# CFP2000 Result

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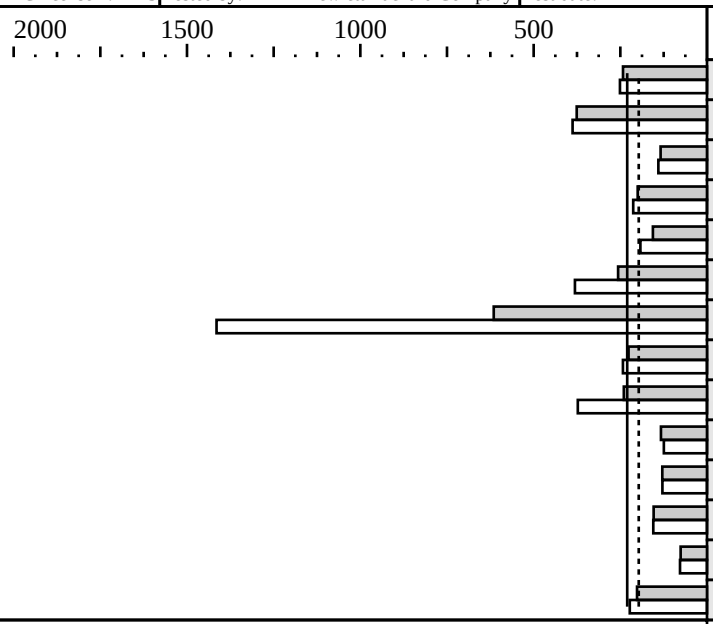
## Hewlett-Packard Company

ProLiant DL585 G2 (AMD Opteron (TM) 8220SE)

SPECfp_rate2000 = 230

SPECfp_rate_base2000 = 197

SPEC license #: 3 | Tested by: Hewlett-Packard Company | Test date: Feb-2007 | Hardware Avail: Sep-2006 | Software Avail: Feb-2007




| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|---|---|---|---|---|---|---|
| 168.wupwise | 8 | 61.3 | 242 | 8 | 59.1 | 251 |
| 171.swim | 8 | 76.5 | 376 | 8 | 74.2 | 388 |
| 172.mgrid | 8 | 125 | 134 | 8 | 119 | 140 |
| 173.applu | 8 | 97.5 | 200 | 8 | 91.6 | 213 |
| 177.mesa | 8 | 83.2 | 156 | 8 | 67.6 | 192 |
| 178.galgel | 8 | 105 | 256 | 8 | 70.6 | 381 |
| 179.art | 8 | 39.2 | 615 | 8 | 17.1 | 1415 |
| 183.equake | 8 | 53.3 | 226 | 8 | 49.7 | 242 |
| 187.facerec | 8 | 73.5 | 240 | 8 | 47.3 | 373 |
| 188.ammp | 8 | 154 | 133 | 8 | 164 | 124 |
| 189.lucas | 8 | 144 | 129 | 8 | 144 | 129 |
| 191.fma3d | 8 | 127 | 154 | 8 | 126 | 155 |
| 200.sixtrack | 8 | 134 | 76.0 | 8 | 131 | 77.8 |
| 301.apsi | 8 | 120 | 202 | 8 | 108 | 223 |

### Hardware

| | |
|---|---|
| CPU: | AMD Opteron (TM) 8220SE |
| CPU MHz: | 2800 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 4 chips, 2 cores/chip |
| CPU(s) orderable: | 2,4 chips |
| Parallel: | No |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per core |
| L3 Cache: | N/A |
| Other Cache: | N/A |
| Memory: | 32 GB (16x2 GB PC2-5300P CL5) |
| Disk Subsystem: | 1x72 GB 10 K SAS |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Solaris 10 6/06 |
| Compiler: | Sun Studio 11 with Patches |
| File System: | ufs |
| System State: | Multi-user |

