SPEC® CFP2006 Result

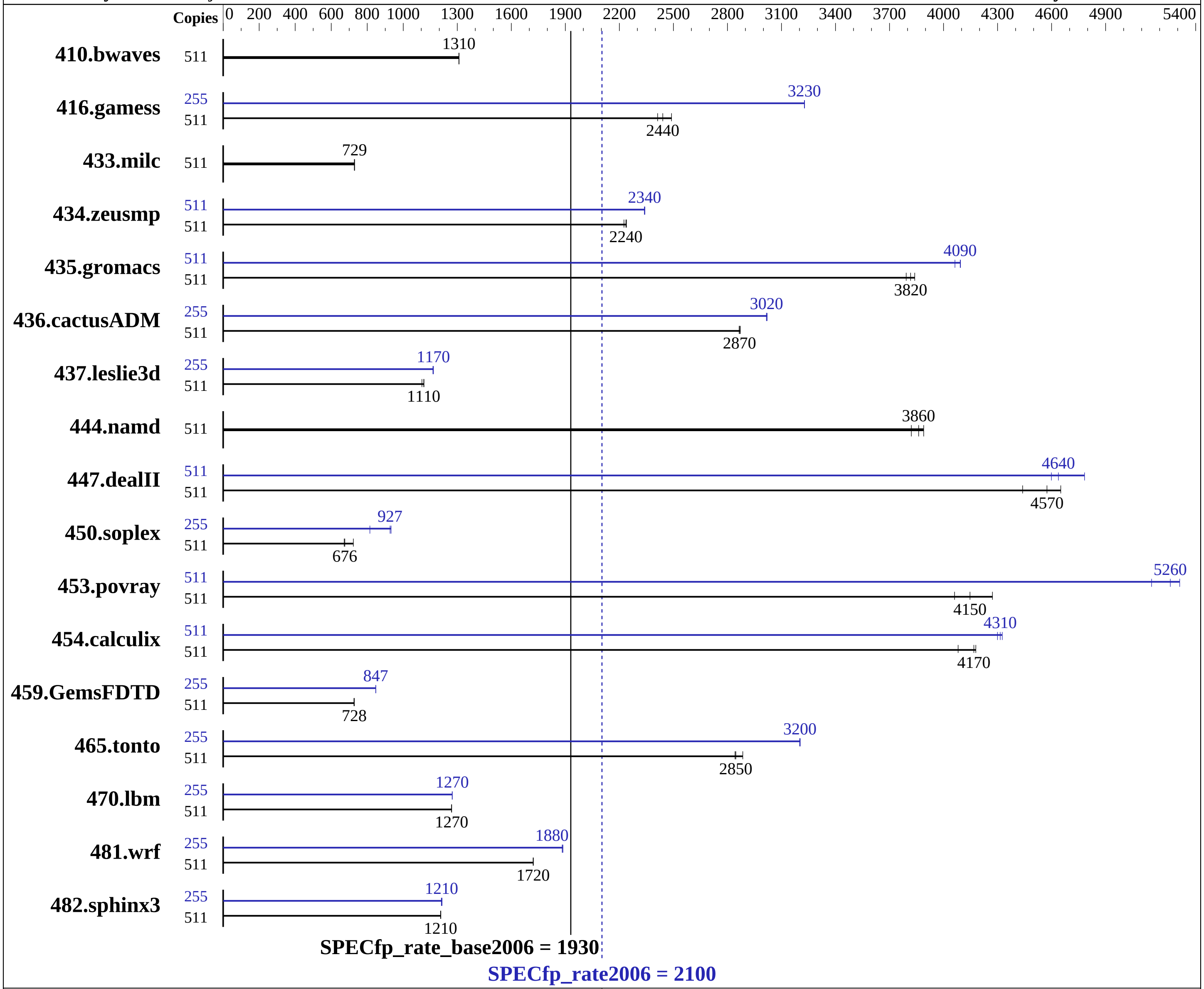
Fujitsu

Fujitsu SPARC Enterprise M9000

SPECfp®_rate2006 = 2100

SPECfp_rate_base2006 = 1930

CPU2006 license: 19		**Test date:**	Aug-2009
Test sponsor:	Fujitsu	**Hardware Availability:**	Nov-2009
Tested by:	Fujitsu	**Software Availability:**	Jun-2009



