



SPEC® CFP2006 Result

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Fujitsu Limited

SPECfp®2006 = 12.4

Fujitsu SPARC Enterprise M8000

SPECfp_base2006 = 11.1

CPU2006 license: 19

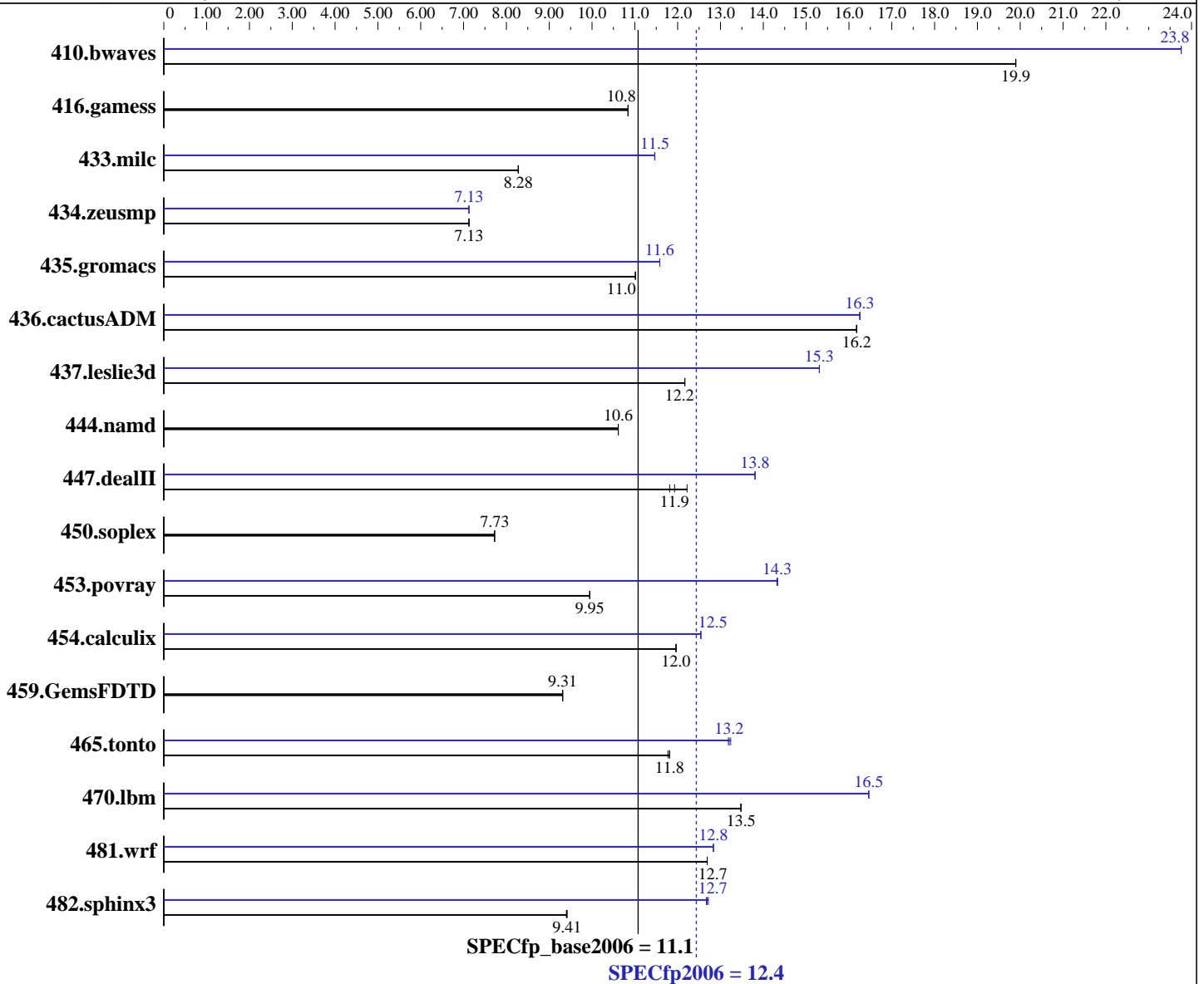
Test date: Mar-2007

Test sponsor: Fujitsu Limited

Hardware Availability: Apr-2007

Tested by: Fujitsu Limited

Software Availability: May-2007



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

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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: 64 GB (64 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	572	23.8	572	23.8	572	23.8
416.gamess	1806	10.8	1806	10.8	1806	10.8	1806	10.8	1806	10.8	1806	10.8
433.milc	1109	8.28	1109	8.28	1108	8.28	801	11.5	801	11.5	800	11.5
434.zeusmp	1277	7.13	1277	7.13	1277	7.13	1277	7.13	1277	7.13	1277	7.13
435.gromacs	648	11.0	648	11.0	648	11.0	616	11.6	616	11.6	616	11.6
436.cactusADM	739	16.2	739	16.2	739	16.2	735	16.3	735	16.3	735	16.3
437.leslie3d	773	12.2	773	12.2	773	12.2	614	15.3	614	15.3	614	15.3
444.namd	756	10.6	756	10.6	756	10.6	756	10.6	756	10.6	756	10.6
447.dealII	959	11.9	936	12.2	969	11.8	828	13.8	828	13.8	829	13.8
450.soplex	1079	7.73	1080	7.72	1080	7.73	1079	7.73	1080	7.72	1080	7.73
453.povray	535	9.95	535	9.95	535	9.95	372	14.3	371	14.3	371	14.3
454.calculix	690	12.0	690	12.0	690	12.0	658	12.5	658	12.5	658	12.5
459.GemsFDTD	1139	9.31	1139	9.31	1139	9.31	1139	9.31	1139	9.31	1139	9.31
465.tonto	833	11.8	833	11.8	836	11.8	743	13.2	745	13.2	746	13.2
470.lbm	1019	13.5	1019	13.5	1020	13.5	835	16.5	835	16.5	835	16.5
481.wrf	880	12.7	880	12.7	880	12.7	870	12.8	870	12.8	870	12.8
482.sphinx3	2070	9.42	2073	9.40	2070	9.41	1533	12.7	1538	12.7	1536	12.7

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

"CMU" = CPU/Memory Unit; each holds 2 or 4 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 M8000 Server. Note that the Fujitsu SPARC Enterprise M8000 and Sun SPARC Enterprise M8000 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 -xcache=128/64/2:6144/256/12
-xarch=sparcfmaf -fma=fused -Wc,-fma=fused -xprefetch_level=2
```

C++ benchmarks:

```
-library=stlport4 -fast -xipo=2 -xtarget=sparc64vi
-xcache=128/64/2:6144/256/12 -xarch=sparcfmaf -fma=fused
-Qoption cg -fma=fused
```

Fortran benchmarks:

```
-fast -xipo=2 -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-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
-xcache=128/64/2:6144/256/12 -xarch=sparcfmaf -fma=fused
-Wc,-fma=fused -xprefetch_level=2 -Qoption cg -fma=fused
```

Peak 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
