README **Friday, March 15, 2024**

Sebastian Kind

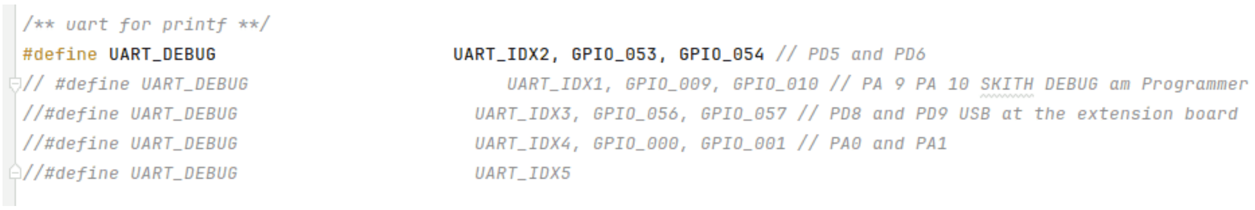
t;ldr

- For this example to work you need to comment/uncomment a line in the rodos-sources for your copy, to redirect the flow of Debug messages
- connect UART-Adapter and the UART-Bluetooth Dongle as shown on the photo on the 2nd page
- We are here rodos/support/support-programs/middleware-python/examples/examples-discovery-mw-printf

In order to use the example in this directory you must set the appropriate settings. You want connect the Bluetooth Dongle RX and TX lines to PD5 and PD6, its VCC and GND lines to 5V and GND on the discovery board respectively. Hence you have to tell RODOS, which pins will be used for which UART Interface.
There is a file called platform-parameter.h in
rodos/src/bare-metal/stm32f4/platform-parameter/discovery/platform-parameter.h

Note: You can find the file with find . | grep -i searchpattern

by default the file platform-parameter.h contains this block of definitions close to its beginning:

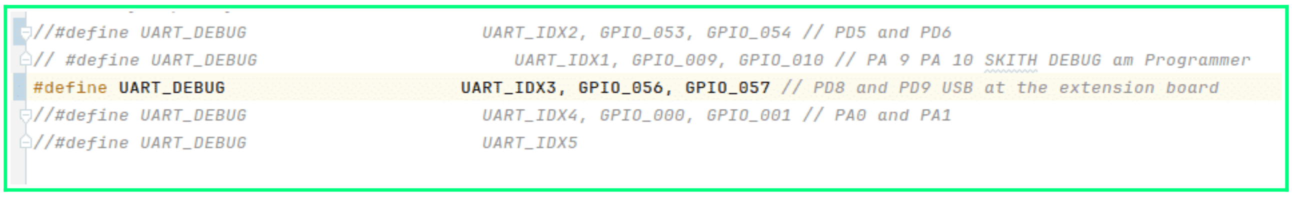


```
/** uart for printf **/
#define UART_DEBUG                        UART_IDX2, GPIO_053, GPIO_054 // PD5 and PD6
// #define UART_DEBUG                         UART_IDX1, GPIO_009, GPIO_010 // PA 9 PA 10 SKITH DEBUG am Programmer
//#define UART_DEBUG                       UART_IDX3, GPIO_056, GPIO_057 // PD8 and PD9 USB at the extension board
//#define UART_DEBUG                       UART_IDX4, GPIO_000, GPIO_001 // PA0 and PA1
//#define UART_DEBUG                       UART_IDX5
```

Code 1: platform-parameter.h before change

you need comment, the line that defines UART_DEBUG and uncomment another definition for UART_DEBUG, if you want to use this example

Here we set **UART_DEBUG** to be **UART_IDX3**, which sets the default UART Output for PRINTF(...) and the boot splash to PD8 and PD9 (left side of discovery board, viewed from above) Compile the rodos library for the discovery board with
rodos-lib.sh discovery



```
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//#define UART_DEBUG                       UART_IDX5
```

