ZEUS MONITOR Nov. 2021

8-BIT HOBBY COMPUTER BOOTSTRAP CODE

Bootup

At the bootup the Monitor copies memory block \$0000-\$3000 from bank F (EEPROM) to address \$8000 (highmem), than jumps to \$8000 and switches to bank E.

List of commands

>clr

Fills most of TFT screen (everything except command line) with background color.

>dump

Dumps on TFT screen 0x70 bytes starting from specified memory address.

>send

Sends to UART specified amount of bytes starting from specified memory address.

>sysr

Sets system register value. Low nibble of sys reg is used by mem128 module for bank switching. Right after bank switch this new bank is initiated by writing corresponding jump instruction to address \$0000 (in order to keep RESET operational). Take it into concideration before closing EEPROM write enable jumper on the MEM module or else your EEPROM becomes unbootable after power off. So close the jumper ONLY after "SYSR XF" command or fix the jump address with use of LOAD command before power off.

>load

Writes specified byte set starting from specified memory address.

>jump

Sets Program Counter register (jumps) to specified memory address.

>exec

Executes specified byte set ended with 0xC9 (RET instruction).

>crc7

Calculates crc7 sum augmented with bit0 = 1 (check SD phys layer specs) for specified byte set.

Example 1

```
>dump fe08
FE08: 84 00 00 00 00 0A 7F 3F
FE10: 15 9F 5D 14 09 CC 44 FF
FE18: 46 55 1D C2 43 45 00 3D
FE20: 3D 75 1D 80 5D 73 11 59
FE28: 3C 47 95 68 F5 D7 60 7C
FE30: 5D 54 8D D4 7D 48 DC 73
FE38: 5D F5 11 46 04 CF D7 11
FE40: CF 5D C6 FD 54 25 F5 F0
FE48: 73 F9 4D 54 13 FF D1 D0
FE50: 7F 35 70 14 5E 5F 1C 54
FE58: 23 7F D5 5C 5C 63 10 24
FE60: 13 51 55 3D OF
                     7D 14 1C
FE68: 73 F7 7C 4D 4D 54 34 DD
FE70: 55 9F CD F4 5B F5 16 C7
```

```
>load fe0a 00 10
FE08: 84 00 00 00 00 0A 7F 3F
FE10: OF 9F 5D 14 09 CC 44 FF
FE18: 46 55 1D C2 43 45 00 3D
FE20: 3D 75 1D 80 5D 73 11 59
FE28: 3C 47 95 68 F5 D7 60 7C
FE30: 5D 54 8D D4
                  7D 48 DC 73
FE38: 5D F5 11 46 04 CF D7 11
FE40: CF 5D C6 FD
                  54 25 F5 F0
FE48: 73 F9 4D 54 13 FF D1 D0
FE50: 7F
         35 70 14
                   5E 5F
                        1C 54
                     63 10 24
FE58: 23 7F D5 5C
                   5C
FE60: 13 51 55 3D OF
                      7D 14 1C
FE68: 73 F7 7C 4D 4D 54 34 DD
 FE70: 55 9F CD F4 5B F5 16 C7
```



Example 2

```
>load 7e00 30 31 32 33
7E00: 30 31 32 33 74 7D FF D4
               51 C3 73 F4
7E08: F0 04 56
7E10: 45 68 4C CC D5 FC 75 18
                                              13 57
                        75 D5
               12
7E18: C5 F3 30
7E20: D5 FA F5
               67
                     7C 70 F1
                  D0
7E28: 71 95 4D
                     5F 47 FF
               F6 D7
                     38 1D F7
7E30: CD 44 1C
               4E F5
7E38: 54 0D 7C
                        55
               D9
                  1D C7
7E40: D1 6D 13 91 0C
                     14 51 F1
               29 D4
            74
                     57
                        53 1D
7E48: F5 30
7E50: 3D 7D
            3F
               7D 27 70 5C 15
            90 4F 03 7F 57 DD
7E58: 4D 36
7E60: 33 93 3D 76 79 FB 5C 45
7E68: 30 13 44 D4 0F 15 0C
```

```
>send 7e00 0008
7E00: 30 31 32 33 74 7D FF D4
7E08: F0 04 56 51 C3 73 F4
7E10: 45 68 4C CC D5 FC
                        75 18
7E18: C5 F3 30 12 13 57
                        75 D5
7E20: D5 FA F5 67 D0 7C
                        70 F1
                     SF.
7E28: 71 95 4D F6 D7
                        47 FF
7E30: CD 44 1C 4E F5
                     38 1D F7
7E38: 54 OD 7C D9 1D C7
                         55 57
7E40: D1
         6D 13 91 0C 14
                         51 F1
7E48: F5 30 74 29 D4
                     57
                         53 1D
7E50: 3D 7D 3F
               7D 27
                     70
                         5C 15
7E58: 4D 36 90 4F 03
                     7F
                         57 DD
7E60: 33 93 3D 76 79 FB 5C 45
7E68: 30 13 44 D4 0F 15
```

```
>jump a000
7E00: 30 31 32 33 74 7D FF D4
                     73 F4 33
7E08: F0 04 56 51 €3
                                              7E10: 45 68 4C CC D5 FC
                        75 18
         F3 30
               12 13
                     57
7F18: C5
7E20: D5 FA F5 67 D0 7C
                        70 F1
                  D7
                     5F
7E28: 71 95 4D F6
7E30: CD 44 1C 4E F5 38 1D F7
7E38: 54 0D 7C D9 1D
7E40: D1 6D 13 91 0C
                     14
                         51 F1
                      57
                         53 10
7E48: F5 30 74 29 D4
                           15
7E50: 3D 7D 3F 7D 27
                     70
                         5C
7E58: 4D 36 90 4F 03
                     7F
                         57 DD
7E60: 33 93 3D 76 79 FB
                         5C 45
                     15 0C
7E68: 30 13 44 D4 OF
```

Example 3

```
>crc7 00 01 02 03
45
```

```
>dump 0100
0100: 00 01 02 03 45 F7 FB BF
0108: 6B AC C8 4F 08 8E E3 FA
0110: 2F C3 A8 0F 43 B8 BB FE
0118: CF 9A 84 29 38 20 EB 0E
0120: B4 23 2C 8E AF C2 20 AB
0128: 8F 46 AA 34 F8 E2 3A 3E
0130: 8A EF EB 27 0A C0 70 B8
0138: FA 4A C8 08 22 3E BE 0C
0140: B4 CC C7 C4 A3 72 CE FA
0148: 2B 2B F2 38 96 4B 81 B8
0150: 8F 0B 3A FB F7 E2 3B BA
0158: F3 3E C8 EA D3 AA 68 9A
0160: 3E 4C 2A 0F 2C A0 AE 8F
0168: 28 CE C3 0F CC 0D B8 0E
```