

Nascom2 - Nassys3 to CP/M switch.

Summary

The idea is to have a single switch that allows me to switch from Nas-sys3 to CP/M disc system.

The switch needs to

1. Mount a switch on the front of the case.
2. Turn on/off the Nascom 2 onboard memory.
3. Switch in or out the VFC ROM module.
4. Switch the VFC video switch from NASCOM video to VFC video.

My system consists of 3 cards in a chassis with a back plane.

Nascom 2 card

MAP80 VFC card

MAP80 256k Ram card.

Back plane.

To avoid having wires running from the boards I have used lines on the backplane to control the switch over. The lines I used are not used by the standard Nascom 2.

Pin 7 – used for the CPMSwitch.

Pin 65 – used for Switch1

Pin 66 – used for switch2

The lines were connected to the switches on the front of the frame via a IDC connector.

Requirement 1. Mount a switch on the front of the case.

This was done by using a wooden front panel for the switches with a IDC cable attaching it to the back plane. The switches either allow the lines to float or pull them to 0v. Pull up resistors on the various cards handle the pulling the lines high.

Requirement 2. Turn on/off the Nascom 2 onboard memory.

This was achieved using a daughter board that sits in the LKS1 socket on the Nascom2 main board.

The pins 7, 65 and 66 have connectors on the N2 board and can be connected to the daughter board.

In my case I have static Ram at 0x1000 and 0xC000 and PolyDos Rom at 0xD000. This allows me to run PolyDos without the MAP80 256k ram card if I wish to.

I do not have a Basic ROM chip – not sure if I lost it or never had one.

Switch 1 – used to control the static RAM.

Switch 2 – used to control the Ram/Rom at 0xC000 and 0xD000

Requirement 3. Switch in or out the VFC ROM module.

The VFC Rom module is controlled by L4 on the VFC board. Checking the schematic is shows that L4 feeds gate IC13 pin 13, a XOR gate, thus inverting the signal that controls if the ROM is enabled or not. By using a pull-up resistor to connect the L4b to 5v it sets the

default to disable the ROM. Connecting the L4b to pin 7 on the backplane means that when pin 7 is low the Rom is enabled by default.

The problem was that the VFC card does not have an edge connector for pin7. This I solved by using some stick on copper strip that I cut to fit on the edge connector. Look on utube about repairing edge connector.

Since I have found that sometimes the board does not quite site correctly for the pin7 connector to connect I have added an LED on the board connected from 5v, via a resistor, to L4b. This then lights up when CP/M mode is selected.

Requirement 4. Switch the VFC video switch from NASCOM video to VFC video.

The VFC card either defaults to showing the Nascom video or the VFC video via the on-board analogue switch.

I was not able to “hard wire” this to change depending upon the position of the CPMSwitch on pin 7 of the backplane.

I decided that the idea used in NAS-SYS 3A for the Nascom 3 was a good way to go. This modified the NAS-SYS rom to output the port controls to switch over to the Nascom video just before it displays the “-- NASSYS 3 --” message.

The switch over is handled by reading from Port 0xEF, needing 2 bytes (0xdb 0xef), so by shortening the actual message it is possible to get the 2 bytes needed to do the trick.

So the original code

0404 22 6b 0c	ld	(rsp),hl
0407 ef	rst	prs
0408 ..	defm	"-- NAS-SYS 3 --"
0417 0d 00	defb	cr,0

becomes:

0404 22 6b 0c	ld	(rsp),hl
0407	; added extra instructions	
0407 db ef	in	a,(vidprt)
0409	; end of added instructions	
0409 ef	rst	prs
040a ..	defm	"- NAS-SYS 3 -"
0417 0d 00	defb	cr,0

and then a reprogrammed monitor chip, using 28C16 EEPROM, and all is well.