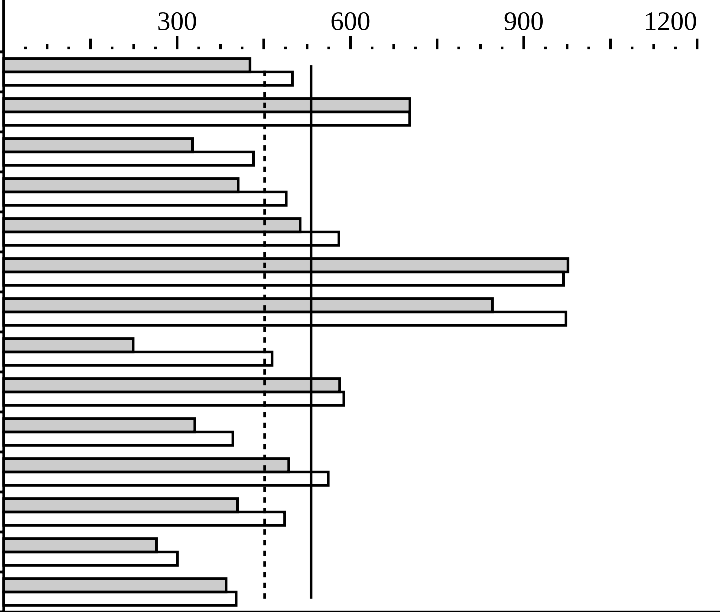
CFP2000 Result

Compaq Computer Corporation
AlphaStation XP1000 Model 6/667

SPECfp2000 = 532
SPECfp_base2000 = 452

SPEC license #:	2	Tested by:	Compaq NH	Test date:	Sep-2001	Hardware Avail:	Aug-1999	Software Avail:	Aug-2001

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	375	426	320	500
171.swim	3100	441	703	441	703
172.mgrid	1800	551	327	417	432
173.applu	2100	518	406	430	489
177.mesa	1400	273	513	241	580
178.galgel	2900	297	977	299	969
179.art	2600	307	846	267	973
183.equake	1300	581	224	280	464
187.facerec	1900	327	581	323	589
188.ammp	2200	665	331	555	397
189.lucas	2000	405	493	356	562
191.fma3d	2100	519	405	432	486
200.sixtrack	1100	416	264	366	300
301.apsi	2600	676	385	646	402



Hardware

CPU:	Alpha 21264A
CPU MHz:	667
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 1 core/chip
CPU(s) orderable:	1
Parallel:	No
Primary Cache:	64KB(I)+64KB(D) on chip
Secondary Cache:	4MB off chip
L3 Cache:	None
Other Cache:	None
Memory:	512MB
Disk Subsystem:	1x 8GB RZ2DC-KA
Other Hardware:	None

Software

Operating System:	Compaq Tru64 UNIX V5.1 (Rev. 732)
Compiler:	Compaq C V6.4-215-46B7O Program Analysis Tools V2.0 BETA Spike V5.2 DTK (1.471.2.2 46B5P) BETA Compaq Fortran V5.4A-1472-46B2F Compaq Fortran 77 V5.4A-196-46B2F KAP Fortran V4.3 000607 KAP Fortran 77 V4.1 980926 KAP C V4.1 000607
File System:	AdvFS
System State:	Multi-user

Notes/Tuning Information

```
Baseline   C: cc  -arch ev6 -fast -O4 ONESTEP
     Fortran: f90 -arch ev6 -fast -O5 ONESTEP


Peak:
  All use -g3 -arch ev6 -non_shared ONESTEP
  Individual benchmark tuning:
   168.wupwise: kf77 -fast -O4 -pipeline -unroll 2 +PFB
      171.swim: f90 -fast -O5
     172.mgrid: kf77 -O5 -transform_loops -tune ev6 -unroll 8
     173.applu: f90 -fast -O5 +PFB
      177.mesa: cc -fast -O4 +CFB +IFB
                -split_threshold .90 -noporder
    178.galgel: f90 -fast -O5
       179.art: kcc -fast -O4 -unroll 10 -ckapargs='-arl=4
                -ur=4' +PFB
    183.equake: cc -fast -xtaso_short -assume
```

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Notes/Tuning Information (Continued)

```
                 restricted_pointers -all -ldensemalloc -none +PFB
     187.facerec: f90 -fast -O4 +PFB
        188.ammp: cc -fast -O4 -xtaso_short -assume
                  restricted_pointers
       189.lucas: kf90 -O5 -fkapargs='-ur=1' +PFB
       191.fma3d: kf90 -O4 -transform_loops +PFB
    200.sixtrack: f90 -fast -O5 -assume accuracy_sensitive
                  -notransform_loops +PFB
        301.apsi: kf90 -O5 -transform_loops -unroll 8
                  -fkapargs='-ur=1' +PFB

Most benchmarks are built using one or more types of
profile-driven feedback.  The types used are designated
by abbreviations in the notes:

+CFB: Code generation is optimized by the compiler, using
      feedback from a training run.  These commands are
      done before the first compile (in phase "fdo_pre0"):

           mkdir /tmp/pp
           rm -f /tmp/pp/${baseexe}*

      and these flags are added to the first and second compiles:

           PASS1_CFLAGS = -prof_gen_noopt -prof_dir /tmp/pp
           PASS2_CFLAGS = -prof_use       -prof_dir /tmp/pp

     (Peak builds use /tmp/pp above; base builds use /tmp/pb.)

+IFB: Icache usage is improved by the post-link-time optimizer
      Spike, using feedback from a training run.  These commands
      are used (in phase "fdo_postN"):

           mv ${baseexe} oldexe
           spike oldexe -feedback oldexe -o ${baseexe}

+PFB: Prefetches are improved by the post-link-time optimizer
      Spike, using feedback from a training run.  These
      commands are used (in phase "fdo_post_makeN"):

           rm -f *Counts*
           mv ${baseexe} oldexe
           pixie -stats dstride oldexe 1>pixie.out 2>pixie.err
           mv oldexe.pixie ${baseexe}

      A training run is carried out (in phase "fdo_runN"), and
      then this command (in phase "fdo_postN"):

           spike oldexe -fb oldexe -stride_prefetch -o ${baseexe}

When Spike is used for both Icache and Prefetch improvements,
only one spike command is actually issued, with the Icache
options followed by the Prefetch options.

Portability: galgel: -fixed
Process limits are set to maximum using csh "unlimit" command
```

Notes/Tuning Information (Continued)

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Spike, and the Program Analysis Tools, are part of the Developers'
Tool Kit Supplement, http://www.tru64unix.compaq.com/dtk/ .  The
features used in this SPEC submission will be available at the web
site as a beta kit in August, 2001, and as a production release in
October, 2001.
```