



# CFP2000 Result

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Sun Microsystems  
Sun Fire X4200

SPECfp\_rate2000 = 79.1  
SPECfp\_rate\_base2000 = 71.9

SPEC license #: 6 Tested by: Sun Microsystems, Santa Clara Test date: Aug-2005 Hardware Avail: Oct-2005 Software Avail: Nov-2005

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	69.4	107	4	67.3	110
171.swim	4	93.4	154	4	85.4	168
172.mgrid	4	163	51.4	4	158	52.9
173.applu	4	110	88.8	4	103	94.3
177.mesa	4	99.9	65.0	4	84.2	77.1
178.galgel	4	121	111	4	84.6	159
179.art	4	178	67.8	4	178	67.8
183.quake	4	110	55.0	4	102	59.0
187.facerec	4	88.6	99.5	4	62.7	141
188.amp	4	174	58.6	4	172	59.3
189.lucas	4	168	55.2	4	168	55.2
191.fma3d	4	154	63.3	4	149	65.4
200.sixtrack	4	186	27.4	4	180	28.4
301.apsi	4	138	87.7	4	126	96.0

### Hardware

CPU: AMD Opteron (TM) 280  
CPU MHz: 2400  
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, PC3200 CL3 DDR SDRAM ECC Registered)  
Disk Subsystem: SAS, 72GB, 10K RPM  
Other Hardware: None

### Software

Operating System: Solaris 10 3/05 HW1  
Compiler: Sun Studio 11  
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:

F90: -fast -xipo=2 -xarch=amd64 -xprefetch\_level=3 ONESTEP=yes  
C: -fast -xcrossfile -xalias\_level=std -xpagesize=2m ONESTEP=yes

### Floating point peak flags:

ONESTEP=yes for all benchmarks

168.wupwise: -fast -xpad=common:3969 -xipo=2 -xarch=amd64 -xprefetch\_level=3 -xpagesize\_heap=2m



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## Notes/Tuning Information (Continued)

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171.swim:      -fast -xpad=common:3969 -xipo=2 -xvector=simd -xprefetch_level=3 -Qoption iropt
               -Atile:skewp,-Ainline:cs=700 -xarch=amd64 -Qoption ube_ipa -inl_alt
               -xpagesize_stack=2m
172.mgrid:    -fast -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 -stackvar -xO4 -xipo=2 -xprefetch_level=3 -xarch=amd64
               -qoption iropt -Rloop_dist -xpagesize_heap=2m
177.mesa:    -fast -xO4 -xipo=2 -Wd,-iropt-prof -xarch=amd64 -xalias_level=strong -xpagesize=2m +FDO
178.galgel:   -fast -xipo=2 -xpagesize_heap=2m -xprefetch_level=3 -xvector=simd -xarch=amd64
               RM_SOURCES=lapak.f90
               EXTRALIBS=-xlic_lib=sunperf
179.art:     basepeak=yes
183.equake:   -fast -xipo=2 -xprefetch -xalias_level=strong -xpagesize=2m -lmopt -lm +FDO
187.facerec: -fast -xO4 -xipo=2 -xprefetch_level=3 -xpagesize=2m
               RM_SOURCES=cfft.f90 cffti.f90 cfftf.f90
               EXTRALIBS=-xlic_lib=sunperf
188.ammp:    -fast -xO4 -xipo=2 -xarch=amd64 -xalias_level=std -xpagesize_heap=2m -lmopt -lm
189.lucas:   basepeak=yes
191.fma3d:   -fast -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 -xO4 -xipo=2 -xprefetch_level=3 -xarch=amd64 -xpagesize=2m

```

### Portability:

178.galgel: -e -fixed -DSPEC\_CPU2000\_LP64

### Shell Environments:

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

### Kernel Parameters (/etc/system):

autoup=900  
tune\_t\_fsflushr=1

Processes were bound to CPUs using submit=pbind

Default BIOS setting was used

This result was measured on Sun Fire X4100;  
Sun Fire X4100 and Sun Fire X4200 are electronically equivalent.