SPEC® OMPG2012 Result

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Colfax International

(Test Sponsor: Indiana University)

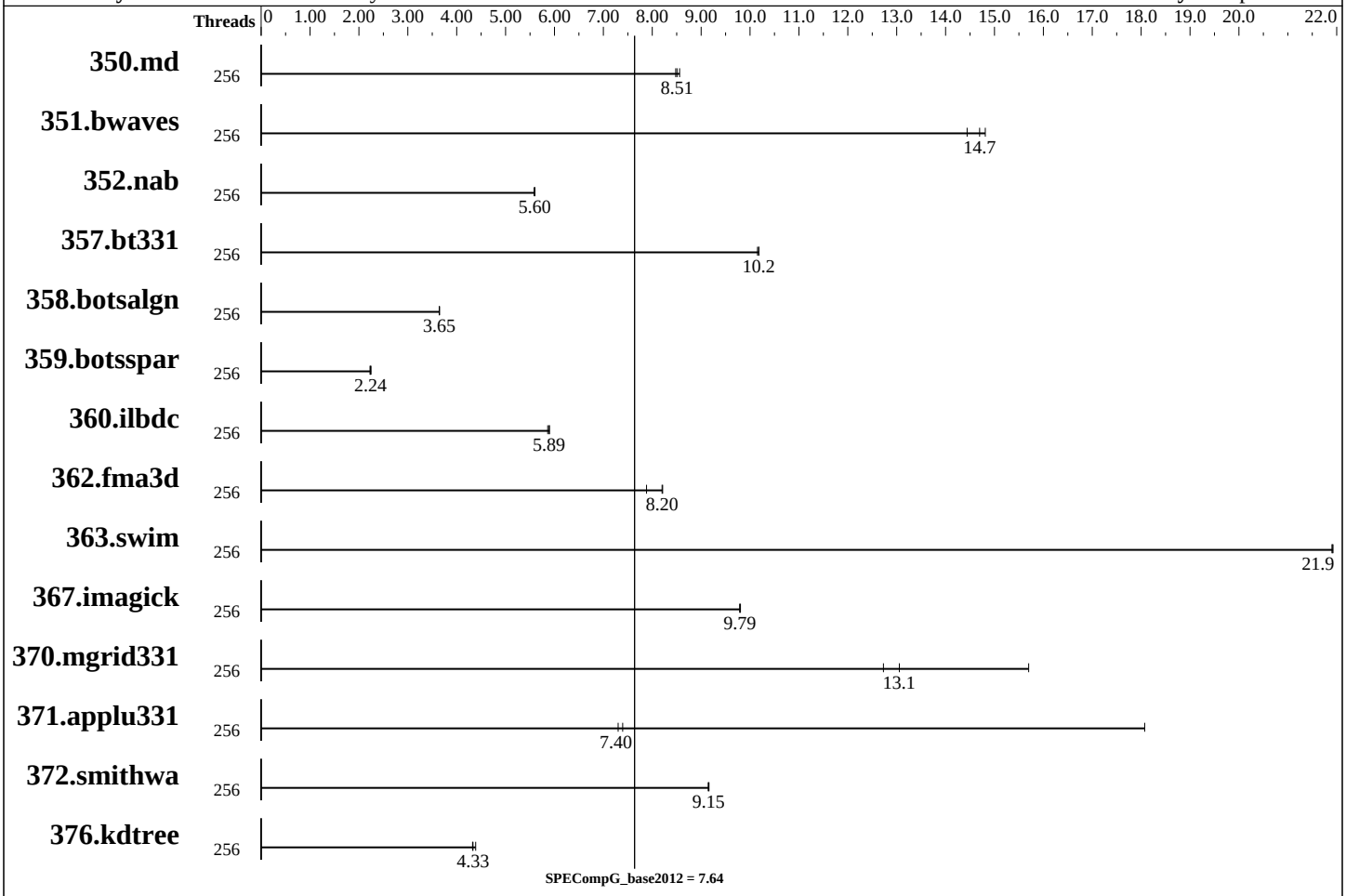
Intel Xeon Phi 7210, 1.30GHz,
SMT on, Turbo off, flat (MCDRAM Preferred)

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 7.64

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

Test date: Dec-2016
Hardware Availability: Aug-2016
Software Availability: Apr-2016



Hardware

CPU Name:	Intel Xeon Phi 7210
CPU Characteristics:	Intel Turbo Boost Technology off, Simultaneous Multithreading (SMT) on
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:	256

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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	256	**544**	**8.51**	546	8.48	541	8.56							
351.bwaves	256	306	14.8	**308**	**14.7**	314	14.4							
352.nab	256	695	5.60	**695**	**5.60**	697	5.58							
357.bt331	256	466	10.2	467	10.2	**466**	**10.2**							
358.botsalgn	256	1193	3.65	1193	3.65	**1193**	**3.65**							
359.botsspar	256	2336	2.25	**2348**	**2.24**	2358	2.23							
360.ilbdc	256	604	5.90	**604**	**5.89**	607	5.86							
362.fma3d	256	482	7.88	463	8.21	**463**	**8.20**							
363.swim	256	207	21.9	207	21.9	**207**	**21.9**							
367.imagick	256	**718**	**9.79**	718	9.79	717	9.80							
370.mgrid331	256	282	15.7	**339**	**13.1**	347	12.7							
371.applu331	256	335	18.1	**819**	**7.40**	830	7.30							
372.smithwa	256	**586**	**9.15**	585	9.16	586	9.15							
376.kdtree	256	1025	4.39	1041	4.32	**1038**	**4.33**							

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

Submit Notes

```
The config file option 'submit' was used.
submit = numactl -p 1 $command
```

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 Wed Dec 14 15:10:41 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)
      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.)
      cpu cores : 64
```

Continued on next page

Platform Notes (Continued)

```
        siblings  : 256
        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

  From /proc/meminfo
     MemTotal:       115193108 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 Dec 13 14:23

  SPEC is set to: /home/lijunj/SPEC/omp2012-1.1-run
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda3      ext4  713G  109G  568G  17% /

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

  (End of data from sysinfo program)
```

General Notes

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

Continued on next page

General Notes (Continued)

```
Memory Mode: flat
```

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

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