SPEC® OMPG2012 Result

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SGI

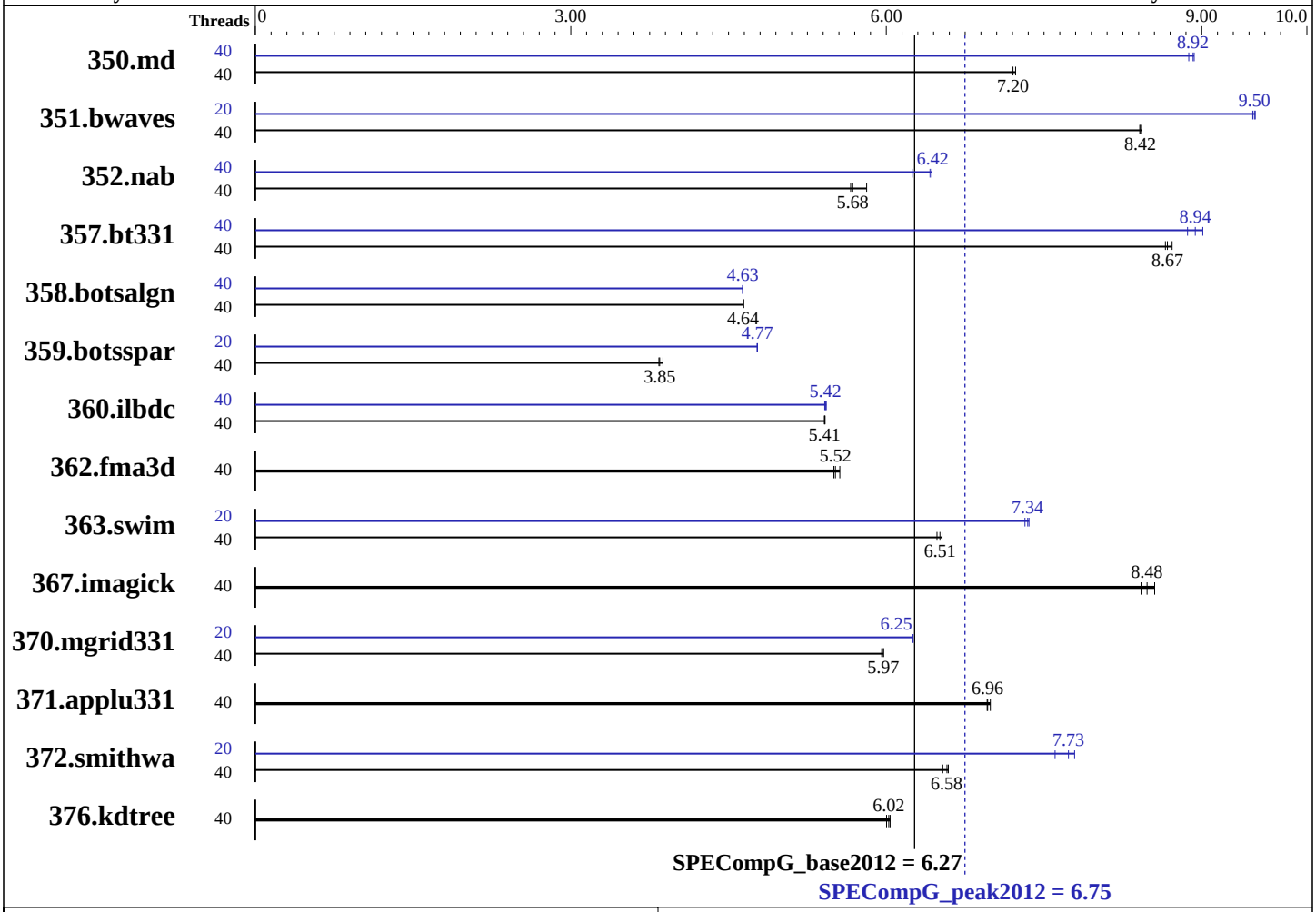
SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECompG_peak2012 = 6.75

SPECompG_base2012 = 6.27

OMP2012 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Nov-2013
Hardware Availability: Sep-2013
Software Availability: Oct-2013



Hardware

CPU Name:	Intel Xeon E5-2690 v2
CPU Characteristics:	Ten Core, 3.0 GHz, 8.0 GT/s QPI Intel Turbo Boost Technology up to 3.60 GHz Hyper-Threading Technology enabled
CPU MHz:	3000
CPU MHz Maximum:	3600
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	64 GB (8 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	64.8 TB RAID 6 72 x 900 GB SAS (Western Digital, 10K RPM)

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 11 SP2, Kernel 3.0.80-0.7-default
Compiler:	C/C++/Fortran: Version 14.0.1.106 of Intel Composer XE 2013 for Linux, Build 20131008
Auto Parallel:	No
File System:	NFSv3 IPoIB
System State:	Run level 3 (Multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	SGI Tempo Compute Node 2.7.3, Build 708rp14.sles11sp2-1305311204

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Other Hardware: --
Base Threads Run: 40
Minimum Peak Threads: 20
Maximum Peak Threads: 40

