SimpleBLEPeripheral SerialInterface

http://processors.wiki.ti.com/index.php/SimpleBLEPeripheral_SerialInterface

Introduction

This wiki presents a way to open up a serial interface towards an external device using UART. The provided example is a proof of concept that works with or without flow control.

Project Files

The project example is based on SimpleBLEPeripheral running on a CC2541 but the included SerialInterface.c/h can be using in any other project to open up serial communication.

SerialInterface.c/h

The SerialInterface has it's own task which is prioritized over the Application. The SerialInterface provides two external functions to allow this;

- **SerialInterface_Init(uint8 task_id)** - Called in OSAL_SimpleBLEPeripheral.c and initiates the UART functionality using NPI_InitTransport.
- **SerialInterface_ProcessEvent(uint8 task_id, uint16 events)** - Task handler for serial event handling and internal OSAL communication.

Internally, the SerialInterface uses...

- **cSerialPacketParser(uint8 port, uint8 events)** - Packet parser for the incomming UART communication
- **parseCmd(void)** - Command parser
- **sendSerialEvt(void)** - Send serial event over UART

Serial Commands

The commands are examples and can be modify for own purposes.

- **APP_CMD_ADVERTISE** - Allow device to start advertise
- **APP_CMD_DISCONNECT** - Not used in this example
- **APP_CMD_PRINT_LCD** - Prints packets information on LCD

Serial Events

- **APP_EVT_CMD_RESPONSE** - confirmation that a command has been received
- **APP_EVT_CONNECT** - Not used in this example
- **APP_EVT_DISCONNECT** - Not used in this example

How to integrate SerialInterface to other Project

Until further description, look at the SimpleBLEPeripheral project (best method is to diff with original simpleBLEPeripheral). Used defines in the example project;

- INT_HEAP_LEN=3072
- HALNODEBUG
- OSAL_CBTIMER_NUM_TASKS=1
- HAL_AES_DMA=TRUE
- HAL_DMA=TRUE
- POWER_SAVING
- HAL_LCD=TRUE

- HAL_LED=FALSE
- SERIAL_INTERFACE
- HAL_UART
- HAL_UART_DMA=1
- HAL_UART_ISR=0
- HCI_UART_BR=4
- HAL_KEY=FALSE

Future Improvements

parseCmd function should send information through OSAL messaging to Application Task Handler to abstract away BLE functionality from SerialInterface.

Downloads

- - SimpleBLEPeripheral including SerialInterface (BLEv1.3)

http://processors.wiki.ti.com/index.php/File:SimpleBLEPeripheral_UART_BLE1v3_02072013.zip

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