SPEC® OMPG2012 Result

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Cisco Systems

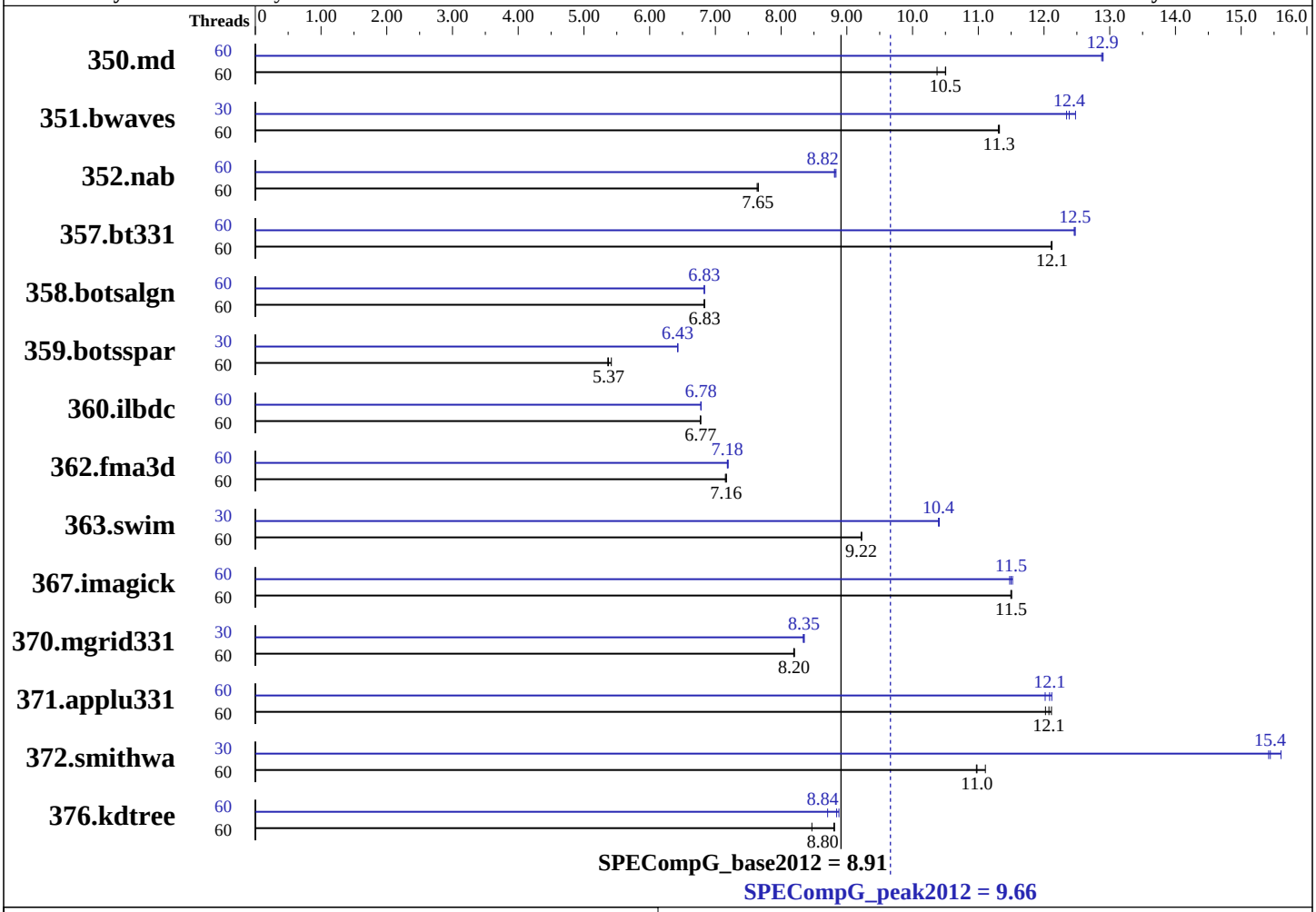
Cisco UCS B260 M4 (Intel Xeon E7-4890 v2 @ 2.80 GHz)

SPECompG_peak2012 = 9.66

SPECompG_base2012 = 8.91

OMP2012 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Feb-2014
Hardware Availability: May-2014
Software Availability: Oct-2013



Hardware

CPU Name:	Intel Xeon E7-4890 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2800
CPU MHz Maximum:	3400
FPU:	Integrated
CPU(s) enabled:	30 cores, 2 chips, 15 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:	38400 KB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC, and CL11)
Disk Subsystem:	1 x 300 GB 15000 RPM SAS
Other Hardware:	--
Base Threads Run:	60

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4
Compiler:	C/C++/Fortran: Version 14.0.1.106 of Intel Composer XE for Linux Build 20131008
Auto Parallel:	No
File System:	Linux ext4
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	Kernel 2.6.32-358.el6.x86_64

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Minimum Peak Threads: 30
Maximum Peak Threads: 60

