



SPEC[®] CFP2006 Result

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Fujitsu

SPECfp[®]_rate2006 = 1250

Fujitsu SPARC Enterprise M9000

SPECfp_rate_base2006 = 1190

CPU2006 license: 19

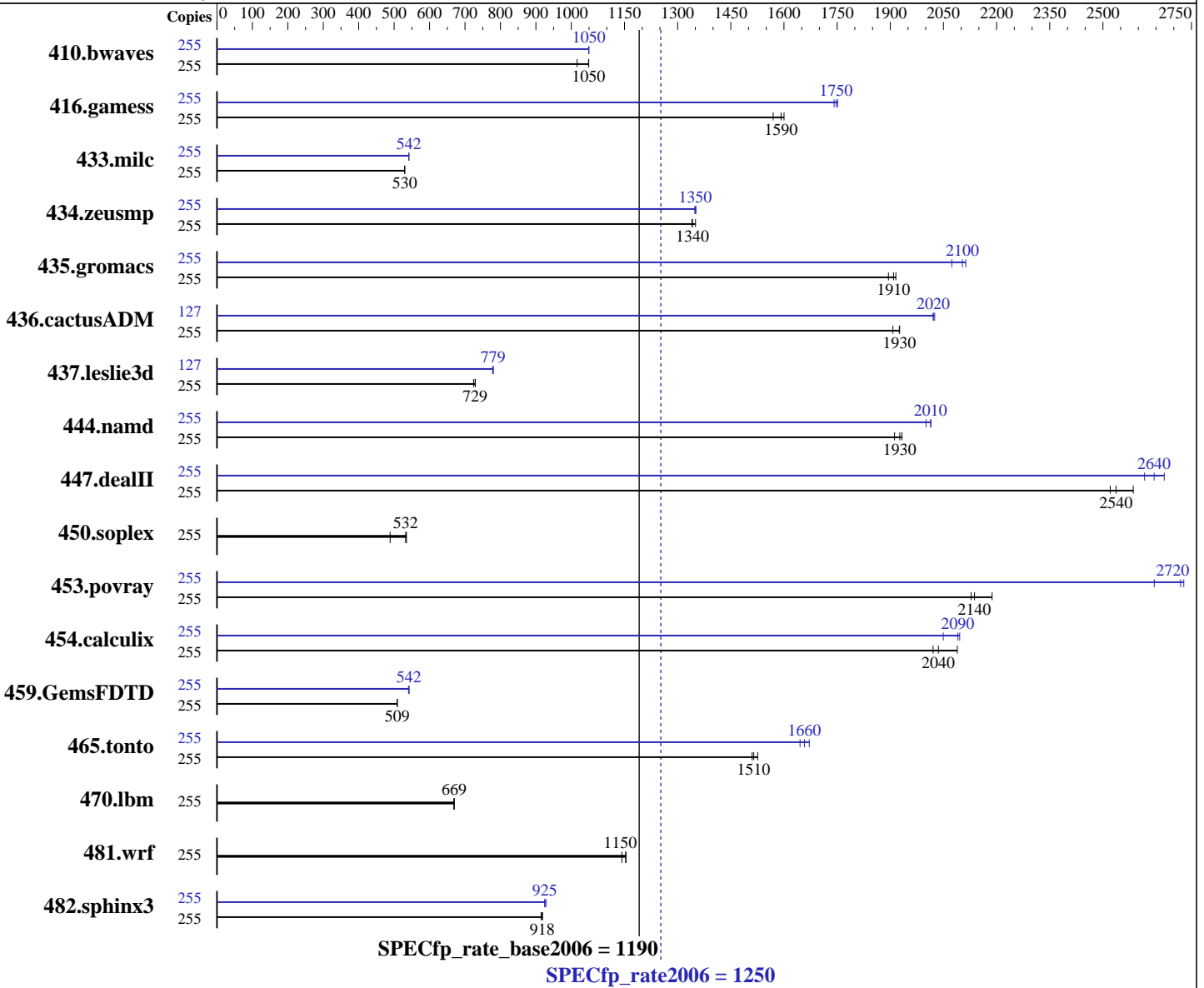
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Sep-2009

Hardware Availability: Nov-2009

Software Availability: Jun-2009



Hardware

CPU Name: SPARC64 VII
 CPU Characteristics:
 CPU MHz: 2880
 FPU: Integrated
 CPU(s) enabled: 128 cores, 32 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 to 8 CMUs; each CMU contains 2 or 4 CPU 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 5/09 with patches 119963-13, 120753-06, 118683-03
 Compiler: Sun Studio 12 Update 1
 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: 704 GB (160 x 2 GB + 96 x 4 GB), 8-way interleaved
 Disk Subsystem: 1 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS)
 1700 GB RAID 0 Solaris Volume
 12 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS)
 Stripe interlace 2048 Kbytes
 Other Hardware: None

