SPEC® OMPG2012 Result

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Cisco Systems

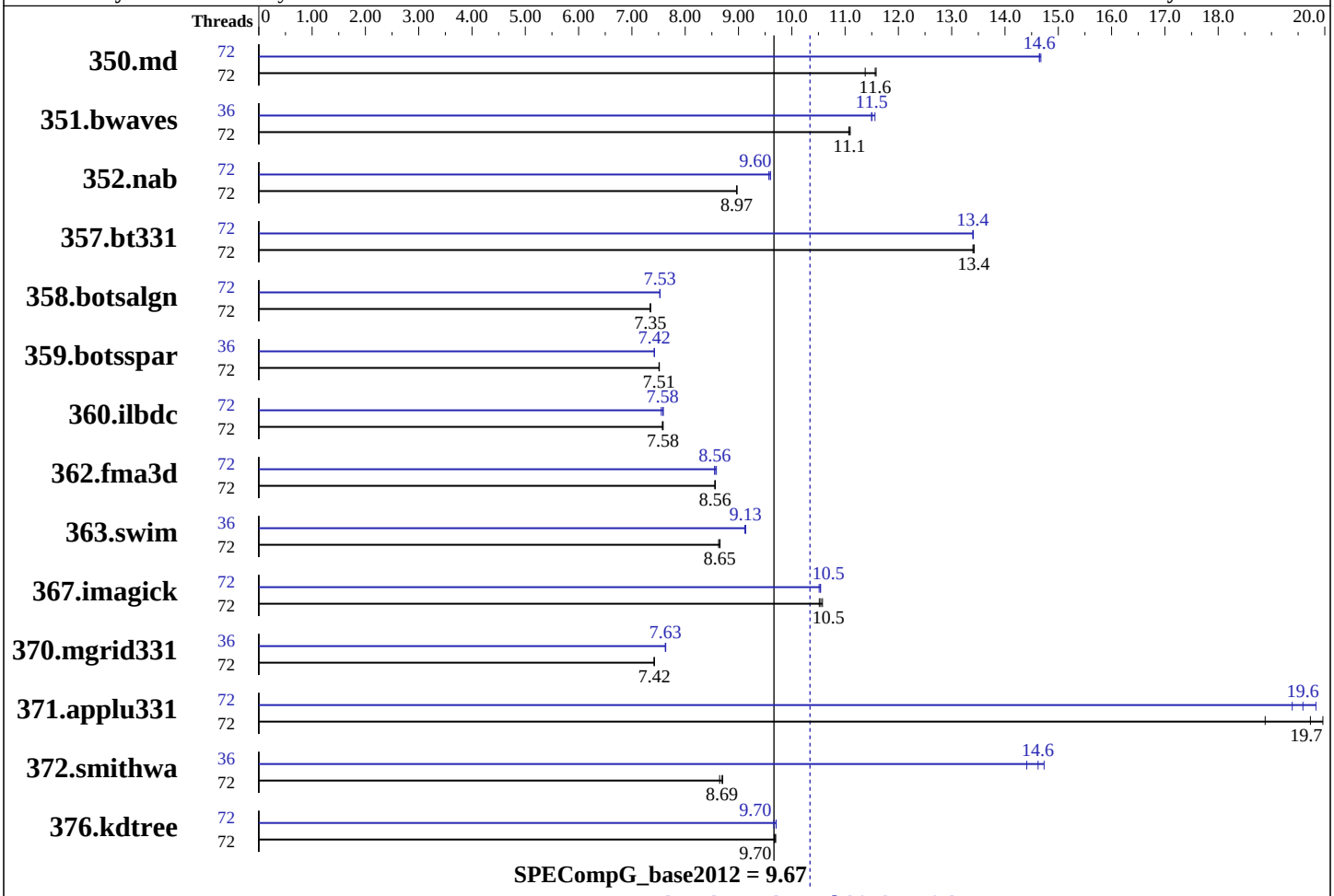
Cisco UCS C220 M4 (Intel Xeon E5-2699 v3 @ 2.30 GHz)

SPECompG_peak2012 = 10.3

SPECompG_base2012 = 9.67

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

Test date: Aug-2014
Hardware Availability: Sep-2014
Software Availability: Jun-2013



Hardware

CPU Name:	Intel Xeon E5-2699 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.6 GHz
CPU MHz:	2300
CPU MHz Maximum:	3600
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 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:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-17000R-15, ECC)
Disk Subsystem:	1 X 300GB SAS, 15K RPM
Other Hardware:	--
Base Threads Run:	72
Minimum Peak Threads:	36

