CHECKSUM ROUTINES

The following assembler programs submitted by David Wadham are to enable 16 bit checksums to be accumulated for any length program. This is a useful feature and we may well use it in future for published programs, allowing members to verify that programs have been typed in correctly. Also note the economy of the listing when written for Nas-Sys using Nas-sys internal routines.

ZEAP Z80 Assembler - Source Listing

```
                0010 ; MEMORY BLOCK 16 BIT CHECKSUM : V2.1
                0020 ; for NASBUG T2 or T4


                0050 ; Execute: (BUGSUM) XXXX YYYY
                0060 ; where: (BUGSUM) = location of program
                0070 ;          XXXX = start of memory block,
                0080 ;          YYYY = length of memory block
                0090 ; (all values are hexadecimal).

                0110 ; The result is:
                0120 ; AAAA SSSS;
                0130 ; where: AAAA = address of last byte,
                0140 ;         SSSS=16 bit checksum (any
                0150 ;     carries beyond this are discarded)
                0160 ; Program then returns to the monitor.

                0180 ; Program is fully relocatable (and
                0190 ; may run in ROM).

0D00            0210         ORG  0D00H
0D00 0C0E       0220 ARG2    EQU  0C0EH
0D00 0C10       0230 ARG3    EQU  0C10H
0D00 0232       0240 TBCD3   EQU  0232H
0D00 0240       0250 CRLF    EQU  0240H
0D00 0359       0260 STRT0   EQU  0359H
0D00 2A0E0C     0270 BUGSUM  LD   HL,(ARG2); Get the
0D03 ED4B100C   0280         LD   BC,(ARG3); arguments.
0D07 110000     0290         LD   DE, 0; Clear D & pushed sum store.
0D0A D5         0300         PUSH DE
0D0B 5E         0310 LOOP    LD   E,(HL); Get current value.
0D0C E3         0320         EX   (SP),HL
0D0D 19         0330         ADD  HL,DE; Add value to
0D0E E3         0340         EX   (SP),HL; pushed sum store.
0D0F 23         0350         INC  HL;     To next location.
0D10 0B         0360         DEC  BC;     Decrement counter.
0D11 78         0370         LD   A,B
0D12 B1         0380         OR   C;      set /reset flag
0D13 20F6       0390         JR   NZ LOOP
0D15 2B         0400         DEC  HL;     Back to last byte.
0D16 CD3202     0410         CALL TBCD3; Display last address.
0D19 E1         0420         POP  HL;     Get checksum.
0D1A CD3202     0430         CALL TBCD3; Display it.
0D1D CD4002     0440         CALL CRLF;  New Line.
0D20 31330C     0450         LD   SP, 0C33H; Set Nasbus stack pointer.
0D23 C35903     0460         JP   STRT0; Back into Nasbus.
                0470 ; END
```