CFP2000 Result

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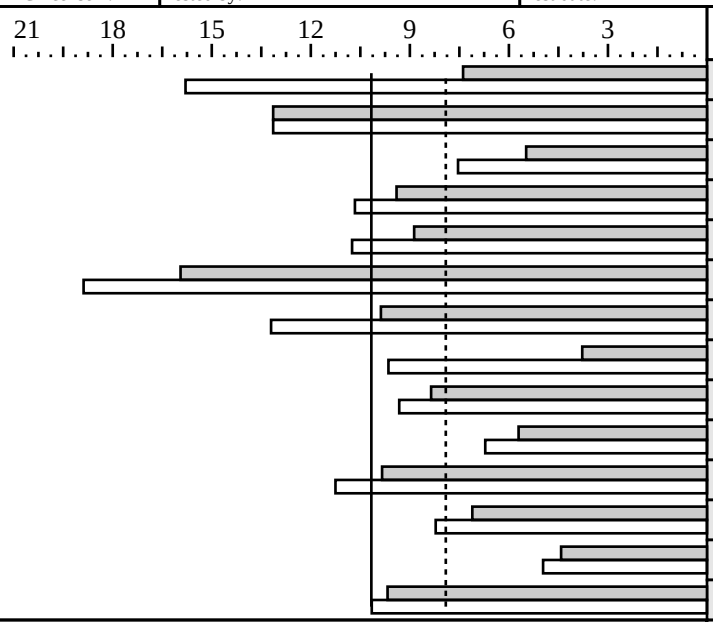
Hewlett-Packard Company
AlphaServer DS15/1000

SPECfp_rate2000 = 10.2

SPECfp_rate_base2000 = 7.91

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	251	7.39	1	118	15.8
171.swim	1	274	13.1	1	274	13.1
172.mgrid	1	381	5.48	1	277	7.54
173.applu	1	259	9.40	1	228	10.7
177.mesa	1	183	8.87	1	151	10.7
178.galgel	1	211	15.9	1	178	18.9
179.art	1	305	9.88	1	228	13.2
183.equake	1	399	3.78	1	156	9.65
187.facerec	1	264	8.36	1	236	9.32
188.ammp	1	447	5.71	1	380	6.72
189.lucas	1	236	9.84	1	206	11.3
191.fma3d	1	343	7.11	1	296	8.22
200.sixtrack	1	289	4.42	1	257	4.96
301.apsi	1	312	9.68	1	297	10.2

Hardware

CPU:	Alpha 21264C
CPU MHz:	1000
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:	2MB
L3 Cache:	None
Other Cache:	None
Memory:	2GB; 512MB RIMMs
Disk Subsystem:	36GB Ultra 160 10KRPM
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1B (Rev. 2650) +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:	UFS
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
  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
```

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".
```