



CFP2000 Result

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Sun Microsystems
Sun Ultra 40 M2

SPECfp2000 = 3545
SPECfp_base2000 = 2867

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

| Benchmark | Reference Time | Base Runtime | Base Ratio | Runtime | Ratio | |
|--------------|----------------|--------------|------------|---------|-------|--|
| 168.wupwise | 1600 | 49.6 | 3229 | 48.5 | 3296 | |
| 171.swim | 3100 | 54.6 | 5678 | 54.6 | 5676 | |
| 172.mgrid | 1800 | 32.1 | 5605 | 32.1 | 5606 | |
| 173.applu | 2100 | 31.1 | 6755 | 30.0 | 6997 | |
| 177.mesa | 1400 | 82.2 | 1703 | 66.7 | 2098 | |
| 178.galgel | 2900 | 54.1 | 5361 | 46.9 | 6182 | |
| 179.art | 2600 | 26.9 | 9674 | 13.7 | 18913 | |
| 183.earth | 1300 | 36.9 | 3519 | 33.4 | 3898 | |
| 187.facerec | 1900 | 57.1 | 3327 | 39.5 | 4815 | |
| 188.amp | 2200 | 146 | 1502 | 146 | 1502 | |
| 189.lucas | 2000 | 92.1 | 2172 | 87.3 | 2291 | |
| 191.fma3d | 2100 | 107 | 1970 | 107 | 1970 | |
| 200.sixtrack | 1100 | 423 | 260 | 129 | 853 | |
| 301.apsi | 2600 | 123 | 2114 | 102 | 2537 | |

Hardware

CPU: AMD Opteron 2220SE
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
 CPU(s) orderable: 1,2 chips
 Parallel: Yes
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: N/A
 Other Cache: N/A
 Memory: 16GB (8x2GB, DDR2-667 CL5 ECC REG, Dual Rank)
 Disk Subsystem: SATA, 160 GB, 7200 RPM
 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:

F90: -fast -xautopar -xipo=2 -xarch=amd64 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 -xautopar -xipo=2 -xarch=amd64 -lmvec



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Notes/Tuning Information (Continued)

```
172.mgrid: -fast -xautopar -xipo=2 -xarch=amd64 -lmvec
173.aplu: -fast -xprefetch=auto -xprefetch_level=3 -Qoption iropt -Rloop_dist -xautopar -xipo=2 -xarch=amd64
177.mesa: -fast -xautopar -xO4 -xipo=2 -Wd,-iropt-prof -xarch=amd64 -xalias_level=strong -xpagesize=2m +FDO
178.galgel: -fast -xautopar -stackvar -xipo=2 -xarch=amd64 -xprefetch=no%auto
          EXTRA_LIBS = -xlic_lib=sunperf
179.art: -fast -xvector -xipo=2 -xalias_level=strong -xprefetch -Wd,-iropt-prof -xpagesize=2m -lmvec +FDO
183.quake: -fast -xvector -Wd,-iropt-prof -xipo=2 -xprefetch -xalias_level=strong -xpagesize=2m -lmvec
187.facerec: -fast -xO4 -xipo=2 -xprefetch_level=3 -xpagesize=2m
          RM_SOURCES=cfft.f90 cffti.f90 cfftf.f90
          EXTRA_LIBS=-xlic_lib=sunperf
188.ammp: basepeak=yes
189.lucas: -fast -xprefetch=auto -xprefetch_level=3 -Qoption iropt -Rloop_dist
          -xautopar -xipo=2 -xarch=amd64 -xprefetch_level=3
191.fma3d: basepeak=yes
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: -fixed

Shell Environments:

```
Stack size set to unlimited via "ulimit -s unlimited"
export PARALLEL=2
```

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++
```

Default BIOS setting was used