CAN Basic Example Project
1.0

Features

- Configures Transmit and Receive mailboxes in Basic CAN Mode

General Description

This example project demonstrates how to configure the CAN component to transmit and receive messages over the CAN bus in the Basic CAN mode.

This is only one part of the CAN example project. Use this example along with CAN_Full_Example for complete demonstration.

Development kit configuration

This example project is designed to be executed on CY8CKIT-001 from Cypress Semiconductor. A full description of the kit, along with more example programs and ordering information, can be found at http://www.cypress.com/?rID=37464.

Also, the example project requires a CY8CKIT-017 CAN/LIN Expansion Board kit. A full description of the kit, along with more example programs and ordering information, can be found at http://www.cypress.com/?rID=40215.

The CY8CKIT-017 CAN/LIN Expansion Board kit should be connected to the DVK1 PORT A 2x20 connector with installed jumpers: JP2 (CAN Termination Resistor), CANEXTPWR and JP6 set to Vdd-V5_0 (default setting for 5V operation). Any jumper on the board not mentioned above should have no jumper installed.

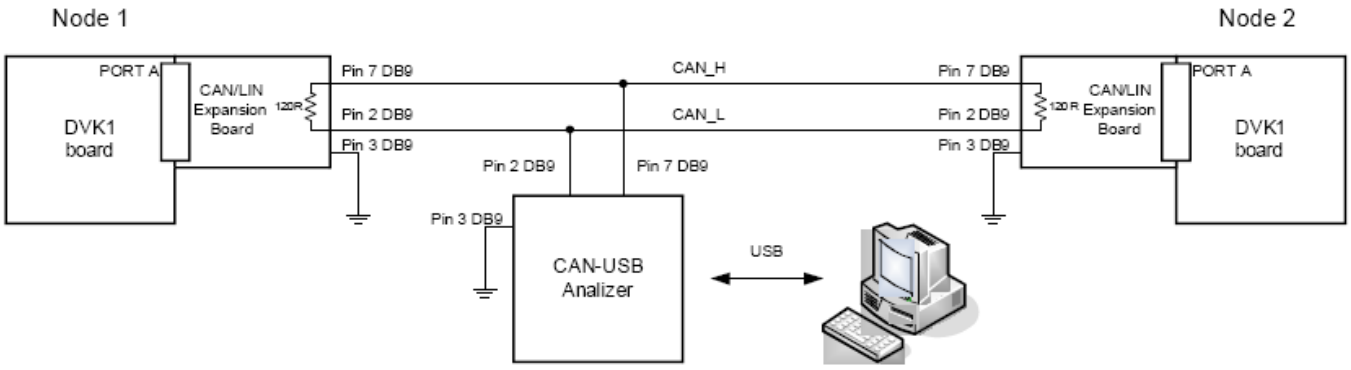
1. Build the project and program the hex file into the target device.
2. Set 3.3V position by switch SW3.
3. Install a jumper on VR_PWR and connect VR to port 0[0].
4. Connect SW1 to port 0[3].
5. Power cycle the device and observe the results on the LCD.
6. A CAN – USB analyzer can be used to analyze the data traffic.
7. An oscilloscope can be used to verify PWM out on port 0[2].

Project Configuration

The example project consists of the CAN, ADC_DelSig, PWM, LCD and Interrupt components.

CAN received and transmitted data, the ADC output and PWM pulse width display on the LCD. To ensure proper functioning of the examples projects, you should create a mini network from at least two CAN nodes as shown in Figure 1. The network as shown in Figure 1 also includes the CAN-USB analyzer to analyze the data traffic.

Figure 1. Test CAN Network Topology



Project Description

This example illustrates how to transmit and receive messages using the CAN component.

In this project, the CAN component is configured to transmit two messages over the CAN bus:

Message 1: Status of Switch1. This message sent whenever there is a change in the status.

Message 2: ADC data - Sent every 100ms.

The component is also configured to receive data which is used to set a pulse width of the PWM used in the project. Both transmitted and received data are displayed on a 2x16 LCD.

Every 100ms ADC data measures by the node and sends over the CAN bus to the remote node.

At button connected to Switch1 press – Message 1 (with status of Switch1) sends to remote node and displays on the LCD state of Switch1. After that remote node increments value of PWM pulse width by ten and sends back updated PWM pulse width value. The node set new PWM pulse width value and displays it on the LCD. Please note that PWM pulse width isn't being sent and displayed before first button connected to Switch1 press.

All transmitted and received data are doubled on LCDs for both nodes.

Expected Results

Program the device with the project and observe that the LCD in the first row displays the ADC data in volts and PWM pulse width in hex; in the second row – status of Switch1 (pressed or released). The PWM out can be verified on port 0[2].

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