# CINT2000 Result

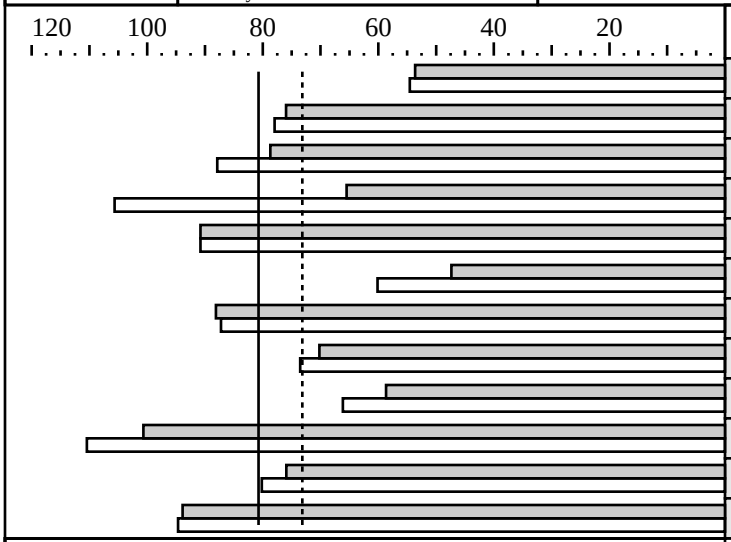


## Hewlett-Packard Company
## AlphaServer GS1280 7/1150

SPECint_rate2000 = 80.7

SPECint_rate_base2000 = 73.2

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 | 8 | 242 | 53.7 | 8 | 238 | 54.6 |
| 175.vpr | 8 | 171 | 76.0 | 8 | 167 | 78.0 |
| 176.gcc | 8 | 130 | 78.7 | 8 | 116 | 87.9 |
| 181.mcf | 8 | 255 | 65.5 | 8 | 158 | 106 |
| 186.crafty | 8 | 102 | 90.8 | 8 | 102 | 90.8 |
| 197.parser | 8 | 353 | 47.4 | 8 | 278 | 60.1 |
| 252.eon | 8 | 137 | 88.1 | 8 | 138 | 87.2 |
| 253.perlbmk | 8 | 238 | 70.2 | 8 | 227 | 73.5 |
| 254.gap | 8 | 174 | 58.6 | 8 | 154 | 66.1 |
| 255.vortex | 8 | 175 | 101 | 8 | 160 | 110 |
| 256.bzip2 | 8 | 183 | 75.9 | 8 | 174 | 80.2 |
| 300.twolf | 8 | 297 | 93.9 | 8 | 294 | 94.7 |

### Hardware

| | |
|---|---|
| CPU: | Alpha 21364 |
| CPU MHz: | 1150 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 8 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: | 32GB |
| Disk Subsystem: | 36GB SCSI |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Tru64 UNIX V5.1B (Rev. 2650)<br>+IPK |
| Compiler: | Compaq C V6.5-011-48C5K<br>Program Analysis Tools V2.0<br>Spike V5.2 (506A)<br>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
```

## 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'.
```