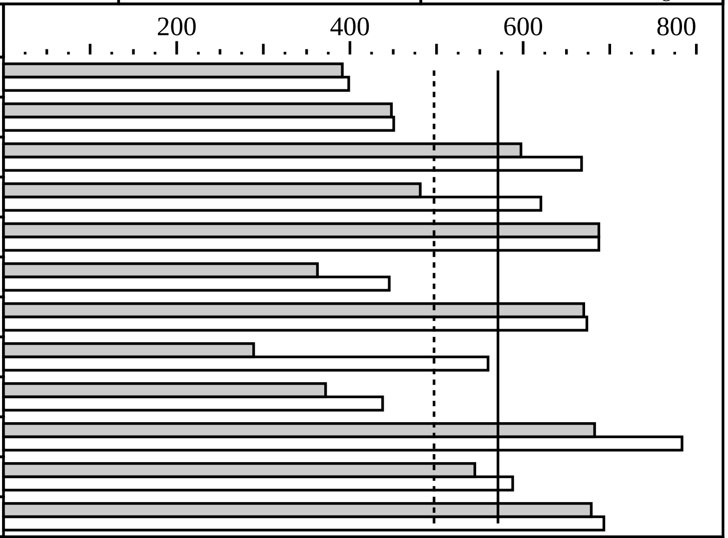
CINT2000 Result

Compaq Computer Corporation
AlphaServer DS20E Model 68/833

SPECint2000 = 571
SPECint_base2000 = 497

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
164.gzip	1400	358	391	351	399
175.vpr	1400	313	448	311	451
176.gcc	1100	184	597	165	667
181.mcf	1800	374	481	290	620
186.crafty	1000	145	687	145	687
197.parser	1800	497	362	404	445
252.eon	1300	194	670	193	674
253.perlbmk	1800	623	289	322	559
254.gap	1100	296	372	251	438
255.vortex	1900	278	683	243	783
256.bzip2	1500	276	544	255	588
300.twolf	3000	442	679	433	693



Hardware

CPU:	Alpha 21264B
CPU MHz:	833
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:	4GB
Disk Subsystem:	1x18GB
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 C++ V6.3-010-46B2F
File System:	AdvFS
System State:	Multi-user

Notes/Tuning Information

```
Baseline C  : cc  -arch ev6 -fast +CFB ONESTEP
         C++: cxx -arch ev6 -O2        ONESTEP

Peak:
  All but 252.eon: cc -g3 -arch ev6 ONESTEP
     164.gzip: -fast -O4 -non_shared +CFB
      175.vpr: -fast -O4 -assume restricted_pointers +CFB
      176.gcc: -fast -O4 -xtaso_short -all -ldensemalloc -none
               +CFB +IFB
      181.mcf: -fast -xtaso_short +CFB +IFB +PFB
   186.crafty: same as base
   197.parser: -fast -O4 -xtaso_short -non_shared +CFB
      252.eon: cxx -arch ev6 -O2 -all -ldensemalloc -none
  253.perlbmk: -fast -non_shared +CFB +IFB
      254.gap: -fast -O4 -non_shared +CFB +IFB +PFB
   255.vortex: -fast -non_shared +CFB +IFB
    256.bzip2: -fast -O4 -non_shared +CFB
    300.twolf: -fast -O4 -assume restricted_pointers -all
               -ldensemalloc -none +CFB +IFB
Most benchmarks are built using one or more types of
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Notes/Tuning Information (Continued)

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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: gcc: -Dalloca=__builtin_alloca; crafty: -DALPHA
perlbmk: -DSPEC_CPU2000_DUNIX; vortex: -DSPEC_CPU2000_LP64
gap: -DSYS_HAS_CALLOC_PROTO -DSYS_IS_BSD -DSYS_HAS_IOCTL_PROTO
     -DSPEC_CPU2000_LP64

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

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Notes/Tuning Information (Continued)

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available at the same location, as a production release, since
May, 2001.
All of the benchmarks were compiled with the "-v" flag.  This flag
turns on "verbose mode" when compiling, and has no impact on performance.
```