CFP2000 Result

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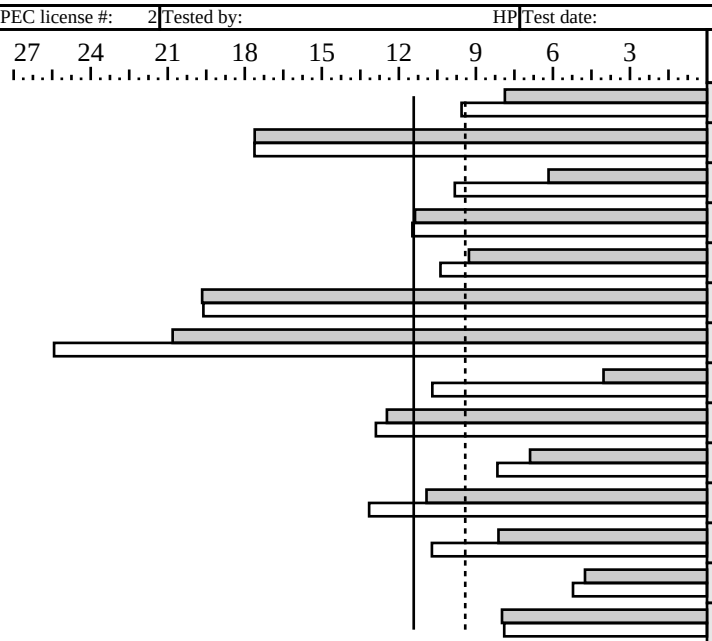
Hewlett-Packard Company
hp AlphaServer DS25 68/1000

SPECfp_rate2000 = 11.4

SPECfp_rate_base2000 = 9.41

SPEC license #: 2 | Tested by: HP | Test date: Jul-2002 | Hardware Avail: Aug-2002 | Software Avail: Oct-2001



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	1	236	7.87	1	194	9.56
171.swim	1	204	17.6	1	204	17.6
172.mgrid	1	338	6.17	1	213	9.82
173.applu	1	214	11.4	1	212	11.5
177.mesa	1	175	9.27	1	156	10.4
178.galgel	1	171	19.7	1	172	19.6
179.art	1	145	20.8	1	119	25.4
183.equake	1	374	4.03	1	141	10.7
187.facerec	1	177	12.5	1	171	12.9
188.ammp	1	370	6.89	1	313	8.16
189.lucas	1	212	10.9	1	176	13.2
191.fma3d	1	300	8.12	1	227	10.7
200.sixtrack	1	269	4.75	1	245	5.22
301.apsi	1	378	7.98	1	382	7.90

Hardware

CPU:	Alpha 21264C
CPU MHz:	1000
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:	8GB
Disk Subsystem:	18.2GB SCSI
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1A
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
```

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Notes/Tuning Information (Continued)

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