



# CFP2000 Result

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Compaq Computer Corporation  
AlphaServer GS160 Model 6/731

SPECfp\_rate2000 = 73.3  
SPECfp\_rate\_base2000 = 68.2

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
168.wupwise	16	411	72.2	16	369	80.5
171.swim	16	602	95.5	16	611	94.1
172.mgrid	16	586	57.0	16	561	59.5
173.applu	16	908	42.9	16	793	49.1
177.mesa	16	253	103	16	249	104
178.galgel	16	728	73.9	16	455	118
179.art	16	215	225	16	177	272
183.quake	16	931	25.9	16	934	25.8
187.facerec	16	372	94.7	16	343	103
188.amp	16	736	55.5	16	795	51.3
189.lucas	16	531	69.8	16	536	69.2
191.fma3d	16	692	56.3	16	675	57.8
200.sixtrack	16	389	52.5	16	385	53.1
301.apsi	16	835	57.8	16	809	59.6

### 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  
 Compaq Fortran V5.3  
 /usr/bin/f77: fort (not fort90)  
 KAP Fortran V4.2  
 KAP C 4.0  
 File System: mfs  
 System State: Multi-user

## Notes/Tuning Information

Baseline C: cc -arch ev6 -fast -O4 ONESTEP  
 Fortran: kf90 -arch ev6 -O5 -fkapargs='-ur=-1' ONESTEP

Peak: -v -g3 -arch ev6 -non\_shared ONESTEP plus:  
 168.wupwise: f77 -fast -O4 -pipeline -unroll 2  
 171.swim: f90 -fast -O5 -transform\_loops  
 172.mgrid: kf77 -O5 -transform\_loops -tune ev6 -unroll 8  
 173.applu: f77 -fast -O5 -transform\_loops -unroll 14  
 177.mesa: cc -fast -O4  
 178.galgel: kf90 -O4 -unroll 2 -ldxml  
 RM\_SOURCES = lapak.f90  
 179.art: kcc -fast -O4 -ckapargs='-arl=4 -ur=4' -unroll 10  
 183.quake: kcc -fast -ckapargs='-arl=4' -xtaso\_short  
 187.facerec: f90 -fast -O4  
 188.amp: cc -fast -O4 -xtaso\_short  
 189.lucas: kf90 -fast -O5 -fkapargs='-ur=1' -unroll 1  
 191.fma3d: kf90 -O4



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## Notes/Tuning Information (Continued)

```
200.sixtrack: f90 -fast -O5 -transform_loops
301.apsi: kf90 -O5 -transform_loops -unroll 8 -fkapargs='-ur=1'
```

Portability: galgel: -fixed

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.