



# CFP2000 Result

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**Hewlett-Packard Company**  
ProLiant BL20p G4 (1.86 GHz, Intel Xeon processor E5320)

SPECfp\_rate2000 = **85.9**  
SPECfp\_rate\_base2000 = **77.7**

SPEC license #: 3 Tested by: Hewlett-Packard Company Test date: Jan-2007 Hardware Avail: Jan-2007 Software Avail: Nov-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	8	173	85.7	8	173	85.7
171.swim	8	694	41.4	8	688	41.8
172.mgrid	8	437	38.2	4	207	40.4
173.applu	8	464	42.0	8	337	57.9
177.mesa	8	76.2	170	8	69.1	188
178.galgel	8	112	241	8	112	241
179.art	8	113	214	4	35.3	342
183.quake	8	328	36.7	8	253	47.6
187.facerec	8	172	103	4	73.9	119
188.amp	8	182	112	8	182	112
189.lucas	8	400	46.4	8	400	46.4
191.fma3d	8	374	52.2	8	374	52.2
200.sixtrack	8	156	65.5	8	156	65.5
301.apsi	8	276	87.6	8	267	90.4

### Hardware

CPU: Intel Xeon processor E5320 (1.86 GHz, 2x4 MB L2 shared, 1066 MHz bus)  
CPU MHz: 1860  
FPU: Integrated  
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
CPU(s) orderable: 1,2 chips  
Parallel: No  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 8 MB I+D on chip per chip (4 MB shared per 2 cores)  
L3 Cache: N/A  
Other Cache: N/A  
Memory: 16 GB (8x2 GB PC2-5300F CL5)  
Disk Subsystem: 2x72 GB 10K SAS  
Other Hardware:

### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64)  
Kernel 2.6.16.21-0.8-smp  
Compiler: Intel C++ Compiler for EM64T-based applications, (Version 9.1 Build 20061101)  
Intel Fortran Compiler for EM64T-based applications, (Version 9.1 Build 20061101)  
PathScale EKOPath(TM) Compiler Suite, Release 2.5  
File System: ext2  
System State: Multi-user run level 3

## Notes/Tuning Information

```
+FDO: PASS1= -prof_gen PASS2=-prof_use (Intel Compiler)
+FDO: PASS1= -fb_create fbdata PASS2=-fb_opt fbdata (PathScale Compiler)
ifort is the Intel Fortran compiler, icc is the Intel C++ compiler; and
pathf95 is PathScale Fortran compiler, pathcc is the PathScale C compiler.
Base tuning for C programs: icc -fast -auto_ilp32 +FDO
Base tuning for FORTRAN programs: ifort -fast +FDO
Portability:
  -DSPEC_CPU2000_LP64 applied to all benchmarks
  178.galgel: -FI
Peak tuning:
  168.wupwise: basepeak=1
  171.swim: pathf95 -Ofast -LNO:fusion=2:simd=0 -WOPT:val=0 -march=em64t
  172.mgrid: pathf95 -Ofast -CG:load_exe=0 -LNO:blocking=off:prefetch_ahead=5
              -OPT:ro=3:unroll_size=256 -WOPT:mem_opnds=on -march=em64t
              users=4
  173.applu: pathf95 -O3 -ipa -CG:load_exe=0
              -LNO:fission=1:fusion=2:blocking=off:full_unroll_size=9000
```



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## Notes/Tuning Information (Continued)

```

- OPT:IEEE_a=3:ro=3 -TENV:X=3 -march=em64t
177.mesa: pathcc -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local_fwd_sched=on
          -GRA:optimize_boundary=on -march=em64t +FDO
178.galgel: basepeak=1
179.art:    icc -fast -auto_ilp32 +FDO users=4
183.quake: icc -fast +FDO ONESTEP=yes -rcd -auto-ilp32
187.facerec: pathf95 -Ofast -IPA:plimit=1500 -LNO:fusion=2
             -OPT:IEEE_NaN_Inf=off:ro=3:unroll_size=0 -march=em64t +FDO
             users=4
188.ammp:   basepeak=1
189.lucas:  ifort -fast ONESTEP=yes
191.fma3d:  basepeak=1
200.sixtrack: basepeak=1
301.apsi:   pathf95 -Ofast -CG:load_exe=0 -LNO:opt=0:prefetch=1 -march=em64t

```

### BIOS Configuration Notes

Power Regulator set to Static High Performance Mode  
Adjacent Sector Prefetch disabled

### Other Configuration Notes

Taskset utility used to bind process to CPU(s)  
"ulimit -s unlimited" set