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	40	640	7.23	**643**	**7.20**	643	7.20	40	519	8.93	**519**	**8.92**	522	8.88
351.bwaves	40	539	8.41	**538**	**8.42**	538	8.43	20	478	9.49	**477**	**9.50**	476	9.51
352.nab	40	669	5.81	687	5.66	**685**	**5.68**	40	**606**	**6.42**	605	6.43	623	6.25
357.bt331	40	**546**	**8.67**	548	8.65	544	8.72	40	535	8.87	**530**	**8.94**	526	9.01
358.botsalgn	40	937	4.64	938	4.64	**938**	**4.64**	40	**939**	**4.63**	938	4.64	939	4.63
359.botsspar	40	1354	3.88	**1365**	**3.85**	1368	3.84	20	**1100**	**4.77**	1100	4.77	1100	4.77
360.ilbdc	40	658	5.41	657	5.42	**657**	**5.41**	40	656	5.43	657	5.41	**656**	**5.42**
362.fma3d	40	**689**	**5.52**	691	5.50	684	5.56	40	**689**	**5.52**	691	5.50	684	5.56
363.swim	40	694	6.53	**696**	**6.51**	699	6.48	20	**617**	**7.34**	616	7.36	619	7.32
367.imagick	40	835	8.42	**829**	**8.48**	822	8.55	40	835	8.42	**829**	**8.48**	822	8.55
370.mgrid331	40	740	5.97	742	5.96	**740**	**5.97**	20	707	6.26	**707**	**6.25**	707	6.25
371.applu331	40	**870**	**6.96**	867	6.99	871	6.96	40	**870**	**6.96**	867	6.99	871	6.96
372.smithwa	40	820	6.54	**815**	**6.58**	813	6.59	20	**693**	**7.73**	705	7.61	688	7.79
376.kdtree	40	**747**	**6.02**	745	6.04	750	6.00	40	**747**	**6.02**	745	6.04	750	6.00

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

Operating System Notes

```
BIOS settings notes:
  Intel Turbo Boost Technology (Turbo)  : Enabled

Transparent Hugepage : disabled
   Transparent Hugepage is disabled by
   echo never > /sys/kernel/mm/transparent_hugepage/enabled

Software Environment:
  export KMP_LIBRARY=turnaround
  export KMP_STACKSIZE=256M
  export KMP_BLOCKTIME=infinite
  export OMP_DYNAMIC=FALSE
  export OMP_NESTED=FALSE
  ulimit -s unlimited
```

Platform Notes

```
Sysinfo program /store/hfeng/omp2012/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on r1i2n14 Tue Nov 19 14:04:03 2013

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 E5-2690 v2 @ 3.00GHz
      2 "physical id"s (chips)
      40 "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 : 10
      siblings  : 20
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:       65979536 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 2
   sgi-compute-node-release: SGI Tempo Compute Node 2.7.3, Build
   708rp14.sles11sp2-1305311204

uname -a:
   Linux r1i2n14 3.0.80-0.7-default #1 SMP Tue Jun 25 18:32:49 UTC 2013
   (25740f8) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 15 22:04 last=S

SPEC is set to: /store/hfeng/omp2012
   Filesystem              Type  Size  Used Avail Use% Mounted on
   10.149.133.200:/mnt/data nfs    45T  9.3T   35T  21% /nas

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

(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

================================================================================
Per benchmark peak OMP Library Settings

================================================================================
351.bwaves:peak:
  ENV_KMP_AFFINITY=compact,1

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

================================================================================
362.fma3d
  basepeak=1

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

================================================================================
367.imagick
  basepeak=1

================================================================================
371.applu331:peak:
  basepeak=1

================================================================================
372.smithwa:peak:
  ENV_KMP_AFFINITY=compact,1

================================================================================
376.kdtree:peak:
  basepeak=1
```

Base Compiler Invocation

C benchmarks:
icc

Continued on next page

Base Compiler Invocation (Continued)

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 -xAVX -ansi-alias

C++ benchmarks:
-O2 -openmp -ipo -xAVX -ansi-alias

Fortran benchmarks:
-O2 -openmp -ipo -xAVX

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 -xAVX -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 -xSSE4.2 -fno-alias -ansi-alias`

359.botsspar: `-O3 -openmp -ipo -xAVX -fno-alias -ansi-alias`

367.imagick: `basepeak = yes`

372.smithwa: `-O2 -openmp -ipo -xSSE4.2 -fno-alias -opt-streaming-stores always -opt-malloc-options=1 -ansi-alias`

C++ benchmarks:

376.kdtree: `basepeak = yes`

Fortran benchmarks:

350.md: `-O2 -openmp -ipo -xAVX -fno-alias -opt-malloc-options=1 -fp-model fast=2 -no-prec-div -no-prec-sqrt`

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

357.bt331: `Same as 351.bwaves`

360.ilbdc: `-O3 -openmp -ipo -xAVX -opt-malloc-options=1`

362.fma3d: `basepeak = yes`

363.swim: `-O3 -openmp -ipo -xSSE4.2 -fno-alias -opt-streaming-stores always -opt-malloc-options=3`

370.mgrid331: `-O2 -openmp -ipo -xSSE4.2 -fno-alias -opt-malloc-options=3`

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-linux64.20130320.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20130320.xml`

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Tested with SPEC OMP2012 v1.0.
Report generated on Tue Jul 22 13:38:11 2014 by SPEC OMP2012 PS/PDF formatter v541.
Originally published on 22 January 2014.