

# Nascom Documentation Library



## Guide to Nas-Sys

### [0. Introduction](#)

### [1. Input and Output Devices supported by Nas-sys](#)

#### [1.1 The Keyboard](#)

#### [1.2 The Video Display](#)

#### [1.3 The Serial I/O port](#)

[Diagram – serial port hardware settings](#)

[Diagram – simplified serial input port circuit](#)

[Diagram – simplified serial output port circuit](#)

#### [1.4 The Input and Output tables](#)

#### [1.5 The use of NMI by Nas-sys](#)

### [2. Nas-sys commands](#)

#### [2.1 Descriptions in Alphabetical order](#)

[ARITHMETIC](#)

[BREAKPOINT](#)

[COPY](#)

[JUMP to D000 hex](#)

[EXECUTE](#)

[GENERATE](#)

[HALF DUPLEX TERMINAL](#)

[INTELLIGENT COPY](#)

[JUMP to FFFA hex](#)

[KEYBOARD](#)

[LOAD](#)

[MODIFY](#)

[NORMAL I/O](#)

[OUTPUT](#)

[PROGRAM REGISTER DISPLAY](#)

[QUERY](#)

[READ CASSETTE TAPE](#)

[SINGLE STEP](#)

[TABULATE](#)

[USER I/O](#)

[VERIFY TAPE](#)

[WRITE](#)

[EXTERNAL SERIAL DEVICE](#)

[JUMP to B000 hex](#)

[JUMP to FFFD hex](#)

#### [2.2 Waiting for commands](#)

#### [2.3 Commands within a User Program](#)

[E.g.1 Programming an A command](#)

[E.g.2 Programming the R,T and W commands](#)

## [2.4 Changing the Commands](#)

[2.4.1 How Nas-sys accesses the routines](#)

## [2.4.2 Changing the subroutine table](#)

[E.g.1 Adding an 'F' command example](#)

## [3 Nas-sys routines](#)

### [3.1 Quick reference guide](#)

### [3.2 Descriptions in Alphabetical order](#)

[ATE     Address table execution](#)

[B1HEX   Display LS nibble of A in hexadecimal](#)

[B2HEX   Display A as two digits hexadecimal](#)

[BLINK   Wait for input from devices, blink cursor meanwhile](#)

[BRKPT   Display registers, return control to Nas-sys](#)

[CPOS    Move HL to start of line on screen](#)

[CRLF    Display cr-lf](#)

[CRT     Display ascii char in A](#)

[ERRM    Display ERROR](#)

[FFLP    Change state of one or more bits of O/P port](#)

[IN       Scan device in IN table, return chr in A](#)

[INLIN   DE returned pointing to ascii line input](#)

[KBD     If key press detected, A returns chr](#)

[MFLP    Change state of bit 4 of port 0 as part of single shot](#)

[MRET    Normal return from user program to Nas-sys](#)

[NIM      Change the address of the input device table](#)

[NOM      Change the address of the output device table](#)

[NNIM    Reset the input device table](#)

[NNOM    Reset the output device table](#)

[NUM     Convert 4 digit ascii number to hex](#)

[PRS      Display a zero delimited string](#)

[disp     Call a subroutine with relative addressing](#)

[RDEL    Delay, period stored in A](#)

[RIN      Scan all inputs until a chr recvd, returned in A](#)

[RKBD    Auto-Repeat keyboard routine](#)

[RLIN     Extract arguments from display line](#)

[ROUT    Ascii chr in A sent to output devices](#)

[SCAL    Call all the routines that are not RST instructions](#)

[SCALJ   Call routine whose start address is at 0CDA hex](#)

[SOUT    Send string to serial output port](#)

[SP2      Display two SPACE chrs](#)

[SPACE   Display one SPACE chr](#)

[SRLIN   Scan input table devices, return chr in A, but do not wait](#)

[SRLX    Send A to serial output port and wait for transmit complete](#)

[TBCD2   Send ascii hex equivalent of A to devices in o/p table](#)

[TBCD3   Send ascii hex equivalent of HL to device in O/P table](#)

[TDEL    Delay for 2.9s if z80 clock is 2MHz, 1.45s for 4MHz](#)

[TX1     HL converted to ascii hex and sent to devices in O/P table](#)

[UIN      Add a user i/p device to the input table](#)

[UOUT    Add a user o/p device to the output table](#)

[XOUT    handler for o/p to the external serial device](#)

#### 4. Guide to Examples

Program 1 Demonstrate BLINK, CRLF, ERRM, PRS, RIN, ROUT, TDEL

Program 2 Use of CPOS and display control cmds within PRS string

Program 3 Use of the register display routines

Program 4 How to enter arguments when executing a program

Program 5 How to extract arguments from an input line

Program 6 Use of FFLP / Turn LED2 on and off using MFLP

Program 7 Prompt user for four digit hex number and convert to binary

Program 8 Use of SCALJ to call another routine

Program 9 Enables a screenful of text to be created and saved on tape

Program 10 The saved tape is displayed to the screen

Program 11 Repeat all keyboard i/p to display and serial port

Program 12 Receive line of i/p from keyboard , then save to tape, and repeat

Program 13 User o/p routine to drive parallel printer

Program 14 Use of relative CALL

#### 5. Nas-sys and Basic

5.1 The X=USR(N) statement

5.1.2 Passing a USR result back to BASIC

5.1.3 Transmitting an Argument to the USR routine

5.1.4 Loading USR code from BASIC

5.1.5 Multiple Function USR

5.2 Keyboard characteristics, K mode

5.3 Activating User-written I/O, U mode

5.4 Activating the External Serial Device, X mode

5.5 Deactivating the U and X modes, N mode