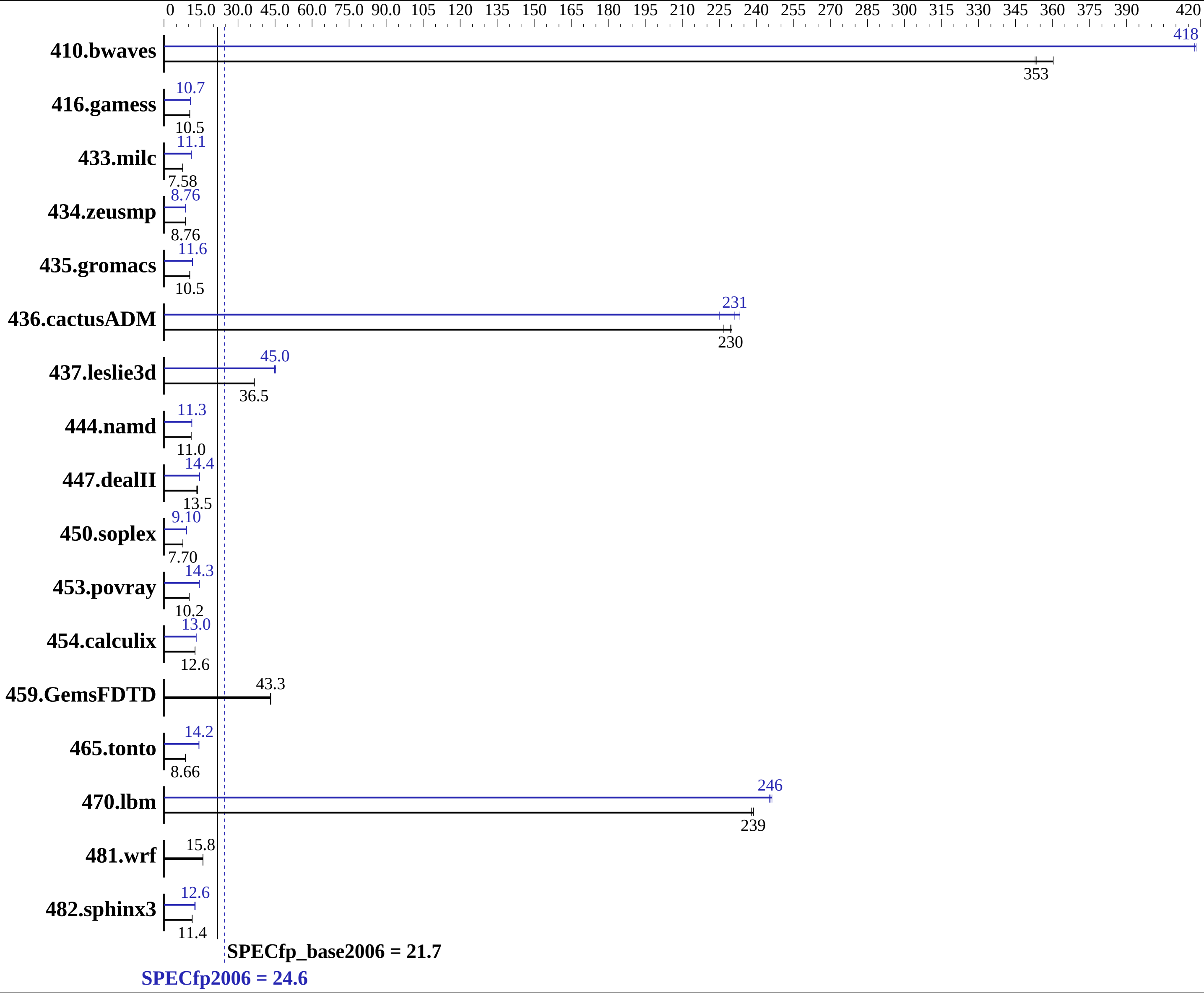
SPEC® CFP2006 Result

Fujitsu Limited

Fujitsu SPARC Enterprise M8000

SPECfp®2006 =	24.6
SPECfp_base2006 =	21.7

CPU2006 license:	6	**Test date:**	Feb-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:	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 5/08 s10s_u5wos_08
Compiler:	Sun Studio 12, Patch 124867-02 (see patch info below)
Auto Parallel:	Yes
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit

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L3 Cache: None
Other Cache: None
Memory: 256 GB (128 x 2 GB DIMMs)
Disk Subsystem: 408 GB SVM RAID 1+0 on 12 x 73 GB 10,000 RPM Fujitsu MAY2073RC SAS
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	38.5	353	37.7	360	**38.5**	**353**	**32.5**	**418**	32.5	418	32.5	418
416.gamess	1874	10.4	**1873**	**10.5**	1872	10.5	1833	10.7	1833	10.7	**1833**	**10.7**
433.milc	1205	7.62	1215	7.56	**1211**	**7.58**	826	11.1	**826**	**11.1**	836	11.0
434.zeusmp	**1039**	**8.76**	1039	8.76	1039	8.76	1039	8.76	**1039**	**8.76**	1040	8.75
435.gromacs	684	10.4	683	10.5	**683**	**10.5**	619	11.5	615	11.6	**616**	**11.6**
436.cactusADM	52.7	227	51.9	230	**52.1**	**230**	53.1	225	51.2	233	**51.7**	**231**
437.leslie3d	**257**	**36.5**	256	36.7	258	36.5	210	44.8	208	45.2	**209**	**45.0**
444.namd	**729**	**11.0**	729	11.0	730	11.0	710	11.3	710	11.3	**710**	**11.3**
447.dealII	**845**	**13.5**	844	13.5	875	13.1	**793**	**14.4**	798	14.3	793	14.4
450.soplex	**1084**	**7.70**	1083	7.70	1084	7.69	910	9.17	917	9.09	**916**	**9.10**
453.povray	523	10.2	519	10.3	**521**	**10.2**	370	14.4	**372**	**14.3**	373	14.3
454.calculix	653	12.6	**654**	**12.6**	654	12.6	634	13.0	**633**	**13.0**	632	13.1
459.GemsFDTD	246	43.1	245	43.3	**245**	**43.3**	246	43.1	245	43.3	**245**	**43.3**
465.tonto	1134	8.68	1138	8.64	**1136**	**8.66**	**693**	**14.2**	693	14.2	696	14.1
470.lbm	57.7	238	**57.5**	**239**	57.5	239	56.0	245	55.8	246	**55.9**	**246**
481.wrf	**707**	**15.8**	708	15.8	705	15.8	**707**	**15.8**	708	15.8	705	15.8
482.sphinx3	1704	11.4	1700	11.5	**1703**	**11.4**	1539	12.7	**1541**	**12.6**	1565	12.5

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

Operating System Notes

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

Program threads were bound to processors with:
```

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Operating System Notes (Continued)

```
    SUNW_MP_PROCBIND="1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37
                      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

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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: `-fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xautopar -xreduction`

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

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

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