CFP2000 Result

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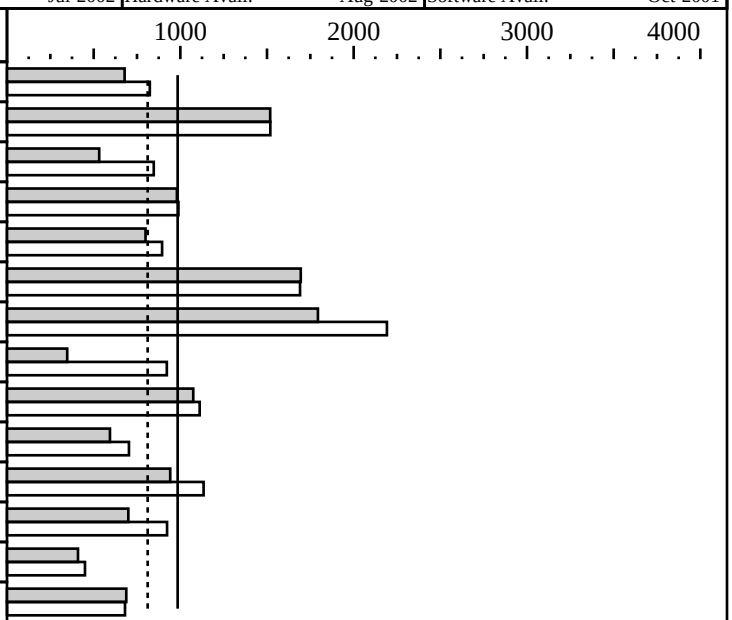
Hewlett-Packard Company
hp AlphaServer DS25 68/1000

SPECfp2000 = 985

SPECfp_base2000 = 812

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	236	679	194	824
171.swim	3100	204	1518	204	1519
172.mgrid	1800	338	532	213	847
173.applu	2100	214	980	212	989
177.mesa	1400	175	799	156	895
178.galgel	2900	171	1695	172	1691
179.art	2600	145	1794	119	2192
183.equake	1300	374	347	141	922
187.facerec	1900	177	1075	171	1112
188.ammp	2200	370	594	313	704
189.lucas	2000	212	942	176	1134
191.fma3d	2100	300	700	227	923
200.sixtrack	1100	269	410	245	450
301.apsi	2600	378	688	382	681



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)

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   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.