CINT2000 Result

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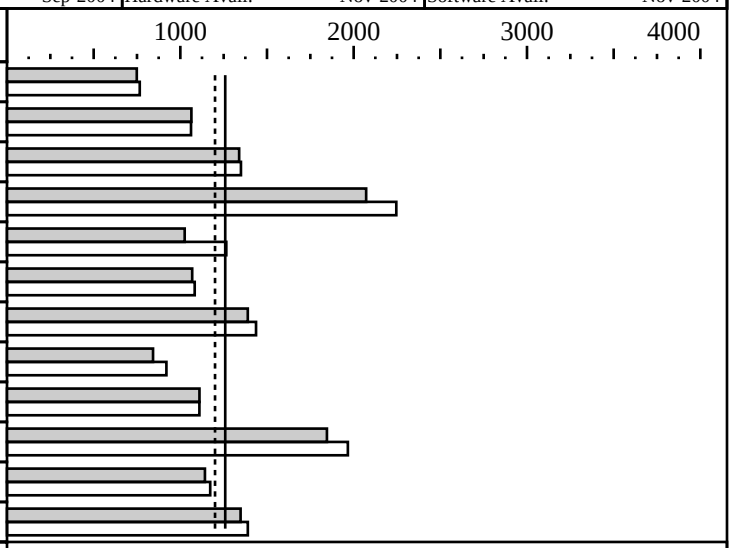
IBM Corporation
IBM eServer p5 590 (1650 MHz, 1 CPU)

SPECint2000 = 1259

SPECint_base2000 = 1200

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
164.gzip	1400	187	749	183	766
175.vpr	1400	132	1064	132	1062
176.gcc	1100	82.1	1339	81.5	1350
181.mcf	1800	86.9	2072	80.1	2246
186.crafty	1000	97.6	1025	79.0	1265
197.parser	1800	168	1068	166	1083
252.eon	1300	93.6	1389	90.5	1437
253.perlbmk	1800	214	843	196	920
254.gap	1100	99.1	1110	99.1	1110
255.vortex	1900	103	1846	96.6	1967
256.bzip2	1500	131	1142	128	1172
300.twolf	3000	223	1348	216	1389



Hardware

CPU:	POWER5
CPU MHz:	1650
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 1 core/chip (SMT off)
CPU(s) orderable:	8,16,24,32
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, 4 MCMs/SUT
Other Cache:	None
Memory:	128 GB DDR1
Disk Subsystem:	2x36GB 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

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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.
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Notes/Tuning Information (Continued)

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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:      -O5 -blpdata -qfdpr -D_ILS_MACROS
                   fdpr -R3


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 4 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=4096 -o lgpg_size=16777216 -o memory_affinity=1
   chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
   shutdown -r
   export MEMORY_AFFINITY=MCM

Thirty-one cores were deconfigured and SMT disabled at the open-firmware prompt, using the
command
            boot -s cpu=1 -s smt_off
The following config-file entry was used to assign each benchmark process to a core:
   use_submit_for_speed = 1
   submit = let "MYCPU=$SPECUSERNUM"; bindprocessor $$ $MYCPU; $command
The "bindprocessor" AIX command binds a process to a CPU core.
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Notes/Tuning Information (Continued)