EVM430-FR6047

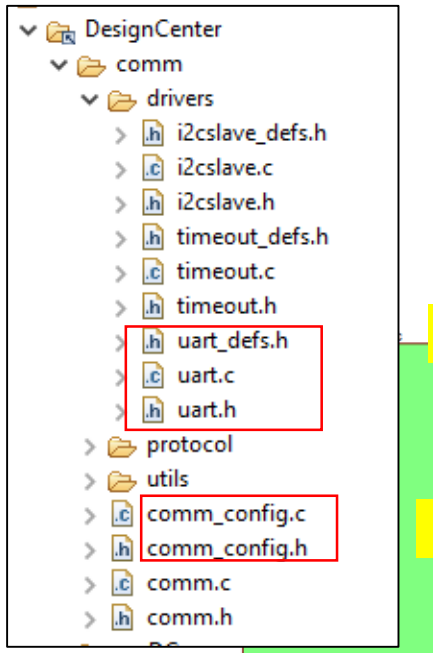
UART Communications

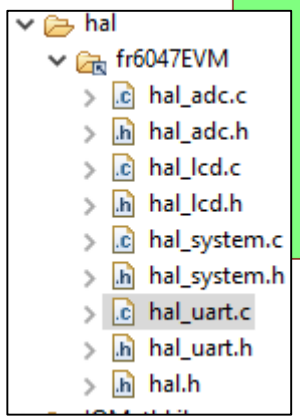
HW/SW Instructions

MSP430 Applications

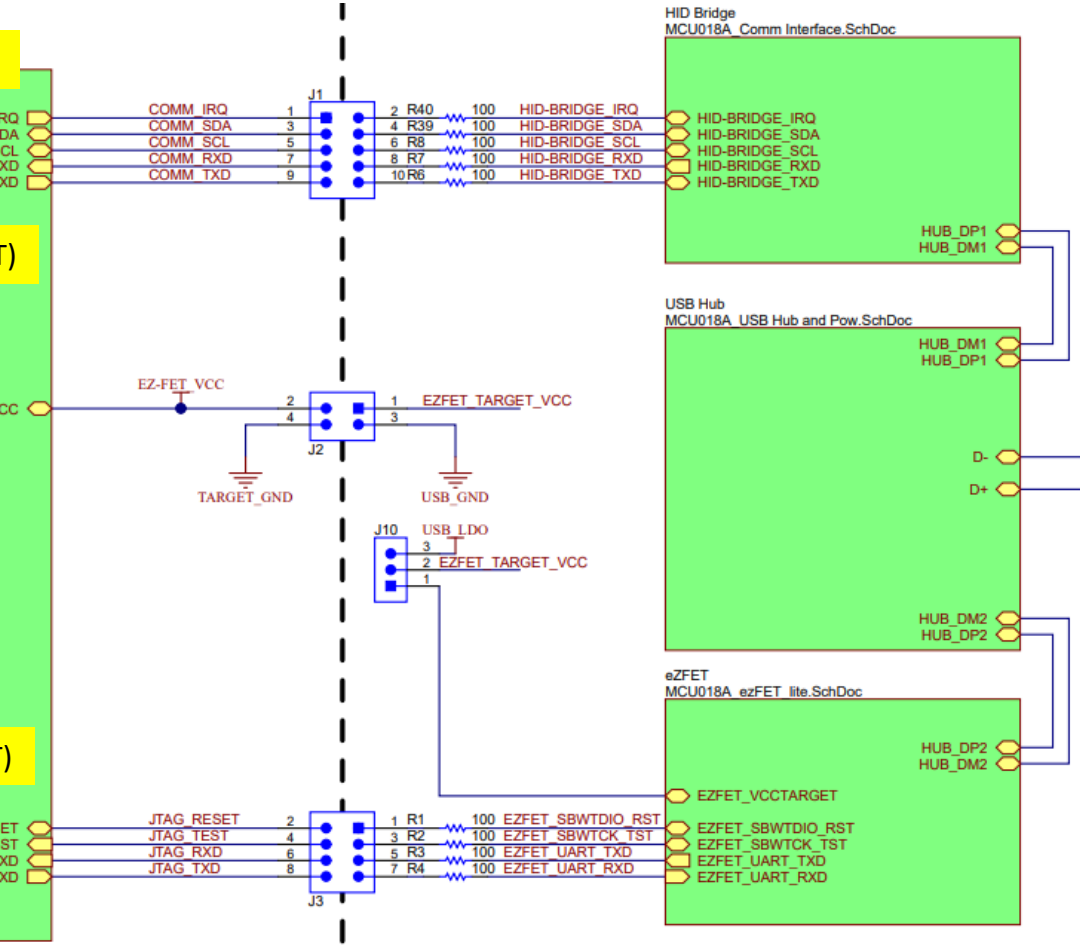
Summary

- This document shows how to use the two EUSCI peripherals used on the MSP430FR6047 EVM
- EUSCI_A0 is reserved for the MSP430 communications with the GUI
- EUSCI_A1 is available for sending results and user data to a PC using the Backchannel UART of the on-board programmer
- For proper jumper configuration, refer to EVM_MSP430FR6047 Hardware guide for details
- https://www.ti.com/lit/ug/slau730a/slau730a.pdf



