



SPEC® OMPG2012 Result

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Intel

(Test Sponsor: Technische Universitaet Dresden)

Intel Server System LADMP00AP Family (Xeon Phi 7210, 1.3 GHz, SMT on, Turbo on, MCDRAM Cache)

SPECompG_peak2012 = 8.02

SPECompG_base2012 = 7.88

OMP2012 license:37A

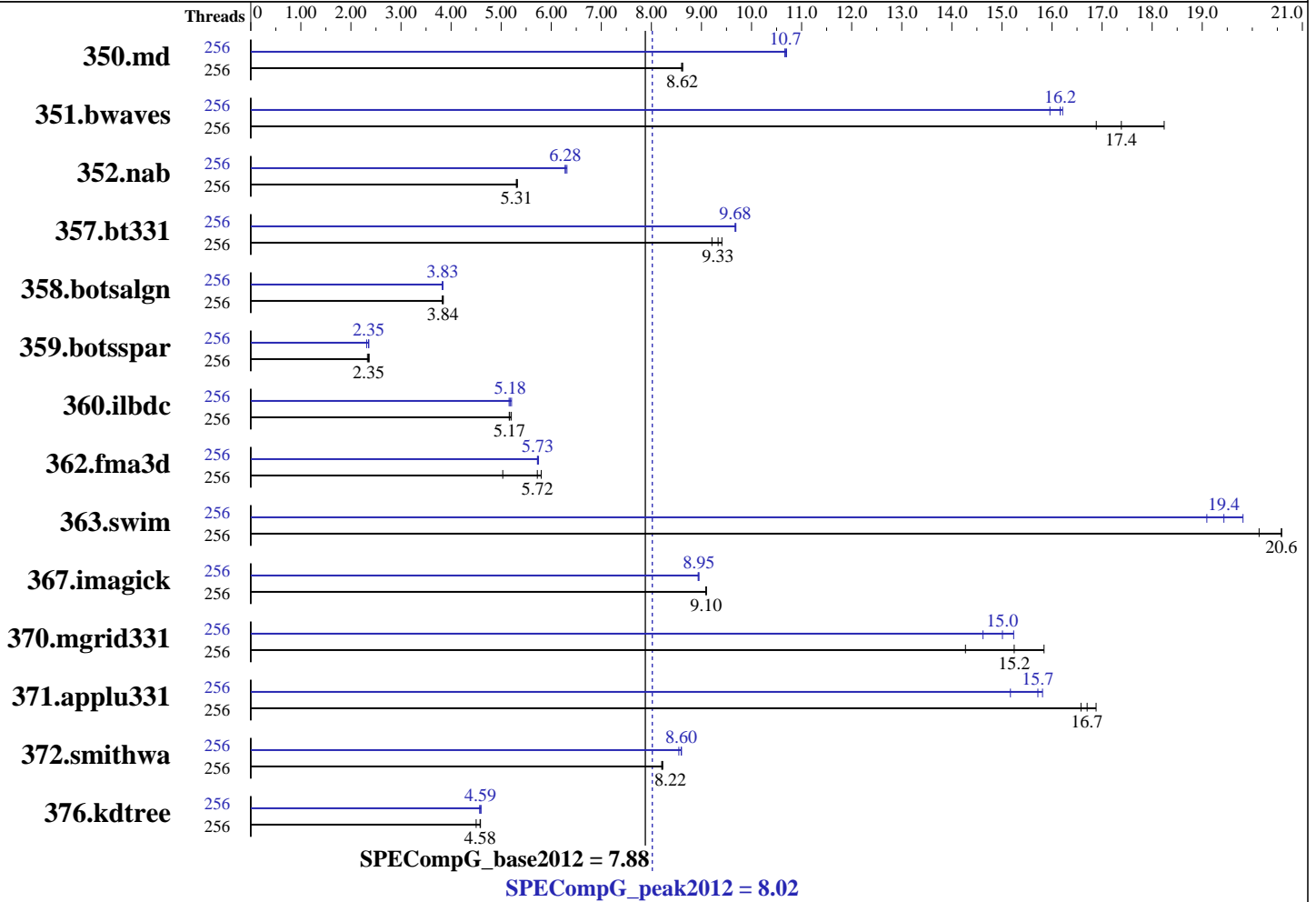
Test sponsor: Technische Universitaet Dresden