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -fast -xipo=2 -xtarget=sparc64vi
-xcache=128/64/2:6144/256/12 -xarch=sparcfmaf -fma=fused
-Wc,-fma=fused -xalias_level=strong -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access
```

```
470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xtarget=sparc64vi -xcache=128/64/2:6144/256/12
-xarch=v8plusb -xprefetch_level=2 -fma=fused -Wc,-fma=fused
```

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Peak Optimization Flags (Continued)

```
482.sphinx3: -xprofile=collect:./feedback(pass 1)
             -xprofile=use:./feedback(pass 2) -fast -xipo=2
             -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
             -xarch=sparcfmaf -fma=fused -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 -xcache=128/64/2:6144/256/12
             -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 -xcache=128/64/2:6144/256/12
            -xarch=sparcfmaf -fma=fused -Qoption cg -fma=fused -xdepend
            -xalias_level=compatible
```

Fortran benchmarks:

```
410.bwaves: -fast -xipo=2 -xtarget=sparc64vi
            -xcache=128/64/2:6144/256/12 -xarch=v8plusb -xchip=ultra3cu
            -xprefetch_level=2 -xprefetch=latx:3.0 -fma=fused
            -Qoption cg -fma=fused
```

416.gamess: basepeak = yes

```
434.zeusmp: -fast -xipo=2 -xtarget=sparc64vi
            -xcache=128/64/2:6144/256/12 -xarch=sparcfmaf -fma=fused
            -Qoption cg -fma=fused -lmopt
```

```
437.leslie3d: -fast -xipo=2 -xtarget=sparc64vi
              -xcache=128/64/2:6144/256/12 -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 -xcache=128/64/2:6144/256/12
           -xarch=v8plusa -fma=fused -Qoption cg -fma=fused -lfast
```

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

```
435.gromacs: -xprofile=collect:./feedback(pass 1)
             -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
             -xipo=2 -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
             -xarch=sparcfmaf -fma=fused -Wc,-fma=fused
             -Qoption cg -fma=fused
```

```
436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -xtarget=sparc64vi
               -xcache=128/64/2:6144/256/12 -xarch=sparcfmaf -fma=fused
               -Wc,-fma=fused -Qoption cg -fma=fused
```

454.calculix: Same as 436.cactusADM

```
481.wrf: -xprofile=collect:./feedback(pass 1)
          -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
          -xipo=2 -xtarget=sparc64vi -xcache=128/64/2:6144/256/12
          -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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