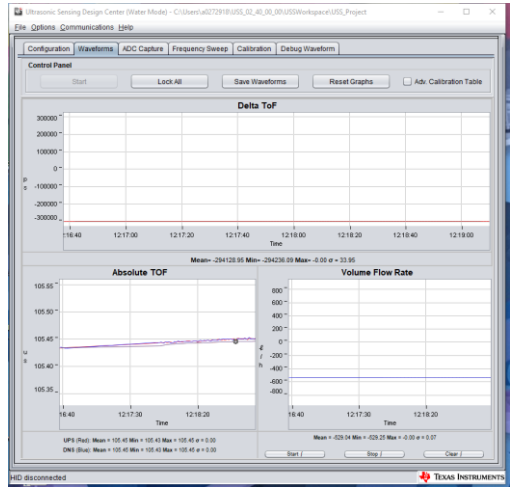


EUSCI_A0 or EUSCI_B0 Send/Receive from MSP430 to GUI

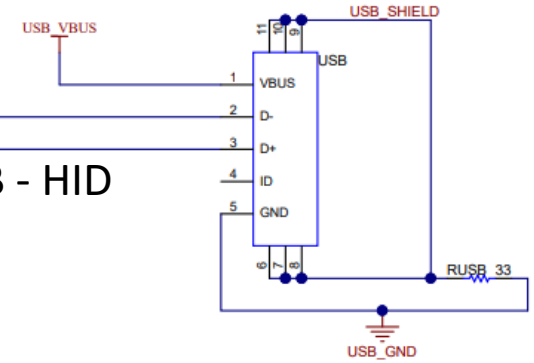


Use EUSCI_A1 to Send/Receive from MSP430 to PC or jumper in a HOST MCU

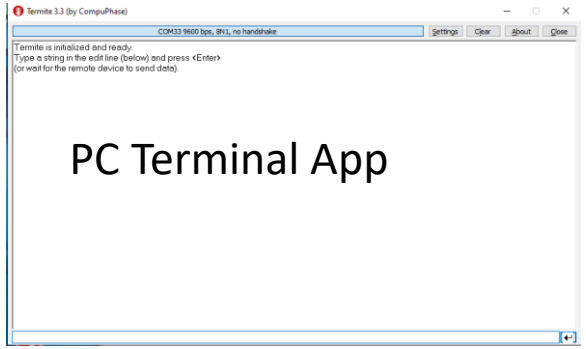
USS GUI



USB - HID



PC Terminal App



How to use EUSCI_A1 as backchannel UART

- HAL_UART.C
- Configure EUSCI_A1 parameters
  - Adjust clocks and set baud rates

```
#if ((HAL_SYS_SMCLK_FREQ_HZ ==8000000) && (HAL_UART_BAUDRATE == 57600))
    param.selectClockSource = EUSCI_A_UART_CLOCKSOURCE_SMCLK;
    param.clockPrescalar = 8;           // 8000000/16/57600 = 8.68
    param.firstModReg = 10;              // UCOS16=1, BRFx = 10, BRSx = 0xF7
    param.secondModReg = 0xF7;
    param.overSampling = EUSCI_A_UART_OVERSAMPLING_BAUDRATE_GENERATION;
#elif ((HAL_SYS_SMCLK_FREQ_HZ==8000000) && (HAL_UART_BAUDRATE == 115200))
    param.selectClockSource = EUSCI_A_UART_CLOCKSOURCE_SMCLK;
    param.clockPrescalar = 4;           // 8000000/16/115200 = 4.34
    param.firstModReg = 5;              // UCOS16=1, BRFx = 5, BRSx = 0x55
    param.secondModReg = 0x55;
    param.overSampling = EUSCI_A_UART_OVERSAMPLING_BAUDRATE_GENERATION;
#elif ((HAL_UART_BAUDRATE == 9600) && (HAL_SYS_ACLK_FREQ_HZ==32768))
    param.selectClockSource = EUSCI_A_UART_CLOCKSOURCE_ACLK;
    param.clockPrescalar = 3;           // 32768/9600 = 3.41
    param.firstModReg = 0;              // UCOS16=0 BRFx = 0, BRSx = 0x92
```

- Initialize EUSCI_A1
  - Call hal_uart_Init()
- To send a byte
  - Call hal_uart_TxByte()