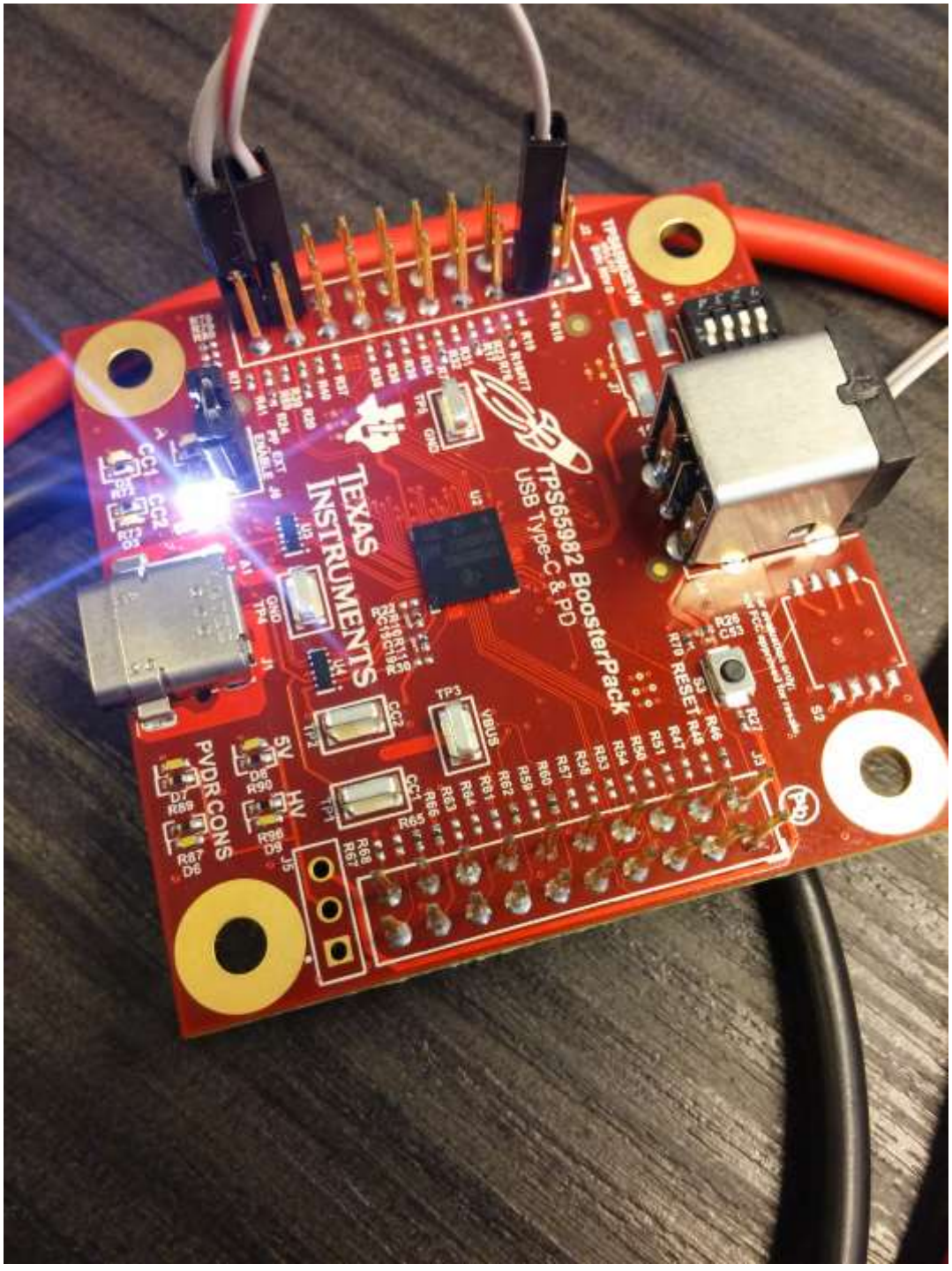
Overview:

We are working on our own application on module TPS65982EVM Development Kit rev. D as shown in Figure 1, and had some problems with it. In our setup I needed to load binarry file into flash memory via I2C bus. As an external controller I used embeded system (Toradex Colibri VF61 module) with several I2C buses. We are using your utilities (python scripts) from Texas Instruments website on Linux Arch OS. We connected directly I2C lines from devkit to our module and it works fine. Writing and reading registers CMD1 and DATA1 works perfectly. I think that is not necessary to show the source code. The system is powered from external power supply 20V, which is connected to J4 connector.