Code 2: platform-parameter.h after the change

Next page for Pinout

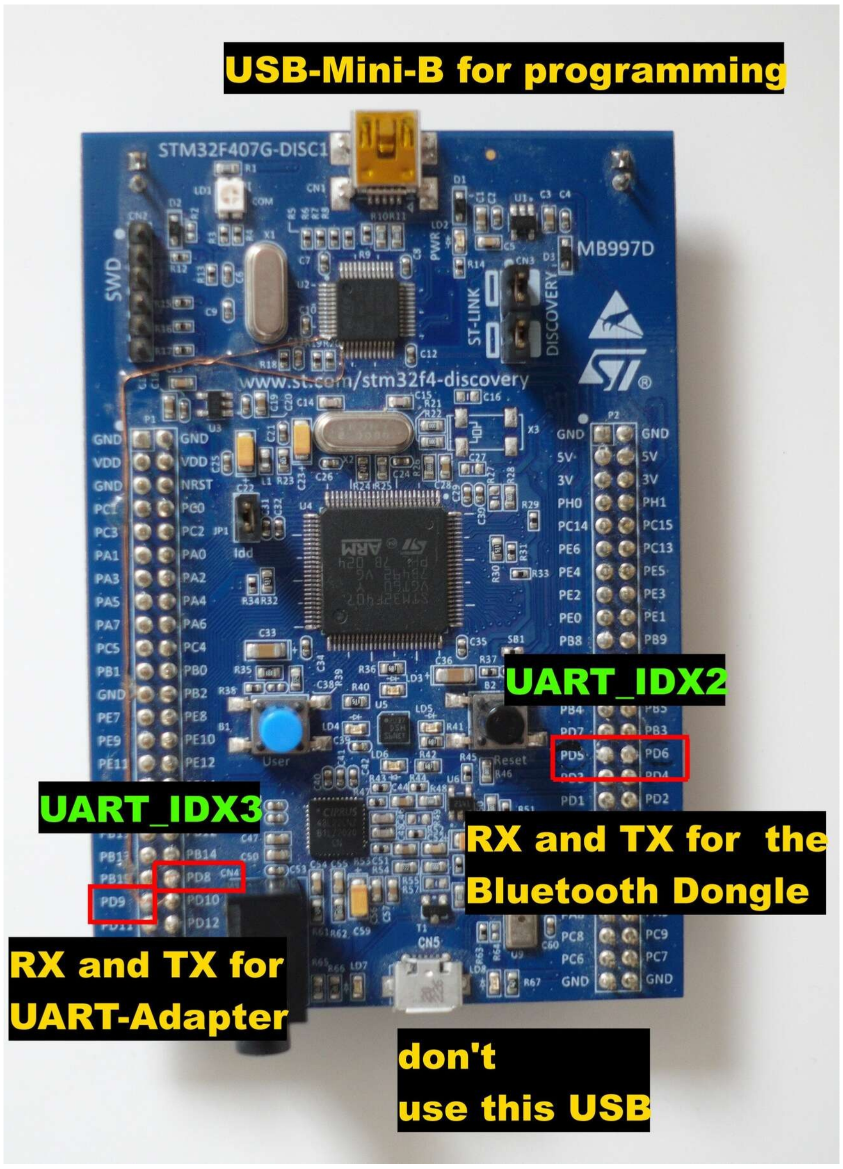
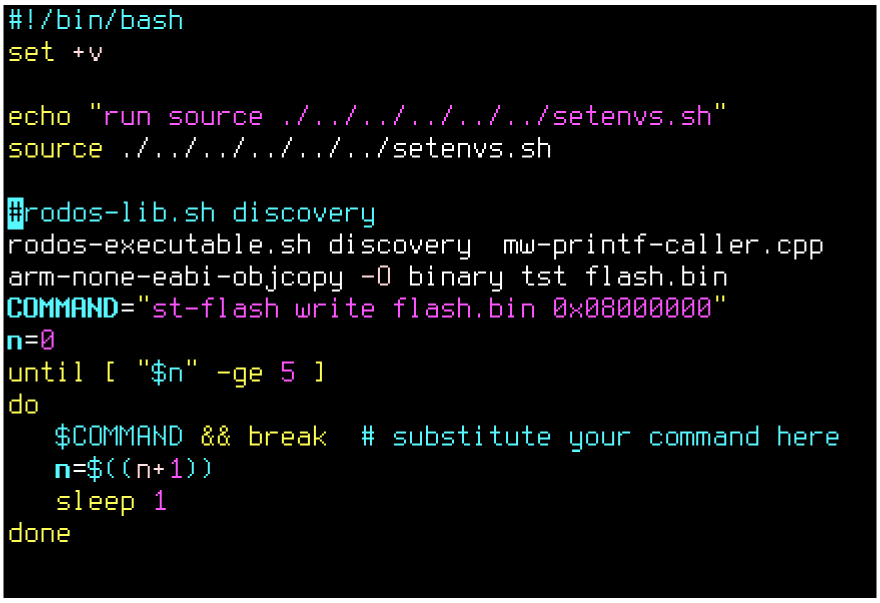

USB-Mini-B for programming
UART_IDX2
UART_IDX3
RX and TX for the Bluetooth Dongle
RX and TX for UART-Adapter
don't use this USB
PD5
PD6
PD8
PD9

Image 1: Relavant Pinout that shows where to connect the UART and the Bluetooth dongle

Devices: Discovery Board (STM32), UART-Bluetooth Dongle, PC running Linux

If everything is connected you can compile the program with doit.sh.



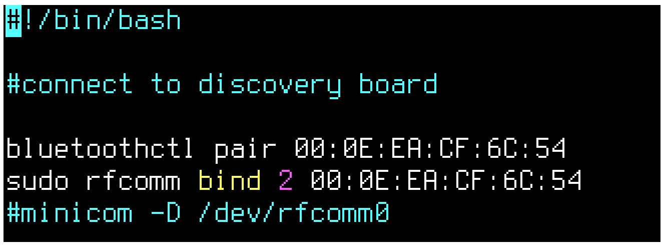
```
#!/bin/bash
set +v

echo "run source ./../../../../../setenvs.sh"
source ./../../../../../setenvs.sh

#rodos-lib.sh discovery
rodos-executable.sh discovery  mw-printf-caller.cpp
arm-none-eabi-objcopy -O binary tst flash.bin
COMMAND="st-flash write flash.bin 0x08000000"
n=0
until [ "$n" -ge 5 ]
do
   $COMMAND && break  # substitute your command here
   n=$((n+1))
   sleep 1
done
```

doit.sh compiles the mw-printf-caller.cpp file. The script flashes the program to the discovery board, make sure its USB-Mini-B is connected to your Linux PC.

Connect the bluetooth dongle with your PC, on Linux use these commands for example to bin the serial data stream of the bluetooth device to /dev/rfcomm2



```
#!/bin/bash

#connect to discovery board

bluetoothctl pair 00:0E:EA:CF:6C:54
sudo rfcomm bind 2 00:0E:EA:CF:6C:54
#minicom -D /dev/rfcomm0
```

Lastly reboot the the discovery board, and run the example python script. Make sure it acceses the right Serial/Bluetooth Device. Regular PRINTF(...) will appear on the Serial Adapter and MW_PRINTF(...) Message will be shown by the python-framework

Good Luck, any problems? Contact Sebastian Kind on the Rocket Chat, need a Discovery Board for your thesis/Hiwi Work -> ask Mr. Faisal