SPEC® CFP2006 Result

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Fujitsu Limited

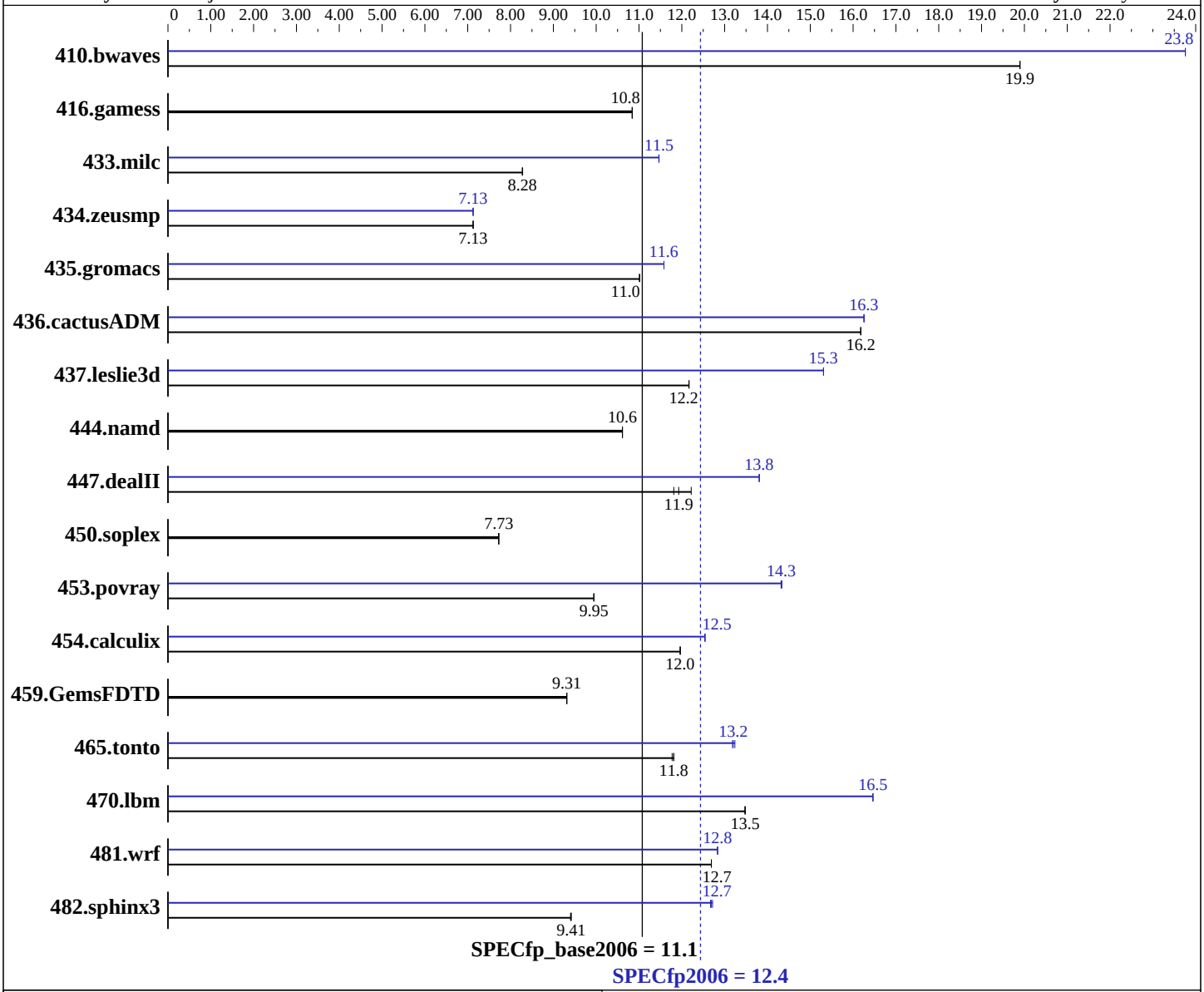
Fujitsu SPARC Enterprise M8000

SPECfp®2006 = 12.4

SPECfp_base2006 = 11.1

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

Test date: Mar-2007
Hardware Availability: Apr-2007
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:
```

Continued on next page

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/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
```

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/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
-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.dealII: -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:

Continued on next page

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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