



SPEC® CFP2006 Result

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Fujitsu Limited

SPECfp®2006 = 11.5

Fujitsu SPARC Enterprise M4000

SPECfp_base2006 = 10.6

CPU2006 license: 19

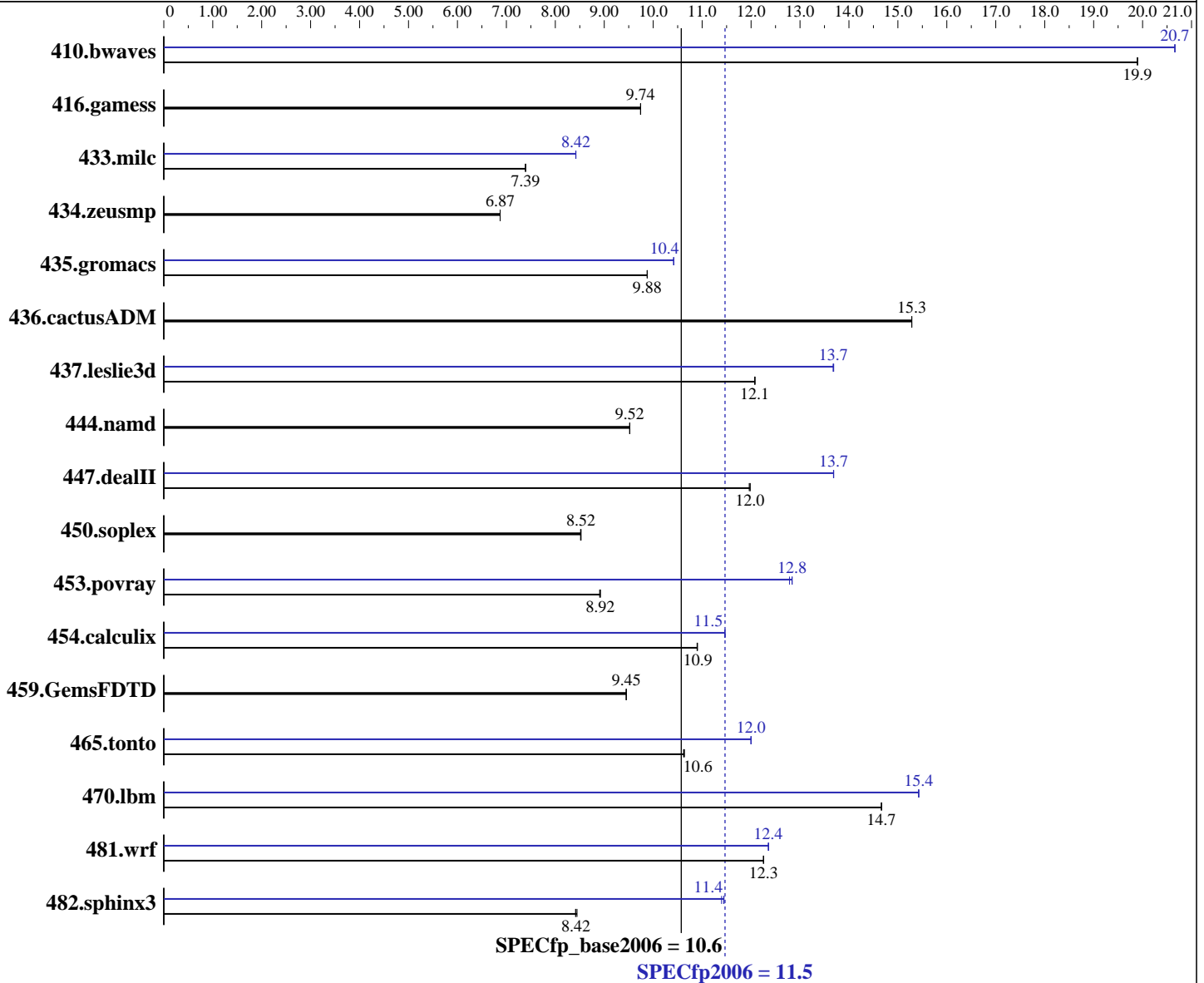
Test date: Mar-2007

Test sponsor: Fujitsu Limited

Hardware Availability: May-2007

Tested by: Fujitsu Limited

Software Availability: May-2007



Hardware

CPU Name: SPARC64 VI
 CPU Characteristics:
 CPU MHz: 2150
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 1 or 2 CPUM; each CPUM contains 2 CPU 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 11/06
 Compiler: Sun Studio 12 (Early Access)
 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: 16 GB (16 x 1 GB, see notes for details)
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	683	19.9	683	19.9	683	19.9	658	20.7	658	20.7	658	20.7
416.gamess	2009	9.74	2010	9.74	2010	9.74	2009	9.74	2010	9.74	2010	9.74
433.milc	1242	7.39	1242	7.39	1242	7.39	1091	8.42	1090	8.42	1090	8.42
434.zeusmp	1324	6.87	1324	6.87	1324	6.87	1324	6.87	1324	6.87	1324	6.87
435.gromacs	723	9.88	723	9.88	723	9.88	685	10.4	685	10.4	685	10.4
436.cactusADM	782	15.3	782	15.3	782	15.3	782	15.3	782	15.3	782	15.3
437.leslie3d	778	12.1	779	12.1	778	12.1	687	13.7	687	13.7	687	13.7
444.namd	842	9.52	842	9.52	842	9.52	842	9.52	842	9.52	842	9.52
447.dealII	955	12.0	955	12.0	956	12.0	836	13.7	836	13.7	836	13.7
450.soplex	978	8.53	979	8.52	979	8.52	978	8.53	979	8.52	979	8.52
453.povray	597	8.92	597	8.91	596	8.92	414	12.8	416	12.8	414	12.8
454.calculix	757	10.9	757	10.9	757	10.9	719	11.5	719	11.5	720	11.5
459.GemsFDTD	1123	9.45	1123	9.45	1123	9.45	1123	9.45	1123	9.45	1123	9.45
465.tonto	925	10.6	926	10.6	927	10.6	820	12.0	820	12.0	820	12.0
470.lbm	937	14.7	937	14.7	937	14.7	891	15.4	891	15.4	891	15.4
481.wrf	912	12.3	911	12.3	911	12.3	904	12.4	904	12.4	904	12.4
482.sphinx3	2314	8.42	2308	8.44	2317	8.41	1710	11.4	1703	11.4	1704	11.4

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

Operating System Notes

Shell Environment:

```
Stack size set to unlimited via "ulimit -s unlimited"
MPSSHEAP=4MB
MPSSSTACK=4MB
MADV=access_lwp
LD_PRELOAD=mpss.so.1:madv.so.1
```

The run was bound to processor #27 using the "psrset" command

```
psrset -c processor id...: creates a set
psrset -e set_id command: runs command on a set
```

System Tunables:

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Operating System Notes (Continued)

```
(/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=1
    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

"CPUM" = CPU Module; each module holds two CPU chips.

Memory was 8-way interleaved by filling same capacity DIMMs in every other slot.

This result was measured on a Fujitsu SPARC Enterprise M4000 Server. Note that the Fujitsu SPARC Enterprise M4000 and Sun SPARC Enterprise M4000 are electrically equivalent.

Base Compiler Invocation

C benchmarks:

/opt/SUNWspr012_EA070303/bin/cc

C++ benchmarks:

/opt/SUNWspr012_EA070303/bin/CC

Fortran benchmarks:

/opt/SUNWspr012_EA070303/bin/f90

