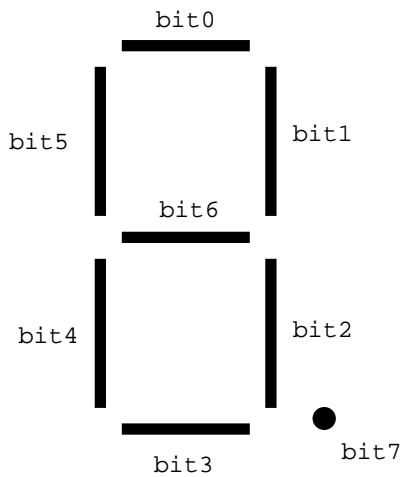


Flashing text with EMMA II

1. Enter the program on the following page in EMMA II. Double check that it is correctly entered.
2. Start the program at address 0200 and enjoy!
3. Use RESET on EMMA II to cancel the program.

Try changing the speed of the program by changing the value of address 021D.

5. Try changing the text. The text shown on the screen is stored as 8 bytes at 0232 ... 0239 in the program. By changing these 8 bytes you can write something else. Each byte corresponds to a 7-segment number on the screen. The LEDs in the 7-segment numbers are encoded as follows:



For example. The letter F has the bits 0, 4, 5, 6 lit and the bits 1, 2, 3, 7 are deactivated. This corresponds to the binary code 01110001 which in turn corresponds to the hexadecimal code 71.

Flashing text

Address	Kod	Assembler	Kommentar
0200	A9 00	LDA #00	;
0202	A2 07	LDX #07	; Clear the screen memory
0204	95 10	STA 10,X	; address [0010...0017]
0206	CA	DEX	;
0207	10 FB	BPL FB (-5)	;
0209	20 1C 02	JSR 021C	; Delay + update the screen
020C	A2 07	LDX #07	;
020E	BD 32 02	LDA 0232,X	; Copy 8 byte data from
0211	95 10	STA 10,X	; address 0232 till screen-
0213	CA	DEX	; memory
0214	10 F8	BPL F8 (-8)	;
0216	20 1C 02	JSR 021C	; Delay + update the screen
0219	4C 00 02	JMP 0200	; Loop program
021C	A2 20	LDX #20	; Delay routine starts here
021E	8A	TXA	
021F	48	PHA	
0220	A9 7F	LDA #7F	; Refresh the screen
0222	85 0E	STA 0E	; in the delay routine
0224	20 0C FE	JSR FE0C	;
0227	A2 FF	LDX #FF	
0229	CA	DEX	
022A	D0 FD	BNE FD (-3)	
022C	68	PLA	
022D	AA	TAX	
022E	CA	DEX	
022F	D0 ED	BNE ED (-19)	
0231	60	RTS	
0232	00 00 71 3F 77 3F 00 00		; Data to be displayed