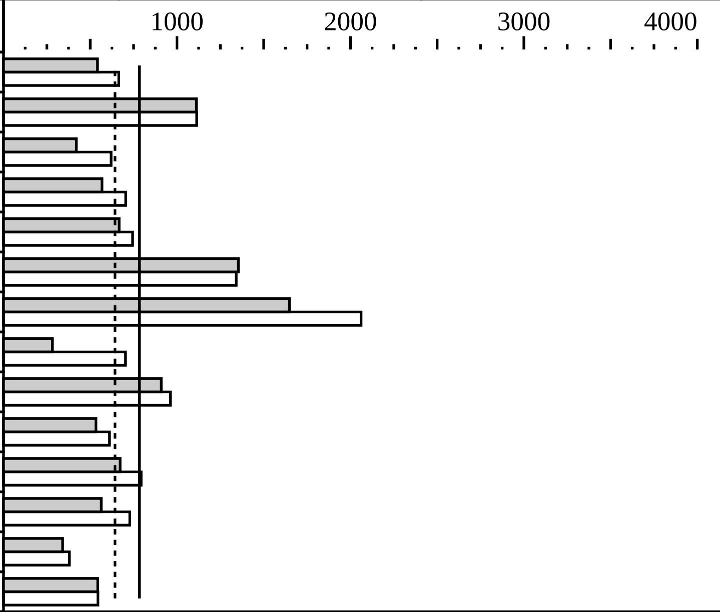
CFP2000 Result

Compaq Computer Corporation
AlphaServer DS20E Model 68/833

SPECfp2000 = 784
SPECfp_base2000 = 643

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	295	542	241	665
171.swim	3100	279	1112	278	1114
172.mgrid	1800	429	420	290	620
173.applu	2100	370	568	298	705
177.mesa	1400	210	667	188	744
178.galgel	2900	214	1354	216	1342
179.art	2600	158	1649	126	2061
183.equake	1300	461	282	185	703
187.facerec	1900	209	909	197	962
188.ammp	2200	413	533	360	611
189.lucas	2000	297	672	252	794
191.fma3d	2100	373	563	288	728
200.sixtrack	1100	323	341	290	380
301.apsi	2600	479	543	478	544



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:	8MB off chip per CPU
L3 Cache:	None
Other Cache:	None
Memory:	4GB
Disk Subsystem:	1x18GB
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1 +Patch Kit 2
Compiler:	Compaq C V6.4-214-46B59 Program Analysis Tools V2.0 Spike V5.2 DTK (1.461 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
```

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

Information on UNIX V5.1 Patches can be found at
```

CFP2000 Result

Compaq Computer Corporation AlphaServer DS20E Model 68/833	SPECfp2000 = 784 SPECfp_base2000 = 643

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

Notes/Tuning Information (Continued)

```
http://ftp1.service.digital.com/public/unix/v5.1/

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.  The C compiler for this SPEC submission has been
available at the same location, as a production release, since
May, 2001.
All of the benchmarks were compiled with the "-v" flag.  This flag
turns on "verbose mode" when compiling, and has no impact on performance.
```