



# CFP2000 Result

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**Hewlett-Packard Company**  
HP Integrity Superdome 16-way (1500 MHz Itanium 2)

SPECfp\_rate2000 = 236  
SPECfp\_rate\_base2000 = 215

SPEC license #: 3 Tested by: HP Richardson Test date: Sep-2003 Hardware Avail: Oct-2003 Software Avail: Sep-2003

| Benchmark    | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|--------------|-------------|--------------|------------|--------|---------|-------|
| 168.wupwise  | 16          | 183          | 162        | 16     | 159     | 187   |
| 171.swim     | 16          | 269          | 214        | 16     | 269     | 214   |
| 172.mgrid    | 16          | 181          | 184        | 16     | 177     | 189   |
| 173.applu    | 16          | 246          | 158        | 16     | 231     | 168   |
| 177.mesa     | 16          | 130          | 200        | 16     | 130     | 200   |
| 178.galgel   | 16          | 73.0         | 737        | 16     | 53.3    | 1010  |
| 179.art      | 16          | 65.1         | 741        | 16     | 65.1    | 741   |
| 183.quake    | 16          | 188          | 129        | 16     | 138     | 175   |
| 187.facerec  | 16          | 171          | 206        | 16     | 156     | 226   |
| 188.amp      | 16          | 154          | 266        | 16     | 154     | 266   |
| 189.lucas    | 16          | 249          | 149        | 16     | 213     | 175   |
| 191.fma3d    | 16          | 379          | 103        | 16     | 326     | 120   |
| 200.sixtrack | 16          | 80.1         | 255        | 16     | 80.1    | 255   |
| 301.apsi     | 16          | 317          | 152        | 16     | 313     | 154   |

### Hardware

CPU: Intel Itanium 2  
 CPU MHz: 1500  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 16 chips, 1 core/chip  
 CPU(s) orderable: 6 to 16 by 2  
 Parallel: no  
 Primary Cache: 16KBI + 16KBD (on chip) per CPU  
 Secondary Cache: 256KB (on chip) per CPU  
 L3 Cache: 6.0MB (on chip) per CPU  
 Other Cache: N/A  
 Memory: 64GB (128 \* 512MB DIMMs)  
 Disk Subsystem: 10x36GB 10K RPM SCSI disk (striped)  
 Other Hardware: N/A

### Software

Operating System: HP-UX11i-TCOE B.11.23  
 Compiler: HP C/ANSI C Compiler B.11.23  
 HP Fortran90 Compiler B.11.23  
 File System: vxfs  
 System State: Multi-user

## Notes/Tuning Information

C compiler invoked as:  
 /opt/ansic/bin/cc -AOe

Portability Flags  
 178.galgel: +source=fixed

Base Flags  
 f90 : +Oprofile=collect:all/+Oprofile=use +Ofast +O3 -minshared  
 C : +Oprofile=collect:all/+Oprofile=use +Ofaster -exec

### Peak Flags:

168.wupwise : +Ofast +Onoptrs\_to\_globals -minshared +O4 +Oinline\_budget=50000  
 171.swim : basepeak=true  
 172.mgrid : +Ofast +O3 -minshared +DSblended +DD64  
 173.applu : +Ofast +O3 -minshared  
 177.mesa : basepeak=true



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## Notes/Tuning Information (Continued)

```

178.galgel      : +Ofast +Onoptrs_to_globals -minshared +O3 +Oloop_unroll=2 +DD64
                 RM_SOURCES = lapak.f90
                 LIBS = -llapack
179.art         : basepeak=true
183.earthquake  : +Oprofile=collect:all/+Oprofile=use +Ofaster +Onorecovery
                 +Onoptrs_to_globals +Otype_safety=strong -exec -Wl,-aarchive_shared
                 LIBS = -Bprotected /opt/langtools/lib/hpux32/effmem.o
187.facerec    : +Ofast +Onoptrs_to_globals -minshared +O3 +Oloop_unroll=2
188.ammpp      : basepeak=true
189.lucas      : +Ofast +Onoptrs_to_globals -minshared +O3 +Oinline_budget=100
191.fma3d      : +Ofast +Onoptrs_to_globals -minshared +O3
200.sixtrack   : basepeak=true
301.apsi       : +Ofast +Onoptrs_to_globals -minshared +O3

```

### Kernel Tunables:

```

dbc_max_pct=20
dbc_min_pct=20
maxdsiz=3221225472
maxssiz=401604608
maxdsiz_64bit=4396972769279
maxssiz_64bit=1073741824
vps_pagesize=4096
vps_ceiling=16384

```

### Other notes:

System was configured with 1/2 of memory interleaved and 1/2 of memory local to each cell

System configured as a single partition with 4 cells and 4 processors per cell

Processes were assigned to localities using the HP-UX mpsched utility

Filesystem used for SPEC runs mounted "tmplog"