SPEC® OMPG2012 Result

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Huawei

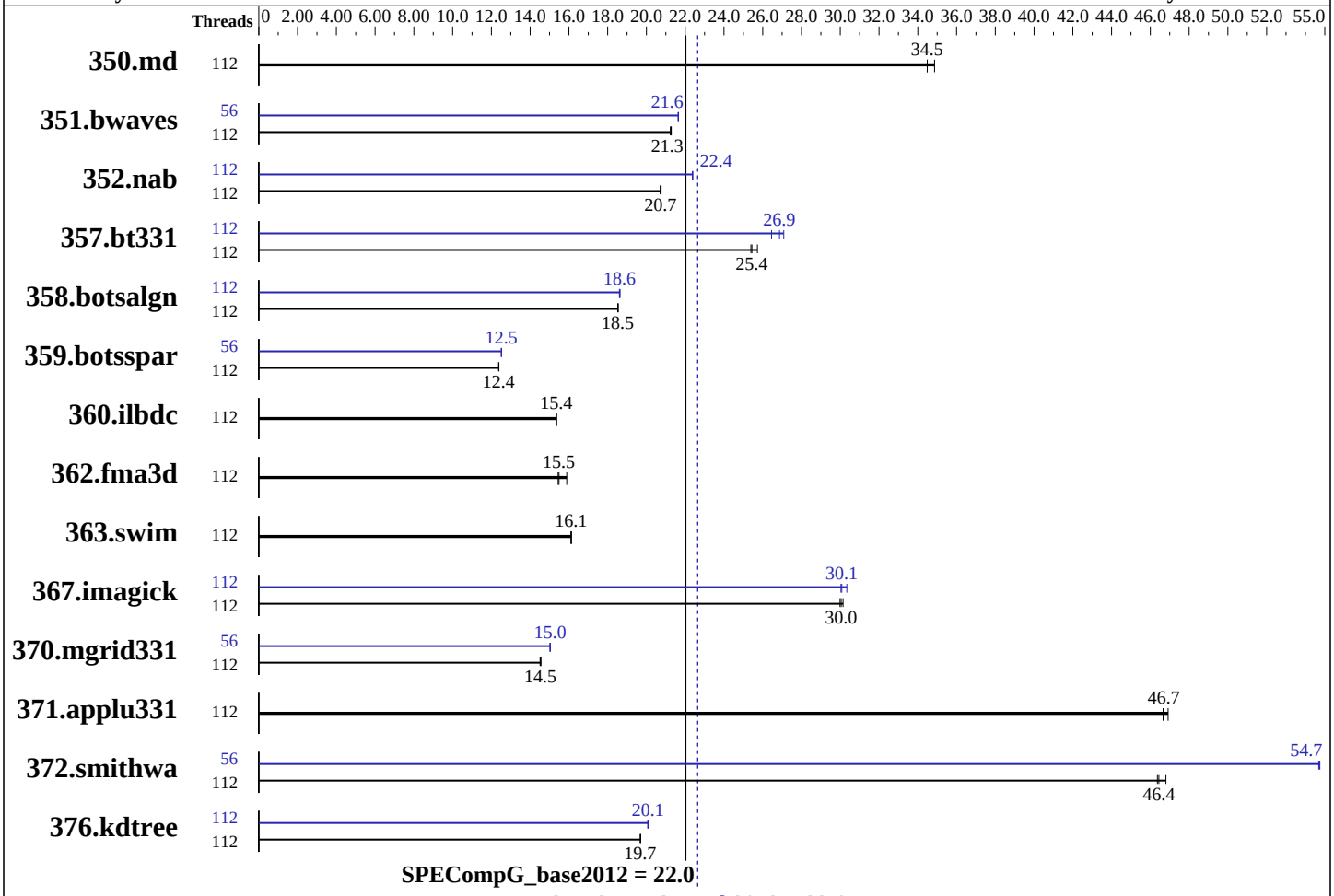
Huawei 2288H V5 (Intel Xeon Platinum 8180)

SPECompG_peak2012 = 22.6

SPECompG_base2012 = 22.0

OMP2012 license: 27
Test sponsor: Huawei
Tested by: Huawei

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Feb-2017



Hardware

CPU Name:	Intel Xeon Platinum 8180
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
CPU MHz Maximum:	3800
FPU:	Integrated
CPU(s) enabled:	56 cores, 2 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable:	1, 2 Chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	38.5 MB I+D on chip per chip
Other Cache:	None
Memory:	384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
Disk Subsystem:	1 X 1.2 TB SAS, 10000 RPM
Other Hardware:	None
Base Threads Run:	112
Minimum Peak Threads:	56

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Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 linux-jm4z 4.4.21-69-default
Compiler:	C/C++/Fortran: Version 17.0.4.196 of Intel Composer XE for Linux Build 20170411
Auto Parallel:	No
File System:	ext4
System State:	run level 3
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	None

