

SPECTRUM 128 TV TUNER ROUTINE

TV TUNER ROUTINE

This routine generates a display showing all possible colours and emitting a continuous cycle of a 440Hz tone for 1 second followed by silence for 1 second. Its purpose is to ease the tuning in of TV sets to the Spectrum 128's RF signal. The display consists of vertical stripes of width four character squares showing each of the eight colours available at both their normal and bright intensities. The display begins with white on the left progressing up to black on the right. With in each colour stripe in the first eight rows is shown the year '1986' in varying ink colours. This leads to a display that shows all possible ink colours on all possible paper colours.

3C10	TV_TUNER	LD A,7F	Test for the BREAK key
		IN A,(FE)	
		RRA	
		RET C	C=SPACE not pressed
		LD A,FE	
		IN A,(FE)	
		RRA	
		RET C	C=CAPS SHIFT not pressed
		LD A,07	
		OUT (FE),A	Set the border to white
		LD A,02	
		CALL 1601	Open channel 2 (main screen)
		XOR A	
		LD (5C3C),A [TV_FLAG]	Signal using main screen
		LD A,16	Print character 'AT'
3C34	TVT_ROW	RST 10	
		XOR A	Print character '0'
		RST 10	
		XOR A	Print character '0'
		RST 10	
		LD E,08	Number of characters per colour
		LD B,E	Paper counter + 1
		LD D,B	Ink counter + 1
		LD A,B	Calculate the paper colour
		DEC A	Bits 3-5 of each screen attribute
		RL A	holds the paper colour; bits 0-2
		RL A	the ink colour
		RL A	
		ADD A,D	Add the ink colour
		DEC A	
3C45	TVT_YEAR	LD (5C8F),A [ATTR_T]	Store as temporary attribute value
		LD HL,3C8F, TVT_DATA	Point to the 'year' data
		LD C,E	Get number of characters to print
3C45	TVT_YEAR	LD A,(HL)	Fetch a character from the data
		RST 10	Print it

INC HL	
DEC C	
JR NZ,3C45, TVT_YEAR	Repeat for the 8 characters
DJNZ 3C34, TVT_ROW	Repeat for all colours in this row
LD B,E	Reset paper colour
DEC D	Next ink colour
JR NZ,3C34, TVT_ROW	Produce next row with new ink colour
LD HL,4800	Point to 2 nd third of display file
LD D,H	
LD E,L	
INC DE	Point to the next display cell
XOR A	
LD (HL),A	Clear first display cell
LD BC,0FFF	
LDIR	Clear lower 2 thirds of display file
EX DE,HL	HL points to start of attributes file
LD DE,5900	Point to 2 nd third of attributes file
LD BC,0200	
LDIR	Copy screen attributes

Now that the display has been constructed, produce a continuous cycle of a 440Hz tone for 1 second followed by a period of silence for 1 second (actually 962ms).

	DI	Disable interrupts so that a pure tone can be generated
3C68	TVT_TONE	LD DE,0370 LD L,07 DE=twice the tone frequency in Hz Border colour of white
3C6D	TVT_DURATION	LD BC,0099 Delay for 950.4us
3C70	TVT_PERIOD	DEC BC LD A,B OR C JR NZ,3C70, TVT_PERIOD LD A,L XOR 10 LD L,A OUT (FE),A Toggle the speaker output whilst preserving the border colour
	DEC DE LD A,D OR E JR NZ,3C6D, TVT_DURATION	Generate the tone for 1 second

At this point the speaker is turned off, so delay for 1 second.

3C83	TVT_DELAY1	LD BC,0000 DEC BC Delay for 480.4us
------	------------	---

		LD A,B	
		OR C	
		JR NZ,3C83, TVT_DELAY1	
3C88	TVT_DELAY2	DEC BC	Delay for 480.4us
		LD A,B	
		OR C	
		JR NZ,3C88, TVT_DELAY2	
		JR 3C68, TVT_TONE	Repeat the tone cycle
3C8F	TVT_DATA	DEFB 13, 00, 31, 39	Bright, off, '1', '9'
		DEFB 13, 01, 38, 36	Bright, on, '8', '6'
3C97			Locations 3C97 to 3CFF all contain 00