Problem description:

At the first I run read_registers.py script. The partly result is shown in Figure 2. Everything looks great, but problem occurs when master sends 'ADCs' command to read ADC registers. TPS65982 responds '!CMD'. Why does not USB C controller recognize command described in Firmware User's Guide? What we done wrong? The results with enable I2C debug mode are shown in Figure 3.

```
TPS65982 Debug Tool Version 2.0


Vendor ID (0x0)
        [31:0]    Device ID    0x00000028

Device ID (0x1)
        [31:0]    Device ID    0x31454341

Unique ID (0x5)
        [127:0]    Device ID    0xde302961abfe48ca9ab62499000dfedaL

MODE    APP


VERSION          0001.01.00


Customer Use    0x0000


Boot Flags (0x2d)
        [0:0]     BootOk                      True
        [1:1]     ExtPhvSwitch                False
        [2:2]     DeadBatteryFlag             False
        [3:3]     SpiFlashPresent             True
        [4:4]     Region0                     True
        [5:5]     Region1                     False
        [6:6]     Region0Invalid              False
        [7:7]     Region1Invalid              False
        [8:8]     Region0FlashErr             False
        [9:9]     Region1FlashErr             False
        [11:11]   UartCRCFail                 False
        [12:12]   Region0CRCFail              False
        [13:13]   Region1CRCFail              False
        [14:14]   CustomerOTPInvalid          False
        [16:15]   OneCallI2COtpBits           0x1
        [22:22]   Debug Ctl 1 state at boot   low
        [23:23]   Debug Ctl 2 state at boot   low
        [26:24]   DevNumber                   0
        [27:27]   UartBoot                    False
        [28:28]   UartOverflowErr             False
        [29:29]   IntPhvSwitch                False
        [30:30]   UartRetryErr                False
        [31:31]   UartTimeoutErr              False
        [33:32]   OTPValid                    2
        [34:34]   SWD Disable                 False
        [36:36]   Vout3v3Ctl                  True
        [37:37]   WaitForVin3V3               False
        [41:40]   OneCallI2cOtpBits           1
        [54:50]   Vout3v3Threshold            6
```

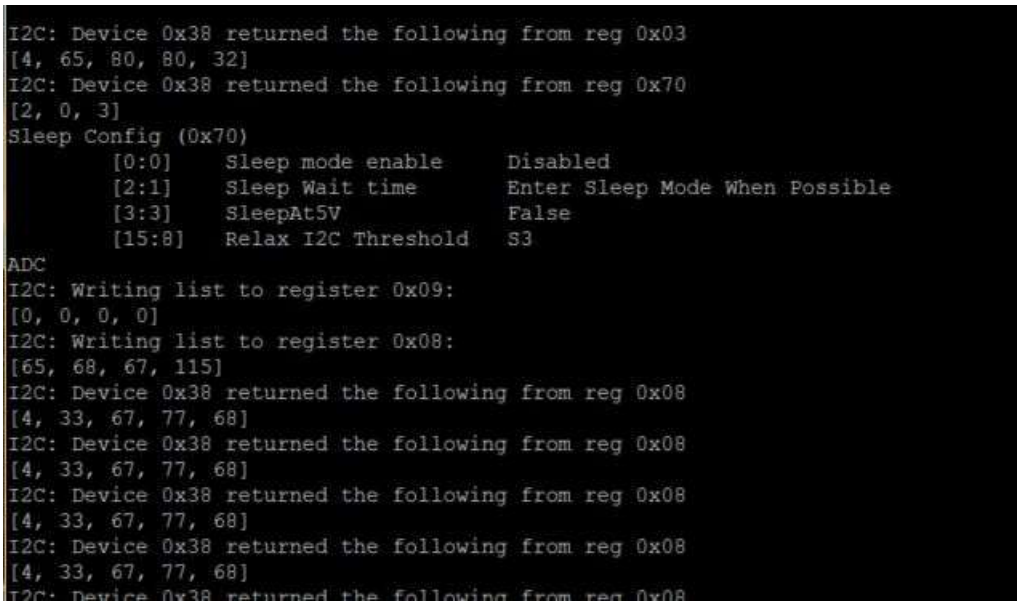


Figure 3: Reading ADC register

Next I run flash_update_region_0.py with binary file and slave device address given as arguments. The result is the same as above. Every command that supports flash memory ('FLrr', 'FLem','FLad', 'FLwd') is unrecognizable. The response to 'FLrr' command is shown in Figure 4.

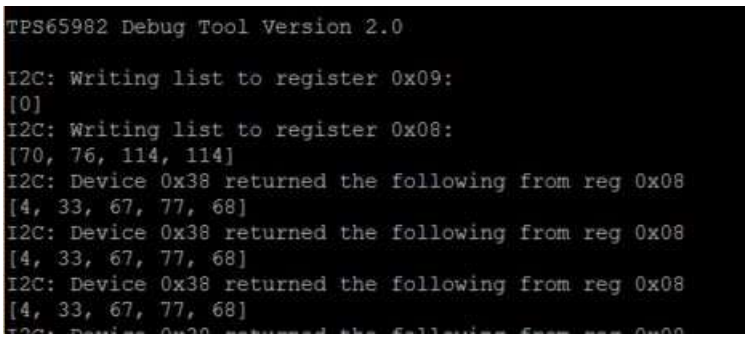


Figure 4: The response to 'FLrr' command

At the end I would like to add, that loading binary file via I2C bus is necessary for our application and we can not use other interface. I hope that the problem was described understandable and clearly. If you have any questions or solutions, please let me know.