SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

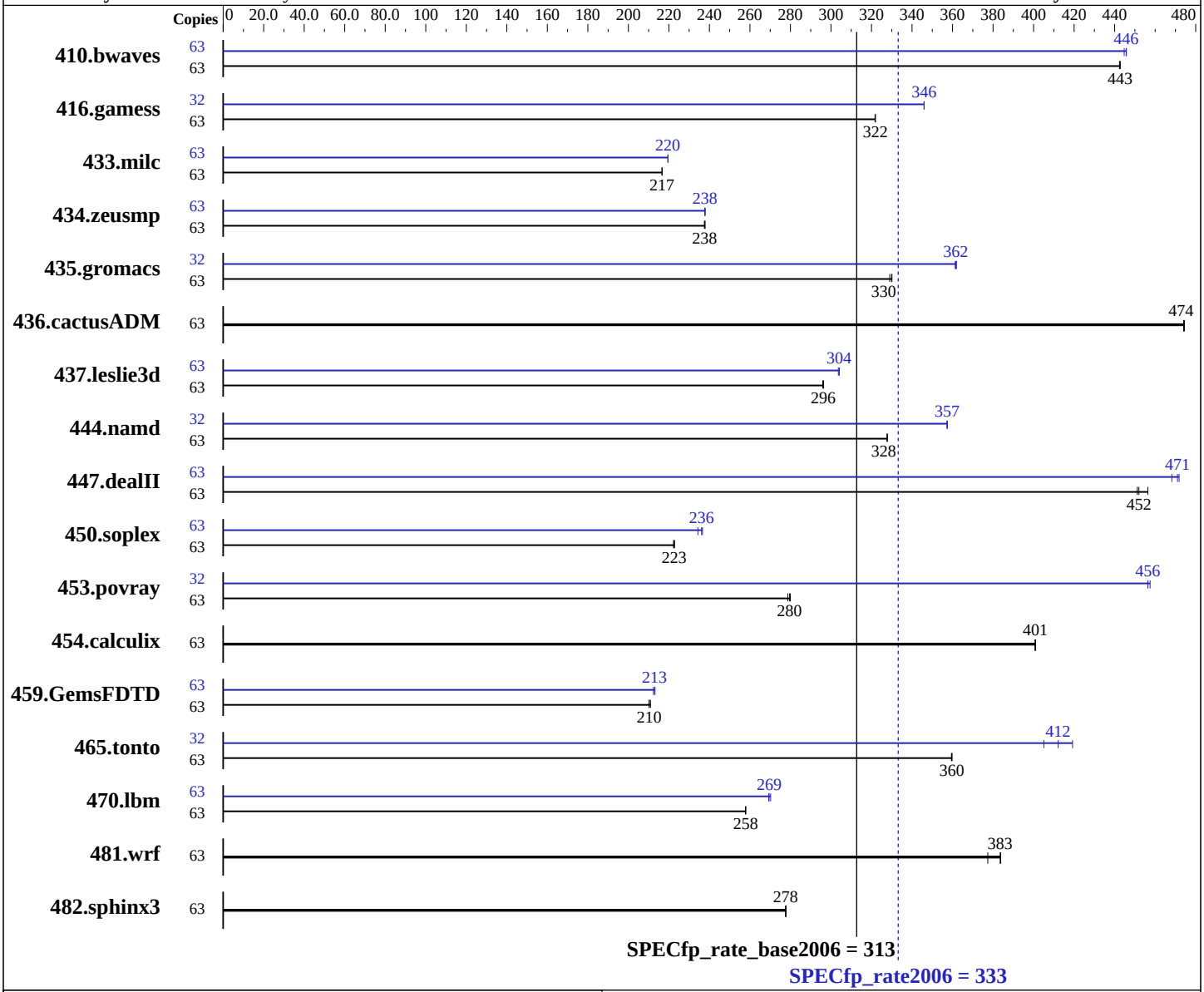
Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp®_rate2006 = 333

SPECfp_rate_base2006 = 313

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

Test date: Apr-2007
Hardware Availability: Apr-2007
Software Availability: Jul-2007



Hardware

CPU Name:	SPARC64 VI
CPU Characteristics:	
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	32 cores, 16 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CMUs; each CMU contains 2 or 4 chips
Primary Cache:	128 KB I + 128 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

Continued on next page

Software

Operating System:	Solaris 10 7/07 (build s10s_u4wos_03)
Compiler:	Sun Studio 12 (build 44.0)
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp_rate2006 = 333

SPECfp_rate_base2006 = 313

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

Test date: Apr-2007
Hardware Availability: Apr-2007
Software Availability: Jul-2007

