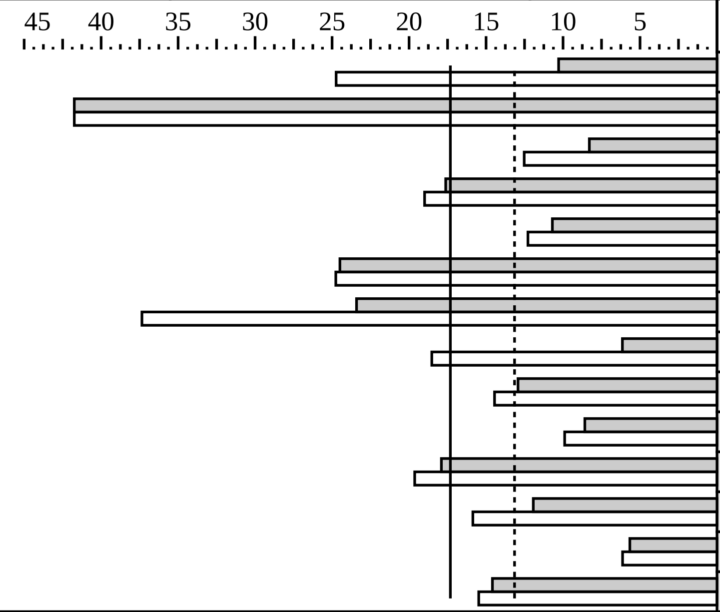
CFP2000 Result

Hewlett-Packard Company
AlphaServer ES80 7/1150

SPECfp_rate2000 = 17.3
SPECfp_rate_base2000 = 13.2

SPEC license #: 2	Tested by: HP	Test date: Jun-2004	Hardware Avail: Jul-2004	Software Avail: Jul-2004



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	1	180	10.3	1	75.0	24.7
171.swim	1	86.1	41.7	1	86.1	41.7
172.mgrid	1	252	8.29	1	167	12.5
173.applu	1	138	17.6	1	128	19.0
177.mesa	1	152	10.7	1	132	12.3
178.galgel	1	137	24.5	1	136	24.8
179.art	1	129	23.4	1	80.8	37.3
183.equake	1	245	6.14	1	81.4	18.5
187.facerec	1	171	12.9	1	153	14.4
188.ammp	1	297	8.58	1	258	9.89
189.lucas	1	130	17.9	1	118	19.6
191.fma3d	1	204	11.9	1	154	15.9
200.sixtrack	1	225	5.66	1	208	6.13
301.apsi	1	207	14.6	1	195	15.5

Hardware

CPU:	Alpha 21364
CPU MHz:	1150
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 1 core/chip
CPU(s) orderable:	2 to 8
Parallel:	No
Primary Cache:	64KB(I)+64KB(D) on chip
Secondary Cache:	1.75MB on chip per CPU
L3 Cache:	None
Other Cache:	None
Memory:	4GB per CPU; 512MB RIMMs
Disk Subsystem:	AdvFS
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1B + IPK
Compiler:	Compaq C V6.5-011-48C5K Program Analysis Tools V2.0 Spike V5.2 (510 USG) HP Fortran V5.5A-3548-48D88 HP Fortran 77 V5.5A-3548-48D88 KAP Fortran V4.3 000607 KAP Fortran 77 V4.1 980926 KAP C V4.1 000607
File System:	MFS, 8GB
System State:	Multi-user

Notes/Tuning Information

```
Baseline   C: cc  -arch ev7 -fast -O4 ONESTEP
     Fortran: f90 -arch ev7 -fast -O5 ONESTEP


Peak:
  All use -g3 -arch ev7 -non_shared ONESTEP
  except these (which use only the tunings shown below):
     173.applu 188.ammp 191.fma3d
  Individual benchmark tuning:
  168.wupwise: kf77 -call_shared -inline all -tune ev67
               -unroll 12 -automatic -align commons -arch ev67
               -fkapargs=' -aggressive=c -fuse
               -fuselevel=1 -so=2 -r=1 -o=1 -interleave
               -ur=6 -ur2=060 ' +PFB
      171.swim: same as base
     172.mgrid: kf90 -call_shared -arch generic -O5 -inline
                manual -nopipeline -transform_loops -unroll 9 -automatic
```

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Notes/Tuning Information (Continued)

```
                 -fkapargs='-aggressive=a -fuse -interleave
                 -ur=2 -ur3=5 -cachesize=128,16000 ' +PFB
     173.applu: kf90  -O5 -transform_loops
                -fkapargs=' -o=0 -nointerleave -ur=14
                -ur2=260 -ur3=18' +PFB
      177.mesa: kcc -fast -O4 +CFB +IFB
    178.galgel: f90 -O5 -fast -unroll 5 -automatic
       179.art: kcc  -assume whole_program -ldensemalloc
                -call_shared -assume restricted_pointers
                -unroll 16 -inline none -ckapargs='
                -fuse -fuselevel=1 -ur=3' +PFB
    183.equake: cc -call_shared -arch generic -fast -O4
                -ldensemalloc -assume restricted_pointers
                -inline speed -unroll 13 -xtaso_short +PFB
   187.facerec: f90 -O4 -nopipeline -inline all
                -non_shared -speculate all -unroll 7
                -automatic -assume accuracy_sensitive
                -math_library fast +IFB
      188.ammp: cc -arch host -O4 -ifo -assume nomath_errno
                -assume trusted_short_alignment -fp_reorder
                -readonly_strings -ldensemalloc -xtaso_short
                -assume restricted_pointers -unroll 9
                -inline speed +CFB +IFB +PFB
     189.lucas: kf90 -O5 -fkapargs='-ur=1' +PFB
     191.fma3d: kf90 -O4 -transform_loops -fkapargs='-cachesize=128,16000 ' +PFB
  200.sixtrack: f90 -fast -O5 -assume accuracy_sensitive
                -notransform_loops +PFB
      301.apsi: kf90 -O5 -inline none -call_shared -speculate all
                -align commons -fkapargs=' -aggressive=ab
                -tune=ev5 -fuse -ur=1 -ur2=60 -ur3=20
                -cachesize=128,16000'

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_feedback -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}
```

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Notes/Tuning Information (Continued)

```
+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.

vm:
        vm_bigpg_enabled = 1
        vm_bigpg_thresh = 6
        vm_swap_eager = 0
        ubc_maxpercent = 50

proc:
        max_per_proc_address_space = 34359738368
        max_per_proc_data_size = 34359738368
        max_per_proc_stack_size = 34359738368
        max_proc_per_user = 2048
        max_threads_per_user = 4096
        maxusers = 2048
        per_proc_address_space = 34359738368
        per_proc_data_size = 34359738368
        per_proc_stack_size = 34359738368


Portability: galgel: -fixed

Information on UNIX V5.1B Patches can be found at
http://ftp1.service.digital.com/public/unix/v5.1b/

Processes were bound to CPUs using "runon".

This result was measured on model ES80.
Model ES47 and model ES80 are electronically equivalent.
```