SPEC® OMPG2012 Result

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SGI

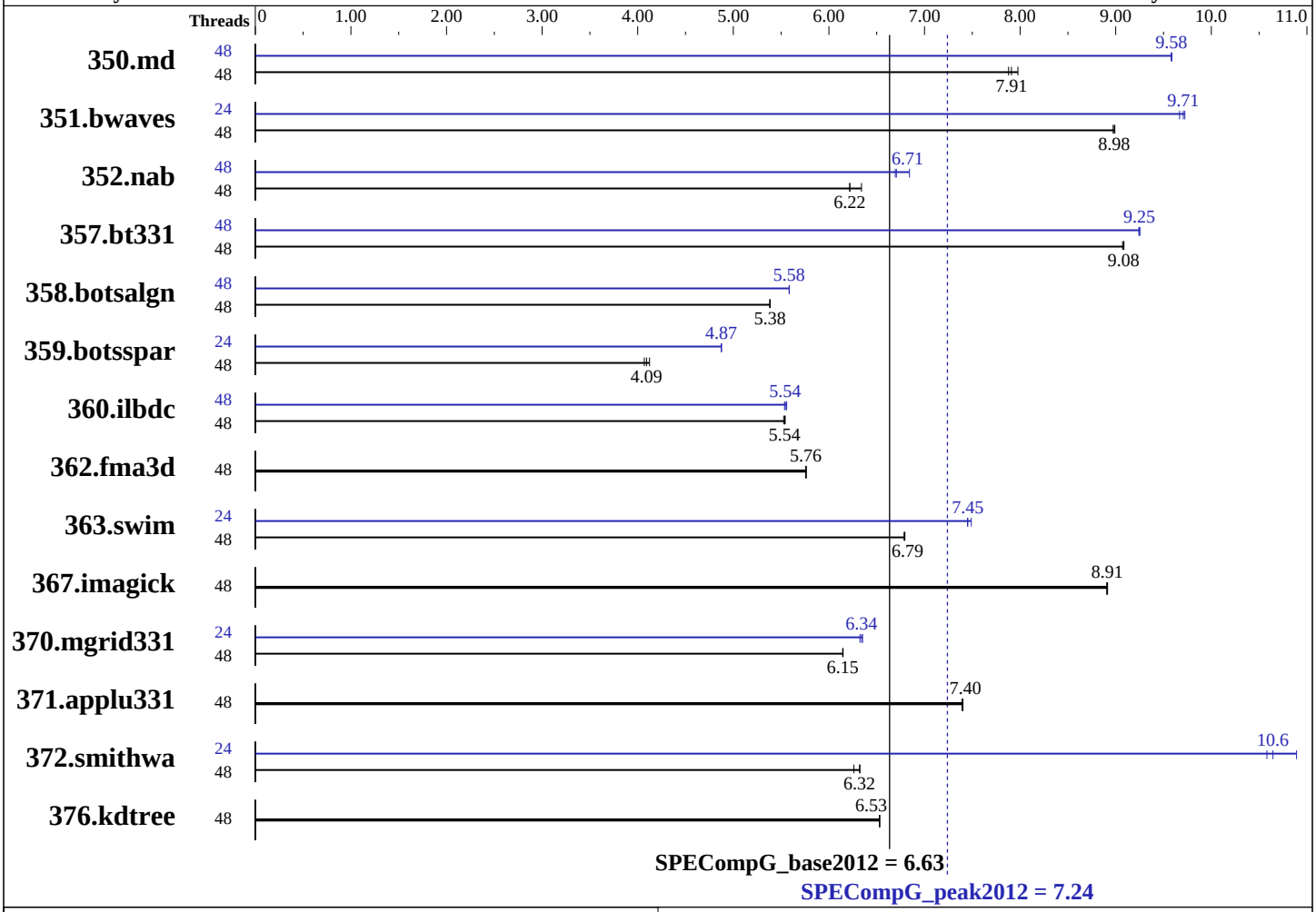
SGI Rackable C2112-4RP4 (Intel Xeon E5-2697 v2, 2.70GHz)

SPECompG_peak2012 = 7.24

SPECompG_base2012 = 6.63

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

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



Hardware

CPU Name:	Intel Xeon E5-2697 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.5 GHz
CPU MHz:	2700
CPU MHz Maximum:	3500
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	57.6 TB RAID6 64 x 900 GB SAS (Western Digital WD9001BKHG 10K)
Other Hardware:	--
Base Threads Run:	48

