CFP2000 Result

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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	1	NC	NC	1	NC	NC
171.swim	1	NC	NC	1	NC	NC
172.mgrid	1	NC	NC	1	NC	NC
173.applu	1	NC	NC	1	NC	NC
177.mesa	1	NC	NC	1	NC	NC
178.galgel	1	NC	NC	1	NC	NC
179.art	1	NC	NC	1	NC	NC
183.equake	1	NC	NC	1	NC	NC
187.facerec	1	NC	NC	1	NC	NC
188.ammp	1	NC	NC	1	NC	NC
189.lucas	1	NC	NC	1	NC	NC
191.fma3d	1	NC	NC	1	NC	NC
200.sixtrack	1	NC	NC	1	NC	NC
301.apsi	1	NC	NC	1	NC	NC

Hardware

CPU:	Alpha 21264C
CPU MHz:	1224
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 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:	16GB
Disk Subsystem:	9 GB SCSI
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:	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 -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=16
        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
 System is single QBB (4-cpu) with only 1 cpu enabled at console

Submitted_by: "Craig, Steve" <Steve.Craig@hp.com>
Submitted: Mon Sep  9 13:55:53 2002
Submission: cpu2000-20020909-01613.sub
```

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