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	60	446	10.4	**441**	**10.5**	441	10.5	60	360	12.9	**359**	**12.9**	359	12.9
351.bwaves	60	**400**	**11.3**	401	11.3	400	11.3	30	**366**	**12.4**	367	12.3	363	12.5
352.nab	60	508	7.65	509	7.64	**508**	**7.65**	60	440	8.84	441	8.81	**441**	**8.82**
357.bt331	60	**391**	**12.1**	391	12.1	391	12.1	60	380	12.5	380	12.5	**380**	**12.5**
358.botsalgn	60	637	6.83	636	6.83	**636**	**6.83**	60	637	6.83	637	6.83	**637**	**6.83**
359.botsspar	60	969	5.42	**977**	**5.37**	979	5.36	30	817	6.43	**817**	**6.43**	817	6.43
360.ilbdc	60	525	6.78	526	6.77	**525**	**6.77**	60	525	6.78	**525**	**6.78**	525	6.78
362.fma3d	60	**531**	**7.16**	531	7.15	530	7.17	60	**529**	**7.18**	528	7.20	529	7.18
363.swim	60	**491**	**9.22**	491	9.22	491	9.22	30	**436**	**10.4**	436	10.4	435	10.4
367.imagick	60	**611**	**11.5**	611	11.5	612	11.5	60	610	11.5	613	11.5	**611**	**11.5**
370.mgrid331	60	539	8.20	540	8.19	**539**	**8.20**	30	529	8.35	530	8.34	**529**	**8.35**
371.applu331	60	**502**	**12.1**	500	12.1	504	12.0	60	**501**	**12.1**	504	12.0	500	12.1
372.smithwa	60	489	11.0	**488**	**11.0**	483	11.1	30	**347**	**15.4**	348	15.4	343	15.6
376.kdtree	60	**511**	**8.80**	511	8.81	531	8.47	60	517	8.71	507	8.88	**509**	**8.84**

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

Platform Notes

```
Sysinfo program /opt/omp2012/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on specomp Sun Feb  9 13:36:06 2014

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 E7-4890 v2 @ 2.80GHz
      2 "physical id"s (chips)
      60 "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 : 15
      siblings  : 30
      physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
   cache size : 38400 KB

From /proc/meminfo
```

Continued on next page

Platform Notes (Continued)

```
      MemTotal:       264101684 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.4 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux specomp 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
      x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Feb 9 09:45

   SPEC is set to: /opt/omp2012
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/sda1      ext4    275G   23G  238G   9% /

   Additional information from dmidecode:
     BIOS Cisco Systems, Inc. EXM4-1.2.2.1.12.012920142034 01/29/2014
     Memory:
      32x   8 GB
      32x 0xCE00 M393B1K70QB0-YK0 8 GB 1333 MHz 2 rank
      16x NO DIMM NO DIMM

   (End of data from sysinfo program)
```

General Notes

```
   ------------------------------------------------------------------------
   BIOS settings notes:
   Intel Turbo Boost Technology (Turbo)  : Enabled
   CPU Performance set to Enterprise
   Power Technology set to Custom
   General OMP Library Settings
     KMP_STACKSIZE=8192M
     OMP_DYNAMIC=FALSE
     OMP_NESTED=FALSE

   ------------------------------------------------------------------------
   General base OMP Library Settings
     KMP_AFFINITY=compact,0,granularity=fine

   ------------------------------------------------------------------------
   General peak OMP Library Settings
     KMP_AFFINITY=compact,0,granularity=fine
```

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General Notes (Continued)

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


Submitted_by: Rajendra Yogendra<ryogendr@cisco.com>
Submitted: Tue Mar 18 13:48:44 EDT 2014
Submission: omp2012-20140227-00049.sub
 ================================================================================
 351.bwaves:peak:
   KMP_AFFINITY=compact,1,granularity=fine
   OMP_SCHEDULE=static,1

 ================================================================================
 357.bt331=peak=default=default:
   OMP_SCHEDULE=static,1
   FOPTIMIZE=-fp-model fast=2 -no-prec-div -no-prec-sqrt -align array64byte
 ================================================================================
 359.botsspar:peak:
   KMP_AFFINITY=compact,1,granularity=fine
   OMP_SCHEDULE=guided
 ================================================================================
 362.fma3d:peak:
   OMP_SCHEDULE=static,1

 ================================================================================
 363.swim:peak:
   KMP_AFFINITY=compact,1,granularity=fine

 ================================================================================
 370.mgrid331:peak:
   KMP_AFFINITY=compact,1,granularity=fine

 ================================================================================
 372.smithwa:peak:
   KMP_AFFINITY=compact,1,granularity=fine
```

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 -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 -xAVX -fno-alias -opt-malloc-options=1 -opt-calloc -fp-model fast=2 -no-prec-div -no-prec-sqrt -ansi-alias`

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Peak Optimization Flags (Continued)

358.botsalgn: `-O2 -openmp -ipo -xAVX -ansi-alias`

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

367.imagick: `Same as 358.botsalgn`

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

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 -align array64byte`

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

357.bt331: `Same as 351.bwaves`

360.ilbdc: `-O3 -openmp -ipo -xAVX -opt-malloc-options=1 -align array64byte`

362.fma3d: `-O3 -openmp -ipo -xAVX -fno-alias -align array64byte`

363.swim: `-O3 -openmp -ipo -xSSE4.2 -fno-alias -opt-streaming-stores always -opt-malloc-options=3 -align array64byte`

370.mgrid331: `-O2 -openmp -ipo -xSSE4.2 -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/Intel-ic13.0-linux64.20130910.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20130910.xml`

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

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