SPEC® OMPG2012 Result

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Intel

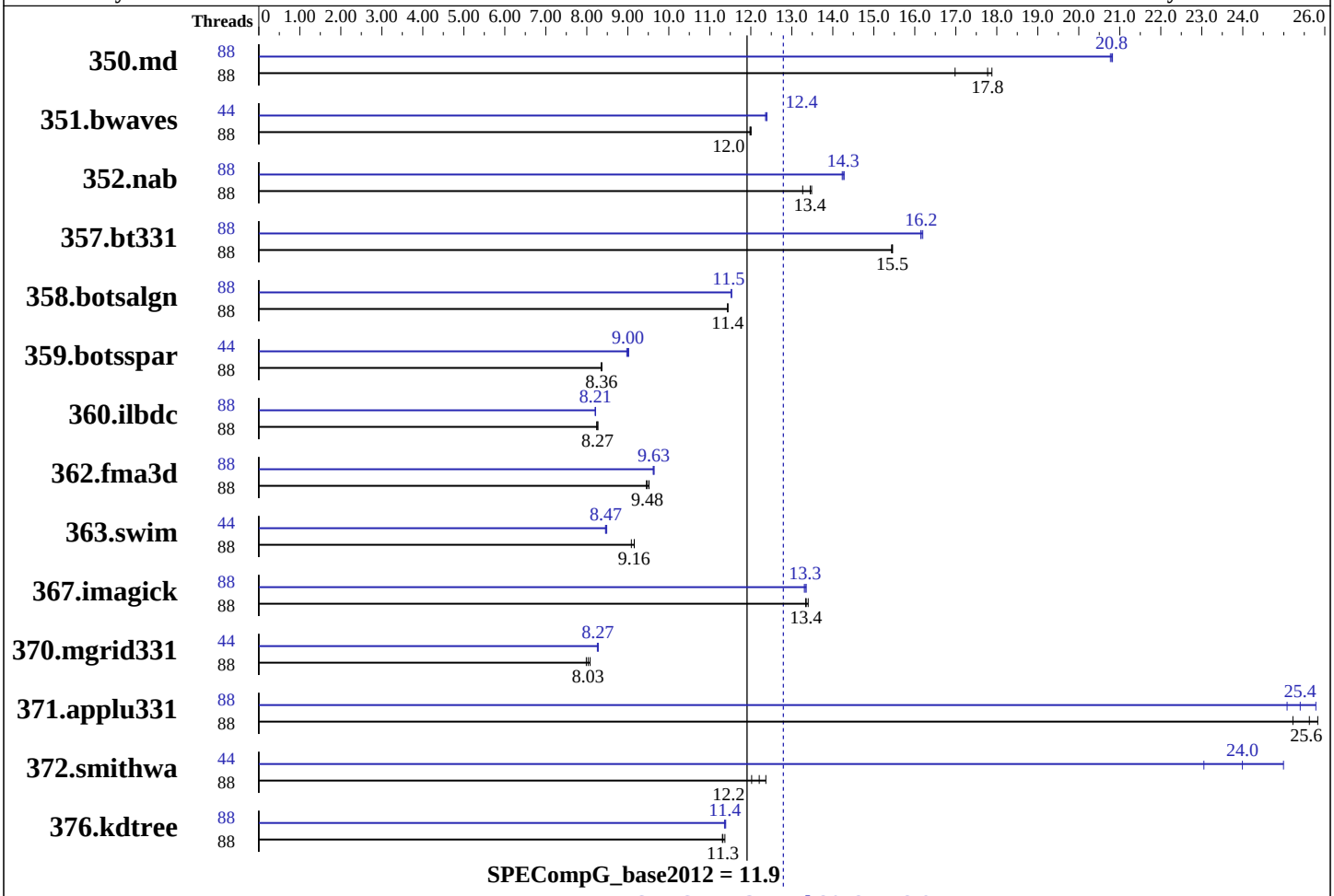
Intel R2308WTTYS (Intel Xeon E5-2699 v4, 2.2GHz, DDR4-2400 MHz,SMT ON, Turbo ON)

SPECompG_peak2012 = 12.8

SPECompG_base2012 = 11.9

OMP2012 license: 13
Test sponsor: Intel
Tested by: Intel

Test date: May-2016
Hardware Availability: Mar-2016
Software Availability: Feb-2016



Hardware

CPU Name:	Intel Xeon E5-2699 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2200
CPU MHz Maximum:	3600
FPU:	Integrated
CPU(s) enabled:	44 cores, 2 chips, 22 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:	256 KB I+D on chip per core
L3 Cache:	55 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 1Rx8 PC4-2400T-R)
Disk Subsystem:	NFS via 10GBPS Ethernet
Other Hardware:	--
Base Threads Run:	88
Minimum Peak Threads:	44

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.7, Kernel 2.6.32-573.el6.x86_64
Compiler:	C/C++/Fortran: Version 16.0.2.181 of Intel Composer XE for Linux Build 20160204
Auto Parallel:	No
File System:	Linux ext3
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	None

