Tech Info Library

Applesoft: Internals--Floating Point Math Package (3 of 3)

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Revised:        11/7/84
Security:       Everyone
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                   LOWER LEVEL INTERFACE ROUTINES

FOUT   ED34
FOUT creates an ASCII string in FBUFFR equivalent to the value of FAC. On
exit Y,A points to the string, which ends with an ASCII null. FAC is
scrambled. Use STROUT to print the number.

SNGFLT   E301
SNGFLT converts the unsigned number in Y to a floating point number in FAC.

GIVAYF   E2F2
GIVAYF converts the unsigned number in Y,A to a floating point number in FAC.

FLOAT   EB93
FLOAT converts the signed number in A to a floating point number in FAC.

CONINT   E6FB
CONINT converts FAC into a single byte integer in X and FACLO. CONINT
normally exits through CHRGET unless FAC is greater than 255 or less than 0,
when it exits via ILLEGAL QUANTITY ERROR.

AYINT   E10C
If FAC is less than +32767 and greater than -32767, then execute QINT.
Otherwise AYINT exits via ILLEGAL QUANTITY ERROR.

QINT   EBF2
Quick greatest integer function. Leaves INT(FAC) in FACHO,MO,LO signed.
QINT assumes that the absolute value of the FAC is less than 8388608 (2^23rd
power).

GETADR   E752
GETADR converts the number in FAC to a 2 byte, unsigned integer in LINNUM.
When FAC is greater than 65535 or less than -65535, GETADR exits via ILLEGAL
QUANTITY ERROR.

GETNUM   E746

GETNUM fetches a 2 byte number, a comma and an unsigned, single byte number from TXTPTR. The first number is stored in LINNUM, while the second is returned to the X register. On entry TXTPTR points to the first character of the formula for the first number. GETNUM uses FRNUM, GETADR, CHKCOM and GETBYT.

COMBYTE   E74C
COMBYTE checks for a comma, then fetches an unsigned, single byte number returned in X. On entry TXTPTR points to the comma. COMBYTE uses CHKCOM and GETBYT.

FRMEVL   DD7B
FRMEVL evaluates the formula at TXTPTR using CHRGET, then leaves the result in FAC. On entry, TXTPTR points to the first character of the formula, while on exit points to the terminator. "A" does not contain the terminator. The format of the temporary result on the stack is:

       The address of the operator routine.
       The floating point temporary result.
       The precedence of the operator.

FRMEVL, the main subroutine for the commands that use formulas, works for both strings and numbers. If the formula is a string literal, FRMEVL gobbles the opening quote, then executes STRLIT and ST2TXT.

FRMNUM   DD67
FRMNUM evaluates the formula at TXTPTR, puts it in FAC, then makes sure the result is numeric. On entry TXTPTR points to the first character of the formula. FRMNUM exits through TYPE MISMATCH ERROR if the result is a string.

FIN   EC4A
FIN inputs a floating point number into FAC from CHRGET. FIN assumes the 6502 registers and A were set up by the CHRGET that fetched the first digit. FIN only operates on numeric constants, not formulas.

Apple Tech Notes

Tech Info Library Article Number:76