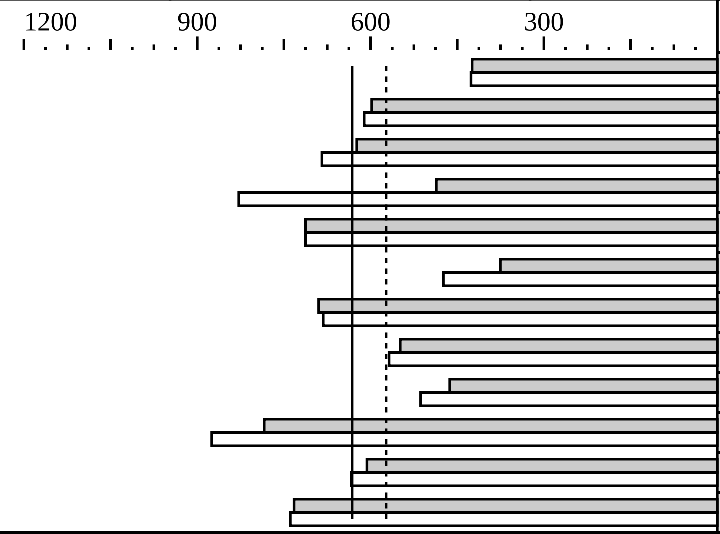
CINT2000 Result

Hewlett-Packard Company
AlphaServer GS1280 Model 64

SPECint_rate2000 = 632
SPECint_rate_base2000 = 573

SPEC license #: 2	Tested by: HP	Test date: Jun-2003	Hardware Avail: Oct-2003	Software Avail: Oct-2003



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	64	245	424	64	244	426
175.vpr	64	174	598	64	170	611
176.gcc	64	131	624	64	119	684
181.mcf	64	275	486	64	161	828
186.crafty	64	104	713	64	104	713
197.parser	64	356	375	64	282	474
252.eon	64	140	690	64	142	682
253.perlbmk	64	244	549	64	235	568
254.gap	64	176	463	64	159	513
255.vortex	64	180	784	64	161	875
256.bzip2	64	184	606	64	176	633
300.twolf	64	304	732	64	301	739

Hardware

CPU:	Alpha 21364
CPU MHz:	1150
FPU:	Integrated
CPU(s) enabled:	64 cores, 64 chips, 1 core/chip
CPU(s) orderable:	2 to 64
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:	256GB (64 * 10 * 512MB RIMMs, both controllers populated)
Disk Subsystem:	MFS 16GB (Memory File System)
Other Hardware:	None

Software

Operating System:	Tru64 UNIX V5.1B (Rev. 2650) +PK3
Compiler:	Compaq C V6.5-011-48C5K Program Analysis Tools V2.0 Spike V5.2 (509 DTK) Compaq C++ V6.5-035
File System:	MFS 16GB
System State:	Multi-user

Notes/Tuning Information

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

Peak:
     164.gzip: cc -g3 -arch ev6 ONESTEP -fast -O4 -non_shared +CFB
      175.vpr: cc -g3 -arch ev7 ONESTEP
               -fast -O4 -assume restricted_pointers +CFB
      176.gcc: cc -g3 -arch ev7 ONESTEP
               -fast -O4 -xtaso_short -all -ldensemalloc -none
               +CFB +IFB
      181.mcf: cc -g3 -arch ev7 ONESTEP -fast -xtaso_short +CFB +IFB +PFB
   186.crafty: same as base (cc...)
   197.parser: cc -g3 -arch ev7 ONESTEP
               -fast -O4 -xtaso_short -non_shared +CFB
      252.eon: cxx -arch ev7 ONESTEP -O2 -all -ldensemalloc -none
  253.perlbmk: cc -g3 -arch ev7 ONESTEP -fast -non_shared +CFB +IFB
      254.gap: cc -g3 -arch ev6 ONESTEP
               -fast -O4 -non_shared +CFB +IFB +PFB
   255.vortex: cc -g3 -arch ev6 ONESTEP -fast -non_shared +CFB +IFB
    256.bzip2: cc -g3 -arch ev6 ONESTEP -fast -O4 -non_shared +CFB
```

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Notes/Tuning Information (Continued)

```
    300.twolf: cc -g3 -arch ev6 ONESTEP -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 = 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
```

Notes/Tuning Information (Continued)

```
        max_proc_per_user = 2048
        max_threads_per_user = 4096
        maxusers = 2048
        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".
```