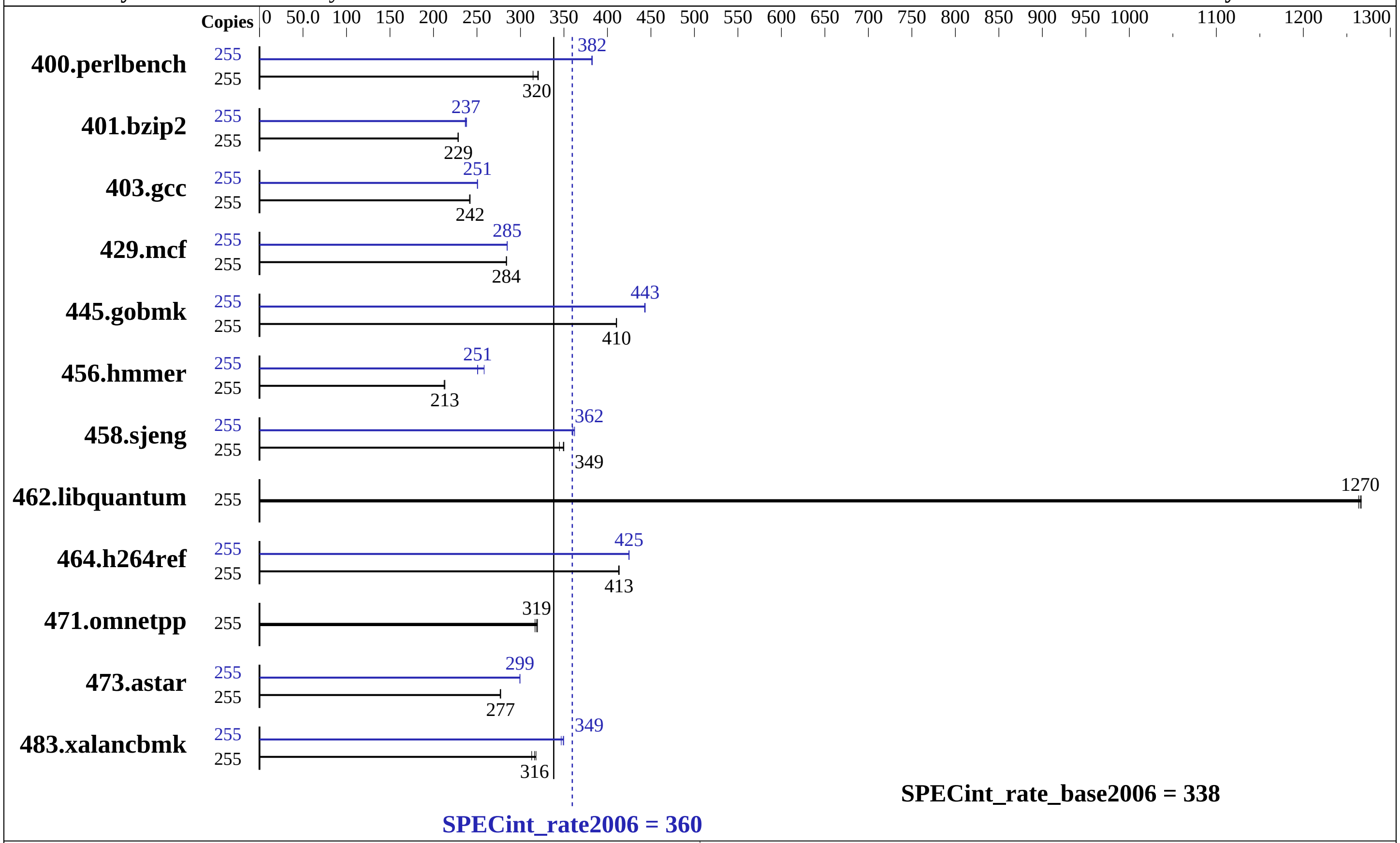
SPEC® CINT2006 Result

Sun Microsystems
Sun SPARC Enterprise T5440

SPECint®_rate2006 = 360

SPECint_rate_base2006 = 338

CPU2006 license: 6		**Test date:**	May-2009
Test sponsor:	Sun Microsystems	**Hardware Availability:**	Jul-2009
Tested by:	Sun Microsystems	**Software Availability:**	Jun-2009



Hardware

CPU Name:	UltraSPARC T2 Plus
CPU Characteristics:	
CPU MHz:	1596
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 8 threads/core
CPU(s) orderable:	1 to 4 chips
Primary Cache:	16 KB I + 8 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	256 GB (64 x 4 GB)
Disk Subsystem:	536 GB (zfs 8 x 3-way mirrors) on 24x 73GB 15000RPM FC-AL disks in 2x SE3510 enclosures
Other Hardware:	None

