CFP2000 Result

Hewlett-Packard Company
hp AlphaServer GS160 68/1224

SPECfp_rate2000 = NC

SPECfp_rate_base2000 = NC

SPEC license #: 2 | Tested by: HP | Test date: Sep-2002 | Hardware Avail: Aug-2002 | Software Avail: Nov-2002

SPEC has determined that this result was not in compliance with the SPEC CPU2000 run and reporting rules. Specifically, the submitter has reported that the 3 month availability requirement in the SPEC CPU2000 run rules will not be met due to a change in availablility date for the operating system.

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	16	NC	NC	16	NC	NC
171.swim	16	NC	NC	16	NC	NC
172.mgrid	16	NC	NC	16	NC	NC
173.applu	16	NC	NC	16	NC	NC
177.mesa	16	NC	NC	16	NC	NC
178.galgel	16	NC	NC	16	NC	NC
179.art	16	NC	NC	16	NC	NC
183.equake	16	NC	NC	16	NC	NC
187.facerec	16	NC	NC	16	NC	NC
188.ammp	16	NC	NC	16	NC	NC
189.lucas	16	NC	NC	16	NC	NC
191.fma3d	16	NC	NC	16	NC	NC
200.sixtrack	16	NC	NC	16	NC	NC
301.apsi	16	NC	NC	16	NC	NC

Hardware

CPU:	Alpha 21264C
CPU MHz:	1224
FPU:	Integrated
CPU(s) enabled:	16 cores, 16 chips, 1 core/chip
CPU(s) orderable:	1 to 16
Parallel:	No
Primary Cache:	64KB(I)+64KB(D) on chip
Secondary Cache:	16MB off chip per CPU
L3 Cache:	None
Other Cache:	None
Memory:	32GB
Disk Subsystem:	mfs (Memory File System)
Other Hardware:	None

Software

Operating System:	Tru64 UNIX T5.1B
Compiler:	Compaq C V6.5-011-48C5K Spike V5.2 (506 48C5K) Compaq Fortran V5.5-1877-48BBF Compaq Fortran 77 V5.5-1877-48BBF KAP Fortran V4.4 k340504 20010517 KAP Fortran 77 V4.1 k310440 980926 KAP C V4.2 k010737S 010515
File System:	mfs
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 -arch ev6 -non_shared ONESTEP (except applu and ammp)
```

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Notes/Tuning Information (Continued)

```
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 -unroll 9 -automatic -transform_loops
             -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:
```

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Notes/Tuning Information (Continued)

```
+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.

vm:
        vm_bigpg_enabled = 1
        vm_bigpg_thresh = 64
        vm_swap_eager = 0
```

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Notes/Tuning Information (Continued)

```
proc:
        max_per_proc_address_space = 0x40000000000
        max_per_proc_data_size = 0x40000000000
        max_per_proc_stack_size = 0x40000000000
        max_proc_per_user = 2048
        max_threads_per_user = 0
        maxusers = 16384
        per_proc_address_space = 0x40000000000
        per_proc_data_size = 0x40000000000
        per_proc_stack_size = 0x40000000000


 Portability: galgel: -fixed
 submit = runon cpu

Submitted_by: "Craig, Steve" <Steve.Craig@hp.com>
Submitted: Mon Sep  9 13:55:26 2002
Submission: cpu2000-20020909-01612.sub
```