



# CINT2000 Result

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IBM Corporation  
IBM System p5 510Q (1500 MHz, 1 CPU)

SPECint2000 = 1231  
SPECint\_base2000 = 1164

SPEC license #: 11 | Tested by: IBM | Test date: Jan-2006 | Hardware Avail: Feb-2006 | Software Avail: Feb-2006

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	
164.gzip	1400	205	682	199	704	
175.vpr	1400	137	1020	135	1034	
176.gcc	1100	89.4	1230	88.9	1238	
181.mcf	1800	71.9	2504	69.4	2592	
186.crafty	1000	107	935	87.7	1141	
197.parser	1800	172	1044	169	1062	
252.eon	1300	102	1268	102	1268	
253.perlbmk	1800	232	774	203	886	
254.gap	1100	104	1056	102	1075	
255.vortex	1900	98.4	1931	86.6	2194	
256.bzip2	1500	133	1125	127	1177	
300.twolf	3000	229	1307	219	1368	

### Hardware

CPU: POWER5+  
 CPU MHz: 1500  
 FPU: Integrated  
 CPU(s) enabled: 1 core, 2 chips, 2 cores/chip (SMT off)  
 CPU(s) orderable: 4  
 Parallel: No  
 Primary Cache: 64KBI+32KBD (on chip)/core  
 Secondary Cache: 1920KB unified, shared (on chip)/chip  
 L3 Cache: 2x36MB unified (off-chip)/QCM, 1 QCM/SUT  
 Other Cache: None  
 Memory: 8x4GB  
 Disk Subsystem: 1x73GB SCSI, 15K RPM  
 Other Hardware: None

### Software

Operating System: AIX 5L V5.3  
 Compiler: XL C/C++ Enterprise Edition Version 8.0 for AIX  
 File System: AIX/JFS2  
 System State: Multi-user

## Notes/Tuning Information

### Portability Flags:

```
176.gcc: -ma -DHOST_WORDS_BIG_ENDIAN
186.crafty: -DAIX
253.perlbmk: -DSPEC_CPU2000_AIX
254.gap: -DSYS_IS_BSD -DSYS_STRING_H
          -DSYS_HAS_MALLOC_PROTO -DSYS_HAS_CALLOC_PROTO
300.twolf: -DHAVE_SIGNED_CHAR
```

### Base Optimization Flags:

```
C: -qpdf1/pdf2
   -O5 -blpdata -D_ILS_MACROS
C++: -qpdf1/pdf2
      -O4 -qalign=natural
```

### Peak Optimization Flags

```
164.gzip: -qpdf1/pdf2
          -O4 -qfdpr -blpdata
          fdpr -q -O3
175.vpr: -qpdf1/pdf2
         -O5 -qfdpr -blpdata
```



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## Notes/Tuning Information (Continued)

```

176.gcc:      fdpr -q -O3
              -qpdf1/pdf2
              -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata
181.mcf:      -qpdf1/pdf2
              -O5 -qalign=natural -blpdata -qfdpr -Q
186.crafty:   fdpr -q -O3
              -qpdf1/pdf2
              -O4 -qalign=natural -q64 -lhmu -blpdata
197.parser:   -qpdf1/pdf2
              -O4 -qfdpr -D_ILS_MACROS -blpdata
252.eon:      fdpr -q -O3
              -qpdf1/pdf2
              -O4 -qalign=natural
253.perlbnk:  -qpdf1/pdf2
              -O5 -qalign=natural -blpdata -lhmu
254.gap:      -qpdf1/pdf2
              -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata
255.vortex:   -qpdf1/pdf2
              -O4 -qfdpr -lhmu -blpdata
256.bzip2:    fdpr -q -O3
              -qpdf1/pdf2
              -O5 -qfdpr -blpdata
300.twolf:    fdpr -q -O3
              -O5 -qfdpr -blpdata
              fdpr -q -O3

```

The installed OS level is AIX 5L for POWER version 5.3 with the 5300-04 Recommended Technology Level.

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)

QCM: Acronym for "Quad-Core Module" (Two dual-core processor chips + two L3-cache chips)

SUT: Acronym for "System Under Test"

Extended C: IBM XL C for AIX invoked as cc  
C++: IBM XL C for AIX invoked as xlc

ulimits set to unlimited.

Large page mode and memory affinity were set as follows:

```

vmo -r -o lpgg_regions=800 -o lpgg_size=16777216
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -rF
export MEMORY_AFFINITY=MCM

```

The following config-file entry was used to assign each benchmark process to a core:

```
submit = bindprocessor \$\$ \$SPECUSERNUM; $command
```

The "bindprocessor" AIX command binds a process to a CPU core.

Three cores were deconfigured and SMT disabled using the AIX commands

```

smtctl -m off -w boot
bosboot -aD
shutdown -rF
drmgr -r -c cpu
drmgr -r -c cpu
drmgr -r -c cpu

```