SPEC® CFP2006 Result

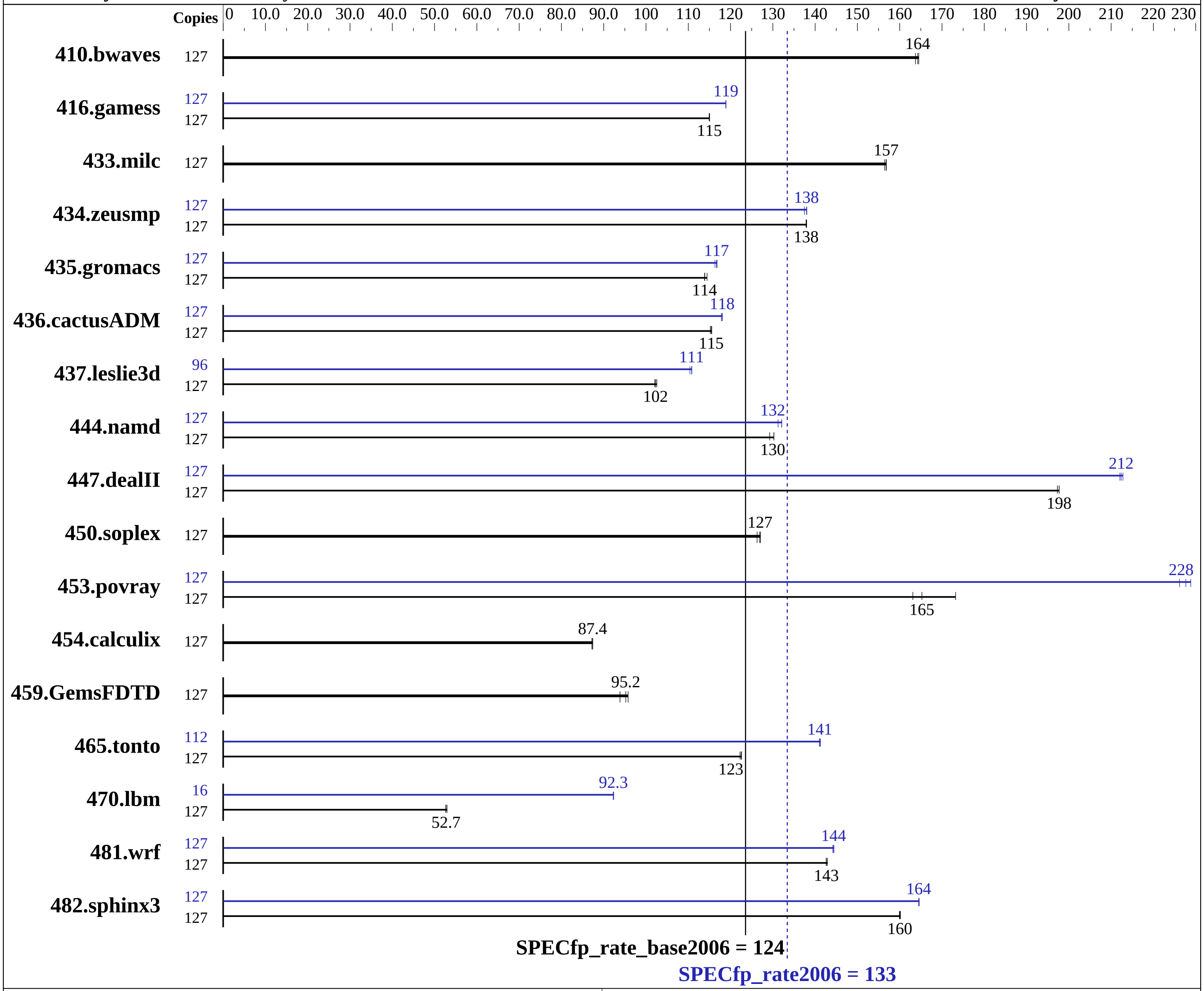
Fujitsu

Fujitsu SPARC Enterprise T5240

SPECfp®_rate2006 = 133

SPECfp_rate_base2006 = 124

CPU2006 license:	19	**Test date:**	Feb-2009
Test sponsor:	Fujitsu	**Hardware Availability:**	Jul-2009
Tested by:	Sun Microsystems	**Software Availability:**	Dec-2008



Hardware

CPU Name:	UltraSPARC T2 Plus
CPU Characteristics:	
CPU MHz:	1582
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

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Software

Operating System:	Solaris 10 10/08
Compiler:	Sun Studio 12 and gccfss V4.2.1 (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:	128 GB (32 x 4 GB)
Disk Subsystem:	748 GB RAID 0 using Solaris Volume Manager on 8x 10K RPM SUN146G SAS blocksize 384 KB
Other Hardware:	None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	127	10541	164	**10507**	**164**	10492	165	127	10541	164	**10507**	**164**	10492	165
416.gamess	127	**21620**	**115**	21636	115	21617	115	127	**20912**	**119**	20912	119	20917	119
433.milc	127	**7436**	**157**	7433	157	7451	156	127	**7436**	**157**	7433	157	7451	156
434.zeusmp	127	8375	138	**8382**	**138**	8382	138	127	8408	137	**8377**	**138**	8372	138
435.gromacs	127	7924	114	7964	114	**7963**	**114**	127	7763	117	**7771**	**117**	7796	116
436.cactusADM	127	13134	116	**13148**	**115**	13173	115	127	**12858**	**118**	12854	118	12880	118
437.leslie3d	127	**11672**	**102**	11695	102	11640	103	96	8175	110	8142	111	**8145**	**111**
444.namd	127	7880	129	**7820**	**130**	7820	130	127	7709	132	**7711**	**132**	7761	131
447.dealII	127	7364	197	**7349**	**198**	7348	198	127	**6841**	**212**	6827	213	6851	212
450.soplex	127	8388	126	**8346**	**127**	8336	127	127	8388	126	**8346**	**127**	8336	127
453.povray	127	**4089**	**165**	3900	173	4142	163	127	2987	226	2952	229	**2968**	**228**
454.calculix	127	12015	87.2	11988	87.4	**11992**	**87.4**	127	12015	87.2	11988	87.4	**11992**	**87.4**
459.GemsFDTD	127	14070	95.8	**14150**	**95.2**	14357	93.9	127	14070	95.8	**14150**	**95.2**	14357	93.9
465.tonto	127	10194	123	**10200**	**123**	10223	122	112	7815	141	**7810**	**141**	7802	141
470.lbm	127	33148	52.6	32952	53.0	**33117**	**52.7**	16	2383	92.3	**2382**	**92.3**	2380	92.4
481.wrf	127	**9943**	**143**	9927	143	9947	143	127	9821	144	9839	144	**9825**	**144**
482.sphinx3	127	**15465**	**160**	15453	160	15476	160	127	15049	164	**15047**	**164**	15036	165

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 124867-09, 124861-10,
124863-09, 127000-07

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 1-127
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.


/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 206 GB of swap space.
The ufs fragment size was set to 8192
```

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`

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: `basepeak = yes`

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`

450.soplex: `basepeak = yes`

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`

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Test date: Feb-2009

Hardware Availability: Jul-2009

Software Availability: Dec-2008

Peak Optimization Flags (Continued)

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: `basepeak = yes`

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`

454.calculix: `basepeak = yes`

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 -#`

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Peak Other Flags (Continued)

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-Studio12-12u1-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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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