Gowin_EMPU_M1

Serial Port Debugging Reference Manual

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Revision History

Date	Version	Description
2/19/2019	1.0E	Initial version published.

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1 Overview

Gowin_EMPU_M1 software programming serial port debugging is supported. The host computer communicates with the slave computer by serial ports. Serial debugging assistant software is used to trace the debugging information on the PC side.

2 Hardware Resource

- Development board: DK-START-GW2A18 V2.0
  - GW2A-LV18PG256C8/I7
- USB to serial port interface board
- PC Computer

3 Software Resource

- GOWIN FPGA Designer version 1.9.x Beta
- ARM Keil MDK or GNU MCU Eclipse Tool
- Serial Debugging Assistant Software

4 Reference Design

- MCU_RefDesign\Keil_RefDesign\uart
- MCU_RefDesign\GNU_RefDesign\m1_uart

5 Debugging Flow

5.1 Gowin_EMPU_M1 Hardware Design

5.1.1 Hardware Design

1. Select Gowin_EMPU_M1 in Gowin IP Core Generator.
2. Configure Cortex-M1 to generate Cortex-M1 soft core design.
3. Configure AHB-Lite Extension, select UART0 or UART1, and generate AHB-Lite Extension soft core design with UART function.
4. Instantiate Cortex-M1 and AHB-Lite Extension, connect ports, import user designs,or use Gowin_EMPU_M1 reference design: FPGA_RefDesign\Debug_RefDesign or NoDebug_RefDesign

5.1.2 Physical Constraint

Constrain the UART0 and UART1 port in Gowin_EMPU_M1 to FPGA IO.

5.2 Gowin_EMPU_M1 Software Programming

Refer to MCU_RefDesign\Keil_RefDesign\uart。

5.3 Board Level Connection

Connect DK-START-GW2A18 V2.0 to USB to serial port board using jumper. The UART0 and UART1 port connection in the uart reference design is as shown in Table 5-1 .

Table 5-1 UART0/1 Port Constraint

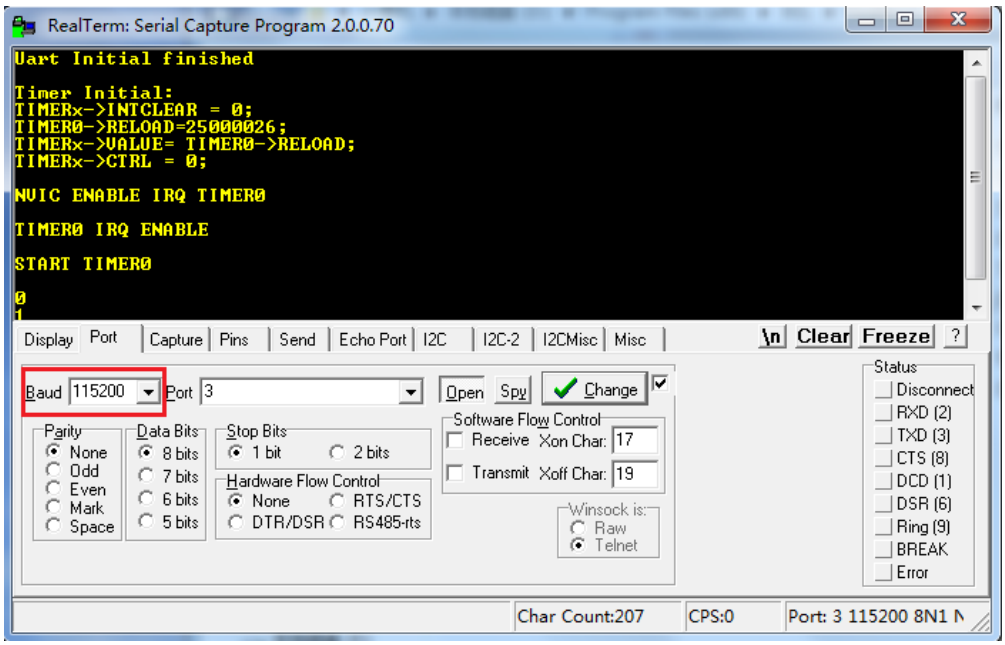
ART	Ports	IO
ART0	RXD	M14
	TXD	K12
ART1	RXD	J13
	TXD	H13

5.4 Serial Debugging Assistant

Open the serial debugging assistant software, as shown in Figure 5-1.

1. Select a proper communication port.
2. Configure the serial port communication baud rate.
3. Open the serial port.
4. Send and receive the debugging information.

Figure 5-1 Serial Debugging Assistant Software

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