SPEC® OMPG2012 Result

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Dell

(Test Sponsor: Dell Inc.)

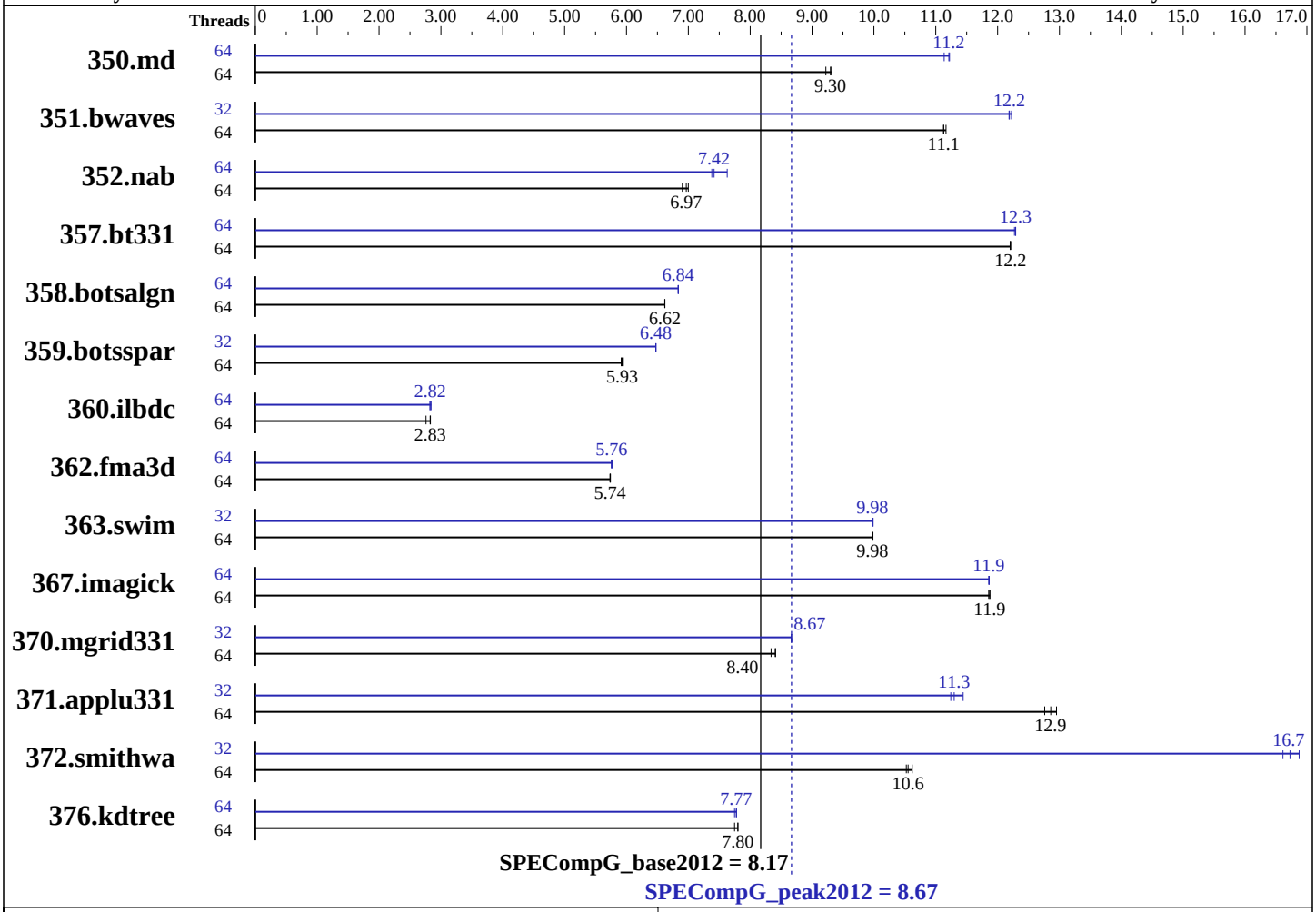
PowerEdge R820 (Intel Xeon E5-4650)

SPECompG_peak2012 = 8.67

SPECompG_base2012 = 8.17

OMP2012 license: 25
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: May-2013
Hardware Availability: Mar-2013
Software Availability: Jan-2013