L3 Cache: None
Other Cache: None
Memory: 256 GB (128 x 2 GB)
Disk Subsystem: 400 GB RAID 0 created by Solaris Volume Manager with 12x 36GB 15,000 RPM Seagate ST336754FC FC-AL disks
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	1935	442	**1934**	**443**	1934	443	63	1925	445	**1921**	**446**	1920	446
416.gamess	63	**3832**	**322**	3832	322	3834	322	32	**1811**	**346**	1811	346	1811	346
433.milc	63	**2670**	**217**	2670	217	2669	217	63	2634	220	**2635**	**220**	2635	220
434.zeusmp	63	**2412**	**238**	2414	238	2410	238	63	2412	238	2409	238	**2411**	**238**
435.gromacs	63	1363	330	**1363**	**330**	1367	329	32	**632**	**362**	631	362	632	361
436.cactusADM	63	1588	474	1587	474	**1588**	**474**	63	1588	474	1587	474	**1588**	**474**
437.leslie3d	63	2001	296	**1999**	**296**	1998	296	63	1950	304	**1948**	**304**	1947	304
444.namd	63	**1542**	**328**	1542	328	1542	328	32	**718**	**357**	718	357	718	357
447.dealII	63	1579	456	1597	451	**1595**	**452**	63	1528	472	**1530**	**471**	1539	468
450.soplex	63	2364	222	2359	223	**2360**	**223**	63	2242	234	**2225**	**236**	2221	237
453.povray	63	**1199**	**280**	1197	280	1203	279	32	**373**	**456**	372	458	373	456
454.calculix	63	1297	401	**1297**	**401**	1296	401	63	1297	401	**1297**	**401**	1296	401
459.GemsFDTD	63	**3179**	**210**	3180	210	3169	211	63	**3139**	**213**	3136	213	3148	212
465.tonto	63	1725	359	1723	360	**1723**	**360**	32	**764**	**412**	751	419	777	405
470.lbm	63	**3357**	**258**	3357	258	3357	258	63	3215	269	**3212**	**269**	3203	270
481.wrf	63	1865	377	1834	384	**1835**	**383**	63	1865	377	1834	384	**1835**	**383**
482.sphinx3	63	4421	278	4423	278	**4422**	**278**	63	4421	278	4423	278	**4422**	**278**

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

Operating System Notes

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

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.

ulimit -s 131072 was used to limit the space
```

Continued on next page

Operating System Notes (Continued)

```
consumed by the stack (and therefore make more
space available to the heap).

 /etc/system parameters
    autoup=300
       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=3
       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

```
"CMU" = CPU/Memory Unit; each holds 2 or 4 CPU chips.

Memory is 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result was measured using a Sun SPARC Enterprise
M8000 Server.  Note that the Fujitsu SPARC Enterprise
M8000 and Sun SPARC Enterprise M8000 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:
```
-fast -fma=fused -xcache=128/64/2:6144/256/12 -xipo=2 -xpagesize=4M
-xprefetch_level=2 -xprefetch=latx:2 -xalias_level=std
-xprefetch_level=3 -xprefetch_auto_type=indirect_array_access
```

C++ benchmarks:
```
-xdepend -library=stlport4 -fast -fma=fused
-xcache=128/64/2:6144/256/12 -xipo=2 -xpagesize=4M -xprefetch_level=2
-xprefetch=latx:2 -xalias_level=compatible
```

Fortran benchmarks:
```
-fast -fma=fused -xcache=128/64/2:6144/256/12 -xipo=2 -xpagesize=4M
-xprefetch_level=2 -xprefetch=latx:2
```

Benchmarks using both Fortran and C:
```
-fast(cc) -fast(f90) -fma=fused -xcache=128/64/2:6144/256/12 -xipo=2
-xpagesize=4M -xprefetch_level=2 -xprefetch=latx: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 -v
```

Benchmarks using both Fortran and C:
```
-xjobs=16 -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: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2 -xprefetch_level=2 -fsimple=1 -xprefetch_auto_type=indirect_array_access -W2,-Ainline:rs=400 -xalias_level=std -fma=fused -xprefetch=latx:3`

470.lbm: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xprefetch_level=3 -xipo=2 -xrestrict -fma=fused -Wc,-Qlp=1 -Wc,-Qlp-av=512 -Wc,-Qlp-t=1 -Wc,-Qlp-fa=1 -Wc,-Qms_pipe-prefolim=64 -xprefetch=latx:5`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `-xdepend -library=stlport4 -fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xalias_level=compatible -xprefetch_level=1 -fma=fused -xprefetch=latx:3`

447.dealII: `-xdepend -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xalias_level=compatible -xipo=2 -xrestrict -fma=fused -xprefetch=latx:4.5`

450.soplex: `-xdepend -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xalias_level=compatible -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: `-xdepend -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xalias_level=compatible -xipo=2 -xrestrict -fma=fused`

Fortran benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

410.bwaves: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused -xprefetch=latx:3`

416.gamess: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused`

434.zeusmp: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2 -fma=fused -lmopt`

437.leslie3d: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xprefetch_level=3 -qoption cg -Qlp=1 -qoption cg -Qlp-fa=0 -qoption cg -Qlp-fl=1 -qoption cg -Qlp-av=448 -qoption cg -Qlp-t=4 -xprefetch=latx:3.5`

459.GemsFDTD: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -fsimple=1 -xprefetch_level=2 -fma=fused -xprefetch=latx:2`

465.tonto: `-fast -xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2 -xprefetch=latx:12 -lfast`

Benchmarks using both Fortran and C:

435.gromacs: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast`(cc) `-fast`(f90) `-xcache=128/64/2:6144/256/12 -xpagesize=4M -xipo=2 -xinline= -xarch=generic -xchip=generic -fsimple=0 -fma=fused`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-xjobs=16 -V -#`

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

Fortran benchmarks:
`-xjobs=16 -V -v`

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

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12.20090714.02.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.0.1.
Report generated on Tue Jul 22 11:33:46 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 1 May 2007.