SPEC® CFP2006 Result

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Fujitsu Limited

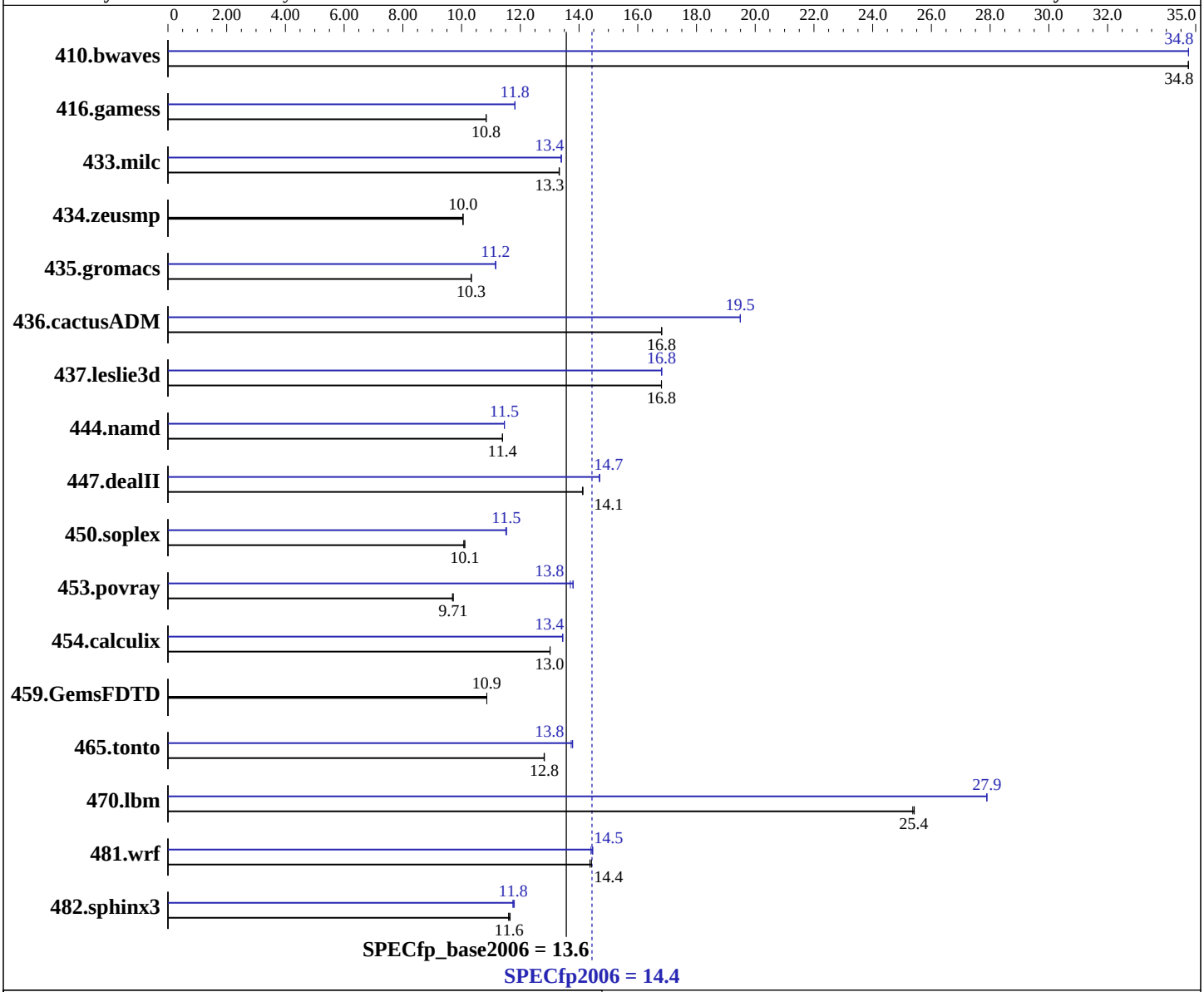
Fujitsu SPARC Enterprise M8000

SPECfp®2006 = 14.4

SPECfp_base2006 = 13.6

CPU2006 license: 19
Test sponsor: Fujitsu Limited
Tested by: Sun Microsystems

Test date: Jul-2008
Hardware Availability: Jul-2008
Software Availability: Jul-2008



