



# CFP2000 Result

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Sun Microsystems  
Sun Fire X2200 M2

SPECfp\_rate2000 = 117

SPECfp\_rate\_base2000 = 101

SPEC license #: 6 Tested by: Sun Microsystems, Santa Clara Test date: Jul-2006 Hardware Avail: Aug-2006 Software Avail: Jul-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	58.9	126	4	57.6	129
171.swim	4	76.3	188	4	73.8	195
172.mgrid	4	118	70.7	4	112	74.6
173.applu	4	98.1	99.3	4	91.4	107
177.mesa	4	88.5	73.4	4	71.6	90.8
178.galgel	4	102	132	4	69.2	194
179.art	4	33.5	360	4	15.8	763
183.quake	4	47.4	127	4	44.1	137
187.facerec	4	69.7	127	4	49.6	178
188.amp	4	158	64.5	4	159	64.0
189.lucas	4	134	69.3	4	134	69.1
191.fma3d	4	124	78.3	4	122	79.7
200.sixtrack	4	143	35.7	4	139	36.6
301.apsi	4	123	97.8	4	111	108

### Hardware

CPU: AMD Opteron (TM) 2218  
CPU MHz: 2600  
FPU: Integrated  
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
CPU(s) orderable: 1,2 (order by # of chips)  
Parallel: No  
Primary Cache: 64KBI + 64KBD (on chip) per core  
Secondary Cache: 1024KB (I+D) (on chip) per core  
L3 Cache: N/A  
Other Cache: N/A  
Memory: 16GB (8x2GB, DDR2-667 CL5 ECC Reg)  
Disk Subsystem: SATA,250GB,7200RPM  
Other Hardware: None

### Software

Operating System: Solaris 10 6/06  
Compiler: Sun Studio 11 with Patches  
File System: ufs  
System State: Multi-user

## Notes/Tuning Information

Compiler invocation:

C: cc  
F90: f90  
F77: f90

FDO: PASS1= -xprofile=collect:./feedback PASS2= -xprofile=use:./feedback  
fdo\_pre0: rm -rf ./feedback.profile

Floating point base flags:

Fortran: -fast -xipo=2 -xarch=amd64 -xprefetch\_level=3 ONESTEP=yes  
C: -fast -xipo=2 -xalias\_level=std -xpagesize=2m ONESTEP=yes

Floating point peak flags:

ONESTEP=yes for all benchmarks

168.wupwise: -fast -xautopar -xpad=common:3969 -xipo=2 -xarch=amd64 -xprefetch\_level=3 -xpagesize\_heap=2m  
171.swim: -fast -xpad=common:3969 -xipo=2 -xvector=simd -xprefetch\_level=3 -Qoption iropt



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## Notes/Tuning Information (Continued)

```

-Atile:skewp,-Ainline:cs=700 -xarch=amd64 -Qoption ube_ipa -inl_alt
-xpagesize_stack=2m
172.mgrid: -fast -xautopar -stackvar -xpad=common:900 -xipo=2 -xarch=amd64 -xprefetch_level=3
-xvector -xpagesize=2m -Qoption ld -M,/usr/lib/ld/map.bssalign
173.applu: -fast -xautopar -unroll=5 -stackvar -x04 -xipo=2 -xprefetch_level=3 -xarch=amd64a
-qoption iropt -Rloop_dist -xpagesize_heap=2m
177.mesa: -fast -xautopar -x04 -xipo=2 -Wd,-iropt-prof -xarch=amd64 -xalias_level=strong -xpagesize=2m +FDO
178.galgel: -fast -xcache=64/32/4:1024/64/4 -xipo=2 -xpagesize_heap=2m -xvector=simd -xarch=amd64 -xprefetch_level=3
RM_SOURCES=lapak.f90
EXTRA_LIBS=-xlic_lib=sunperf
179.art: -fast -xipo=2 -xalias_level=strong -xprefetch -Wd,-iropt-prof -xpagesize=2m +FDO
183.quake: -fast -Wd,-iropt-prof -xipo=2 -xprefetch -xalias_level=strong -xpagesize=2m -lmopt -lm +FDO
187.facerec: -fast -x04 -xipo=2 -xprefetch_level=3 -xpagesize=2m
RM_SOURCES=cfftb.f90 cffti.f90 cfftf.f90
EXTRA_LIBS=-xlic_lib=sunperf
188.ammp: -fast -xcache=64/32/4:1024/64/4 -x04 -xipo=2 -xarch=amd64a -xalias_level=std -xpagesize_heap=2m -lmopt -lm
189.lucas: -fast -Qoption ube_ipa -inl_alt -xipo=2 -xarch=amd64 -xprefetch_level=3
191.fma3d: -fast -xcache=64/32/4:1024/64/4 -unroll=5 -fsimple=1 -xipo=2
-xprefetch_level=3 -xarch=amd64 -xpagesize_heap=2m +FDO
200.sixtrack: -fast -xipo=2 -O -xprefetch_level=3 -xarch=amd64
-xpagesize_heap=2m -Qoption ld -M,/usr/lib/ld/map.bssalign +FDO
301.apsi: -fast -x04 -xipo=2 -xprefetch_level=3 -xarch=amd64a -xpagesize=2m

```

### Portability:

178.galgel: -fixed

### Shell Environments:

Stack size set to unlimited via "ulimit -s unlimited"

PARALLEL was not set, therefore each copy of the benchmark ran single-threaded using only one core.

The following patches were applied to Sun Studio 11 compiler:

```

120759-07 : x86/x64
121016-03 : x86 C
121020-03 : x86 F90
121018-03 : x86 C++

```

Processes were bound to CPUs using submit=pbind

Default BIOS setting was used