## Notes/Tuning Information

```
Compiler invocation:
  C: cc
  F90: f90
  F77: f90

FDO:  PASS1= -xprofile=collect:./feedback PASS2= -xprofile=use:./feedback
      fdo_pre0:  rm -rf ./feedback.profile


Floating point base flags:
  F90:   -fast -xipo=2 -xarch=amd64 -xprefetch_level=3 ONESTEP=yes
    C:   -fast -xipo=2 -xalias_level=std -xpagesize=2m ONESTEP=yes

Floating point peak flags:
 ONESTEP=yes for all benchmarks

 168.wupwise:   -fast -xautopar -xpad=common:3969 -xipo=2 -xarch=amd64 -xprefetch_level=3  -xpagesize_heap=2m
```

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## Notes/Tuning Information (Continued)

171.swim: -fast -xpad=common:3969 -xipo=2 -xvector=simd -xprefetch_level=3 -Qoption iropt -Atile:skewp,-Ainline:cs=700 -xarch=amd64 -Qoption ube_ipa -inl_alt -xpagesize_stack=2m

172.mgrid: -fast -xautopar -stackvar -xpad=common:900 -xipo=2 -xarch=amd64 -xprefetch_level=3 -xvector -xpagesize=2m -Qoption ld -M,/usr/lib/ld/map.bssalign

173.applu: -fast -xautopar -unroll=5 -stackvar -xO4 -xipo=2 -xprefetch_level=3 -xarch=amd64a -qoption iropt -Rloop_dist -xpagesize_heap=2m

177.mesa: -fast -xautopar -xO4 -xipo=2 -Wd,-iropt-prof -xarch=amd64 -xalias_level=strong -xpagesize=2m +FDO

178.galgel: -fast -xcache=64/32/4:1024/64/4 -xipo=2 -xpagesize_heap=2m -xvector=simd -xarch=amd64 -xprefetch_level=3 RM_SOURCES=lapak.f90 EXTRALIBS=-xlic_lib=sunperf

179.art: -fast -xipo=2 -xalias_level=strong -xprefetch -Wd,-iropt-prof -xpagesize=2m +FDO

183.equake: -fast -Wd,-iropt-prof -xipo=2 -xprefetch -xalias_level=strong -xpagesize=2m -lmopt -lm +FDO

187.facerec: -fast -xO4 -xipo=2 -xprefetch_level=3 -xpagesize=2m RM_SOURCES=cfftb.f90 cffti.f90 cfftf.f90 EXTRALIBS=-xlic_lib=sunperf

188.ammp: -fast -xcache=64/32/4:1024/64/4 -xO4 -xipo=2 -xarch=amd64a -xalias_level=std -xpagesize_heap=2m -lmopt -lm

189.lucas: -fast -Qoption ube_ipa -inl_alt -xipo=2 -xarch=amd64 -xprefetch_level=3

191.fma3d: -fast -xcache=64/32/4:1024/64/4 -unroll=5 -fsimple=1 -xipo=2 -xprefetch_level=3 -xarch=amd64 -xpagesize_heap=2m +FDO

200.sixtrack: -fast -xipo=2 -O -xprefetch_level=3 -xarch=amd64 -xpagesize_heap=2m -Qoption ld -M,/usr/lib/ld/map.bssalign +FDO

301.apsi: -fast -xO4 -xipo=2 -xprefetch_level=3 -xarch=amd64a -xpagesize=2m

Portability:
178.galgel: -fixed

Shell Environments:
Stack size set to unlimited via "ulimit -s unlimited"

The following patches were applied to Sun Studio 11 compiler:
120759-09 : x86/x64
121016-05 : x86 C
121018-08 : x86 C++
121020-04 : x86 F90
121022-02 : x86 F90

Kernel Parameters (/etc/system):
autoup=900
tune_t_fsflushr=1

Processes were bound to CPUs using submit=pbind

BIOS settings
Node Interleaving was disabled