



CINT2000 Result

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Hewlett-Packard Company
hp AlphaServer GS160 68/1224

SPECint_rate2000 = NC
SPECint_rate_base2000 = NC

SPEC license #: 2 | Tested by: HPQ - NH | Test date: Jul-2002 | Hardware Avail: Aug-2002 | Software Avail: Nov-2001

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.

	Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
5	164.gzip	16	NC	NC	16	NC	NC
4	175.vpr	16	NC	NC	16	NC	NC
3	176.gcc	16	NC	NC	16	NC	NC
2	181.mcf	16	NC	NC	16	NC	NC
1	186.crafty	16	NC	NC	16	NC	NC
	197.parser	16	NC	NC	16	NC	NC
	252.eon	16	NC	NC	16	NC	NC
	253.perlbmk	16	NC	NC	16	NC	NC
	254.gap	16	NC	NC	16	NC	NC
	255.vortex	16	NC	NC	16	NC	NC
	256.bzip2	16	NC	NC	16	NC	NC
	300.twolf	16	NC	NC	16	NC	NC

Hardware

CPU: Alpha 21264C
CPU MHz: 1224
FPU: Integrated
CPU(s) enabled: 16 cores, 16 chips, 1 core/chip
CPU(s) orderable: 1 to 16
Parallel: No
Primary Cache: 64KB(I)+64KB(D) on chip
Secondary Cache: 16MB off chip per CPU
L3 Cache: None
Other Cache: None
Memory: 32GB
Disk Subsystem: 9Gb Hard Drive
Other Hardware: None

Software

Operating System: Tru64 UNIX V5.1B
Compiler: Compaq C V6.4-215-46B70
Program Analysis Tools V2.0
Spike V5.2 DTK (1.471.2.2 46B5P)
Compaq C++ V6.3-010-46B2F

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.

```
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
```

vm:

```
vm_bigpg_enabled = 1
vm_bigpg_thresh = 16
vm_swap_eager = 0
```

proc:

```
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
```

```
submit = runon <cpu no> $command
```

Submitted_by: "Beer, Chris" <Chris.Beer@hp.com>

Submitted: Thu Aug 1 16:15:34 2002

Submission: cpu2000-20020801-01534.sub