



# CFP2000 Result

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**SGI**  
**SGI Origin 300 1X 500MHz R14k**

**SPECfp2000 = 378**  
**SPECfp\_base2000 = 356**

SPEC license #: 4 Tested by: SGI Test date: Oct-2001 Hardware Avail: Oct-2001 Software Avail: Aug-2001

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
168.wupwise	1600	439	365	378	423	
171.swim	3100	634	489	633	490	
172.mgrid	1800	575	313	575	313	
173.applu	2100	649	324	597	351	
177.mesa	1400	416	336	380	368	
178.galgel	2900	415	698	345	840	
179.art	2600	736	353	722	360	
183.quake	1300	449	290	438	297	
187.facerec	1900	465	409	465	409	
188.amp	2200	616	357	619	356	
189.lucas	2000	517	387	514	389	
191.fma3d	2100	791	266	681	308	
200.sixtrack	1100	456	241	451	244	
301.apsi	2600	778	334	675	385	

### Hardware

CPU: R14000  
 CPU MHz: 500  
 FPU: Integrated  
 CPU(s) enabled: 1 core, 1 chip, 1 core/chip  
 CPU(s) orderable: 2-8  
 Parallel: No  
 Primary Cache: 32KBI + 32KBD on chip  
 Secondary Cache: 2MB(I+D) off chip  
 L3 Cache: N/A  
 Other Cache: N/A  
 Memory: 1 GB  
 Disk Subsystem: 1 x 18 GB FC, 2 x 18 GB FC (striped)  
 Other Hardware: None

### Software

Operating System: IRIX 6.5.13m  
 Compiler: MIPSpro 7.3.1.2m C, Fortran90  
 SCSL 1.3 Math Library  
 File System: xfs  
 System State: Single-user

## Notes/Tuning Information

Baseline optimization flags (for C benchmarks):

PASS1 : -Ofast=ip27 -IPA:use\_intrinsic -fb\_create /tmp/SPEC2000/FBDIR\_base/\$(EXEBASE)

PASS2 : -Ofast=ip27 -IPA:use\_intrinsic -fb\_opt /tmp/SPEC2000/FBDIR\_base/\$(EXEBASE)

Baseline optimization flags (for Fortran benchmarks): -Ofast=ip27 -LNO:fusion=2

Portability Flags:

178.galgel: -fixedform

Peak optimization flags:

note: all occurrences of (FEEDBACK) below means compiled with a two-step process:

PASS1 = -fb\_create /tmp/SPEC2000/FBDIR\_peak/\$(EXEBASE)

PASS2 = -fb\_opt /tmp/SPEC2000/FBDIR\_peak/\$(EXEBASE)

168.wupwise: -Ofast=ip27 -IPA:space=1000:linear=on:plimit=10000:callee\_limit=5000

-INLINE:aggressive=on -OPT:Olimit=0 -LNO:fusion=2:prefetch\_ahead=5

171.swim: -Ofast=ip27 -LNO:cs2=8m -CG:ld\_latency=10

172.mgrid: -Ofast=ip27 -LNO:fusion=2

173.applu: -Ofast=ip27 -LNO:ou\_max=5:ou\_prod\_max=10:prefetch=0:fusion=2 -CG:ld\_latency=3

177.mesa: -Ofast=ip27 -OPT:goto=off -LNO:opt=0:cs2=8m -CG:ld\_latency=6 (FEEDBACK)

178.galgel: -Ofast=ip27 -LNO:ou\_max=7 -CG:ld\_latency=3 -lscs (FEEDBACK)

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info@spec.org

http://www.spec.org



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## Notes/Tuning Information (Continued)

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.
  RM_SOURCES = lapak.f90
179.art: -Ofast=ip27 -LNO:prefetch=0 -IPA:min_hot=15 -CG:ld_latency=3 (FEEDBACK)
183.quake: -Ofast=ip27 -LNO:prefetch=0 -TENV:X=4 -CG:ld_latency=7 -IPA:space=500 (FEEDBACK)
187.facerec: -Ofast=ip27 -LNO:fusion=2
188.ammp: -Ofast=ip27 -OPT:goto=off -IPA:space=500:plimit=900 -CG:ld_latency=7 (FEEDBACK)
189.lucas: -Ofast=ip27 -LNO:fusion=2:blocking=off -CG:ld_latency=4 -IPA:min_hot=8 (FEEDBACK)
191.fma3d: -Ofast=ip27 -bigp_off -LNO:prefetch=0 -CG:ld_latency=2
.
  -OPT:goto=off:unroll_size=160:unroll_times_max=4 (FEEDBACK)
200.sixtrack:= -Ofast=ip27 -IPA:maxdepth=2 -LNO:prefetch=0 (FEEDBACK)
301.apsi: -Ofast=ip27 -TENV:X=4 -LNO:prefetch=0:blocking=off -IPA:linear=on:use_intrinsic
  setenv PAGESIZE_DATA 4096 ; setenv PAGESIZE_TEXT 4096 ; setenv PAGESIZE_STACK 4096
  systune -i ; percent_totalmem_4m_pages = 40 ; percent_totalmem_1m_pages = 7
  systune -i ; percent_totalmem_256k_pages = 7 ; percent_totalmem_64k_pages = 7
  systune -i ; r12k_bdiag = 0x4000000 ;
  limit stacksize 500000

```

The following is done before building each benchmark that requires (FEEDBACK):  
 rm -rf /tmp/SPEC2000/FBDIR\_peak/\$baseexe ; mkdir -p /tmp/SPEC2000/FBDIR\_peak/\$baseexe  
 The first disk mentioned in the Disk Subsystem is the system disk. A striped XFS filesystem was created using the rest of the disks and the benchmark was run on this.