SPEC® CFP2006 Result

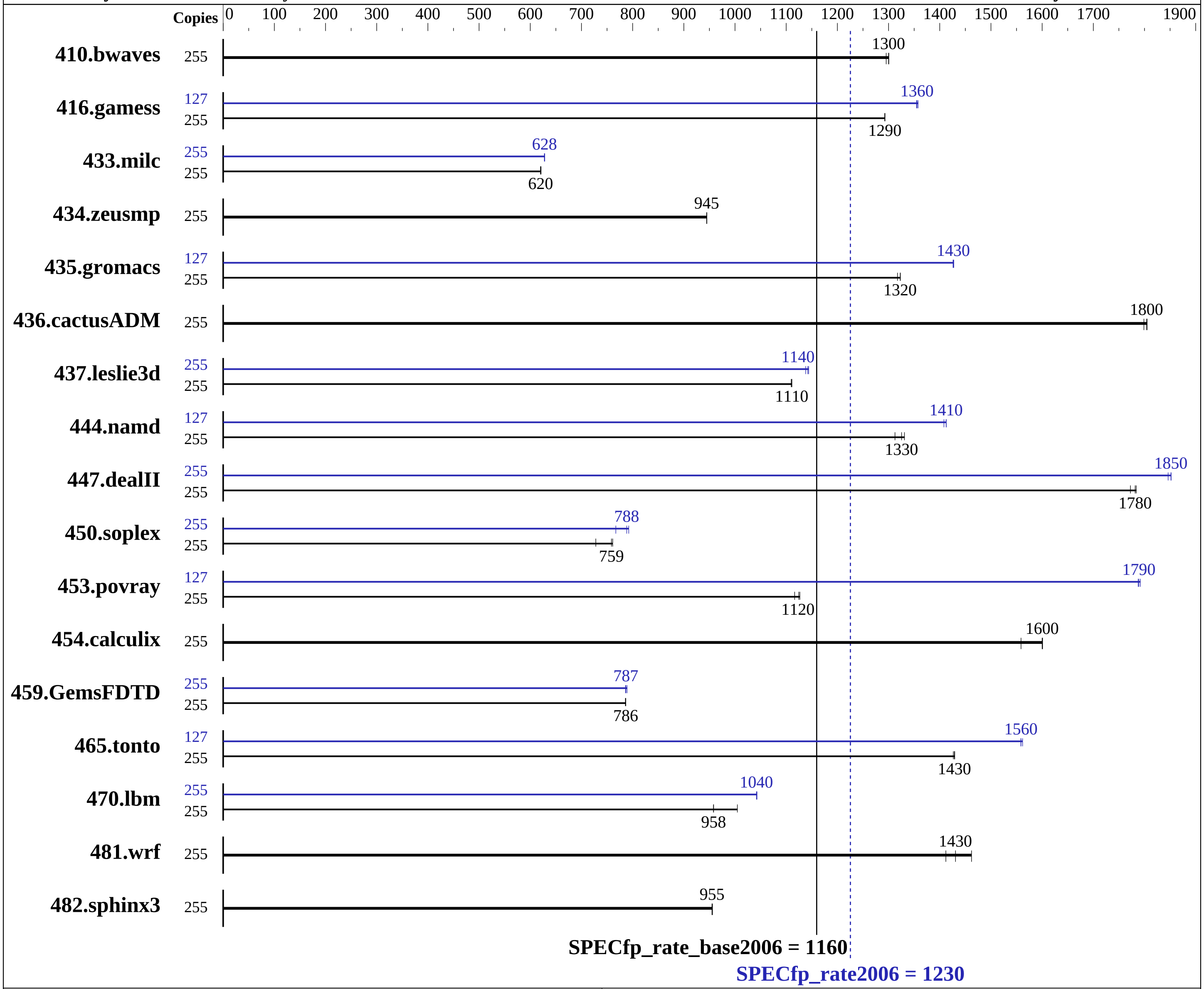
Fujitsu Limited

Fujitsu SPARC Enterprise M9000

SPECfp®_rate2006 = 1230

SPECfp_rate_base2006 = 1160

CPU2006 license:	19	**Test date:**	Apr-2007
Test sponsor:	Fujitsu Limited	**Hardware Availability:**	Apr-2007
Tested by:	Sun Microsystems	**Software Availability:**	Jul-2007



