# **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 switch to bank E.

#### **List of commands**

>clr

Fills most of TFT screen 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.

>svsr

Sets system register value. Low nibble of sys reg is used by mem128 module for bank switching.

>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

```
Sdump 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 0F 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
FESO: 7F 35 70 14 5E 5F 1C
FE58: 23 7F D5 5C
FE60: 13 51 55 3D
                  5C 63 10 24
                3D 0F
                      7D 14
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
7E08: F0 04 56 51 C3 73 F4 33
                        75 18
7E10: 45 68 4C CC D5 FC
7E18: C5 F3 30 12 13 57
                        75 D5
7E20: D5 FA F5 67 D0 7C
                        70 F1
                     5F
7E28: 71 95 4D F6 D7
                        47 FF
7E30: CD 44 1C 4E F5 38 1D F7
                        55 57
7E38: 54 0D 7C D9 1D C7
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 OF 15 OC
```

```
>send 7e00 0008
7E00: 30 31 32 33 74 7D FF D4
7E08: F0 04 56 51 C3 73 F4 33
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
7E28: 71 95 4D F6 D7 5F 47 FF
7E30: CD 44 1C 4E F5 38 1D F7
7E38: 54 0D 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 F8 5C 45
7E68: 30 13 44 D4 0F 15 0C 5C
```

```
>jump a000
7E00: 30 31 32 33 74 7D FF D4
7E08: F0 04 56 51 C3 73 F4 33
                                                0 0 0 0 0 0 0
                         75 18
7E10: 45 68 4C CC D5 FC
                         75 DS
7F18: C5 F3 30 12 13 57
7E20: D5 FA F5 67 D0 7C
                         70 F1
7E28: 71 95 4D F6 D7
                      SF 47 FF
7E30: CD 44 1C 4E F5
                      38 1D F7
7E38: 54 0D 7C D9 1D C7
                          55 57
                91 OC
                      14 51 F1
         6D 13
7E40: D1
                      57
                          53 1D
7E48: F5
             74
                29 D4
          30
                      70 5C 15
                7D
                   27
7E50: 3D
          7D
             3F
                          57 DD
             90 4F 03
7E58:
      4D
          36
7E60: 33 93 3D 76 79 FB 5C 45
          13 44 D4 OF
                      15
                          0C
7E68:
       30
```

### **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
```