SPEC® CINT2006 Result

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Fujitsu Limited

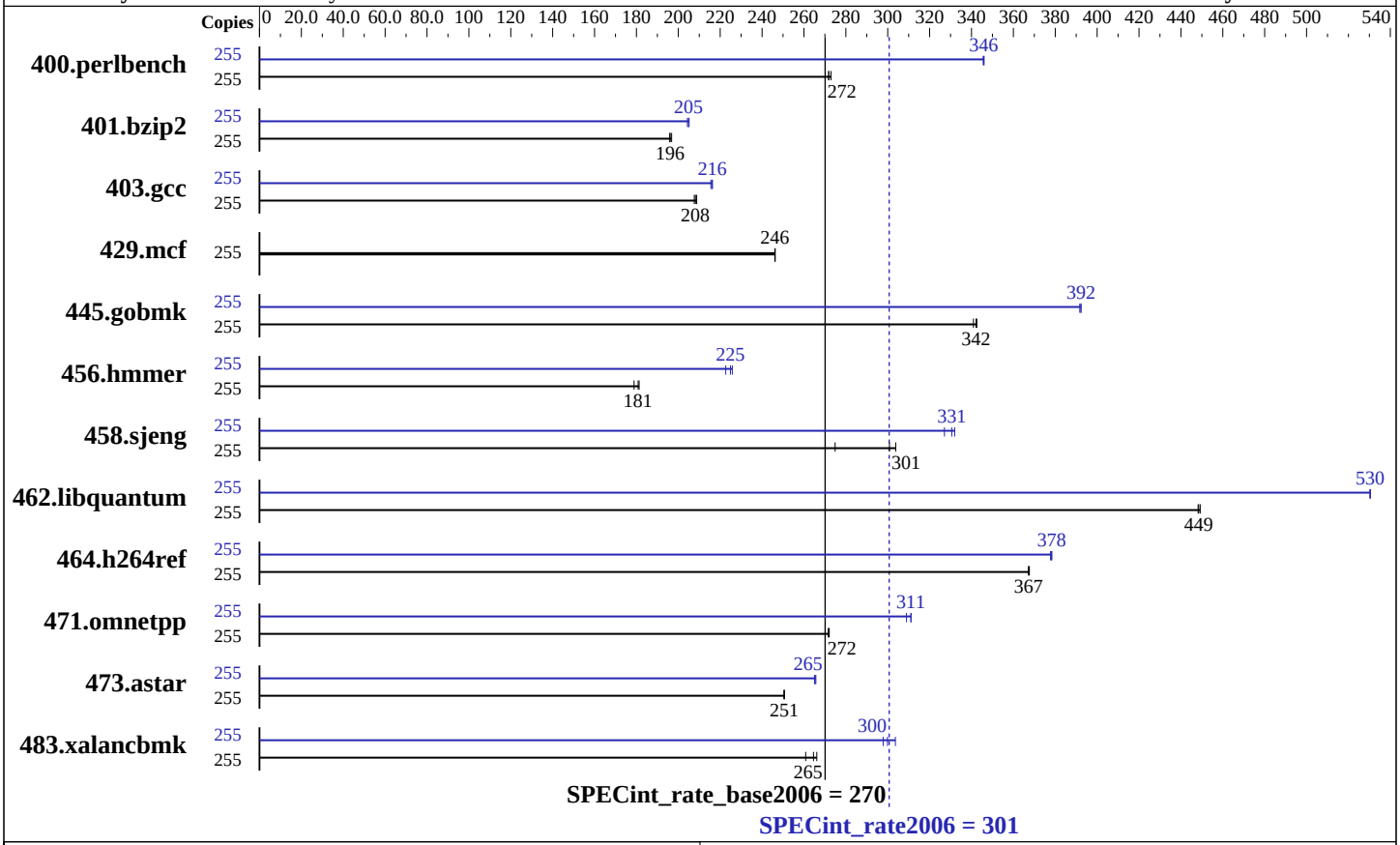
Fujitsu SPARC Enterprise T5440

SPECint®_rate2006 = 301

SPECint_rate_base2006 = 270

CPU2006 license: 19
Test sponsor: Fujitsu Limited
Tested by: Sun Microsystems

Test date: Jul-2008
Hardware Availability: Oct-2008
Software Availability: Jul-2008