Benchmarks using both Fortran and C:

/opt/SUNWspr012_EA070303/bin/cc /opt/SUNWspr012_EA070303/bin/f90



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Base Optimization Flags

C benchmarks:

```
-fast -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
-Wc,-fma=fused -xprefetch_level=2
```

C++ benchmarks:

```
-library=stlport4 -fast -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf
-fma=fused -Qoption cg -fma=fused
```

Fortran benchmarks:

```
-fast -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
-Qoption cg -fma=fused -xprefetch_level=2
```

Benchmarks using both Fortran and C:

```
-fast(cc) -fast(f90) -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf
-fma=fused -Wc,-fma=fused -xprefetch_level=2 -Qoption cg -fma=fused
```

Peak Compiler Invocation

C benchmarks:

```
/opt/SUNWspro12_EA070303/bin/cc
```

C++ benchmarks:

```
/opt/SUNWspro12_EA070303/bin/CC
```

Fortran benchmarks:

```
/opt/SUNWspro12_EA070303/bin/f90
```

Benchmarks using both Fortran and C:

```
/opt/SUNWspro12_EA070303/bin/cc /opt/SUNWspro12_EA070303/bin/f90
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -fast -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf
-fma=fused -Wc,-fma=fused -xalias_level=strong
-xprefetch_level=2 -xprefetch_auto_type=indirect_array_access
-fsimple=0
```

```
470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xarch=v8plusb -xprefetch_level=2
-fma=fused -Wc,-fma=fused
```

```
482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
```

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Peak Optimization Flags (Continued)

482.sphinx3 (continued):

-Wc, -fma=fused

C++ benchmarks:

444.namd: basepeak = yes

447.dealIII: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
-Qoption cg -fma=fused -xdepend -xalias_level=compatible
-xrestrict

450.soplex: basepeak = yes

453.povray: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
-Qoption cg -fma=fused -xdepend -xalias_level=compatible

Fortran benchmarks:

410.bwaves: -fast -xipo=2 -xtarget=sparc64vi -xarch=v8plusb
-xchip=ultra3cu -xprefetch_level=2 -xprefetch=latx:3.0
-fma=fused -Qoption cg -fma=fused

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf
-fma=fused -Qoption cg -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
-xtarget=sparc64vi -xarch=v8plusa -fma=fused
-Qoption cg -fma=fused -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 -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
-Wc, -fma=fused -Qoption cg -fma=fused

436.cactusADM: basepeak = yes

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Peak Optimization Flags (Continued)

454.calculix: -fast(cc) -fast(f90) -xipo=2 -xtarget=sparc64vi
 -xarch=sparcfmaf -fma=fused -Wc,-fma=fused
 -Qoption cg -fma=fused

481.wrf: -xprofile=collect:./feedback(pass 1)
 -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
 -xipo=2 -xtarget=sparc64vi -xarch=sparcfmaf -fma=fused
 -Wc,-fma=fused -Qoption cg -fma=fused -xprefetch_level=2

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>

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