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Maximum Peak Threads: 88

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	88	259	17.9	273	17.0	**260**	**17.8**	88	**223**	**20.8**	223	20.8	222	20.8
351.bwaves	88	**378**	**12.0**	377	12.0	378	12.0	44	**366**	**12.4**	366	12.4	367	12.4
352.nab	88	**289**	**13.4**	293	13.3	288	13.5	88	273	14.2	272	14.3	**273**	**14.3**
357.bt331	88	307	15.5	**307**	**15.5**	307	15.4	88	294	16.1	**293**	**16.2**	293	16.2
358.botsalgn	88	380	11.4	380	11.4	**380**	**11.4**	88	377	11.5	**377**	**11.5**	377	11.5
359.botsspar	88	628	8.36	**628**	**8.36**	629	8.35	44	**583**	**9.00**	582	9.02	585	8.98
360.ilbdc	88	432	8.24	**431**	**8.27**	430	8.27	88	434	8.21	433	8.21	**434**	**8.21**
362.fma3d	88	402	9.45	399	9.52	**401**	**9.48**	88	**394**	**9.63**	394	9.64	395	9.62
363.swim	88	499	9.09	495	9.16	**495**	**9.16**	44	534	8.49	**535**	**8.47**	536	8.46
367.imagick	88	527	13.3	**527**	**13.4**	525	13.4	88	526	13.4	**527**	**13.3**	528	13.3
370.mgrid331	88	553	7.99	547	8.08	**550**	**8.03**	44	535	8.26	534	8.28	**534**	**8.27**
371.applu331	88	240	25.2	235	25.8	**237**	**25.6**	88	242	25.1	**239**	**25.4**	235	25.8
372.smithwa	88	446	12.0	**439**	**12.2**	433	12.4	44	**223**	**24.0**	214	25.0	233	23.1
376.kdtree	88	398	11.3	**398**	**11.3**	396	11.4	88	396	11.4	**396**	**11.4**	395	11.4

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

Platform Notes

```
Sysinfo program /root/pshelepu/SpecOMP/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on bdw-ep2 Mon May 30 05:09:36 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(R) CPU E5-2699 v4 @ 2.20GHz
      2 "physical id"s (chips)
      88 "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 : 22
      siblings  : 44
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
      28
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
      28
   cache size : 56320 KB
```

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Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       132020528 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.7 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.7 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.7 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux bdw-ep2 2.6.32-573.el6.x86_64 #1 SMP Wed Jul 1 18:23:37 EDT 2015 x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 May 28 06:51

SPEC is set to: /root/pshelepu/SpecOMP
   Filesystem           Type  Size  Used Avail Use% Mounted on
   /dev/mapper/vg_hswep2-lv_root
                        ext4   50G   39G  8.3G  83% /

Additional information from dmidecode:
  BIOS Intel Corporation GRRFSDP1.86B.0271.R00.1510301446 10/30/2015
  Memory:
   8x   16 GB
   8x 0x11 Unknown 16 GB 2400 MHz 1 rank
   8x NO DIMM Unknown   2400 MHz 2 rank
   8x NO DIMM Unknown   2400 MHz 3 rank

(End of data from sysinfo program)
```

General Notes

```
================================================================================
General base OMP Library Settings
  ENV_KMP_AFFINITY=compact,0

================================================================================
General peak OMP Library Settings
  ENV_KMP_AFFINITY=compact,0

================================================================================
General OMP Library Settings
  KMP_LIBRARY=turnaround
  KMP_STACKSIZE=256M
  KMP_BLOCKTIME=infinite
  OMP_DYNAMIC=FALSE
```

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General Notes (Continued)

```
  OMP_SCHEDULE=static
================================================================================
351.bwaves:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=static,1

================================================================================
359.botsspar:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=guided

================================================================================
363.swim:peak:
  ENV_KMP_AFFINITY=compact,1

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

================================================================================
372.smithwa:peak:
  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 -qopenmp -ipo -xCORE-AVX2 -ansi-alias

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Base Optimization Flags (Continued)

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

Fortran benchmarks:
```
-O2 -qopenmp -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 -qopenmp -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 -qopenmp -ipo  -xCORE-AVX2 -fno-alias -ansi-alias`

359.botsspar: `Same as 358.botsalgn`

367.imagick: `-O3 -qopenmp -ipo  -xCORE-AVX2 -ansi-alias`

372.smithwa: `-O3 -qopenmp -ipo  -xCORE-AVX2 -fno-alias -opt-streaming-stores always -opt-malloc-options=1 -ansi-alias`

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

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Peak Optimization Flags (Continued)

Fortran benchmarks:

350.md: `-O3 -qopenmp -ipo -xCORE-AVX2 -fno-alias -opt-malloc-options=1 -fp-model fast=2 -no-prec-div -no-prec-sqrt -align array64byte`

351.bwaves: `-O3 -qopenmp -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: `-O3 -qopenmp -ipo -xCORE-AVX2 -fno-alias -align array64byte`

362.fma3d: `Same as 360.ilbdc`

363.swim: `-O3 -qopenmp -ipo -xCORE-AVX2 -fno-alias -opt-streaming-stores always -opt-malloc-options=3 -align array64byte`

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

371.applu331: `-O3 -qopenmp -ipo -xCORE-AVX2 -align array64byte`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20160622.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20160622.xml`

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

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