



# CFP2000 Result

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Hewlett-Packard Company  
ProLiant BL45p (AMD Opteron (TM) 875)

SPECfp\_rate2000 = 69.1  
SPECfp\_rate\_base2000 = 63.9

SPEC license #: 3 Tested by: Hewlett-Packard Company Test date: Apr-2005 Hardware Avail: May-2005 Software Avail: Apr-2005

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	76.0	97.7	4	68.4	109
171.swim	4	259	55.6	4	258	55.7
172.mgrid	4	168	49.7	4	164	50.8
173.applu	4	141	69.0	4	131	74.1
177.mesa	4	81.1	80.1	4	76.4	85.0
178.galgel	4	125	107	4	120	112
179.art	4	146	82.7	4	99.5	121
183.equake	4	126	48.0	4	115	52.5
187.facerec	4	101	87.5	4	97.8	90.1
188.amp	4	175	58.3	4	162	63.0
189.lucas	4	162	57.2	4	161	57.7
191.fma3d	4	179	54.3	4	173	56.2
200.sixtrack	4	172	29.8	4	147	34.6
301.apsi	4	190	63.3	4	186	64.7

**Hardware**

CPU: AMD Opteron (TM) 875  
CPU MHz: 2200  
FPU: Integrated  
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
CPU(s) orderable: 2,4  
Parallel: No  
Primary Cache: 64KBI + 64KBD (on chip) per core  
Secondary Cache: 1024KB(I+D) (on chip) per core  
L3 Cache: N/A  
Other Cache: N/A  
Memory: 8x2048MB PC3200 CL3.0  
Disk Subsystem: 1x36.4GB 15K Ultra320 SCSI  
Other Hardware:

**Software**

Operating System: SuSE Linux Enterprise Server 9 (x86\_64) SP 1  
SuSE kernel 2.6.5-7.139-smp  
Compiler: PathScale EKO Compiler Suite, Release 2.1  
AMD Core Math Library 2.5.1  
File System: Linux/ext2  
System State: Multi-user run level 3

## Notes/Tuning Information

+ACML: Linked with AMD Core Math Library  
Base tuning for C programs: -Ofast -WOPT:mem\_opnds=on +FDO  
Base tuning for FORTRAN programs: -Ofast -LNO:fusion=2 -OPT:fast\_complex  
Portability flags:  
178.galgel: -fixedform  
Peak tuning:  
168.wupwise: -Ofast -LNO:prefetch Ahead=5:prefetch=3  
-OPT:unroll\_times\_max=8:unroll\_size=128:IEEE\_NaN\_Inf=off:ro=3 -TENV:X=4  
-IPA:space=1000:linear=on:plimit=50000:callee\_limit=5000  
-INLINE:aggressive=on +FDO  
171.swim: -Ofast -LNO:fusion=2  
172.mgrid: -O3 -LNO:fusion=2:blocking=off  
-OPT:Ofast:unroll\_times\_max=8:unroll\_size=256:ro=3 -CG:gcm=off:cflow=off  
173.applu: -Ofast -CG:local\_fwd\_sched=on  
-LNO:fusion=2:fission=2:full\_unroll\_size=10000:prefetch=3  
-OPT:ro=3 -TENV:X=3 -WOPT:val=2  
177.mesa: -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local\_fwd\_sched=on +FDO



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## Notes/Tuning Information (Continued)

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178.galgel: -Ofast -OPT:fast_complex -CG:use_movlpd=on RM_SOURCES=lapak.f90 +ACML
179.art: -O3 -OPT:ro=2:div_split=on:alias=typed -fno-math-errno -m32 +FDO
183.quake: -Ofast -WOPT:mem_opnds=on -CG:local_fwd_sched=on -m32
187.facerec: -Ofast -OPT:treeheight=on:IEEE_NaN_Inf=off:ro=3 -CG:load_exe=0
-LNO:fusion=2 -IPA:plimit=1500 +FDO
188.ammp: -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
-fno-math-errno -TENV:X=4 -LNO:prefetch=0 +FDO
189.lucas: -Ofast -CG:local_fwd_sched=on -LNO:fusion=2 +FDO
191.fma3d: -O2 -ipa -CG:load_exe=1 -OPT:Ofast:IEEE_arith=3:ro=3
-WOPT:mem_opnds=on:retype_expr=on -IPA:pu_reorder=1 +FDO
200.sixtrack: -Ofast -CG:load_exe=1 +FDO
301.apsi: -Ofast -TENV:X=4 -LNO:fusion=2:prefetch=0

```

BIOS Configuration Notes  
Node Interleaving is Disabled

Other Configuration Notes  
Taskset utility used to bind process to CPU(s)