SPEC® CFP2006 Result

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Sun Microsystems

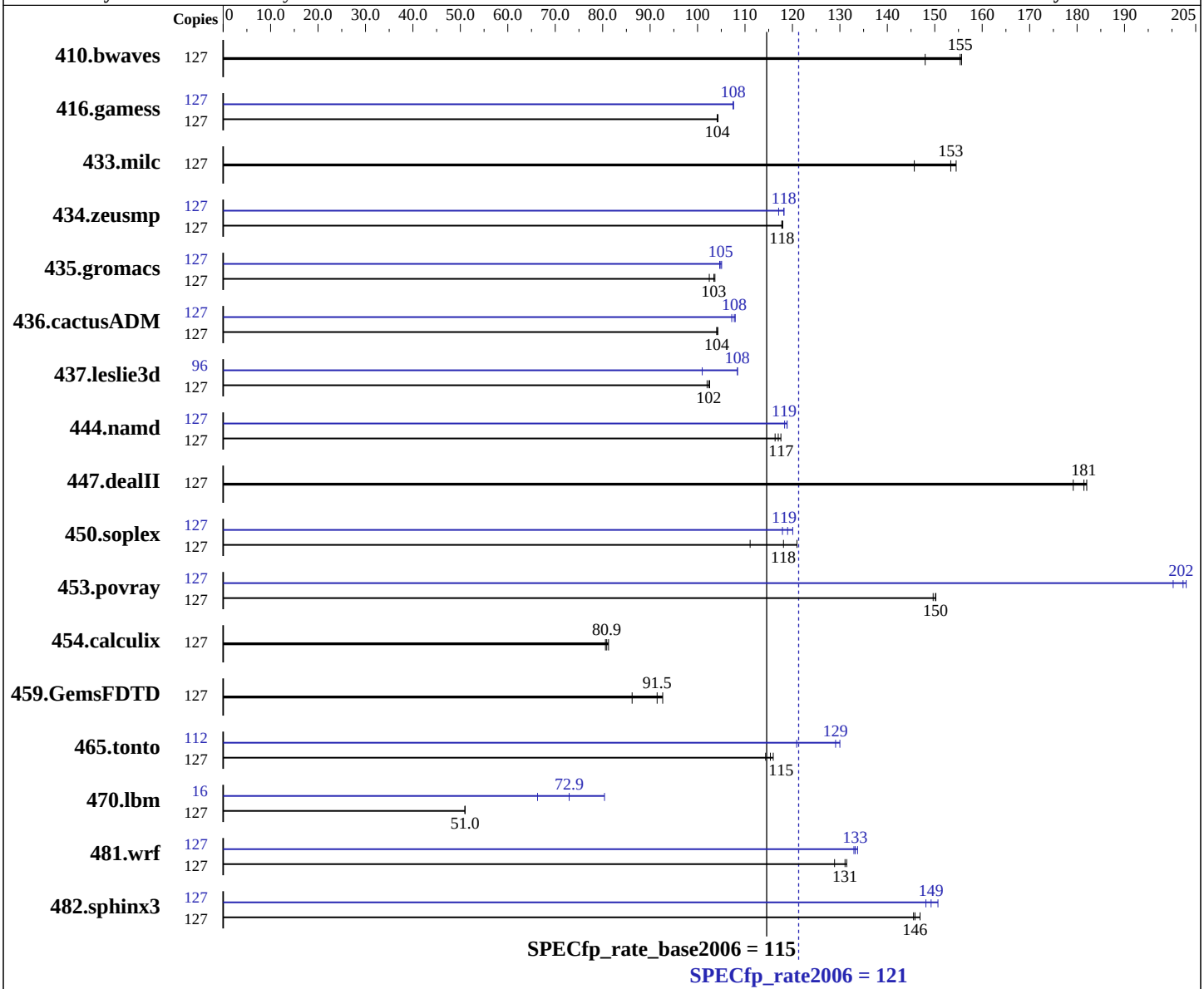
Sun Blade T6340 Server Module

SPECfp®_rate2006 = 121

SPECfp_rate_base2006 = 115

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

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



Hardware

CPU Name:	UltraSPARC T2 Plus
CPU Characteristics:	
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

Continued on next page

Software

Operating System:	Solaris 10 10/08
Compiler:	Sun Studio 12 (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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L3 Cache: None
Other Cache: None
Memory: 128 GB (32 x 4 GB)
Disk Subsystem: Sun Blade 6000 Disk Module
544 GB (8 x 73 GB 15K RPM SAS disks in software RAID 0 with 8 KB stripe)
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	127	11663	148	**11109**	**155**	11088	156	127	11663	148	**11109**	**155**	11088	156
416.gamess	127	**23868**	**104**	23838	104	23873	104	127	**23122**	**108**	23117	108	23132	107
433.milc	127	**7601**	**153**	8002	146	7546	155	127	**7601**	**153**	8002	146	7546	155
434.zeusmp	127	9797	118	9814	118	**9809**	**118**	127	9870	117	**9778**	**118**	9776	118
435.gromacs	127	8747	104	**8766**	**103**	8849	102	127	8630	105	8664	105	**8645**	**105**
436.cactusADM	127	14553	104	14586	104	**14583**	**104**	127	14156	107	14059	108	**14085**	**108**
437.leslie3d	127	11641	103	11702	102	**11658**	**102**	96	8936	101	**8325**	**108**	8323	108
444.namd	127	8755	116	8663	118	**8705**	**117**	127	8567	119	**8570**	**119**	8606	118
447.dealII	127	7981	182	8108	179	**8007**	**181**	127	7981	182	8108	179	**8007**	**181**
450.soplex	127	8757	121	**8967**	**118**	9535	111	127	8822	120	**8902**	**119**	8984	118
453.povray	127	4515	150	**4500**	**150**	4497	150	127	3328	203	**3339**	**202**	3374	200
454.calculix	127	**12959**	**80.9**	12898	81.2	13002	80.6	127	**12959**	**80.9**	12898	81.2	13002	80.6
459.GemsFDTD	127	14543	92.7	**14730**	**91.5**	15631	86.2	127	14543	92.7	**14730**	**91.5**	15631	86.2
465.tonto	127	**10834**	**115**	10777	116	10929	114	112	8478	130	**8537**	**129**	9116	121
470.lbm	127	34244	51.0	**34221**	**51.0**	34213	51.0	16	2735	80.4	**3014**	**72.9**	3317	66.3
481.wrf	127	**10822**	**131**	10792	131	11007	129	127	10607	134	10669	133	**10647**	**133**
482.sphinx3	127	**16974**	**146**	17009	146	16850	147	127	16427	151	**16587**	**149**	16709	148

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 124867-05,
124861-06, 124863-04, 127000-04
```

Submit Notes

```
The config file option 'submit' was used.  Processes were
bound to cores using "submit" and "pbind".
```

Operating System Notes

```
/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 159 GB of swap space.
```

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
```

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Base Optimization Flags (Continued)

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:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

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Peak Optimization Flags (Continued)

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: basepeak = yes

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

Continued on next page

Peak Optimization Flags (Continued)

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 -#

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

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.r3.20090713.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.r3.20090713.xml

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