SPEC® CFP2006 Result

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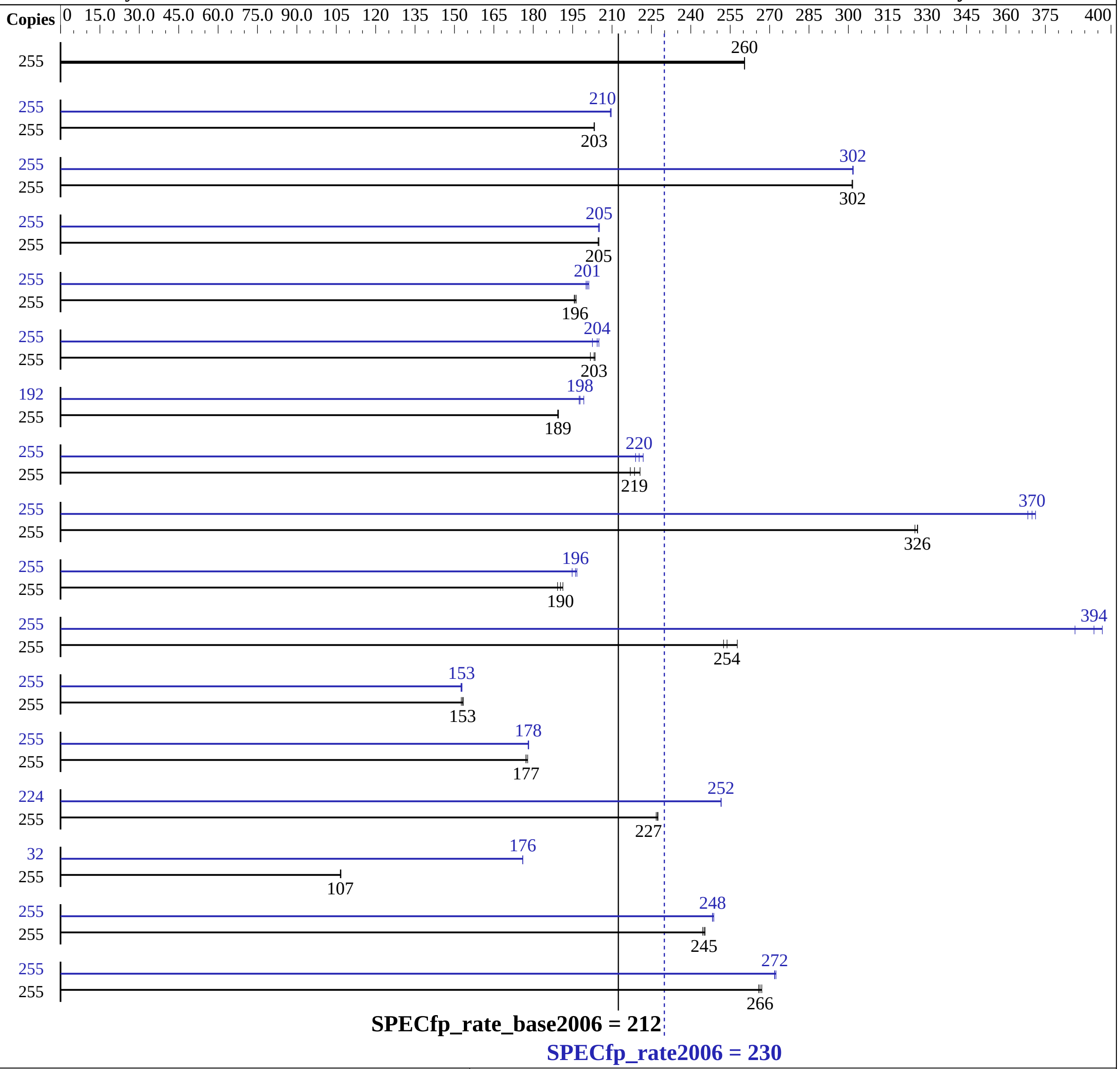
Fujitsu Limited

Fujitsu SPARC Enterprise T5440

SPECfp®_rate2006 = 230

SPECfp_rate_base2006 = 212

CPU2006 license:	19	**Test date:**	Jun-2008
Test sponsor:	Fujitsu Limited	**Hardware Availability:**	Oct-2008
Tested by:	Sun Microsystems	**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

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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

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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

