SPEC® CFP2006 Result

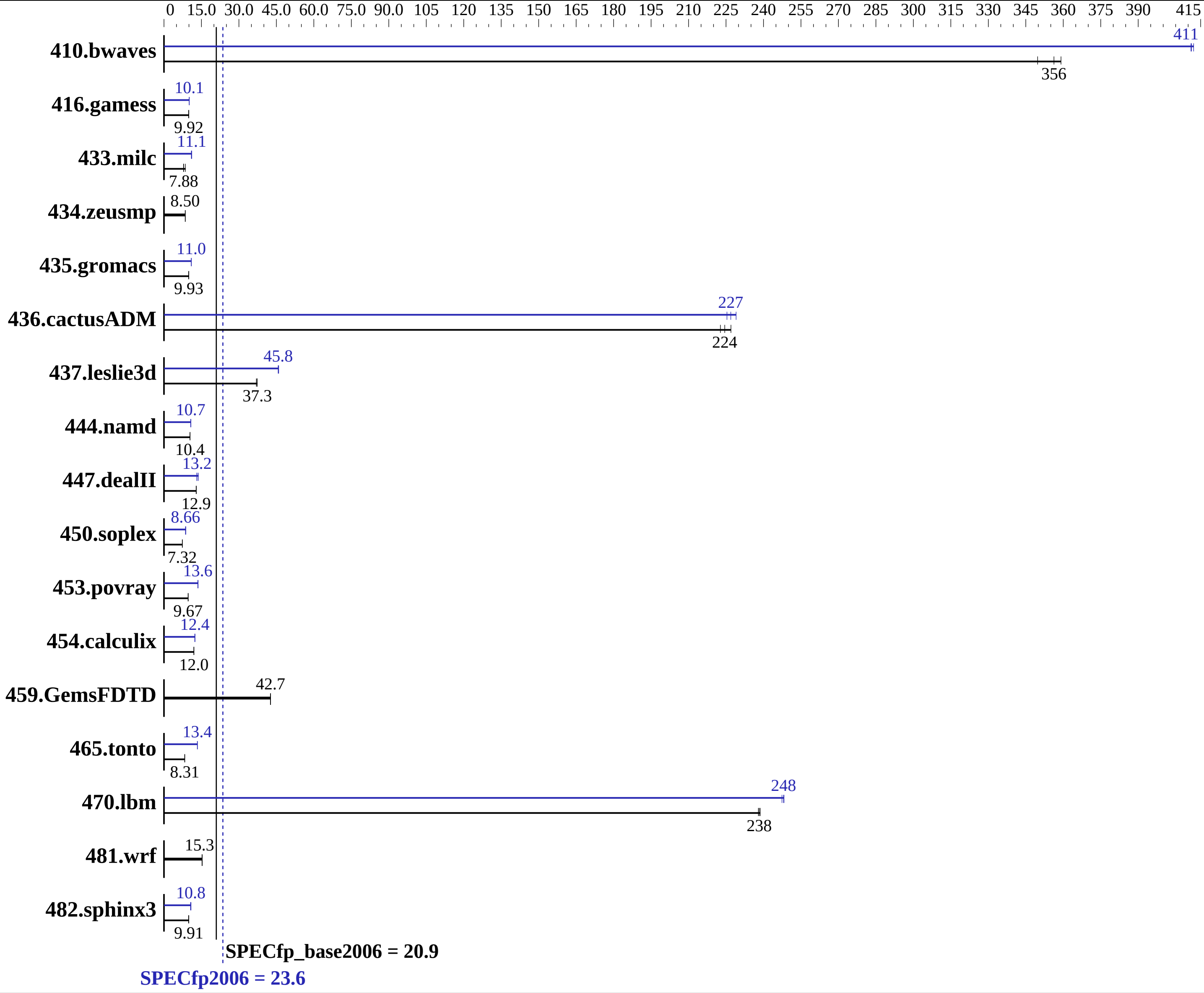
Fujitsu Limited

Fujitsu SPARC Enterprise M8000

SPECfp®2006 = 23.6

SPECfp_base2006 = 20.9

CPU2006 license:	19	**Test date:**	Mar-2008
Test sponsor:	Fujitsu Limited	**Hardware Availability:**	Apr-2007
Tested by:	Sun Microsystems	**Software Availability:**	May-2008



Hardware	
CPU Name:	SPARC64 VI
CPU Characteristics:	
CPU MHz:	2280
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:	5 MB I+D on chip per chip