Tested by: Technische Universitaet Dresden

Test date: Aug-2017

Hardware Availability: Jun-2016

Software Availability: May-2017



Hardware

CPU Name: Intel Xeon Phi 7210
 CPU Characteristics: Intel Turbo Boost Technology up to 1.5 GHz
 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 2Rx4 PC4-2400T-R)
 Disk Subsystem: 275 GB INTEL SSDSC2BB30
 Other Hardware: None
 Base Threads Run: 256
 Minimum Peak Threads: 256

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Software

Operating System: CentOS Linux release 7.3
 Kernel 3.0.76-0.11-default
 Compiler: C/C++/Fortran: Version 17.0.0.4 of Intel Composer XE for Linux Build 20170411
 Auto Parallel: No
 File System: ext4
 System State: Default
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other Software: None



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Maximum Peak Threads: 256

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	256	538	8.60	<u>537</u>	<u>8.62</u>	537	8.62	256	<u>434</u>	<u>10.7</u>	433	10.7	434	10.7
351.bwaves	256	<u>261</u>	<u>17.4</u>	248	18.2	268	16.9	256	279	16.2	<u>280</u>	<u>16.2</u>	284	16.0
352.nab	256	<u>733</u>	<u>5.31</u>	731	5.33	733	5.31	256	<u>619</u>	<u>6.28</u>	619	6.28	616	6.31
357.bt331	256	504	9.41	515	9.21	<u>508</u>	<u>9.33</u>	256	490	9.67	489	9.69	<u>490</u>	<u>9.68</u>
358.botsalgn	256	1138	3.82	1131	3.85	<u>1133</u>	<u>3.84</u>	256	1134	3.84	1138	3.82	<u>1136</u>	<u>3.83</u>
359.botsspar	256	2253	2.33	2220	2.36	<u>2232</u>	<u>2.35</u>	256	<u>2232</u>	<u>2.35</u>	2227	2.36	2268	2.31
360.ilbdc	256	684	5.20	690	5.16	<u>689</u>	<u>5.17</u>	256	690	5.16	<u>687</u>	<u>5.18</u>	684	5.21
362.fma3d	256	<u>664</u>	<u>5.72</u>	755	5.03	655	5.80	256	664	5.72	<u>663</u>	<u>5.73</u>	661	5.75
363.swim	256	220	20.6	<u>220</u>	<u>20.6</u>	225	20.1	256	229	19.8	237	19.1	<u>233</u>	<u>19.4</u>
367.imagick	256	774	9.09	<u>773</u>	<u>9.10</u>	773	9.10	256	786	8.95	787	8.93	<u>786</u>	<u>8.95</u>
370.mgrid331	256	279	15.8	<u>290</u>	<u>15.2</u>	310	14.3	256	290	15.2	302	14.6	<u>294</u>	<u>15.0</u>
371.applu331	256	359	16.9	<u>363</u>	<u>16.7</u>	366	16.6	256	399	15.2	<u>386</u>	<u>15.7</u>	383	15.8
372.smithwa	256	653	8.21	651	8.23	<u>652</u>	<u>8.22</u>	256	627	8.55	623	8.60	<u>624</u>	<u>8.60</u>
376.kdtree	256	<u>983</u>	<u>4.58</u>	1000	4.50	981	4.59	256	978	4.60	985	4.57	<u>981</u>	<u>4.59</u>

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

Platform Notes

Sysinfo program /tmp/spec/1.1/Docs/sysinfo
Revision 563 of 2016-06-10 (097295389cf6073d8c3b03fa376740a5)
running on tauruskn127.taurus.hrsk.tu-dresden.de Sat Aug 19 13:24:41 2017

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
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

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Platform Notes (Continued)

MemTotal: 98707216 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```
/usr/bin/lsb_release -d
CentOS Linux release 7.3.1611 (Core)
```

