



# CINT2000 Result

Copyright ©1999-2004, Standard Performance Evaluation Corporation

Hewlett-Packard Company  
AlphaServer ES47 7/1150

SPECint\_rate2000 = 10.2  
SPECint\_rate\_base2000 = 9.29

SPEC license #: 2 | Tested by: HP | Test date: Jun-2004 | Hardware Avail: Jul-2004 | Software Avail: Jul-2004

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	1	239	6.80	1	237	6.85
175.vpr	1	169	9.60	1	166	9.81
176.gcc	1	125	10.2	1	113	11.3
181.mcf	1	248	8.41	1	155	13.5
186.crafty	1	102	11.4	1	102	11.4
197.parser	1	348	6.00	1	275	7.59
252.eon	1	135	11.1	1	137	11.0
253.perlbnk	1	233	8.98	1	222	9.42
254.gap	1	172	7.40	1	156	8.20
255.vortex	1	175	12.6	1	156	14.2
256.bzip2	1	178	9.76	1	171	10.2
300.twolf	1	294	11.8	1	290	12.0

### Hardware

CPU: Alpha 21364  
CPU MHz: 1150  
FPU: Integrated  
CPU(s) enabled: 1 core, 1 chip, 1 core/chip  
CPU(s) orderable: 2 to 4  
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: 4GB per CPU; 512MB RIMMs  
Disk Subsystem: AdvFS  
Other Hardware: None

### Software

Operating System: Tru64 UNIX V5.1B + IPK  
Compiler: Compaq C V6.5-011-48C5K  
Program Analysis Tools V2.0  
Spike V5.2 (510 USG)  
Compaq C++ V6.5-041  
File System: MFS, 8GB  
System State: Multi-user

## Notes/Tuning Information

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

### Peak:

All but 252.eon: cc -g3 -arch ev7 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  
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 ev7 -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



# CINT2000 Result

Copyright ©1999-2004, Standard Performance Evaluation Corporation

Hewlett-Packard Company  
AlphaServer ES47 7/1150

SPECint\_rate2000 = 10.2  
SPECint\_rate\_base2000 = 9.29

SPEC license #: 2 | Tested by: HP | Test date: Jun-2004 | Hardware Avail: Jul-2004 | Software Avail: Jul-2004

## Notes/Tuning Information (Continued)

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_feedback -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
max_proc_per_user = 2048
max_threads_per_user = 4096
maxusers = 2048
```



# CINT2000 Result

Copyright ©1999-2004, Standard Performance Evaluation Corporation

Hewlett-Packard Company  
AlphaServer ES47 7/1150

SPECint\_rate2000 = 10.2  
SPECint\_rate\_base2000 = 9.29

SPEC license #: 2 | Tested by: HP | Test date: Jun-2004 | Hardware Avail: Jul-2004 | Software Avail: Jul-2004

## Notes/Tuning Information (Continued)

```
per_proc_address_space = 34359738368  
per_proc_data_size = 34359738368  
per_proc_stack_size = 34359738368
```

```
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
```

Information on UNIX V5.1B Patches can be found at  
<http://ftpl.service.digital.com/public/unix/v5.1b/>

Processes were bound to CPUs using "runon".

This result was measured on model ES80.  
Model ES47 and model ES80 are electronically equivalent.