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Software

Operating System:	SUSE Linux Enterprise Server 11 SP3 (x86_64)
Compiler:	C/C++/Fortran: Version 13.1.3 of Intel Composer XE for Linux Build 20130607
Auto Parallel:	No
File System:	ext3
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other Software:	Kernel 3.0.76-0.11-default

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Maximum Peak Threads: 72

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	72	**400**	**11.6**	400	11.6	407	11.4	72	**316**	**14.6**	316	14.6	316	14.7
351.bwaves	72	408	11.1	**409**	**11.1**	409	11.1	36	**394**	**11.5**	392	11.6	394	11.5
352.nab	72	**434**	**8.97**	434	8.97	434	8.97	72	405	9.60	407	9.57	**405**	**9.60**
357.bt331	72	**353**	**13.4**	353	13.4	354	13.4	72	354	13.4	354	13.4	**354**	**13.4**
358.botsalgn	72	592	7.35	592	7.35	**592**	**7.35**	72	**578**	**7.53**	578	7.53	578	7.53
359.botsspar	72	699	7.52	**699**	**7.51**	699	7.51	36	708	7.42	707	7.42	**707**	**7.42**
360.ilbdc	72	**469**	**7.58**	469	7.58	470	7.57	72	469	7.59	471	7.55	**470**	**7.58**
362.fma3d	72	444	8.57	444	8.55	**444**	**8.56**	72	**444**	**8.56**	444	8.55	443	8.59
363.swim	72	**524**	**8.65**	523	8.65	525	8.63	36	496	9.14	**496**	**9.13**	497	9.12
367.imagick	72	665	10.6	**667**	**10.5**	669	10.5	72	667	10.5	669	10.5	**667**	**10.5**
370.mgrid331	72	**596**	**7.42**	596	7.42	596	7.42	36	579	7.64	579	7.63	**579**	**7.63**
371.applu331	72	**307**	**19.7**	321	18.9	304	20.0	72	313	19.4	306	19.8	**309**	**19.6**
372.smithwa	72	620	8.65	**617**	**8.69**	616	8.70	36	**367**	**14.6**	372	14.4	364	14.7
376.kdtree	72	**464**	**9.70**	464	9.70	465	9.67	72	466	9.66	464	9.71	**464**	**9.70**

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 specompsles Mon Aug 25 09:20:41 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 E5-2699 v3 @ 2.30GHz
      2 "physical id"s (chips)
      72 "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 : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       264567956 kB
```

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Platform Notes (Continued)

```
    HugePages_Total:       0
    Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 11 (x86_64)
       VERSION = 11
       PATCHLEVEL = 3

uname -a:
    Linux specompsles 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
    (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 25 09:05 last=S

SPEC is set to: /opt/omp2012
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda1      ext3  275G  154G  107G  60% /

Additional information from dmidecode:
  BIOS Cisco Systems, Inc. C220M4.2.0.2.67.072320142036 07/23/2014
  Memory:
   16x 0xCE00 M393A2G40DB0-CPB 16 GB 2133 MHz
   8x NO DIMM NO DIMM

(End of data from sysinfo program)
```

General Notes

```
------------------------------------------------------------------------
Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled
BIOS settings notes:
  Intel Turbo Boost Technology (Turbo)  : Enabled
  CPU performance set to HPC
  Processor Power State C6 set to Disabled
  Power Technology set to Custom
  Memory RAS configuration set to Maximum Performance
  Energy Performance BIAS setting set to Balanced Performance
  Cluster on Die set to Disabled
------------------------------------------------------------------------
General OMP Library Settings
  ENV_KMP_LIBRARY=turnaround
  ENV_KMP_STACKSIZE=186M
  ENV_KMP_BLOCKTIME=infinite
  ENV_OMP_DYNAMIC=FALSE
  ENV_OMP_NESTED=FALSE
  ENV_OMP_WAIT_POLICY=ACTIVE
```

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General Notes (Continued)

```
================================================================================
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
  ENV_OMP_SCHEDULE=static,1

================================================================================
362.fma3d:peak:
  ENV_KMP_AFFINITY=compact,1
  ENV_OMP_SCHEDULE=guided

================================================================================
  ENV_OMP_SCHEDULE=static,1

================================================================================
363.swim: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

Continued on next page

Base Portability Flags (Continued)

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

Base Optimization Flags

C benchmarks:
`-O3 -openmp -ipo -xAVX -ansi-alias`

C++ benchmarks:
`-O3 -openmp -ipo -xAVX -ansi-alias`

Fortran benchmarks:
`-O3 -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: `-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`

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-linux64.20140917.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/omp2012/flags/Intel-ic13.0-linux64.20140917.xml`

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

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