SPEC® CFP2006 Result

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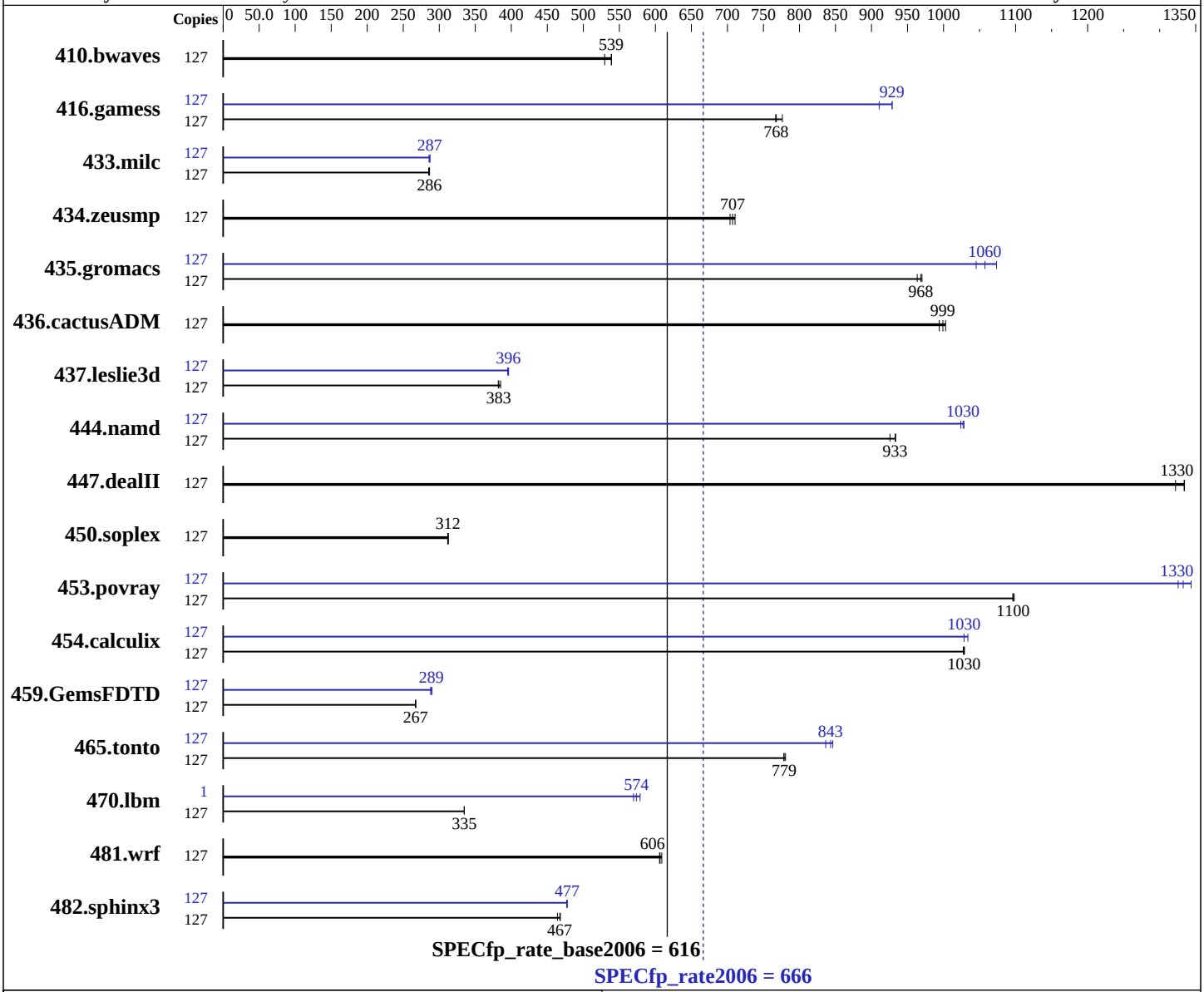
Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp®_rate2006 = 666

SPECfp_rate_base2006 = 616

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Oct-2009
Hardware Availability: Nov-2009
Software Availability: Oct-2009



