



# CFP2000 Result

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**Rackable Systems**  
C1000-A03-25F26 (AMD Opteron 2218)

SPECfp\_rate2000 = **81.8**  
SPECfp\_rate\_base2000 = **75.9**

SPEC license #: 64 Tested by: Rackable Systems Test date: Jul-2006 Hardware Avail: Aug-2006 Software Avail: Mar-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	61.3	121	4	59.8	124
171.swim	4	224	64.3	4	210	68.6
172.mgrid	4	135	61.7	4	128	65.3
173.applu	4	122	79.9	4	109	89.5
177.mesa	4	68.8	94.4	4	64.7	100
178.galgel	4	111	121	4	104	129
179.art	4	126	95.7	4	88.1	137
183.quake	4	106	56.7	4	95.3	63.3
187.facerec	4	88.0	100	4	85.6	103
188.amp	4	149	68.6	4	144	71.1
189.lucas	4	141	65.6	4	137	67.9
191.fma3d	4	146	66.8	4	146	66.7
200.sixtrack	4	126	40.7	4	121	42.3
301.apsi	4	166	72.7	4	158	76.3

**Hardware**

CPU: AMD Opteron 2218  
CPU MHz: 2600  
FPU: Integrated  
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
CPU(s) orderable: 1,2 chip(s)  
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: 4x1024MB, DDR2 5300  
Disk Subsystem: 1 x 250GB SATA  
Other Hardware: None

**Software**

Operating System: Red Hat Enterprise Linux 4 ES Update 2 x86\_64  
Compiler: PathScale EKOPath(TM) Compiler Suite, Release 2.4 (for C and Fortran)  
AMD Core Mathematical Library (ACML), Version 3.1.0  
File System: Linux/ext3  
System State: Multi-user, run level 3

## Notes/Tuning Information

Portability flags:  
178.galgel: -fixedform

Feedback Optimization:  
+FDO: PASS1=-fb\_create fbdata PASS2=-fb\_opt fbdata

AMD Core Math Library  
+ACML means -L<acml-install-dir>/pathscale64/lib -lacml,  
which causes linking with AMD Core Math Library

Baseline Optimization Flags:  
C programs: -Ofast -WOPT:mem\_opnds=on +FDO  
Fortran programs: -Ofast -LNO:fusion=2 -OPT:fast\_complex=on +FDO

Peak Tuning Flags:  
168.wupwise: -Ofast -LNO:prefetch Ahead=5:prefetch=3  
-OPT:unroll\_times\_max=8:unroll\_size=128:IEEE\_NaN\_Inf=off:ro=3



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## Notes/Tuning Information (Continued)

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-IPA:linear=on:plimit=50000:callee_limit=5000
-INLINE:aggressive=on
171.swim: -Ofast -CG:local_fwd_sched=on -LNO:fusion=2 -m3dnow
172.mgrid: -Ofast -CG:gcm=off -OPT:IEEE_a=3:unroll_size=200
          -LNO:fusion=2:fission=1:blocking=off:prefetch_ahead=2
          -WOPT:mem_opnds=on:aggstr=0
173.applu: -Ofast -CG:local_fwd_sched=on -OPT:ro=3 -TENV:X=3
          -LNO:fusion=2:fission=2:full_unroll_size=10000:prefetch=3
          +FDO
177.mesa:  -O2 -ipa -OPT:Ofast -fno-math-errno -CG:local_fwd_sched=on
          -WOPT:mem_opnds=on +FDO
178.galgel: -Ofast -OPT:fast_complex=on +ACML +FDO
179.art:    -O3 -OPT:Ofast -fno-math-errno -mno-sse2 -m32
183.earthquake: -Ofast -CG:load_exe=2 -WOPT:mem_opnds=on -m32 +FDO
187.facerec: -Ofast -LNO:fusion=2
          -OPT:fast_complex=on:IEEE_NaN_Inf=off:unroll_size=0 +FDO
188.ammpp:  -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
          -fno-math-errno -TENV:X=4 +FDO
189.lucas:  -Ofast -OPT:ro=3:fast_nint=off:unroll_size=256
          -WOPT:mem_opnds=on +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: -O3 -OPT:Ofast:Olimit=6000:early_intrinsics=on
          -fno-math-errno -CG:load_exe=1 +FDO
301.apsi:    -Ofast -CG:load_exe=0 -LNO:prefetch=0:simd=2
Taskset utility used to bind process to CPU(s)

```