Hardware

CPU Name:	UltraSPARC T2 Plus
CPU Characteristics:	
CPU MHz:	1414
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:	975 GB RAID 5 using Sun StoreEdge 6140 with 12x 300 GB 10K RPM disks 2 Gbps Fibre Channel
Other Hardware:	None

Software

Operating System:	Solaris 10 5/08 + patch 137111-03
Compiler:	Sun Studio 12 and gccfss V4.2.0 (see additional detail below)
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	255	9128	273	9166	272	**9165**	**272**	255	7201	346	**7202**	**346**	7209	346
401.bzip2	255	12562	196	12504	197	**12549**	**196**	255	11995	205	**12012**	**205**	12043	204
403.gcc	255	9887	208	9833	209	**9862**	**208**	255	9492	216	**9495**	**216**	9523	216
429.mcf	255	9445	246	9450	246	**9446**	**246**	255	9445	246	9450	246	**9446**	**246**
445.gobmk	255	7846	341	7809	343	**7818**	**342**	255	**6819**	**392**	6829	392	6819	392
456.hmmer	255	13301	179	13124	181	**13159**	**181**	255	10686	223	**10579**	**225**	10537	226
458.sjeng	255	10156	304	11225	275	**10257**	**301**	255	**9333**	**331**	9434	327	9294	332
462.libquantum	255	11788	448	**11780**	**449**	11762	449	255	**9961**	**530**	9964	530	9960	530
464.h264ref	255	**15363**	**367**	15350	368	15368	367	255	**14917**	**378**	14916	378	14939	378
471.omnetpp	255	5858	272	**5865**	**272**	5867	272	255	5158	309	5122	311	**5124**	**311**
473.astar	255	7143	251	7145	251	**7145**	**251**	255	**6746**	**265**	6755	265	6738	266
483.xalancbmk	255	**6651**	**265**	6611	266	6746	261	255	5794	304	5908	298	**5868**	**300**

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

Compiler Invocation Notes

```
Sun Studio compiler patches are available at
http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp
The tested configuration included patch 124867-02, 124861-04,
124863-01, 127000-01

Peak also uses "GCC for SPARC Systems", 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

```
The config file option 'submit' was used.  Processes were
bound to cores using "submit" and "pbind".
A processor set was created using
  psrset -c 1-255
and the runspec process was placed into the set using
  psrset -e 1
```

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"
```

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Operating System Notes (Continued)

```
is preferable to "unlimited", because there is a tradeoff
between space for the stack vs. space for the heap.

ulimit -n 1300, set the open file limit

/etc/system parameters
   autoup=600
      Causes pages older than the listed number of seconds to
      be written by fsflush.
   bufhwm=3000
      Memory byte limit for caching I/O buffers
   segmap_percent=1
      Set maximum percent memory for file system cache
   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.

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

The system had 409 GB of swap space.
```

Platform Notes

```
This result is measured on a Sun SPARC Enterprise T5440 Server.
Note that the Sun SPARC Enterprise T5440 and 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

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Base Portability Flags (Continued)

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`

462.libquantum: `gcc`

C++ benchmarks (except as noted below):
`CC`

471.omnetpp: `g++`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_SOLARIS_SPARC`
462.libquantum: `-DSPEC_CPU_SOLARIS -DSPEC_CPU_NEED_COMPLEX_I`

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Peak Portability Flags (Continued)

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

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: basepeak = yes

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: -fast -Wl,-M,/usr/lib/ld/map.bssalign -xipo=2

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: -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

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Peak Optimization Flags (Continued)

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`

462.libquantum: `-v`

C++ benchmarks (except as noted below):
`-xjobs=32 -verbose=diags,version`

471.omnetpp: `-v`

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

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

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 22:17:44 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 14 October 2008.