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2880
FPU:	Integrated
CPU(s) enabled:	64 cores, 16 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 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 10/09 (s10s_u8wos_06)
Compiler:	Sun Studio 12 Update 1 plus patches (see notes)
Auto Parallel:	Yes
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: 512 GB (128 x 4 GB), 8-way interleaved
Disk Subsystem: 886 GB mirrored partition on 12 x 146GB 15000RPM SAS disks in each of 2 Sun StorageTek 2530 Array (24 total disk, 12 in each array)
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	127	3259	530	**3203**	**539**	3203	539	127	3259	530	**3203**	**539**	3203	539
416.gamess	127	3203	776	**3238**	**768**	3242	767	127	2678	929	**2678**	**929**	2731	911
433.milc	127	4087	285	4069	287	**4072**	**286**	127	4062	287	4080	286	**4063**	**287**
434.zeusmp	127	1626	711	1643	704	**1634**	**707**	127	1626	711	1643	704	**1634**	**707**
435.gromacs	127	**936**	**968**	941	963	935	970	127	867	1050	**858**	**1060**	845	1070
436.cactusADM	127	**1519**	**999**	1513	1000	1527	994	127	**1519**	**999**	1513	1000	1527	994
437.leslie3d	127	**3120**	**383**	3126	382	3100	385	127	3023	395	3013	396	**3015**	**396**
444.namd	127	1091	934	**1092**	**933**	1100	926	127	995	1020	990	1030	**992**	**1030**
447.dealII	127	1099	1320	1089	1330	**1089**	**1330**	127	1099	1320	1089	1330	**1089**	**1330**
450.soplex	127	3399	312	3388	313	**3393**	**312**	127	3399	312	3388	313	**3393**	**312**
453.povray	127	615	1100	616	1100	**616**	**1100**	127	510	1330	**507**	**1330**	503	1340
454.calculix	127	1020	1030	**1019**	**1030**	1018	1030	127	1019	1030	**1019**	**1030**	1013	1030
459.GemsFDTD	127	5050	267	5038	267	**5043**	**267**	127	4679	288	**4661**	**289**	4647	290
465.tonto	127	**1605**	**779**	1601	781	1606	778	127	1494	836	**1482**	**843**	1477	846
470.lbm	127	5214	335	5213	335	**5213**	**335**	1	23.7	579	**24.0**	**574**	24.1	570
481.wrf	127	**2339**	**606**	2342	606	2330	609	127	**2339**	**606**	2342	606	2330	609
482.sphinx3	127	5334	464	**5297**	**467**	5287	468	127	**5184**	**477**	5182	478	5190	477

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

Compiler Invocation Notes

```
Sun Studio 12 Update 1 was used, plus patch 119963-17

Sun Studio compiler patches are available at
  http://developers.sun.com/sunstudio/downloads/patches/ss12u1_patches.jsp
```

Submit Notes

```
Processes were assigned to specific processors using 'pbind'
commands.  The config file option 'submit' was used, along
with a list of processors in the 'BIND' variable, to generate
```

Continued on next page

Submit Notes (Continued)

```
the pbind commands.  (For details, please see the config file.)
```

Operating System Notes

```
Other System Settings:

The webconsole service was turned off using
    svcadm disable webconsole
```

Platform Notes

```
Memory is 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result is measured on a Sun SPARC Enterprise M8000
Server.  The Sun SPARC Enterprise M8000 and the Fujitsu
SPARC Enterprise M8000 are electrically equivalent.
```

General Notes

```
Environment variables set by runspec before the start of the run:
  OMP_NUM_THREADS = "128"
  SUNW_MP_PROCBIND = "true"
  SUNW_MP_THR_IDLE = "SPIN"

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 -fma=fused -xipo=2 -xpagesize=4M -xalias_level=std
-xprefetch_auto_type=indirect_array_access -xprefetch_level=3
```

C++ benchmarks:
```
-xdepend -fast -fma=fused -xipo=2 -xpagesize=4M
-xalias_level=compatible -xprefetch=latx:0.5 -library=no%Cstd
-I/export/home/apache/stdcxx-4.2.1/include
-I/export/home/apache/stdcxx-4.2.1/build/include
-L/export/home/apache/stdcxx-4.2.1/build/lib
-R/export/home/apache/stdcxx-4.2.1/build/lib -lstd8d
```

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

Benchmarks using both Fortran and C:
```
-fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M
-xalias_level=std -xprefetch_auto_type=indirect_array_access
-xprefetch_level=3 -xprefetch_level=2
```

Base Other Flags

C benchmarks:
```
-xjobs=32 -V -#
```

C++ benchmarks:
```
-xjobs=32 -verbose=diags,version
```

Fortran benchmarks:
```
-xjobs=32 -V -v
```

Benchmarks using both Fortran and C:
```
-xjobs=32 -V -# -v
```

Peak Compiler Invocation

C benchmarks:
```
cc
```

C++ benchmarks:
```
CC
```

Fortran benchmarks:
```
f90
```

Continued on next page

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
cc f90

Peak Optimization Flags

C benchmarks:

433.milc: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=2
-fsimple=1 -xprefetch_auto_type=indirect_array_access
-W2,-Ainline:rs=400 -xalias_level=std

470.lbm: -fast -xpagesize=4M -xprefetch_level=3 -xipo=2 -fma=fused
-xvector -xarch=generic -xautopar -xreduction

482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xinline= -xprefetch=no%auto
-xalias_level=strong -lfast -ll2amm

C++ benchmarks:

444.namd: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -library=stlport4 -fma=fused
-xipo=2 -xprefetch=no%auto -xlinkopt=2

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -library=stlport4 -xipo=2
-xlinkopt=2

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xprefetch=no%auto

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xpagesize=4M -xprefetch=no

Continued on next page

Peak Optimization Flags (Continued)

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

465.tonto: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M`
`-xipo=2 -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)
`-xpagesize=4M -fma=fused -xipo=2 -xchip=generic -xinline=`
`-fsimple=0`

436.cactusADM: `basepeak = yes`

454.calculix: `-fast`(cc) `-fast`(f90) `-xpagesize=4M -fma=fused -xipo=2`
`-xprefetch_level=1 -xalias_level=std`
`-xprefetch_auto_type=indirect_array_access`

481.wrf: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-xjobs=32 -V -#`

C++ benchmarks:
`-xjobs=32 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=32 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=32 -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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