



# CFP2000 Result

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Fujitsu Limited  
PRIMEPOWER650 (810MHz)

SPECfp\_rate2000 = 54.4  
SPECfp\_rate\_base2000 = 40.9

SPEC license #: 19 Tested by: Fujitsu Limited Test date: Aug-2002 Hardware Avail: Aug-2002 Software Avail: May-2002

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	8	415	35.7	8	280	53.1
171.swim	8	849	33.9	8	802	35.8
172.mgrid	8	642	26.0	8	523	31.9
173.applu	8	941	20.7	8	407	47.9
177.mesa	8	466	27.9	8	301	43.2
178.galgel	8	224	120	8	191	141
179.art	8	117	206	8	74.3	325
183.quake	8	303	39.8	8	167	72.0
187.facerec	8	315	55.9	8	268	65.9
188.amp	8	530	38.5	8	392	52.0
189.lucas	8	655	28.3	8	542	34.3
191.fma3d	8	721	27.0	8	671	29.0
200.sixtrack	8	331	30.9	8	292	34.9
301.apsi	8	611	39.5	8	599	40.3

### Hardware

CPU: SPARC64 GP  
 CPU MHz: 810  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 8 chips, 1 core/chip  
 CPU(s) orderable: 2 to 8  
 Parallel: None  
 Primary Cache: 128KBI+128KBD on chip  
 Secondary Cache: 8MB(I+D) off chip, per CPU  
 L3 Cache: None  
 Other Cache: None  
 Memory: 32GB  
 Disk Subsystem: 36GB  
 Other Hardware: Ethernet

### Software

Operating System: Solaris 8 2/02 with patches 108434-07 and 108435-07.  
 Compiler: Fujitsu Parallelnavi 1.0.2  
 with patches 911403-01 and 911746-01.  
 Sun ONE Studio 7 with current patches (see notes)  
 Sun Performance Library 7  
 File System: ufs  
 System State: multi user

## Notes/Tuning Information

```
FDO: (Parallelnavi 1.0.2)
  fdo_pre0=rm -rf `pwd`/*.*.d
  PASS1=-Kpg    PASS2=-Kpu
FDO: (Sun ONE Studio 7)
  fdo_pre0=rm -rf `pwd`/../feedback.profile
  PASS1=-xprofile=collect:`pwd`/../feedback
  PASS2=-xprofile=use:`pwd`/../feedback
Baseline :
(using Fortran compiler of Parallelnavi 1.0.2)
-Kfast_GP=2,largepage -O4 FDO

(using C compiler of Sun ONE Studio 7)
-fast -xipo=2 -xdepend FDO

Peak:
(using Fortran compiler of Parallelnavi 1.0.2)
168.wupwise: -Kfast_GP=2,prefetch=4,nounroll -x dir=`pwd`/../../src
```



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## Notes/Tuning Information (Continued)

```

-fs -lssl2mtfma FDO ONESTEP=yes
171.swim: -Kfast_GP=2,GREG,preex,ilfunc,prefetch=3,commonpad=152,prefetch_iteration=3,unroll=2,nogs,frecipro
-O4 -fs
172.mgrid: -Kfast_GP=2,preex,GREG,commonpad=144,unroll=3,largepage,prefetch=3
-O4 -fs
178.galgel: -Kfast_GP=2,GREG,largepage,preex,unroll=3,prefetch_iteration=2,commonpad=24
-O4 -lssl2mtfma -fs FDO
RM_SOURCES=lapak.f90
200.sixtrack: -Kfast_GP=2,GREG,noprefetch,unroll=4,largepage,frecipro -fs
301.apsi: -Kfast_GP=2,GREG,preex,ilfunc,largepage,unroll=2 -O4 -fs FDO

```

(using FORTRAN77 compiler of Sun ONE Studio 7)

```

173.applu: -fast -xtarget=ultra3 -Qoption iropt -Adata_access,-Mt7000,-Mm14000,-Mr40000,-Ma400,-whole
-xregs=syst -Qoption iropt -Rscalarrep,-MR -Qoption cg
-Qlp=1-av=192-fa=1 -Qoption f90comp -O3 -stackvar ONESTEP=yes

```

(using FORTRAN90 compiler of Sun ONE Studio 7)

```

187.facerec: -fast -xarch=v9 FDO ONESTEP=yes
189.lucas: -fast -xtarget=ultra3
-lprism32 FDO
191.fma3d: -fast -xarch=v8plusb -xcrossfile -stackvar -xdepend
-xprefetch -Qoption cg -Qlp=1-av=256-t=3-fa=1 FDO ONESTEP=yes

```

(using C compiler of Sun ONE Studio 7)

```

177.mesa: -fast -xtarget=ultra2 -xcrossfile -xrestrict -xalias_level=strong
-xregs=syst -Wc,-Qgsched-trace_late=1,-Qgsched-trace_spec_load=1
-xarch=v8plus -W2,-Amemopt -xsafe=mem -dn
FDO ONESTEP=yes
179.art: -fast -xtarget=ultra3 -xipo=2 -xalias_level=strong -xregs=syst -dn
FDO ONESTEP=yes
183.earthquake: -fast -xtarget=ultra3 -xalias_level=std -xdepend
-W2,-whole,-Amemopt:arrayloc,-crit -xprefetch -Wc,-Qms_pipe-pref,-Qlp=1-av=256-t=4-fa=1-fl=1 -lprism32 -lmopt -lm
FDO ONESTEP=yes
188.ammp: -fast -xtarget=ultra3 -xcrossfile -xrestrict
-xalias_level=strong -xdepend -xprefetch
-Wc,-Qiselect-funcalign=64 -lprism32 FDO ONESTEP=yes

```

Portability:

```

(for Parallelnavi 1.0.2)
178.galgel: -Am -Fixed
187.facerec: -Am
191.fma3d: -Am

```

Note:

```

System Tunables: (for /etc/system)
consistent_coloring=1, tune_t_fsflushr=86400, autoup=86400,
shmsys:shminfo_shmmax=8589934592, shmsys:shminfo_shmnni=1024, shmsys:shminfo_shmseg=1024,shminfo_shmmin=1
(for /etc/opt/FJSVpnm/lpg.conf)
TSS=4096M, SHMSEGSIZE=256M

```

Shell Environments:

```

LD_LIBRARY_PATH="/usr/lib:/opt/SUNWspro/lib/v8plusb:/opt/SUNWspro/prod/lib/v8plusb:/opt/FSUNF90/lib"
LD_LIBRARY_PATH_64="/usr/lib/64:/opt/SUNWspro/lib/v9:/opt/SUNWspro/prod/lib/v9"
PRISM_HEAP=268435456
PRISM_MODE=2

```

Feedback directed optimization was used for all baseline benchmarks and peak benchmarks except following peak benchmarks: 171.swim, 172.mgrid, 173.applu, 200.sixtrack.



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All patches of Sun ONE Studio 7 posted at URL <http://access1.sun.com/sundev/s1s7-patches.html> as of date 2002/6/4 were applied: 111704-01, 111705-01, 111706-01, 111708-01, 111709-01, 111715-01, 111716-01.  
Extended Interleave Mode enabled.