CFP2000 Result

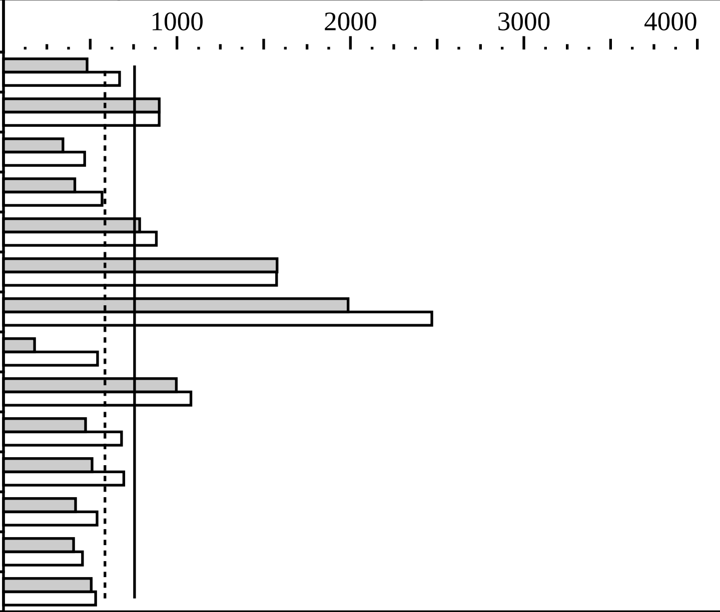
Compaq Computer Corporation
AlphaServer GS160 Model 16 68/1001

SPECfp2000 = 756

SPECfp_base2000 = 585

SPEC license #: 2	Tested by: Compaq NH	Test date: Jun-2001	Hardware Avail: Jun-2001	Software Avail: Aug-2001

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	332	482	239	669
171.swim	3100	345	898	345	898
172.mgrid	1800	525	343	385	468
173.applu	2100	511	411	370	568
177.mesa	1400	178	785	159	881
178.galgel	2900	184	1577	184	1574
179.art	2600	131	1987	105	2469
183.equake	1300	726	179	240	542
187.facerec	1900	191	996	176	1081
188.ammp	2200	465	473	323	681
189.lucas	2000	392	511	288	693
191.fma3d	2100	505	415	389	539
200.sixtrack	1100	272	404	242	455
301.apsi	2600	514	506	489	531



Hardware

CPU:	Alpha 21264C
CPU MHz:	1001
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:	8MB off chip per CPU
L3 Cache:	None
Other Cache:	None
Memory:	16GB
Disk Subsystem:	mfs (Memory File System)
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1 +Patch Kit 2
Compiler:	Compaq C V6.4-214-46B59 Program Analysis Tools V2.0 Spike V5.2 DTK (1.461 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:	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 -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

     Information on UNIX V5.1 Patches can be found at
```

Notes/Tuning Information (Continued)

```
http://ftp1.service.digital.com/public/unix/v5.1/

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 beta kit in August, 2001, and 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
May, 2001.
sysconfigtab settings:
           max_proc_per_user = 4096
        max_threads_per_user = 4096
       per_proc_data_size     = 21474836480
   max_per_proc_data_size     = 21474836480
       per_proc_address_space = 21474836480
   max_per_proc_address_space = 21474836480
```