```
From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 7.3.1611 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.3 (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 7.3.1611 (Core)
system-release: CentOS Linux release 7.3.1611 (Core)
system-release-cpe: cpe:/o:centos:centos:7
```

```
uname -a:
Linux tauruskn127.taurus.hrsk.tu-dresden.de 3.10.0-514.21.2.el7.x86_64 #1 SMP
Tue Jun 20 12:24:47 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jun 30 13:46
```

```
SPEC is set to: /tmp/spec/1.1
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4  275G  4.7G  257G   2% /
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

System settings:
Execute Disable Bit=Enabled
L1 + L2 Prefetcher=Enabled
SRAT Ordering by Domain Precedence=Enabled
CPU Power and Performance Policy=Balanced Performance
CPU C-State=Enabled
C1E Autopromote=Enabled

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General Notes (Continued)

Processor C6=Enabled
Enhanced Intel SpeedStep(R) Tech=Enabled
Intel(R) Turbo Boost Technology=Enabled
Cluster Mode=Quadrant
Data Scrambling=Auto
Rank Margin Tool=Auto
Environment variables:
ENV_KMP_AFFINITY=compact,0
ENV_KMP_LIBRARY=turnaround
ENV_KMP_BLOCKTIME=infinite
ENV_KMP_STACKSIZE=190M
ENV_OMP_DYNAMIC=FALSE
ENV_OMP_NESTED=FALSE

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Base Portability Flags

350.md: -FR
357.bt331: -mmodel=medium
363.swin: -mmodel=medium
367.imagick: -std=c99

Base Optimization Flags

C benchmarks:
-O3 -openmp -ipo -xMIC-AVX512 -ansi-alias

C++ benchmarks:
-O3 -openmp -ipo -xMIC-AVX512 -ansi-alias

Fortran benchmarks:
-O3 -openmp -ipo -xMIC-AVX512 -align array64byte



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Peak Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Peak Portability Flags

350.md: -FR
357.bt331: -mcmmodel=medium
363.swim: -mcmmodel=medium
367.imagick: -std=c99

Peak Optimization Flags

C benchmarks:

352.nab: -O3 -openmp -ipo -xMIC-AVX512 -fno-alias
-opt-malloc-options=1 -opt-calloc -fp-model fast=2
-no-prec-div -no-prec-sqrt -ansi-alias

358.botsalgn: -O3 -openmp -ipo -xMIC-AVX512 -fno-alias -ansi-alias

359.botsspar: Same as 358.botsalgn

367.imagick: -O2 -openmp -ipo -xMIC-AVX512 -ansi-alias

372.smithwa: -O2 -openmp -ipo -xMIC-AVX512 -fno-alias
-opt-streaming-stores always -opt-malloc-options=1
-ansi-alias

C++ benchmarks:

-O3 -openmp -ipo -xMIC-AVX512 -fno-alias -ansi-alias

Fortran benchmarks:

350.md: -O2 -openmp -ipo -xMIC-AVX512 -fno-alias
-opt-malloc-options=1 -fp-model fast=2 -no-prec-div
-no-prec-sqrt -align array64byte

351.bwaves: -O3 -openmp -ipo -xMIC-AVX512 -fno-alias -fp-model fast=2
-no-prec-div -no-prec-sqrt -align array64byte

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Peak Optimization Flags (Continued)

357.bt331: Same as 351.bwaves

360.ilbdc: -O3 -openmp -ipo -xMIC-AVX512 -opt-malloc-options=1
-align array64byte

362.fma3d: -O3 -openmp -ipo -xMIC-AVX512 -fno-alias
-align array64byte

363.swim: -O3 -openmp -ipo -xMIC-AVX512 -fno-alias
-opt-streaming-stores always -opt-malloc-options=3
-align array64byte

370.mgrid331: -O2 -openmp -ipo -xMIC-AVX512 -fno-alias
-opt-malloc-options=3 -align array64byte

371.applu331: -O2 -openmp -ipo -xAVX -align array64byte

The flags file that was used to format this result can be browsed at

<http://www.spec.org/omp2012/flags/icc2018-openmp.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/omp2012/flags/icc2018-openmp.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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