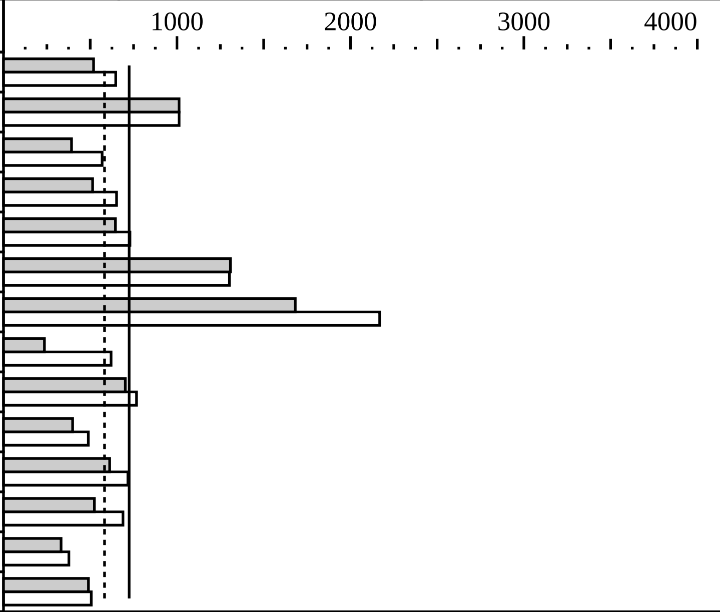
CFP2000 Result

Compaq Computer Corporation
AlphaServer DS20L Model 68/833

SPECfp2000 = 724
SPECfp_base2000 = 583

SPEC license #:	2	Tested by:	Compaq NH	Test date:	Feb-2002	Hardware Avail:	Mar-2002	Software Avail:	Oct-2001

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	308	519	247	647
171.swim	3100	306	1012	306	1012
172.mgrid	1800	459	392	317	569
173.applu	2100	409	514	322	652
177.mesa	1400	217	645	192	729
178.galgel	2900	222	1308	223	1302
179.art	2600	155	1682	120	2169
183.equake	1300	551	236	210	620
187.facerec	1900	271	702	248	767
188.ammp	2200	552	398	450	489
189.lucas	2000	327	612	279	717
191.fma3d	2100	401	524	305	689
200.sixtrack	1100	331	332	292	377
301.apsi	2600	531	490	514	506



Hardware

CPU:	Alpha 21264B
CPU MHz:	833
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 1 core/chip
CPU(s) orderable:	1 to 2
Parallel:	No
Primary Cache:	64KB(I)+64KB(D) on chip
Secondary Cache:	4MB off chip per CPU
L3 Cache:	None
Other Cache:	None
Memory:	2GB
Disk Subsystem:	1x40GB Maxtor 5T040H4
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1A (Rev. 1885)
Compiler:	Compaq C V6.4-215-46B7O Program Analysis Tools V2.0 Spike V5.2 DTK (1.471.2.2 46B5P) 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
    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
                restricted_pointers -all -ldensemalloc -none +PFB
```

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Notes/Tuning Information (Continued)

```
      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

Spike, and the Program Analysis Tools, are part of the Developers'
```

Notes/Tuning Information (Continued)

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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 production release as of October, 2001.  The C compiler for
this SPEC submission has been available at the same location, as a
production release, since August 15, 2001.
```