SPEC® CFP2006 Result

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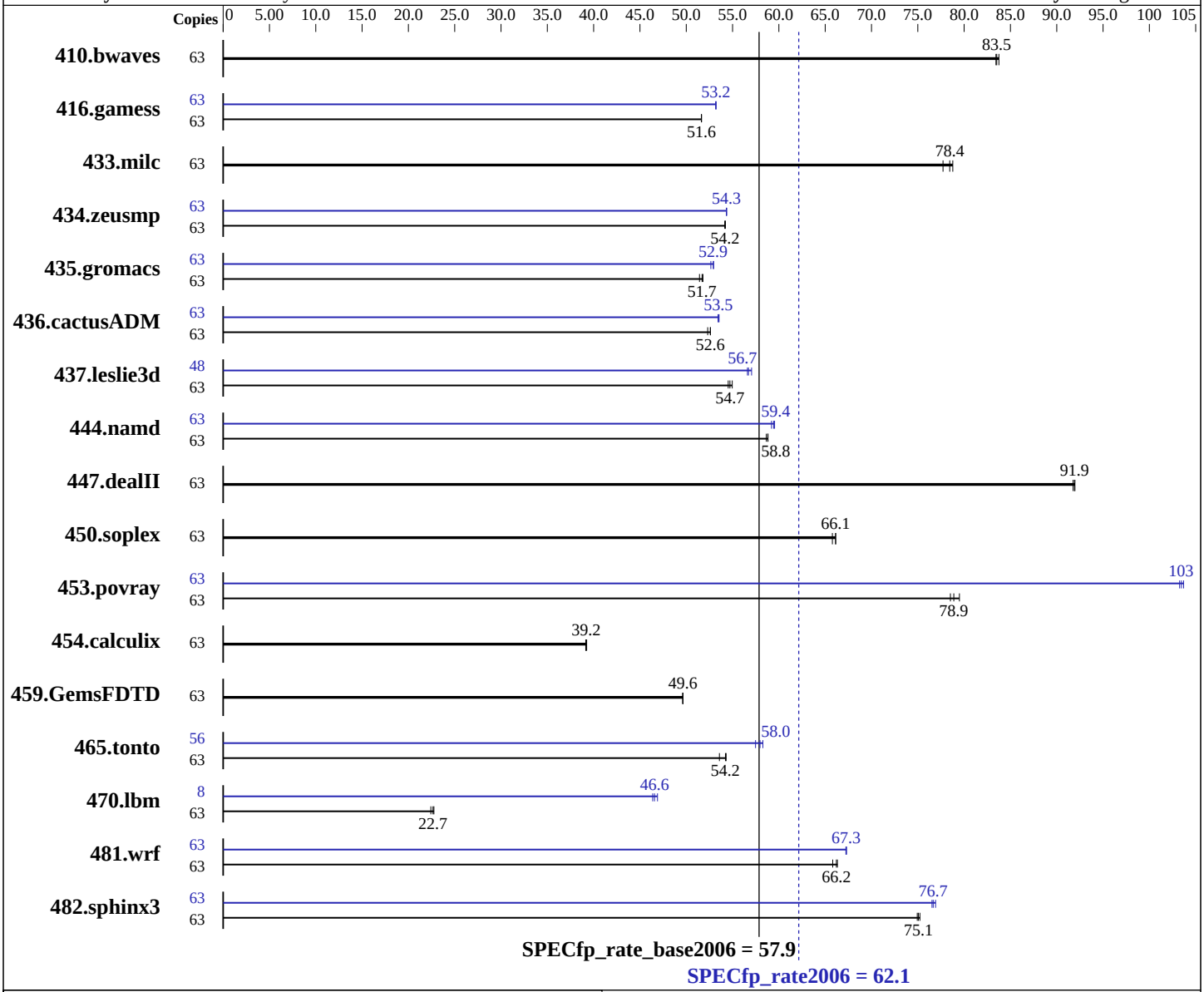
Sun Microsystems
Sun SPARC Enterprise T5120

SPECfp®_rate2006 = 62.1

SPECfp_rate_base2006 = 57.9

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

Test date: Jul-2007
Hardware Availability: Oct-2007
Software Availability: Aug-2007