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Maximum Peak Threads: 112

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	112	133	34.9	**134**	**34.5**	134	34.5	112	133	34.9	**134**	**34.5**	134	34.5
351.bwaves	112	**213**	**21.3**	213	21.3	213	21.2	56	**209**	**21.6**	209	21.6	209	21.7
352.nab	112	188	20.7	**188**	**20.7**	187	20.8	112	**174**	**22.4**	174	22.4	174	22.4
357.bt331	112	184	25.7	187	25.4	**186**	**25.4**	112	179	26.5	175	27.1	**176**	**26.9**
358.botsalgn	112	**235**	**18.5**	235	18.5	235	18.5	112	**234**	**18.6**	233	18.6	234	18.6
359.botsspar	112	424	12.4	**424**	**12.4**	424	12.4	56	**419**	**12.5**	419	12.5	420	12.5
360.ilbdc	112	232	15.3	232	15.4	**232**	**15.4**	112	232	15.3	232	15.4	**232**	**15.4**
362.fma3d	112	246	15.4	239	15.9	**245**	**15.5**	112	246	15.4	239	15.9	**245**	**15.5**
363.swim	112	281	16.1	**281**	**16.1**	281	16.1	112	281	16.1	**281**	**16.1**	281	16.1
367.imagick	112	233	30.1	**234**	**30.0**	234	30.0	112	234	30.0	232	30.3	**234**	**30.1**
370.mgrid331	112	304	14.6	305	14.5	**304**	**14.5**	56	294	15.0	**294**	**15.0**	294	15.0
371.applu331	112	129	46.9	130	46.7	**130**	**46.7**	112	129	46.9	130	46.7	**130**	**46.7**
372.smithwa	112	**115**	**46.4**	115	46.8	116	46.4	56	97.9	54.7	98.0	54.7	**97.9**	**54.7**
376.kdtree	112	**229**	**19.7**	228	19.7	229	19.7	112	224	20.1	**224**	**20.1**	224	20.1

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

Platform Notes

```
Sysinfo program /specomp2012/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on linux-jm4z Mon Jun 19 18:52:37 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(R) Platinum 8180 CPU @ 2.50GHz
      2 "physical id"s (chips)
      112 "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 : 28
      siblings  : 56
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
      25 26 27 28 29 30
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
      25 26 27 28 29 30
   cache size : 39424 KB
```

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Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       394122080 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 2
      # This file is deprecated and will be removed in a future service pack or
      release.
      # Please check /etc/os-release for details about this release.
   os-release:
      NAME="SLES"
      VERSION="12-SP2"
      VERSION_ID="12.2"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
   Linux linux-jm4z 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
   (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 17 16:37

SPEC is set to: /specomp2012
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   828G   57G  772G   7% /

Additional information from dmidecode:
  BIOS INSYDE Corp. 0.10 03/09/2017
  Memory:
   24x Samsung M393A2K43BB1-CTD 16 GB 2666 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

```
================================================================================
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
  BIOS settings notes:
  Power Policy set to Performance
  Set Patrol Scrub to Disable
  General OMP Library Settings
  ENV_KMP_LIBRARY=turnaround
  ENV_OMP_SCHEDULE=static
  ENV_KMP_STACKSIZE=256M
```

Continued on next page

General Notes (Continued)

```
    ENV_OMP_DYNAMIC=FALSE
    ENV_OMP_NESTED=FALSE
    ENV_KMP_AFFINITY=compact,0
  ------------------------------------------------------------------------
  Per benchmark peak OMP Library Settings

  ------------------------------------------------------------------------
  351.bwaves:peak:
    ENV_KMP_AFFINITY=compact,1
    ENV_OMP_SCHEDULE=static,1
  ------------------------------------------------------------------------
  357.bt331:peak
    ENV_OMP_SCHEDULE=static,1
  ------------------------------------------------------------------------
  359.botsspar:peak:
    ENV_KMP_AFFINITY=compact,1
    ENV_OMP_SCHEDULE=guided

  ------------------------------------------------------------------------
  370.mgrid331:peak
    ENV_KMP_AFFINITY=compact,1

  ------------------------------------------------------------------------
  372.smithwa:peak:
    ENV_KMP_AFFINITY=compact,1
    ENV_OMP_SCHEDULE=static,1
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
```
-O2 -openmp -ipo  -xCORE-AVX2 -ansi-alias
```

C++ benchmarks:
```
-O2 -openmp -ipo  -xCORE-AVX2 -ansi-alias
```

Fortran benchmarks:
```
-O2 -openmp -ipo  -xCORE-AVX2 -align array64byte
```

Peak Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Fortran benchmarks:
```
ifort
```

Peak Portability Flags

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

Peak Optimization Flags

C benchmarks:

352.nab: `-O3 -openmp -ipo  -xCORE-AVX2 -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  -xCORE-AVX2 -fno-alias -ansi-alias`

359.botsspar: `Same as 358.botsalgn`

367.imagick: `-O2 -openmp -ipo  -xCORE-AVX2 -ansi-alias`

372.smithwa: `-O2 -openmp -ipo  -xCORE-AVX2 -fno-alias -opt-streaming-stores always -opt-malloc-options=1 -ansi-alias`

Continued on next page

Peak Optimization Flags (Continued)

C++ benchmarks:
`-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -ansi-alias`

Fortran benchmarks:

350.md: `basepeak = yes`

351.bwaves: `-O3 -openmp -ipo -xCORE-AVX2 -fno-alias -fp-model fast=2 -no-prec-div -no-prec-sqrt -align array64byte`

357.bt331: `Same as 351.bwaves`

360.ilbdc: `basepeak = yes`

362.fma3d: `basepeak = yes`

363.swim: `basepeak = yes`

370.mgrid331: `-O2 -openmp -ipo -xCORE-AVX2 -fno-alias -opt-malloc-options=3 -align array64byte`

371.applu331: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20161208.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20161208.xml`

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For other inquiries, please contact webmaster@spec.org.

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