Other Software: Apache C++ Standard Library V4.2.1

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	255	3410	1020	3305	1050	3303	1050	255	3302	1050	3303	1050	3302	1050
416.gamess	255	3181	1570	3136	1590	3120	1600	255	2867	1740	2850	1750	2857	1750
433.milc	255	4419	530	4422	529	4417	530	255	4322	542	4325	541	4322	542
434.zeusmp	255	1718	1350	1731	1340	1729	1340	255	1721	1350	1717	1350	1719	1350
435.gromacs	255	950	1920	961	1890	954	1910	255	865	2100	862	2110	878	2070
436.cactusADM	255	1583	1930	1582	1930	1598	1910	127	751	2020	751	2020	749	2030
437.leslie3d	255	3310	724	3288	729	3290	729	127	1534	778	1532	779	1531	780
444.namd	255	1061	1930	1058	1930	1070	1910	255	1015	2010	1022	2000	1016	2010
447.dealII	255	1128	2590	1150	2540	1157	2520	255	1114	2620	1091	2670	1103	2640
450.soplex	255	4351	489	3994	532	3976	535	255	4351	489	3994	532	3976	535
453.povray	255	637	2130	635	2140	620	2190	255	497	2730	513	2650	499	2720
454.calculix	255	1033	2040	1041	2020	1007	2090	255	1004	2100	1006	2090	1026	2050
459.GemsFDTD	255	5321	508	5318	509	5320	509	255	5004	541	4990	542	4995	542
465.tonto	255	1644	1530	1662	1510	1657	1510	255	1501	1670	1525	1650	1513	1660
470.lbm	255	5238	669	5235	669	5234	669	255	5238	669	5235	669	5234	669
481.wrf	255	2493	1140	2468	1150	2470	1150	255	2493	1140	2468	1150	2470	1150
482.sphinx3	255	5434	915	5415	918	5409	919	255	5375	925	5371	925	5352	929

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/ss12u1_patches.jsp

The Apache C++ Standard Library V4.2.1 was installed from
<http://stdcxx.apache.org/download.html> using:
alias gmake=specmake
gmake BUILDTYPE=8d CONFIG=sunpro.config



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Submit Notes

The config file option 'submit' was used. Processes were assigned to specific processors using 'pbind' commands. The list of processors to use was provided in the 'BIND' variable, to generate the pbind commands. (For details, please see the config file.)

Operating System Notes

Shell Environments:

```
ulimit -s 131072 was used to limit the space consumed
by the stack.(making more space available for the heap)
```

System Tunables:

(/etc/system parameters)

```
autoup=300
```

```
Causes pages older than the listed number of seconds to
be written by fsflush.
```

```
bufhwm=40000000
```

```
Memory byte limit for caching I/O buffers.
```

```
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.

The SPEC toolset was bound to processors 1-511 using processor sets:

```
psrset -c 1-255
```

```
psrset -e 1 ksh
```

Platform Notes

Memory is 8-way interleaved by filling each CMU's slots with the same capacity DIMMs.

This result is measured on a Fujitsu SPARC Enterprise M9000 Server. Note that the Fujitsu SPARC Enterprise M9000 and Sun SPARC Enterprise M9000 are electrically equivalent.

General Notes

447.dealIII (peak): "apache_stdctx_4_2_1" src.alt was used.

447.dealIII (base): "apache_stdctx_4_2_1" src.alt was used.



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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 -xipo=2 -xpagesize=4M -fma=fused -xalias_level=std
-xprefetch_auto_type=indirect_array_access -xprefetch_level=1 -l12amm

C++ benchmarks:
-xdepend -fast -xipo=2 -xpagesize=4M -fma=fused
-xalias_level=compatible -xprefetch_level=1 -library=no%Cstd
-I/export/cpu2006/stdcxx-4.2.1/include
-I/export/cpu2006/stdcxx-4.2.1/build/include -l12amm
-L/export/cpu2006/stdcxx-4.2.1/build/lib
-R/export/cpu2006/stdcxx-4.2.1/build/lib -lstd8d

Fortran benchmarks:
-fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch_level=2 -l12amm

Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused
-xalias_level=std -xprefetch_auto_type=indirect_array_access
-xprefetch_level=1 -xprefetch_level=2 -l12amm

Base Other Flags

C benchmarks:
-xjobs=16 -V -#

C++ benchmarks:
-xjobs=16 -verbose=diags,version

Fortran benchmarks:
-xjobs=16 -V -v

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Base Other Flags (Continued)

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: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access -xalias_level=std
-fsimple=1

470.lbm: basepeak = yes

482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -lfast -ll2amm
```

C++ benchmarks:

```
444.namd: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-library=no%Cstd -I/export/cpu2006/stdcxx-4.2.1/include
-library=stlport4 -xprefetch_level=1

447.deallI: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=compatible
-I/export/cpu2006/stdcxx-4.2.1/build/include -xrestrict
-L/export/cpu2006/stdcxx-4.2.1/build/lib
-R/export/cpu2006/stdcxx-4.2.1/build/lib -lstl8d
```

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Peak Optimization Flags (Continued)

450.soplex: basepeak = yes

453.povray: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=compatible
-library=stlport4 -xprefetch=latx:6.0 -l12amm

Fortran benchmarks:

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

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

434.zeusmp: -fast -xipo=2 -xpagesize=4M -fma=fused -lmopt -l12amm

437.leslie3d: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:5.0
-l12amm

459.GemsFDTD: -fast -xipo=2 -xpagesize=4M -fma=fused -fsimple=1
-xprefetch=no

465.tonto: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=no
-lfast -l12amm

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -xpagesize=4M -fma=fused

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused

454.calculix: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused
-xvector -xprefetch_level=1

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
-xjobs=16 -V -#

C++ benchmarks:
-xjobs=16 -verbose=diags,version

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Peak Other Flags (Continued)

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-Studio12-12u1-and-gccfss4.2.r4.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r4.xml>

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For other inquiries, please contact webmaster@spec.org.

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