Other Software: None

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	255	13301	261	13310	260	**13305**	**260**	255	13301	261	13310	260	**13305**	**260**
416.gamess	255	**24570**	**203**	24580	203	24556	203	255	23816	210	**23818**	**210**	23848	209
433.milc	255	**7761**	**302**	7761	302	7768	301	255	7755	302	7761	302	**7759**	**302**
434.zeusmp	255	**11324**	**205**	11337	205	11318	205	255	11330	205	11308	205	**11313**	**205**
435.gromacs	255	9308	196	9272	196	**9294**	**196**	255	9098	200	**9076**	**201**	9050	201
436.cactusADM	255	14970	204	**14999**	**203**	15104	202	255	14864	205	15044	203	**14913**	**204**
437.leslie3d	255	**12656**	**189**	12661	189	12641	190	192	9139	197	9058	199	**9124**	**198**
444.namd	255	9267	221	9427	217	**9357**	**219**	255	**9282**	**220**	9217	222	9339	219
447.dealII	255	**8941**	**326**	8938	326	8967	325	255	7858	371	7920	368	**7886**	**370**
450.soplex	255	11237	189	11117	191	**11170**	**190**	255	10917	195	10815	197	**10845**	**196**
453.povray	255	5373	252	**5345**	**254**	5264	258	255	3512	386	3420	397	**3447**	**394**
454.calculix	255	13719	153	**13741**	**153**	13786	153	255	**13779**	**153**	13796	152	13760	153
459.GemsFDTD	255	15265	177	**15261**	**177**	15210	178	255	15194	178	**15187**	**178**	15175	178
465.tonto	255	**11041**	**227**	11028	228	11063	227	224	**8764**	**252**	8765	251	8761	252
470.lbm	255	**32877**	**107**	32805	107	32892	107	32	**2498**	**176**	2497	176	2498	176
481.wrf	255	**11623**	**245**	11606	245	11649	245	255	11474	248	**11471**	**248**	11450	249
482.sphinx3	255	18611	267	18696	266	**18659**	**266**	255	18242	272	18278	272	**18273**	**272**

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"
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`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Base Optimization Flags

C benchmarks:
`-g -fast -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -M /usr/lib/ld/map.bssalign`

C++ benchmarks:
`-g0 -library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch_level=2 -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign`

Fortran benchmarks:
`-g -fast -xipo=2 -xpagesize=4M -xprefetch_level=2 -M /usr/lib/ld/map.bssalign`

Benchmarks using both Fortran and C:
`-g -fast`(cc) `-fast`(f90) `-xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -M /usr/lib/ld/map.bssalign`

Base Other Flags

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

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

Fortran benchmarks:
`-xjobs=32 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=32 -V -# -v`

Peak Compiler Invocation

C benchmarks:
`cc`

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

447.dealII: `g++`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Peak Optimization Flags

C benchmarks:

433.milc: `-g -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=2 -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -xalias_level=std -fsimple=1`

470.lbm: `-g -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xprefetch_level=3 -xipo=2 -xrestrict`

482.sphinx3: `-g -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xinline= -xprefetch_level=2 -Wc,-Qlp-ol=1 -xrestrict -xalias_level=strong -fsimple=1 -xlinkopt=2 -lfast`

C++ benchmarks:

444.namd: `-g0 -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign -xprefetch_level=1 -xlinkopt=2`

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

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Peak Optimization Flags (Continued)

450.soplex: -g0 -library=stlport4 -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign -xipo=2 -xprefetch_level=2 -fsimple=0 -xrestrict -xprefetch_auto_type=indirect_array_access -Qoption cg -Qlp-ol=1 -Qoption cg -Qlp-it=3 -Qoption cg -Qlp-imb=1 -Qoption iropt -Apf:pdl=3

453.povray: -g0 -library=stlport4 -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=64K -xdepend -xalias_level=compatible -xipo=2 -xrestrict -xlinkopt=2

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xlinkopt=2

434.zeusmp: -g -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=1 -qoption cg -Qeps:enabled=1 -qoption cg -Qeps:ws=8 -lmopt

437.leslie3d: -g -fast -xpagesize_heap=4M -xpagesize_stack=64K -M /usr/lib/ld/map.bssalign -xprefetch_level=3 -xprefetch=latx:1.6 -qoption cg -Qlp=1 -qoption cg -Qlp-fa=0 -qoption cg -Qlp-fl=1 -qoption cg -Qlp-av=448 -qoption cg -Qlp-t=4

459.GemsFDTD: -g -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -fsimple=1

465.tonto: -g -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=2 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=1 -xinline= -xarch=generic -xchip=generic -fsimple=0

436.cactusADM: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=2 -fsimple=1 -xlinkopt=2

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Peak Optimization Flags (Continued)

454.calculix: -g -fast(cc) -fast(f90) -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=2 -xvector -xprefetch_level=1

481.wrf: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -M /usr/lib/ld/map.bssalign -xlinkopt=2

Peak Other Flags

C benchmarks:
-xjobs=32 -V -#

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

447.dealII: -v

Fortran benchmarks:
-xjobs=32 -V -v

Benchmarks using both Fortran and C:
-xjobs=32 -V -# -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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Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 22:19:31 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 14 October 2008.