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Redefining USART used by Cable Replacement profile

Answered



Nikolay Babakov

asked this on February 12, 2014, 13:22

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Good afternoon!

My name is Nikolay Babakov, I'm an engineer from "Gradient" federal R&D institute.

I have a question that concerns changing USART number used by profile. We've built a board using BLE 113 module. Modul is loaded with Cable Replacement firmware profile. We've changed one file from it, "Hardware.xml".

In the said file, we've set configuration "<usart channel="0" mode="uart" alternate="2" ..." according to BLE113_Datasheet.pdf, Table 3: Peripheral I/O Mapping. By this we intended to reconfigure module to use serial port P1 (pins P1_2, P1_3 RT, P1_4 RX, P1_5 TX). Following that, we've uploaded the resulting firmware to BLE113.

After that, though, BLE113 wasn't exchanging any data over the configured serial port. Changes in Hardware.xml are as follows:

Original file:

```
<?xml version="1.0" encoding="UTF-8" ?>
```

```
<hardware>
```

```
<slepposc enable="true" ppm="30" />
```

```
<usb enable="false" />
```

```
<sleep enable="false" />
```

```
<txpower power="15" bias="5" />
```

```
<script enable="true" />
```

```
<usart channel="1" alternate="1" baud="115200" endpoint="none" />
```

```
</hardware>
```

Modified file:

```
<?xml version="1.0" encoding="UTF-8" ?>
```

```
<hardware>
```

```
<slepposc enable="true" ppm="30" />
```

```
<usb enable="false" />
```

```
<sleep enable="false" />
```

```
<txpower power="15" bias="5" />
```

```
<script enable="true" />
```

```
<usart channel="0" alternate="2" baud="115200" endpoint="none" />
```

```
</hardware>
```

Default configuration that was shipped along with the profile is working normally. Please tell, what could prevent alternative USART configured by "usart channel="0" mode="uart" alternate="2" ..." from working.

0 people would like this to be answered.

Be the first!

Comments



Jeff Rowberg
Bluegiga
Technologies

Hello Nikolay,

If you change the USART configuration to use channel 0 instead of channel 1, then you must also change the corresponding BGScript code to use endpoint 4 instead of endpoint 5. The cable_replacement example project is built assuming UART channel 1, which is endpoint 5 (or the `system_endpoint_uart1` constant in BGScript). You would need to modify all instances of "`..._endpoint(5, ...`" or "`..._endpoint(system_endpoint_uart1, ...`" in the code to use either 4 or the `system_endpoint_uart0` constant (which is equal to 4). Once you do this and recompile/reflash, you should be able to use the other UART connection normally.

February 12, 2014, 18:23

Good afternoon!

Support



Nikolay Babakov

Thank you for your answer. I've changed the program file as you described and the serial port is working now.

Currently we need to reduce the power consumption of BLE113 module by switching it to sleep mode.

We've been changing "hardware.xml" configuration file, changing string `<sleep enable="false" />` to `<sleep enable="true" />` and, after that, to `<sleep enable="true" max_mode="2"/>`, but we didn't get the desired result - power consumption have reduced insignificantly.

Please tell, is it possible to use "Cable Replacement" program to switch the module into power-saving mode (mode 1 or 2) without using wake-up pin?

February 18, 2014, 10:22

Jeff Rowberg
Bluegiga
Technologies

Hi Nikolay,

It is not possible to use the cable replacement project without the use of a wake-up pin because the module cannot receive and process incoming UART data while it is asleep. You must use the wake-up pin to hold the module in the "active" state for the entire duration of any UART transmissions to the module. Otherwise the data will only be able to flow in one direction (from the remote device out the module's UART TX pin).

February 18, 2014, 18:06



Nikolay Babakov

Good afternoon,

Should we modify the BGScript files to make wake-up pin work, or editing .xml files is sufficient for that? We've changed hardware.xml in the following way:

```
-- <sleep enable="false" />
```

```
++ <script enable="true" />
```

```
++ <wakeup_pin enable="true" port="0" pin="7" />
```

February 19, 2014, 14:13

Jeff Rowberg
Bluegiga
Technologies

Hello Nikolay,

Answer

As long as P0_7 isn't being used for something else in your BGScript source file, then it should not be necessary to do anything else (e.g. manually set an interrupt or catch some particular event). Just the `<wakeup_pin ... />` tag will instruct the stack to do what it needs to do with the pin.

February 19, 2014, 17:52

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