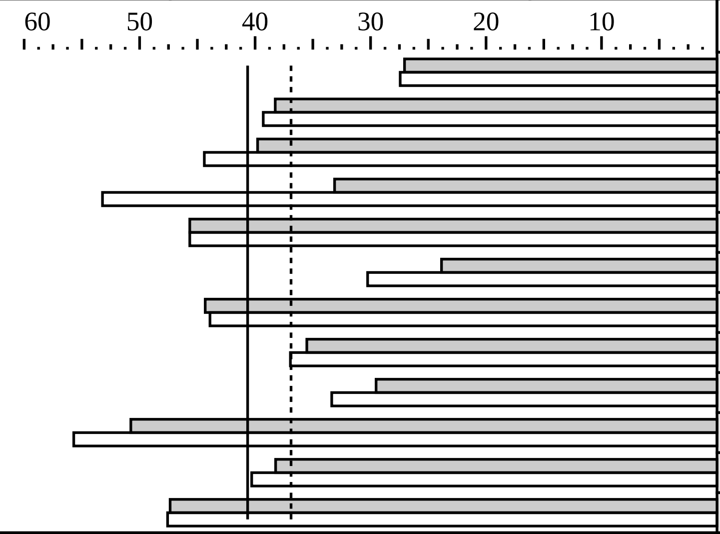
CINT2000 Result

Hewlett-Packard Company
AlphaServer GS1280 7/1150

SPECint_rate2000 = 40.6
SPECint_rate_base2000 = 36.9

SPEC license #: 2	Tested by: HP	Test date: Dec-2002	Hardware Avail: Jan-2003	Software Avail: Jan-2003



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	4	240	27.1	4	237	27.4
175.vpr	4	170	38.3	4	165	39.3
176.gcc	4	128	39.8	4	115	44.4
181.mcf	4	252	33.1	4	157	53.2
186.crafty	4	102	45.7	4	102	45.7
197.parser	4	350	23.9	4	276	30.3
252.eon	4	136	44.3	4	137	43.9
253.perlbmk	4	235	35.5	4	226	36.9
254.gap	4	173	29.5	4	153	33.4
255.vortex	4	174	50.8	4	158	55.7
256.bzip2	4	182	38.2	4	173	40.3
300.twolf	4	294	47.4	4	293	47.6

Hardware

CPU:	Alpha 21364
CPU MHz:	1150
FPU:	Integrated
CPU(s) enabled:	4 cores, 4 chips, 1 core/chip
CPU(s) orderable:	2 to 16
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:	16GB
Disk Subsystem:	36GB SCSI
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1B (Rev. 2650) +IPK
Compiler:	Compaq C V6.5-011-48C5K Program Analysis Tools V2.0 Spike V5.2 (506A) Compaq C++ V6.5-028
File System:	UFS
System State:	Multi-user

Notes/Tuning Information

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

Peak:
  The following use: -g3 -arch ev7 ONESTEP
      175.vpr 181.mcf 197.parser 253.perlbmk

  The following use: -g3 -arch ev6 ONESTEP
      164.gzip 176.gcc 254.gap 255.vortex 256.bzip2 300.twolf

  Individual benchmark tuning:
     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: -arch ev7 -O2 -all -ldensemalloc -none
  253.perlbmk: -fast -non_shared +CFB +IFB
```

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Notes/Tuning Information (Continued)

```
       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

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.


vm:
        vm_bigpg_enabled = 1
        vm_bigpg_thresh=16
        vm_swap_eager = 0

proc:
```

Notes/Tuning Information (Continued)

```
        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: 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'.
```