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2520
FPU:	Integrated
CPU(s) enabled:	64 cores, 16 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CMUs; each CMU contains 2 or 4 chips
Primary Cache:	64 KB I + 64 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 5/08 with Patch 137111-03
Compiler:	Sun Studio 12 with patches 124867-06, 124861-07, 124863-05, 127000-05 (see patch information below)
Auto Parallel:	No
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)
Disk Subsystem: Fujitsu 73 GB 10000 RPM 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	391	34.8	391	34.8	**391**	**34.8**	391	34.8	391	34.8	**391**	**34.8**
416.gamess	1807	10.8	1807	10.8	**1807**	**10.8**	1657	11.8	1657	11.8	**1657**	**11.8**
433.milc	689	13.3	**689**	**13.3**	689	13.3	686	13.4	**685**	**13.4**	685	13.4
434.zeusmp	906	10.0	906	10.0	**906**	**10.0**	906	10.0	906	10.0	**906**	**10.0**
435.gromacs	**691**	**10.3**	691	10.3	691	10.3	640	11.2	**640**	**11.2**	640	11.2
436.cactusADM	711	16.8	**711**	**16.8**	711	16.8	613	19.5	613	19.5	**613**	**19.5**
437.leslie3d	**559**	**16.8**	559	16.8	559	16.8	559	16.8	559	16.8	**559**	**16.8**
444.namd	704	11.4	**704**	**11.4**	704	11.4	700	11.5	700	11.5	**700**	**11.5**
447.dealII	809	14.1	810	14.1	**810**	**14.1**	779	14.7	**778**	**14.7**	778	14.7
450.soplex	**825**	**10.1**	825	10.1	828	10.1	**724**	**11.5**	723	11.5	725	11.5
453.povray	549	9.69	**548**	**9.71**	548	9.72	388	13.7	**386**	**13.8**	385	13.8
454.calculix	634	13.0	634	13.0	**634**	**13.0**	**614**	**13.4**	614	13.4	614	13.4
459.GemsFDTD	**977**	**10.9**	977	10.9	977	10.9	**977**	**10.9**	977	10.9	977	10.9
465.tonto	**768**	**12.8**	768	12.8	767	12.8	714	13.8	**714**	**13.8**	717	13.7
470.lbm	**541**	**25.4**	542	25.4	541	25.4	493	27.9	**493**	**27.9**	493	27.9
481.wrf	777	14.4	**777**	**14.4**	774	14.4	775	14.4	772	14.5	**772**	**14.5**
482.sphinx3	1680	11.6	**1678**	**11.6**	1672	11.7	1652	11.8	**1657**	**11.8**	1659	11.7

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
```

Submit Notes

```
Processes were assigned to specific processors using 'pbind' commands.  The
config file option 'submit' was used, along with a processor to use in the
'BIND' variable, to generate the pbind commands.  (For details, please see
the config file.)
```

Operating System Notes

```
System Tunables (/etc/system parameters):

tune_t_fsflushr=10
    Controls how many seconds elapse between runs of the
    page flush daemon, fsflush.
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=3
    Set maximum percent memory for file system cache
lpg_alloc_prefer=1
    Set lgroup page allocation to strongly prefer local pages

Other System Settings:

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

Platform Notes

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

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 -xipo=2 -xpagesize=4M -xprefetch_level=2
-xalias_level=std -xprefetch_auto_type=indirect_array_access
```

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Base Optimization Flags (Continued)

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

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

Benchmarks using both Fortran and C:
`-fast`(cc) `-fast`(f90) `-fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std -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 -xpagesize=4M -xipo=2 -xprefetch_level=2 -fsimple=1 -xprefetch_auto_type=indirect_array_access -W2,-Ainline:rs=400 -xalias_level=std -fma=fused`

470.lbm: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xipo=2 -xarch=v8plusb -xprefetch_level=2`

482.sphinx3: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xipo=2 -fma=fused`

C++ benchmarks:

444.namd: `-xdepend -library=stlport4 -fast -xpagesize=4M -xalias_level=compatible -fma=fused -xprefetch=latx:7`

447.dealII: `-xdepend -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xalias_level=compatible -xipo=2 -xprefetch_level=2 -xrestrict -fma=fused`

450.soplex: `-xdepend -library=stlport4 -fast -xpagesize=4M -xalias_level=compatible -xipo=2 -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`

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

Fortran benchmarks:

410.bwaves: `-fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused`

416.gamess: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused`

434.zeusmp: `basepeak = yes`

437.leslie3d: `-fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch=latx:4 -xprefetch_level=2`

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Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xprefetch=no -xarch=generic -lfast

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -xipo=2 -xarch=generic -xchip=generic
-fsimple=0 -xunroll=5 -xprefetch=latx:0.5

436.cactusADM: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -xipo=2 -fma=fused -qoption cg -Qlp-prt=1
-qoption cg -Qlp-pwt=3 -qoption cg -Qlp-prwt=3

454.calculix: -fast(cc) -fast(f90) -xpagesize=4M -xipo=2
-xprefetch_level=3 -fma=fused -xprefetch=latx:3.0
-xalias_level=std

481.wrf: -fast(cc) -fast(f90) -xpagesize=4M -xipo=2
-xprefetch_level=3 -fma=fused -xunroll=8

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-and-gccfss4.2.20090713.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.00.xml

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