CINT2000 Result

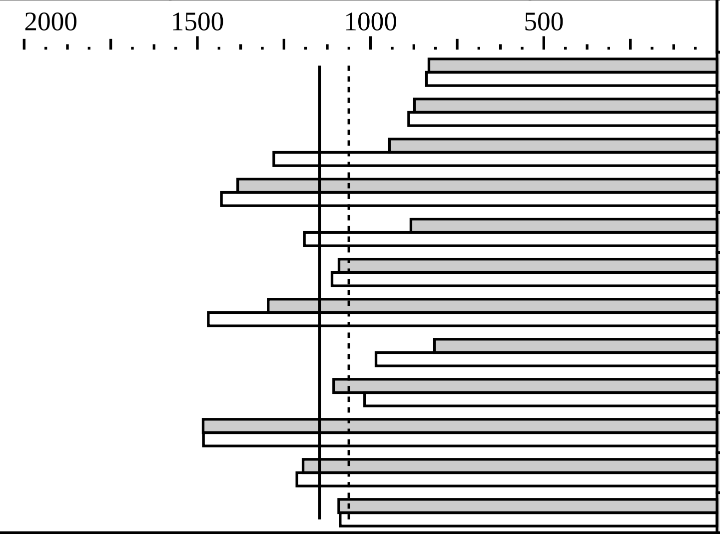
IBM Corporation

IBM eServer p5 595 (1900 MHz, 64 CPU)

SPECint_rate2000 = 1147

SPECint_rate_base2000 = 1063

SPEC license #: 11	Tested by: IBM	Test date: Oct-2004	Hardware Avail: Nov-2004	Software Avail: Nov-2004



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	128	250	832	128	248	839
175.vpr	128	238	873	128	234	890
176.gcc	128	173	946	128	128	1279
181.mcf	128	193	1384	128	187	1431
186.crafty	128	168	884	128	125	1191
197.parser	128	245	1091	128	240	1111
252.eon	128	149	1296	128	131	1468
253.perlbmk	128	328	816	128	272	984
254.gap	128	148	1106	128	161	1017
255.vortex	128	190	1483	128	190	1482
256.bzip2	128	186	1195	128	184	1213
300.twolf	128	408	1092	128	410	1088

Hardware

CPU:	POWER5
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	64 cores, 32 chips, 2 cores/chip (SMT on)
CPU(s) orderable:	16,24,32,40,48,56,64
Parallel:	No
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified (on chip)/chip
L3 Cache:	36MB unified (off-chip)/chip, 4 chips/MCM, 8 MCMs/SUT
Other Cache:	None
Memory:	256 GB DDR1
Disk Subsystem:	3x36GB SCSI, 15K RPM
Other Hardware:	None

Software

Operating System:	AIX 5L V5.3
Compiler:	XL C/C++ Enterprise Edition V7.0 for AIX
File System:	AIX/JFS2
System State:	Multi-user

Notes/Tuning Information

```
Tested by IBM
  Portability Flags:
    176.gcc:          EXTRA_CFLAGS=-ma -DHOST_WORDS_BIG_ENDIAN
    186.crafty:       EXTRA_CFLAGS=-DAIX
    252.eon:          EXTRA_LDFLAGS=-I. -DNDEBUG
    253.perlbmk:      EXTRA_CFLAGS=-DSPEC_CPU2000_AIX
    254.gap:          EXTRA_CFLAGS=-DSYS_IS_BSD -DSYS_STRING_H -DSYS_HAS_TIME_PROTO -DSYS_HAS_MALLOC_PROTO
                                   -DSYS_HAS_CALLOC_PROTO
    300.twolf:        EXTRA_CFLAGS=-DHAVE_SIGNED_CHAR

  Base Optimization Flags:
    C:      -qpdf1/pdf2
            -O5 -blpdata -D_ILS_MACROS
    C++:    -qpdf1/pdf2
            -O5 -lhmu -qalign=natural

  Alternate Sources for Base & Peak:
    Approved alternate-source file 252.eon.fmax_errno.src.alt.tar.gz
    was used with 252.eon for POSIX-compatibility.
```

Notes/Tuning Information (Continued)

```
Peak Optimization Flags:
   164.gzip:        -qpdf1/pdf2
                    -O5 -blpdata -D_ILS_MACROS -qfdpr
                    fdpr -R3
   175.vpr:         -qpdf1/pdf2
                    -O5 -blpdata -qalign=natural -qhot=arraypad -Q
   176.gcc:         -qpdf1/pdf2
                    -O5
   181.mcf:         -O5 -blpdata -qfdpr -D_ILS_MACROS
                    fdpr -R3
   186.crafty:      -qpdf1/pdf2
                    -O4 -q64 -qfdpr -qarch=pwr3 -qtune=pwr3 -D_ILS_MACROS
                    fdpr -R3
   197.parser:      -qpdf1/pdf2
                    -O5 -blpdata -D_ILS_MACROS -qfdpr
                    fdpr -R3
   252.eon:         -qpdf1/pdf2
                    -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -D_ILS_MACROS
   253.perlbmk:     -qpdf1/pdf2
                    -O5 -lhmu -qalign=natural
   254.gap:         -qpdf1/pdf2
                    -O5 -lhmu -qalign=natural -D_ILS_MACROS -blpdata
   255.vortex:      -qpdf1/pdf2
                    -O5 -lhmu -qalign=natural -D_ILS_MACROS -blpdata
   256.bzip2:       -qpdf1/pdf2
                    -O5 -blpdata -D_ILS_MACROS -qfdpr
                    fdpr -R3
   300.twolf:       -qpdf1/pdf2
                    -O5 -blpdata -D_ILS_MACROS


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)
MCM: Acronym for "Multi-Chip Module" (four dual-core processor chips + four L3-cache chips)
     This system contains 8 MCMs.
SUT: Acronym for "System Under Test"

C:       IBM XL C for AIX invoked as xlc
C++:     IBM XL C++ for AIX invoked as xlC

APAR IY60349 was applied to AIX to enable new hardware support.
ulimits set to unlimited.
Large page mode and memory affinity were set as follows:
   vmo -r -o lgpg_regions=7000 -o lgpg_size=16777216 -o memory_affinity=1
   chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
   shutdown -r
   export MEMORY_AFFINITY=MCM

The following config-file entry was used to assign each benchmark process to a core:
   submit = schedule.128 $SPECUSERNUM $command
with the "schedule.128" function defined as follows:
   #!/bin/ksh
   index=$1
   shift 1                    # Strip off the residual arguments; the rest is the command.
   if [[ $index -ge 64 ]]
```

Notes/Tuning Information (Continued)

```
        then
            target=$((1+2*(index-64)))
        else
            target=$((2*index))
        fi
        bindprocessor $$ $target        # Schedule this job to the corresponding core.
        $*                              # Now run the command.

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