



SPEC[®] CINT2006 Result

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Fujitsu Limited

SPECint[®]_rate2006 = 157

Fujitsu SPARC Enterprise T5240

SPECint_rate_base2006 = 142

CPU2006 license: 19

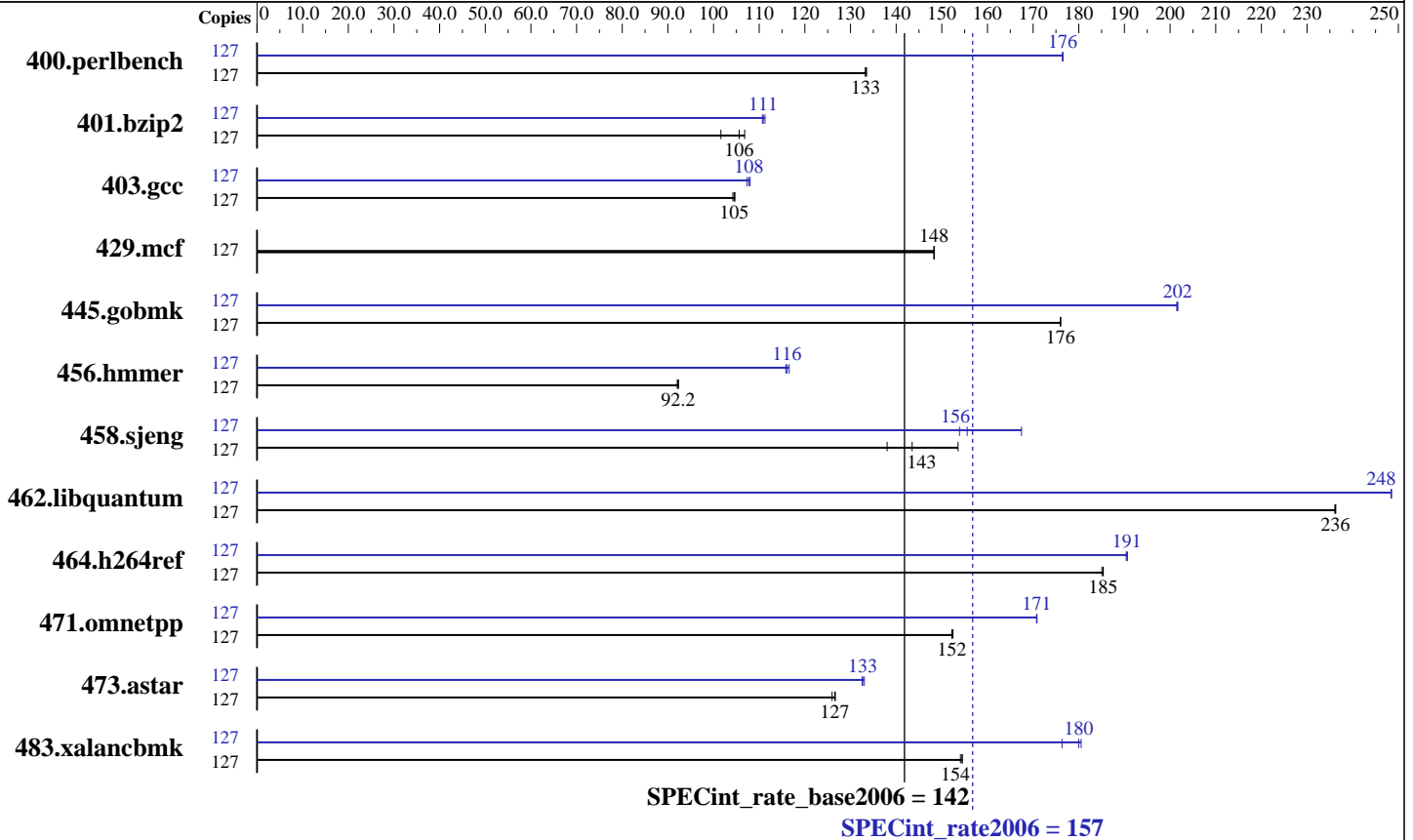
Test date: Mar-2008

Test sponsor: Fujitsu Limited

Hardware Availability: May-2008

Tested by: Sun Microsystems

Software Availability: Feb-2008



Hardware

CPU Name: UltraSPARC T2 Plus
 CPU Characteristics: 1415
 CPU MHz: 1415
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 8 threads/core
 CPU(s) orderable: 2 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: 128 GB (32 x 4 GB)
 Disk Subsystem: 737 GB RAID 5 using Sun StoreEdge 6120 with 12x 73 GB 10K RPM disks (Seagate ST373307 2 Gbps Fibre Channel)
 Other Hardware: None

Software

Operating System: Solaris 10 8/07 + patch 127111-08
 Compiler: Sun Studio 12 and gccfs 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	127	9312	133	9292	134	9307	133	127	7033	176	7030	176	7029	177
401.bzip2	127	12061	102	11604	106	11473	107	127	11013	111	11051	111	11070	111
403.gcc	127	9766	105	9808	104	9780	105	127	9464	108	9524	107	9490	108
429.mcf	127	7811	148	7810	148	7809	148	127	7811	148	7810	148	7809	148
445.gobmk	127	7571	176	7570	176	7567	176	127	6606	202	6607	202	6613	201
456.hammer	127	12834	92.3	12873	92.0	12848	92.2	127	10165	117	10230	116	10204	116
458.sjeng	127	10007	154	10709	143	11134	138	127	9177	167	9987	154	9879	156
462.libquantum	127	11145	236	11141	236	11136	236	127	10589	248	10592	248	10592	248
464.h264ref	127	15164	185	15162	185	15186	185	127	14740	191	14762	190	14748	191
471.omnetpp	127	5214	152	5215	152	5207	152	127	4649	171	4647	171	4646	171
473.astar	127	7078	126	7038	127	7046	127	127	6720	133	6702	133	6726	133
483.xalancbmk	127	5674	154	5687	154	5673	154	127	4868	180	4854	181	4970	176

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/>

Operating System Notes

Processes were bound to cores using "submit" and "pbind".
 A processor set was created using

```
psrset -c 1-127
```

 and the runspec process was placed into the set using

```
psrset -e 1
```

These shell commands request use of local 4MB pages:

```
export LD_PRELOAD=madv.so.1:mpss.so.1
export MPSSHEAP=4MB
export MPSSSTACK=4MB
export MADV=access_lwp
```

 'access_lwp' means that the next light weight
 process to touch the specified address range
 will access it the most heavily.

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Operating System Notes (Continued)

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.

The open file limit was set to 1300 with ulimit -n

/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 144 GB of swap space.

Platform Notes

This result was measured on a Sun SPARC Enterprise T5240. The Sun SPARC Enterprise T5240 and the Fujitsu SPARC Enterprise T5240 are electrically equivalent.

Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Base Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC

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Base Portability Flags (Continued)

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.hmmr: gcc

462.libquantum: gcc

C++ benchmarks (except as noted below):

CC

471.omnetpp: g++

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC

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Peak Portability Flags (Continued)

462.libquantum: -DSPEC_CPU_SOLARIS -DSPEC_CPU_NEED_COMPLEX_I
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-gccfss4.2.20090714.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090714.xml>

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

Tested with SPEC CPU2006 v1.0.1.

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