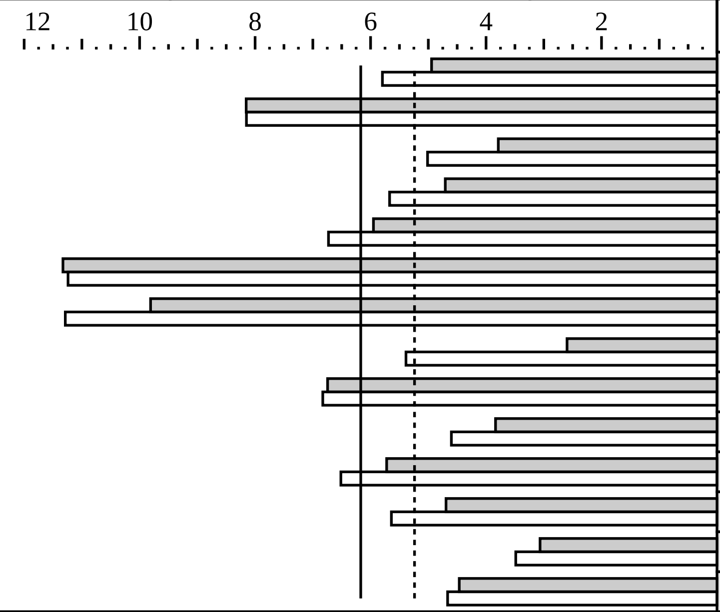
CFP2000 Result

Compaq Computer Corporation
AlphaStation XP1000 Model 6/667

SPECfp_rate2000 = 6.17
SPECfp_rate_base2000 = 5.24

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



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	1	375	4.94	1	320	5.79
171.swim	1	441	8.15	1	441	8.15
172.mgrid	1	551	3.79	1	417	5.01
173.applu	1	518	4.71	1	430	5.67
177.mesa	1	273	5.95	1	241	6.73
178.galgel	1	297	11.3	1	299	11.2
179.art	1	307	9.81	1	267	11.3
183.equake	1	581	2.60	1	280	5.39
187.facerec	1	327	6.74	1	323	6.83
188.ammp	1	665	3.84	1	555	4.60
189.lucas	1	405	5.72	1	356	6.51
191.fma3d	1	519	4.69	1	432	5.64
200.sixtrack	1	416	3.06	1	366	3.49
301.apsi	1	676	4.46	1	646	4.67

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.
```