Hardware	
CPU Name:	SPARC64 VI
CPU Characteristics:	
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	128 cores, 64 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 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

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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

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L3 Cache: None
Other Cache: None
Memory: 1 TB (512 x 2 GB)
Disk Subsystem: 792 GB RAID 1+0 created by Solaris Volume Manager with 24 x 73 GB 10,000 RPM Fujitsu MAY2073RC 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	255	2675	1300	2665	1300	**2666**	**1300**	255	2675	1300	2665	1300	**2666**	**1300**
416.gamess	255	**3862**	**1290**	3861	1290	3863	1290	127	1836	1350	**1834**	**1360**	1832	1360
433.milc	255	3769	621	3775	620	**3774**	**620**	255	3726	628	3731	627	**3729**	**628**
434.zeusmp	255	2457	945	2456	945	**2456**	**945**	255	2457	945	2456	945	**2456**	**945**
435.gromacs	255	1376	1320	1382	1320	**1376**	**1320**	127	635	1430	636	1430	**636**	**1430**
436.cactusADM	255	**1689**	**1800**	1694	1800	1688	1810	255	**1689**	**1800**	1694	1800	1688	1810
437.leslie3d	255	2157	1110	2160	1110	**2158**	**1110**	255	**2099**	**1140**	2095	1140	2106	1140
444.namd	255	1558	1310	**1543**	**1330**	1536	1330	127	723	1410	721	1410	**721**	**1410**
447.dealII	255	1635	1780	**1637**	**1780**	1646	1770	255	1580	1850	1575	1850	**1575**	**1850**
450.soplex	255	2921	728	**2804**	**759**	2794	761	255	2772	767	**2697**	**788**	2684	792
453.povray	255	**1206**	**1120**	1204	1130	1215	1120	127	378	1790	**378**	**1790**	377	1790
454.calculix	255	1350	1560	**1315**	**1600**	1314	1600	255	1350	1560	**1315**	**1600**	1314	1600
459.GemsFDTD	255	3443	786	3440	787	**3440**	**786**	255	**3438**	**787**	3428	789	3442	786
465.tonto	255	1756	1430	1759	1430	**1756**	**1430**	127	**802**	**1560**	802	1560	800	1560
470.lbm	255	3488	1000	**3656**	**958**	3658	958	255	3359	1040	**3363**	**1040**	3363	1040
481.wrf	255	2017	1410	1948	1460	**1991**	**1430**	255	2017	1410	1948	1460	**1991**	**1430**
482.sphinx3	255	5199	956	5204	955	**5202**	**955**	255	5199	956	5204	955	**5202**	**955**

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".
The SPEC toolset was bound to processor 0.

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.
```

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Operating System Notes (Continued)

```
ulimit -s 131072 was used to limit the space
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 was 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result was measured using a Sun SPARC Enterprise
M9000 Server.  Note that the Fujitsu SPARC Enterprise
M9000 and Sun SPARC Enterprise M9000 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=24 -V -#

C++ benchmarks:
-xjobs=24 -verbose=diags,version

Fortran benchmarks:
-xjobs=24 -V -v

Benchmarks using both Fortran and C:
-xjobs=24 -V -# -v

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

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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:

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Peak Optimization Flags (Continued)

410.bwaves: `basepeak = yes`

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

434.zeusmp: `basepeak = yes`

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=24 -V -#`

C++ benchmarks:
`-xjobs=24 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=24 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=24 -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`

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

Tested with SPEC CPU2006 v1.0.1.
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