	3.20
359.botsspar	64	1.57
360.ilbdc	64	9.69
362.fma3d	64	5.24
363.swim	64	21.2
367.imagick	64	7.14
370.mgrid331	64	14.1
371.applu331	64	13.4
372.smithwa	64	9.05
376.kdtree	64	2.92

SPECompG_base2012 = 6.80

Hardware

CPU Name: Intel Xeon Phi 7210
CPU Characteristics: Intel Turbo Boost Technology off, Simultaneous Multithreading (SMT) off
CPU MHz: 1300
CPU MHz Maximum: 1500
FPU: Integrated
CPU(s) enabled: 64 cores, 1 chip, 64 cores/chip, 4 threads/core
CPU(s) orderable: 1 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per two cores
L3 Cache: None
Other Cache: None
Memory: 96 GB (6 x 16 GB 2Rx8 PC4-2400T-REB-11, ECC)
Disk Subsystem: Intel S3510 SSD 800GB, SATA3
Other Hardware: None
Base Threads Run: 64

Software

Operating System: CentOS Linux release 7.2.1511
CentOS Linux release 7.2.1511 (Core)
3.10.0-327.13.1.el7.xppsl_1.3.3.151.x86_64
Compiler: C/C++/Fortran: Version 16.0.3.210 of Intel Composer XE 2016 for Linux Build 20160415
Auto Parallel: No
File System: ext4
System State: Runlevel 3 (multi-user with networking)
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	64	**1068**	**4.33**	1069	4.33	1066	4.34							
351.bwaves	64	324	14.0	318	14.3	**323**	**14.0**							
352.nab	64	**780**	**4.99**	780	4.99	781	4.98							
357.bt331	64	621	7.63	**618**	**7.67**	617	7.69							
358.botsalgn	64	1359	3.20	**1359**	**3.20**	1364	3.19							
359.botsspar	64	**3344**	**1.57**	3347	1.57	3342	1.57							
360.ilbdc	64	**367**	**9.69**	370	9.62	363	9.81							
362.fma3d	64	**726**	**5.24**	726	5.24	726	5.23							
363.swim	64	**214**	**21.2**	221	20.5	214	21.2							
367.imagick	64	988	7.12	**984**	**7.14**	980	7.17							
370.mgrid331	64	315	14.0	312	14.2	**314**	**14.1**							
371.applu331	64	455	13.3	**451**	**13.4**	451	13.4							
372.smithwa	64	595	9.00	**592**	**9.05**	592	9.05							
376.kdtree	64	1541	2.92	1542	2.92	**1542**	**2.92**							

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-run/Docs/sysinfo
Revision 563 of 2016-06-10 (097295389cf6073d8c3b03fa376740a5)
running on knl1.uits.indiana.edu Fri Sep 23 11:23:11 2016

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
   model name : Intel(R) Xeon Phi(TM) CPU 7210 @ 1.30GHz
      1 "physical id"s (chips)
      64 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 64
      siblings  : 64
      physical 0: cores 0 1 2 3 6 7 10 11 12 13 14 15 18 19 20 21 22 23 24 25 26
      27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51
      52 53 56 57 58 59 60 61 62 63 64 65 68 69 70 71 72 73
   cache size : 1024 KB
```

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Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       98703132 kB
   HugePages_Total:        0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   CentOS Linux release 7.2.1511 (Core)

From /etc/*release* /etc/*version*
   centos-release: CentOS Linux release 7.2.1511 (Core)
   centos-release-upstream: Derived from Red Hat Enterprise Linux 7.2 (Source)
   os-release:
      NAME="CentOS Linux"
      VERSION="7 (Core)"
      ID="centos"
      ID_LIKE="rhel fedora"
      VERSION_ID="7"
      PRETTY_NAME="CentOS Linux 7 (Core)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:centos:centos:7"
   redhat-release: CentOS Linux release 7.2.1511 (Core)
   system-release: CentOS Linux release 7.2.1511 (Core)
   system-release-cpe: cpe:/o:centos:centos:7

uname -a:
   Linux knl1.uits.indiana.edu 3.10.0-327.13.1.el7.xppsl_1.3.3.151.x86_64 #1 SMP
   Fri Jun 10 15:04:35 UTC 2016 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 19 14:43

SPEC is set to: /home/lijunj/SPEC/omp2012-1.1-run
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      ext4  713G   75G  602G  11% /

Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

(End of data from sysinfo program)
```

General Notes

```
BIOS settings:
  Intel Simultaneous Multithreading (SMT): off
  Intel Turbo Boost Technology (Turbo): off
  Cluster Mode: quadrant
  Memory Mode: cache
```

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Base Compiler Invocation

C benchmarks:
    icc

C++ benchmarks:
    icpc

Fortran benchmarks:
    ifort

Base Portability Flags

    350.md: `-free`
    357.bt331: `-mcmodel=medium`
    363.swim: `-mcmodel=medium`
    367.imagick: `-std=c99`

Base Optimization Flags

C benchmarks:
    `-O3 -ansi-alias -no-prec-div -qopenmp -ipo -xMIC-AVX512`
    `-fp-model fast=2`

C++ benchmarks:
    `-O3 -ansi-alias -no-prec-div -qopenmp -ipo -xMIC-AVX512`
    `-fp-model fast=2`

Fortran benchmarks:
    `-O3 -no-prec-div -qopenmp -ipo -xMIC-AVX512 -fp-model fast=2`

The flags files that were used to format this result can be browsed at
http://www.spec.org/omp2012/flags/Intel-ic16.0-linux64.html
http://www.spec.org/omp2012/flags/colfax-knl.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/omp2012/flags/Intel-ic16.0-linux64.xml
http://www.spec.org/omp2012/flags/colfax-knl.xml

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