



CFP2000 Result

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Verari Systems
QuatreX-64 (TM), AMD Opteron (TM) 850

SPECfp_rate2000 = 49.8
SPECfp_rate_base2000 = 48.5

SPEC license #: 49 | Tested by: AMD, Austin, TX | Test date: Apr-2004 | Hardware Avail: Jun-2004 | Software Avail: Apr-2004

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	124	59.8	4	112	66.3
171.swim	4	292	49.2	4	292	49.2
172.mgrid	4	201	41.6	4	199	42.0
173.applu	4	278	35.1	4	279	34.9
177.mesa	4	84.8	76.6	4	80.0	81.2
178.galgel	4	166	81.1	4	156	86.0
179.art	4	361	33.5	4	360	33.5
183.equake	4	174	34.7	4	169	35.6
187.facerec	4	132	66.7	4	132	66.7
188.amp	4	188	54.4	4	176	57.9
189.lucas	4	214	43.3	4	200	46.3
191.fma3d	4	211	46.1	4	211	46.1
200.sixtrack	4	155	32.9	4	155	32.9
301.apsi	4	224	53.8	4	224	53.8

Hardware

CPU: AMD Opteron (TM) 850
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 4 cores, 4 chips, 1 core/chip
 CPU(s) orderable: 4
 Parallel: No
 Primary Cache: 64KBI + 64KBD on chip
 Secondary Cache: 1024KB(I+D) on chip
 L3 Cache: N/A
 Other Cache: N/A
 Memory: 8x512 MB PC3200 DDR SDRAM CL3.0
 Disk Subsystem: SCSI, Ultra-320, 10k rpm
 Other Hardware: None

Software

Operating System: SuSE Linux 8.0 SLES 64 bit (SP3)
 SuSE NUMA kernel 2.4.21-143
 Compiler: PGI Fortran 5.1-3
 SuSE gcc33 optional compiler (from SLES8 SP3)
 AMD Core Math Library (Version 1.5) for AMD64
 File System: Linux/ext3
 System State: Multi-user SuSE Run level 3

Notes/Tuning Information

+FDO: PASS1=-fprofile-arcs PASS2=-fbranch-probabilities

+ACML is linking with AMD Core Math Library

pgf90 is the PGI Fortran compiler

gcc is the SuSE optional gcc 3.3 compiler (from SLES8 SP3)

Portability:

PORTABILITY=-DSPEC_CPU2000_LP64 is applied to all the C benchmarks.

178.galgel: -Mfixed

Baseline: C gcc -O3 -funroll-all-loops +FDO

Baseline: Fortran pgf90 -fastsse -Mipa=fast

Peak tuning:

168.wupwise: pgf90 -fastsse -Mipa=fast -Minline=levels:2

171.swim: basepeak=true

172.mgrid: pgf90 -fast -Mipa=fast

173.applu: pgf90 -fast -Mipa=fast

177.mesa: gcc -O3 -funroll-all-loops -finline-limit=2000 +FDO

178.galgel: pgf90 -fastsse -O3 -mp RM_SOURCES=lapak.f90 +ACML

179.art: gcc -O3 -funroll-all-loops -ffast-math -finline-limit=1500 +FDO

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Notes/Tuning Information (Continued)

```
183.equake: gcc -O3 -funroll-all-loops -ffast-math -finline-limit=2000
187.facerec: basepeak=true
188.amp: gcc -O3 -funroll-all-loops -ffast-math -finline-limit=2000 +FDO
189.lucas: pgf90 -fastsse -Mipa=fast -Mnosmart
191.fma3d: basepeak=true
200.sixtrack: basepeak=true
301.apsi: basepeak=true
```

ONESTEP is used for all base and peak runs

BIOS rev.:PQTDX0-C

Taskset utility used to bind processes to CPU(s)