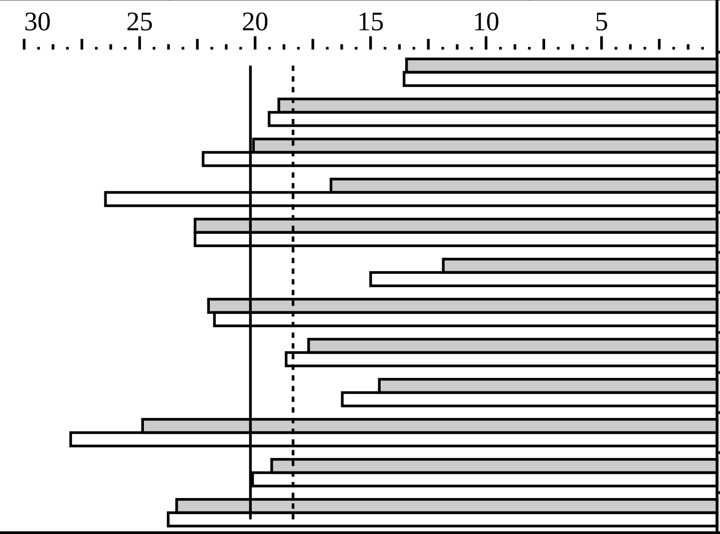
CINT2000 Result

Hewlett-Packard Company
AlphaServer ES47 7/1150

SPECint_rate2000 = 20.2
SPECint_rate_base2000 = 18.4

SPEC license #:	Tested by:	Test date:	Hardware Avail:	Software Avail:
2	HP	Jun-2004	Jul-2004	Jul-2004



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	2	242	13.4	2	240	13.6
175.vpr	2	171	19.0	2	167	19.4
176.gcc	2	127	20.1	2	115	22.3
181.mcf	2	250	16.7	2	158	26.5
186.crafty	2	103	22.6	2	103	22.6
197.parser	2	352	11.9	2	278	15.0
252.eon	2	137	22.0	2	139	21.8
253.perlbmk	2	236	17.7	2	224	18.7
254.gap	2	175	14.6	2	157	16.2
255.vortex	2	177	24.9	2	158	28.0
256.bzip2	2	180	19.3	2	173	20.1
300.twolf	2	297	23.4	2	293	23.8

Hardware

CPU:	Alpha 21364
CPU MHz:	1150
FPU:	Integrated
CPU(s) enabled:	2 cores, 2 chips, 1 core/chip
CPU(s) orderable:	2 to 4
Parallel:	No
Primary Cache:	64KB(I)+64KB(D) on chip
Secondary Cache:	1.75MB on chip per CPU
L3 Cache:	None
Other Cache:	None
Memory:	4GB per CPU; 512MB RIMMs
Disk Subsystem:	AdvFS
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1B + IPK
Compiler:	Compaq C V6.5-011-48C5K Program Analysis Tools V2.0 Spike V5.2 (510 USG) Compaq C++ V6.5-041
File System:	MFS, 8GB
System State:	Multi-user

Notes/Tuning Information

```
Baseline C  : cc  -arch ev7 -fast +CFB ONESTEP
         C++: cxx -arch ev7 -O2        ONESTEP

Peak:
  All but 252.eon: cc -g3 -arch ev7 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 ev7 -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
               -ldensemalloc -non_shared +CFB +IFB
```

Notes/Tuning Information (Continued)

```
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}

+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
```

Notes/Tuning Information (Continued)

```
        per_proc_address_space = 34359738368
        per_proc_data_size = 34359738368
        per_proc_stack_size = 34359738368


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 V5.1B Patches can be found at
http://ftp1.service.digital.com/public/unix/v5.1b/

Processes were bound to CPUs using "runon".
```