Hardware

CPU Name:	Intel Xeon E5-4650
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2700
CPU MHz Maximum:	3300
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	6 x 300 GB SAS 15K RPM (RAID 5)
Other Hardware:	--
Base Threads Run:	64
Minimum Peak Threads:	32

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.3(Santiago)
Compiler:	C/C++/Fortran: Version 13.1.0.146 of Intel Composer XE for Linux Build 20130121
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: 64

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	64	**498**	**9.30**	497	9.31	502	9.22	64	416	11.1	**413**	**11.2**	413	11.2
351.bwaves	64	406	11.2	407	11.1	**407**	**11.1**	32	372	12.2	**372**	**12.2**	371	12.2
352.nab	64	556	7.00	**558**	**6.97**	564	6.90	64	**525**	**7.42**	527	7.38	510	7.63
357.bt331	64	388	12.2	**388**	**12.2**	388	12.2	64	**386**	**12.3**	386	12.3	386	12.3
358.botsalgn	64	657	6.62	**657**	**6.62**	657	6.62	64	**636**	**6.84**	636	6.84	636	6.84
359.botsspar	64	888	5.92	883	5.95	**885**	**5.93**	32	811	6.48	811	6.47	**811**	**6.48**
360.ilbdc	64	1290	2.76	1258	2.83	**1260**	**2.83**	64	**1260**	**2.82**	1261	2.82	1253	2.84
362.fma3d	64	663	5.73	662	5.74	**662**	**5.74**	64	659	5.77	**660**	**5.76**	660	5.76
363.swim	64	454	9.98	454	9.97	**454**	**9.98**	32	454	9.98	**454**	**9.98**	454	9.99
367.imagick	64	**592**	**11.9**	592	11.9	593	11.9	64	593	11.9	593	11.9	**593**	**11.9**
370.mgrid331	64	**526**	**8.40**	530	8.34	526	8.41	32	510	8.67	**510**	**8.67**	510	8.67
371.applu331	64	468	13.0	475	12.8	**471**	**12.9**	32	539	11.2	**536**	**11.3**	530	11.4
372.smithwa	64	509	10.5	505	10.6	**508**	**10.6**	32	318	16.9	**320**	**16.7**	323	16.6
376.kdtree	64	**577**	**7.80**	577	7.80	581	7.75	64	581	7.75	**579**	**7.77**	578	7.78

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

Platform Notes

```
Sysinfo program /root/OMP2012/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on R820 Thu May 23 08:38:07 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 E5-4650 0 @ 2.70GHz
      4 "physical id"s (chips)
      64 "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 : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
      physical 2: cores 0 1 2 3 4 5 6 7
      physical 3: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB
```

Continued on next page

Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       264434132 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.3 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux R820 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012 x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 May 23 08:36

SPEC is set to: /root/OMP2012
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda2      ext4    1.4T   19G  1.3T   2% /

Additional information from dmidecode:
  BIOS Dell Inc. 1.5.0 03/08/2013
  Memory:
   3x 00CE00B300CE M393B1K70DH0-YK0 8 GB 1600 MHz 2 rank
   29x 00CE04B300CE M393B1K70DH0-YK0 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

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

================================================================================
General OMP Library Settings
  ENV_KMP_LIBRARY=turnaround
  ENV_KMP_STACKSIZE=256M
  ENV_KMP_BLOCKTIME=infinite
  ENV_OMP_DYNAMIC=FALSE
  ENV_OMP_NESTED=FALSE

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

================================================================================
General peak OMP Library Settings
```

Continued on next page

General Notes (Continued)

```
    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

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

  ============================================================================
  371.applu331:peak:
    ENV_KMP_AFFINITY=compact,1

  ============================================================================
  372.smithwa:peak:
    ENV_KMP_AFFINITY=compact,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  -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: `-O2 -openmp -ipo  -xAVX -ansi-alias`

372.smithwa: `-O2 -openmp -ipo  -xSSE4.2 -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 -xAVX -fno-alias -ansi-alias`

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: `-O3 -openmp -ipo -xAVX -fno-alias`

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: `-O2 -openmp -ipo -xAVX -fno-alias`

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

Tested with SPEC OMP2012 v1.0.
Report generated on Tue Jul 22 13:36:57 2014 by SPEC OMP2012 PS/PDF formatter v541.
Originally published on 10 July 2013.