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Software	
Operating System:	Solaris 10 5/08 s10s_u5wos_08
Compiler:	Sun Studio 12, see patch information below
Auto Parallel:	Yes
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: 256 GB (128 x 2 GB DIMMs)
Disk Subsystem: 73 GB 10,000 RPM Fujitsu MAY2073RC SAS
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	38.9	350	**38.1**	**356**	37.8	359	33.1	411	**33.0**	**411**	33.0	412
416.gamess	1974	9.92	1973	9.92	**1973**	**9.92**	**1932**	**10.1**	1932	10.1	1931	10.1
433.milc	**1165**	**7.88**	1166	7.88	1069	8.58	828	11.1	**828**	**11.1**	838	11.0
434.zeusmp	**1071**	**8.50**	1071	8.50	1070	8.50	**1071**	**8.50**	1071	8.50	1070	8.50
435.gromacs	719	9.93	**719**	**9.93**	720	9.92	650	11.0	**651**	**11.0**	652	11.0
436.cactusADM	52.6	227	53.6	223	**53.2**	**224**	**52.7**	**227**	53.0	225	52.2	229
437.leslie3d	252	37.3	254	37.0	**252**	**37.3**	**205**	**45.8**	206	45.7	205	45.9
444.namd	768	10.4	767	10.4	**767**	**10.4**	748	10.7	**748**	**10.7**	748	10.7
447.dealII	885	12.9	889	12.9	**887**	**12.9**	**864**	**13.2**	831	13.8	870	13.2
450.soplex	1137	7.34	1139	7.32	**1139**	**7.32**	968	8.61	**963**	**8.66**	955	8.74
453.povray	551	9.65	549	9.70	**550**	**9.67**	392	13.6	389	13.7	**391**	**13.6**
454.calculix	689	12.0	**688**	**12.0**	687	12.0	669	12.3	**666**	**12.4**	665	12.4
459.GemsFDTD	249	42.6	**249**	**42.7**	248	42.7	249	42.6	**249**	**42.7**	248	42.7
465.tonto	1185	8.30	1183	8.32	**1184**	**8.31**	736	13.4	**736**	**13.4**	736	13.4
470.lbm	57.6	239	57.7	238	**57.7**	**238**	55.4	248	**55.4**	**248**	55.5	247
481.wrf	731	15.3	**731**	**15.3**	734	15.2	731	15.3	**731**	**15.3**	734	15.2
482.sphinx3	**1966**	**9.91**	1965	9.92	1977	9.86	1832	10.6	**1810**	**10.8**	1802	10.8

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 124867-02, 127000-02,
124863-02, 124861-04
```

Operating System Notes

```
Stack size set to unlimited with "ulimit -s unlimited"

Program threads were bound to processors with:
    SUNW_MP_PROCBIND="1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37
```

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Operating System Notes (Continued)

```
                            39 41 43 45 47 49 51 53 55 57 59 61 63"

    Behavior of parallel threads was set with:
        SUNW_MP_THR_IDLE=SPIN
    SPIN specifies that an idle thread should spin while waiting at barrier
    or waiting for new parallel regions to work on.

    The maximum number of threads a program can create was set with:
        OMP_NUM_THREADS=32


     System Tunables:
     (/etc/system parameters)
        maxphys=4194304
           Defines the maximum size of I/O requests, in bytes.
        maxpgio=1024
           Defines the maximum number of page I/O requests that can
           be queued by the paging system.
        tune_t_fsflushr=4
           Controls how many seconds elapse between runs of the
           page flush daemon, fsflush.
        autoup=60
           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
```

Platform Notes

```
 This result is measured on a Sun SPARC Enterprise
 M8000 Server.  Note that the Sun SPARC Enterprise
 M8000 and Fujitsu SPARC Enterprise M8000 are electrically
 equivalent.

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

Base Compiler Invocation

C benchmarks:
 cc

C++ benchmarks:
 CC

Continued on next page

Base Compiler Invocation (Continued)

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Base Optimization Flags

C benchmarks:
-fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access

C++ benchmarks:
-library=stlport4 -fast -xipo=2 -fma=fused -xpagesize=4M
-xprefetch=latx:2 -xautopar -xreduction -xprefetch_level=2
-xalias_level=compatible

Fortran benchmarks:
-fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=2

Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -xipo=2 -fma=fused -xpagesize=4M
-xprefetch=latx:2 -xautopar -xreduction -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access -xprefetch_level=2

Base Other Flags

C benchmarks:
-xjobs=64

C++ benchmarks:
-xjobs=64

Fortran benchmarks:
-xjobs=64

Benchmarks using both Fortran and C:
-xjobs=64

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 -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -xalias_level=strong -xprefetch_level=2

470.lbm: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -xarch=v8plusb -xprefetch_level=2 -xautopar -xreduction

482.sphinx3: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xalias_level=std

C++ benchmarks:

444.namd: -library=stlport4 -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=compatible -xdepend

447.dealII: -library=stlport4 -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xalias_level=compatible -xdepend -xrestrict -xprefetch=latx:4.5

450.soplex: -library=stlport4 -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xdepend -xprefetch_level=2 -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

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Peak Optimization Flags (Continued)

453.povray: -library=stlport4 -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=compatible -xdepend -xrestrict -xprefetch=latx:4.5

Fortran benchmarks:

410.bwaves: -fast -xipo=2 -fma=fused -xpagesize=512K -xprefetch=latx:2 -xprefetch_level=2 -xautopar -xreduction

416.gamess: -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xprefetch_level=2

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xipo=2 -xautopar -xreduction -fma=fused -xprefetch_level=2 -xprefetch=latx:8.0

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xarch=v8plusa -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) -xipo=2 -fma=fused -xalias_level=std

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -xautopar -xreduction

454.calculix: -fast(cc) -fast(f90) -xipo=2 -fma=fused -xalias_level=std

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
-xjobs=64

C++ benchmarks:
-xjobs=64

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Peak Other Flags (Continued)

Fortran benchmarks:
    -xjobs=64

Benchmarks using both Fortran and C:
    -xjobs=64

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.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.xml

Tested with SPEC CPU2006 v1.0.1.
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