



# CINT2000 Result

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Compaq Computer Corporation  
AlphaServer GS160 Model 6/731

SPECint\_rate2000 = 69.9  
SPECint\_rate\_base2000 = 63.1

SPEC license #: 2 | Tested by: Compaq NH | Test date: Apr-2000 | Hardware Avail: Jun-2000 | Software Avail: Jul-2000

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	16	467	55.7	16	412	63.0
175.vpr	16	452	57.5	16	441	59.0
176.gcc	16	279	73.2	16	242	84.3
181.mcf	16	1144	29.2	16	887	37.7
186.crafty	16	184	101	16	190	97.5
197.parser	16	752	44.4	16	538	62.1
252.eon	16	272	88.7	16	259	93.2
253.perlbnk	16	488	68.5	16	460	72.6
254.gap	16	481	42.4	16	462	44.2
255.vortex	16	485	72.7	16	400	88.1
256.bzip2	16	398	70.0	16	357	78.1
300.twolf	16	568	98.0	16	602	92.4

### Hardware

CPU: Alpha 21264A  
 CPU MHz: 731  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 16 chips, 1 core/chip  
 CPU(s) orderable: Up to 16  
 Parallel: No  
 Primary Cache: 64KB(I)+64KB(D) on chip  
 Secondary Cache: 4MB off chip per CPU  
 L3 Cache: None  
 Other Cache: None  
 Memory: 32GB (4x8GB)  
 Disk Subsystem: mfs (Memory File System)  
 Other Hardware: Ethernet

### Software

Operating System: Tru64 Unix V5.1 (Release for GS160,GS320)  
 Compiler: Compaq C T6.3-120-44A2I  
 DIGITAL C++ V6.1-029-408B6  
 File System: mfs  
 System State: Multi-user

## Notes/Tuning Information

Baseline C : cc -arch ev6 -fast GEMFB -non\_shared  
 C++: cxx -arch ev6 -O2 ONESTEP

GEMFB: fdo\_pre0 = mkdir /tmp/pb; rm -f /tmp/pb/\${baseexe}  
 PASS1\_CFLAGS = -prof\_gen\_noopt -prof\_dir /tmp/pb  
 PASS2\_CFLAGS = -prof\_use\_feedback -prof\_dir /tmp/pb  
 (base uses directory /tmp/pb; peak uses /tmp/pp)

Peak: cc [except eon: cxx] -v -arch ev6 ONESTEP plus:

164.gzip: -g3 -fast -O4 +GEMFB  
 175.vpr: -g3 -fast -O4 +GEMFB  
 176.gcc: -g3 -fast -O4 -xtaso\_short +GEMFB  
 181.mcf: -g3 -fast -xtaso\_short +GEMFB  
 186.crafty: -g3 -fast -O4 -inline speed  
 197.parser: -g3 -fast -O4 -xtaso\_short +GEMFB  
 252.eon: -O2  
 253.perlbnk: -g3 -fast +GEMFB -non\_shared  
 254.gap: -g3 -fast -O4 +GEMFB  
 255.vortex: -g3 -fast +GEMFB  
 256.bzip2: -g3 -fast -O4 +GEMFB



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## Notes/Tuning Information (Continued)

```
300.twolf: -g3 -fast -O4 +GEMFB
```

```
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
```

Compaq C T6.3 is posted at <http://www.unix.digital.com/dtk/>  
It has been available as an ADK (Advanced Developers' Kit)  
since February, 2000; the final version will be posted  
in July, 2000.

The SPEC CPU2000 binaries were compiled under Unix V4.0F.

```
submit = runon <cpu #> $command  
sysconfigtab settings:
```

```
    max_proc_per_user = 4096  
    max_threads_per_user = 4096  
    per_proc_data_size = 21474836480  
max_per_proc_data_size = 21474836480  
    per_proc_address_space = 21474836480  
max_per_proc_address_space = 21474836480
```

Tru64 Unix V5.1 will ship in Jul-2000 for use on the GS160, GS320 platforms;  
the final version will ship Sep-2000.