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Software

Operating System:	SUSE Linux Enterprise Server 11 SP2, Kernel 3.0.74-0.6.6-default
Compiler:	C/C++/Fortran: Version 13.1.2.183 of Intel Composer XE for Linux Build 20130514
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 Accelerate 1.6, Build 708r14.sles11sp2-1304102205

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Minimum Peak Threads: 24
Maximum Peak Threads: 48

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	48	588	7.88	**585**	**7.91**	580	7.98	48	**483**	**9.58**	483	9.58	483	9.59
351.bwaves	48	505	8.97	**504**	**8.98**	504	8.99	24	469	9.67	466	9.72	**467**	**9.71**
352.nab	48	626	6.22	614	6.34	**626**	**6.22**	48	**580**	**6.71**	581	6.69	568	6.84
357.bt331	48	522	9.09	**522**	**9.08**	522	9.07	48	**512**	**9.25**	512	9.25	513	9.24
358.botsalgn	48	**808**	**5.38**	808	5.38	808	5.38	48	779	5.59	779	5.58	**779**	**5.58**
359.botsspar	48	1273	4.12	**1283**	**4.09**	1290	4.07	24	1077	4.88	1077	4.87	**1077**	**4.87**
360.ilbdc	48	644	5.53	642	5.54	**643**	**5.54**	48	640	5.56	643	5.54	**642**	**5.54**
362.fma3d	48	660	5.76	659	5.76	**660**	**5.76**	48	660	5.76	659	5.76	**660**	**5.76**
363.swim	48	**667**	**6.79**	667	6.79	667	6.79	24	605	7.49	**608**	**7.45**	608	7.45
367.imagick	48	789	8.91	**789**	**8.91**	789	8.91	48	789	8.91	**789**	**8.91**	789	8.91
370.mgrid331	48	719	6.15	719	6.15	**719**	**6.15**	24	696	6.35	699	6.32	**697**	**6.34**
371.applu331	48	819	7.40	820	7.39	**819**	**7.40**	48	819	7.40	820	7.39	**819**	**7.40**
372.smithwa	48	856	6.26	**848**	**6.32**	847	6.32	24	507	10.6	**504**	**10.6**	492	10.9
376.kdtree	48	**689**	**6.53**	689	6.53	689	6.53	48	**689**	**6.53**	689	6.53	689	6.53

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/omp2012-1.0/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on n001 Thu Aug  8 15:31:17 2013
```

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Platform Notes (Continued)

```
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 E5-2697 v2 @ 2.70GHz
      2 "physical id"s (chips)
      48 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
   cache size : 30720 KB

From /proc/meminfo
   MemTotal:       132068080 kB
   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 = 2
   sgi-accelerate-release: SGI Accelerate 1.6, Build 708r14.sles11sp2-1304102205
   sgi-foundation-release: SGI Foundation Software 2.8, Build
   708r14.sles11sp2-1304102205
   sgi-mpi-release: SGI MPI 1.6, Build 708r14.sles11sp2-1304102205
   sgi-upc-release: SGI UPC 1.6, Build 708r14.sles11sp2-1304102205

uname -a:
   Linux n001 3.0.74-0.6.6-default #1 SMP Thu Apr 25 12:25:38 UTC 2013 (395d734)
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 7 02:22 last=S

SPEC is set to: /store/hfeng/omp2012-1.0
   Filesystem            Type  Size  Used Avail Use% Mounted on
   10.149.5.200:/mnt/data nfs    45T  6.3T   38T  15% /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
  threads=24
================================================================================
359.botsspar:peak:
  ENV_KMP_AFFINITY=compact,1
  threads=24
================================================================================
362.fma3d
  basepeak=1
================================================================================
363.swim:peak:
  ENV_KMP_AFFINITY=compact,1
  threads=24
================================================================================
367.imagick
  basepeak=1
================================================================================
370.mgrid331:peak:
  ENV_KMP_AFFINITY=compact,1
  threads=24
================================================================================
371.applu331:peak:
  basepeak=1
================================================================================
372.smithwa:peak:
  ENV_KMP_AFFINITY=compact,1
  threads=24
================================================================================
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/SGI-ic13-linux64.html`

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

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

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