Hardware	
CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2880
FPU:	Integrated
CPU(s) enabled:	256 cores, 64 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 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:	1152 GB (448 x 2 GB + 64 x 4 GB), 8-way interleaved
Disk Subsystem:	1 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS) 3400 GB RAID 0 Solaris Volume 24 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

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	511	5303	1310	**5305**	**1310**	5306	1310	511	5303	1310	**5305**	**1310**	5306	1310
416.gamess	511	4019	2490	4147	2410	**4099**	**2440**	255	1547	3230	1547	3230	**1547**	**3230**
433.milc	511	6428	730	**6431**	**729**	6441	728	511	6428	730	**6431**	**729**	6441	728
434.zeusmp	511	**2079**	**2240**	2076	2240	2089	2230	511	1988	2340	**1987**	**2340**	1986	2340
435.gromacs	511	**956**	**3820**	950	3840	962	3790	511	898	4060	891	4090	**892**	**4090**
436.cactusADM	511	2127	2870	**2130**	**2870**	2131	2870	255	1009	3020	**1010**	**3020**	1010	3020
437.leslie3d	511	4352	1100	4307	1120	**4313**	**1110**	255	2053	1170	2058	1160	**2053**	**1170**
444.namd	511	**1061**	**3860**	1073	3820	1054	3890	511	**1061**	**3860**	1073	3820	1054	3890
447.dealII	511	**1278**	**4570**	1317	4440	1257	4650	511	1222	4780	**1261**	**4640**	1271	4600
450.soplex	511	5895	723	6340	672	**6308**	**676**	255	2610	815	**2295**	**927**	2281	932
453.povray	511	636	4270	669	4060	**656**	**4150**	511	512	5310	**517**	**5260**	527	5160
454.calculix	511	**1011**	**4170**	1033	4080	1009	4180	511	980	4300	975	4330	**977**	**4310**
459.GemsFDTD	511	7466	726	**7445**	**728**	7444	728	255	3193	847	3195	847	**3194**	**847**
465.tonto	511	1743	2890	**1766**	**2850**	1769	2840	255	784	3200	**783**	**3200**	783	3200
470.lbm	511	5533	1270	**5534**	**1270**	5537	1270	255	2754	1270	**2755**	**1270**	2756	1270
481.wrf	511	**3315**	**1720**	3317	1720	3314	1720	255	1513	1880	1510	1890	**1512**	**1880**
482.sphinx3	511	**8246**	**1210**	8239	1210	8249	1210	255	**4098**	**1210**	4102	1210	4089	1220

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
```

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 1-511
       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.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdcxx_4_2_1" src.alt was used.
```

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 -ll2amm
```

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 -ll2amm
-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 -ll2amm
```

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 -ll2amm
```

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: `basepeak = yes`

470.lbm: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xrestrict -xipo=2`
`-xprefetch_level=2 -xarch=v8plusb -ll2amm`

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

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealII: `-xdepend -xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2`
`-xpagesize=4M -fma=fused -xalias_level=compatible`
`-library=no%Cstd -I/export/cpu2006/stdcxx-4.2.1/include`
`-I/export/cpu2006/stdcxx-4.2.1/build/include -xrestrict`
`-xprefetch=no -ll2amm`
`-L/export/cpu2006/stdcxx-4.2.1/build/lib`
`-R/export/cpu2006/stdcxx-4.2.1/build/lib -lstd8d`

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Peak Optimization Flags (Continued)

450.soplex: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -xpagesize=4M -fma=fused -xalias_level=compatible -library=stlport4 -fsimple=0 -xrestrict -xprefetch=no -ll2amm

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:5.0 -ll2amm

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch_level=1 -ll2amm

434.zeusmp: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch_level=1 -lmopt -ll2amm

437.leslie3d: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:5.0 -ll2amm

459.GemsFDTD: -fast -xipo=2 -xpagesize=4M -fma=fused -fsimple=1 -xprefetch=no -ll2amm

465.tonto: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=no -lfast -ll2amm

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 -fsimple=0 -xprefetch_level=1 -xprefetch=latx:0.5

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -ll2amm

454.calculix: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:3.0 -ll2amm

481.wrf: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -xprefetch=no -ll2amm

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Peak Other Flags

C benchmarks:
```
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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-Studio12-12u1-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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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