Software

Operating System:	Solaris 10 5/09
Compiler:	Sun Studio 12 Update 1 and gccfss V4.2.1 (see additional detail below)
Auto Parallel:	No
File System:	zfs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	255	7771	321	**7789**	**320**	7922	314	255	6524	382	**6514**	**382**	6510	383
401.bzip2	255	10759	229	**10766**	**229**	10790	228	255	10402	237	10332	238	**10369**	**237**
403.gcc	255	8476	242	**8478**	**242**	8504	241	255	**8190**	**251**	8186	251	8199	250
429.mcf	255	**8193**	**284**	8198	284	8184	284	255	8161	285	8168	285	**8165**	**285**
445.gobmk	255	**6517**	**410**	6514	411	6523	410	255	6032	443	**6034**	**443**	6042	443
456.hmmer	255	**11162**	**213**	11210	212	11158	213	255	9212	258	9489	251	**9482**	**251**
458.sjeng	255	**8834**	**349**	8817	350	8946	345	255	**8519**	**362**	8564	360	8519	362
462.libquantum	255	4182	1260	**4175**	**1270**	4171	1270	255	4182	1260	**4175**	**1270**	4171	1270
464.h264ref	255	13671	413	13646	414	**13651**	**413**	255	**13284**	**425**	13277	425	13289	425
471.omnetpp	255	5031	317	4987	320	**5001**	**319**	255	5031	317	4987	320	**5001**	**319**
473.astar	255	6470	277	**6458**	**277**	6456	277	255	5981	299	**5978**	**299**	5977	299
483.xalancbmk	255	5535	318	5623	313	**5564**	**316**	255	5073	347	**5039**	**349**	5031	350

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

Compiler Invocation Notes

```
Sun Studio 12 Update 1 pre-release build 41.1 was used.

Peak also uses "GCC for SPARC Systems 4.2.1", which
combines gcc with the Sun Code Generator for SPARC
systems.  It is invoked as "gcc", and accepts source
code compatible with GCC 4.2.
For more information, including support, see
     http://cooltools.sunsource.net/gcc/
```

Submit Notes

```
A processor set was created using
  psrset -c 1-255
and the runspec process was placed into the set using
  psrset -e 1
The config file option 'submit' was used to select specific
processors within the set, along with the pbind command.
```

Operating System Notes

```
ulimit -s 131072 was used to allow the stack to grow
up to 131072 KB (aka 128 MB).  Note that saying "131072"
is preferable to "unlimited", because there is a tradeoff
between space for the stack vs. space for the heap.
```

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Operating System Notes (Continued)

```
/etc/system parameters
   autoup=600
      Causes pages older than the listed number of seconds to
      be written by fsflush.
   tune_t_fsflushr=10
      Controls how many seconds elapse between runs of the
      page flush daemon, fsflush.
   tsb_rss_factor=128
      Suggests that the the size of the TSB (Translation Storage Buffer)
      may be increased if it is more than 25% (128/512) full.  Doing so
      may reduce TSB traps, at the cost of additional kernel memory.
   zfs:zfs_arc_max = 0x10000000
      Limits the consumption of memory by the zfs file system

The "webconsole" service was turned off using
    svcadm disable webconsole

The system had 137 GB of swap space.
```

Platform Notes

```
This result was measured on a Sun SPARC Enterprise T5440.
The Sun SPARC Enterprise T5440 and the Fujitsu SPARC
Enterprise T5440 are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
  cc

C++ benchmarks:
  CC

Base Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Base Optimization Flags

C benchmarks:
`-g -fast -xipo=2 -xpagesize=4M -xprefetch=no%auto -xalias_level=std -M /usr/lib/ld/map.bssalign`

C++ benchmarks:
`-g0 -library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch=no%auto -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign`

Base Other Flags

C benchmarks:
`-xjobs=32 -V -#`

C++ benchmarks:
`-xjobs=32 -verbose=diags,version`

Peak Compiler Invocation

C benchmarks (except as noted below):
`cc`

403.gcc: `gcc`

456.hmmer: `gcc`

C++ benchmarks:
`CC`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_SOLARIS_SPARC`
462.libquantum: `-DSPEC_CPU_SOLARIS`
483.xalancbmk: `-DSPEC_CPU_SOLARIS`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-g -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xprefetch=no%auto -M /usr/lib/ld/map.bssalign -xalias_level=std -xipo=2 -Xc -xrestrict -lfast`

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Peak Optimization Flags (Continued)

401.bzip2: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xalias_level=strong

403.gcc: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xprefetch=no%auto -Wl,-M,/usr/lib/ld/map.bssalign -xipo=2 -xalias_level=std

429.mcf: -g -fast -xprefetch=no%auto -M /usr/lib/ld/map.bssalign -xipo=2 -xrestrict -xalias_level=std -lfast

445.gobmk: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xprefetch=no%auto -M /usr/lib/ld/map.bssalign -xalias_level=std -xrestrict

456.hmmer: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -Wl,-M,/usr/lib/ld/map.bssalign -xipo=2 -xalias_level=std

458.sjeng: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xprefetch=no%auto -M /usr/lib/ld/map.bssalign -xipo=2

462.libquantum: basepeak = yes

464.h264ref: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xprefetch=no%auto -M /usr/lib/ld/map.bssalign -xipo=2 -xalias_level=std

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -g0 -library=stlport4 -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize_heap=4M -xpagesize_stack=64K -xprefetch=no%auto -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign -xipo=2 -xarch=v8plusb -lfast -lbsdmalloc

483.xalancbmk: -g0 -library=stlport4 -fast -xpagesize=4M -xprefetch=no%auto -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign -xipo=2 -lfast

Peak Other Flags

C benchmarks (except as noted below):
`-xjobs=32 -V -#`

403.gcc: `-v`

456.hmmer: `-v`

C++ benchmarks:
`-xjobs=32 -verbose=diags,version`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r3.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r3.xml

Tested with SPEC CPU2006 v1.1.
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