Hardware

CPU Name:	UltraSPARC T2
CPU Characteristics:	
CPU MHz:	1417
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 cores/chip, 8 threads/core
CPU(s) orderable:	1 chip
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 8/07 (build s10s_u4wos_10)
Compiler:	Sun Studio 12 (build 2007/05/20)
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: 64 GB
Disk Subsystem: 1 x 10,000 RPM Seagate ST973402SS SAS
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	63	10222	83.8	**10251**	**83.5**	10261	83.4	63	10222	83.8	**10251**	**83.5**	10261	83.4
416.gamess	63	**23890**	**51.6**	23885	51.6	23890	51.6	63	23194	53.2	23181	53.2	**23185**	**53.2**
433.milc	63	7441	77.7	**7372**	**78.4**	7342	78.8	63	7441	77.7	**7372**	**78.4**	7342	78.8
434.zeusmp	63	10586	54.2	10572	54.2	**10577**	**54.2**	63	10545	54.4	10552	54.3	**10551**	**54.3**
435.gromacs	63	8747	51.4	8684	51.8	**8699**	**51.7**	63	**8501**	**52.9**	8543	52.7	8495	53.0
436.cactusADM	63	14310	52.6	**14313**	**52.6**	14391	52.3	63	**14078**	**53.5**	14061	53.5	14090	53.4
437.leslie3d	63	**10823**	**54.7**	10860	54.5	10775	55.0	48	7971	56.6	7908	57.1	**7955**	**56.7**
444.namd	63	**8593**	**58.8**	8589	58.8	8617	58.6	63	8487	59.5	8534	59.2	**8501**	**59.4**
447.dealII	63	7854	91.8	**7841**	**91.9**	7837	92.0	63	7854	91.8	**7841**	**91.9**	7837	92.0
450.soplex	63	7988	65.8	**7946**	**66.1**	7945	66.1	63	7988	65.8	**7946**	**66.1**	7945	66.1
453.povray	63	4269	78.5	**4249**	**78.9**	4216	79.5	63	3232	104	**3239**	**103**	3246	103
454.calculix	63	13277	39.1	13242	39.2	**13265**	**39.2**	63	13277	39.1	13242	39.2	**13265**	**39.2**
459.GemsFDTD	63	13462	49.7	**13465**	**49.6**	13475	49.6	63	13462	49.7	**13465**	**49.6**	13475	49.6
465.tonto	63	11415	54.3	**11431**	**54.2**	11570	53.6	56	**9507**	**58.0**	9456	58.3	9587	57.5
470.lbm	63	38600	22.4	**38212**	**22.7**	38040	22.8	8	2370	46.4	**2360**	**46.6**	2344	46.9
481.wrf	63	**10629**	**66.2**	10693	65.8	10611	66.3	63	**10463**	**67.3**	10466	67.2	10455	67.3
482.sphinx3	63	16385	74.9	16322	75.2	**16358**	**75.1**	63	**16017**	**76.7**	15964	76.9	16044	76.5

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

Compiler Invocation Notes

```
Compiler patches are available at
http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp
```

Operating System Notes

```
Processes were bound to cores using "submit" and "pbind".

 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.
```

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Operating System Notes (Continued)

```
/etc/system parameters
   autoup=600
      Causes pages older than the listed number of seconds to
      be written by fsflush.
   tune_t_fsflushr=10
      Controls how many seconds elapse between runs of the
      page flush daemon, fsflush.

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

Platform Notes

```
This result was measured on a Sun SPARC Enterprise
T5120.  These models are electronically equivalent:
  - Sun SPARC Enterprise T5120
  - Fujitsu SPARC Enterprise T5120
```

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
```

C++ benchmarks:
```
-g0 -library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch_level=2
-xdepend -xalias_level=compatible
```

Fortran benchmarks:
```
-g -fast -xipo=2 -xpagesize=4M -xprefetch_level=2
```

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Base Optimization Flags (Continued)

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`

Base Other Flags

C benchmarks:
`-xjobs=16 -V`

C++ benchmarks:
`-xjobs=16 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=16 -V`

Benchmarks using both Fortran and C:
`-xjobs=16 -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`

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

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Peak Optimization Flags (Continued)

482.sphinx3: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-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 -xprefetch_level=1
-xlinkopt=2

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -g0 -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-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
-xlinkopt=2

434.zeusmp: -g -fast -xpagesize=4M -xipo=1 -qoption cg -Qeps:enabled=1
-qoption cg -Qeps:ws=8 -lmopt

437.leslie3d: -g -fast -xpagesize_heap=4M -xpagesize_stack=64K
-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 -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 -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 -xipo=2 -fsimple=1 -xlinkopt=2

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Peak Optimization Flags (Continued)

454.calculix: `basepeak = yes`

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

Peak Other Flags

C benchmarks:
`-xjobs=16 -V`

C++ benchmarks:
`-xjobs=16 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=16 -V`

Benchmarks using both Fortran and C:
`-xjobs=16 -V`

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

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

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