



CINT2000 Result

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Hewlett-Packard Company
hp AlphaServer ES45 68/1250

SPECint_rate2000 = NC
SPECint_rate_base2000 = NC

SPEC license #: 2 | Tested by: HP NH | Test date: Jul-2002 | Hardware Avail: Aug-2002 | Software Avail: Nov-2002

SPEC has determined that this result was not in compliance with the SPEC CPU2000 run and reporting rules. Specifically, the submitter has reported that the 3 month availability requirement in the SPEC CPU2000 run rules will not be met due to a change in availability date for the operating system.

5	4	3	2	1	Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
.	164.gzip	1	NC	NC	1	NC	NC
.	175.vpr	1	NC	NC	1	NC	NC
.	176.gcc	1	NC	NC	1	NC	NC
.	181.mcf	1	NC	NC	1	NC	NC
.	186.crafty	1	NC	NC	1	NC	NC
.	197.parser	1	NC	NC	1	NC	NC
.	252.eon	1	NC	NC	1	NC	NC
.	253.perlbmk	1	NC	NC	1	NC	NC
.	254.gap	1	NC	NC	1	NC	NC
.	255.vortex	1	NC	NC	1	NC	NC
.	256.bzip2	1	NC	NC	1	NC	NC
.	300.twolf	1	NC	NC	1	NC	NC

Hardware

CPU: Alpha 21264C
 CPU MHz: 1250
 FPU: Integrated
 CPU(s) enabled: 1 core, 1 chip, 1 core/chip
 CPU(s) orderable: 1 to 4
 Parallel: No
 Primary Cache: 64KB(I)+64KB(D) on chip
 Secondary Cache: 16MB off chip per CPU
 L3 Cache: None
 Other Cache: None
 Memory: 16GB
 Disk Subsystem: 9 GB SCSI
 Other Hardware: None

Software

Operating System: Tru64 UNIX V5.1B
 Compiler: Compaq C V6.5-011-48C5K
 Spike V5.2 (506 48C5K)
 Compaq C++ V6.3-010
 File System: ufs
 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



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Notes/Tuning Information (Continued)

```

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.perlbnk: -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

```

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}

```



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Notes/Tuning Information (Continued)

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:

```
max_per_proc_address_space = 0x4000000000  
max_per_proc_data_size = 0x4000000000  
max_per_proc_stack_size = 0x4000000000  
max_proc_per_user = 2048  
max_threads_per_user = 0  
maxusers = 16384  
per_proc_address_space = 0x4000000000  
per_proc_data_size = 0x4000000000  
per_proc_stack_size = 0x4000000000
```

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

Submitted_by: "Craig, Steve" <Steve.Craig@hp.com>
Submitted: Thu Aug 1 16:03:16 2002
Submission: cpu2000-20020801-01511.sub