



XJTAG[®]

XJComms Card

User Guide

Version 1

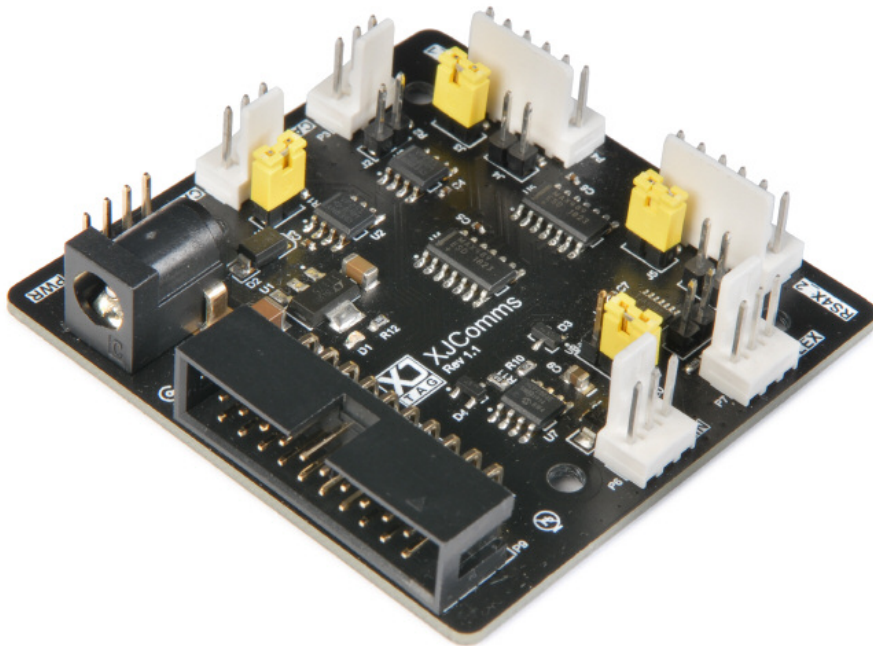


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1. Introduction

The XJComms Card is XJTAG's recommended solution when using an XJIO Board, and communication is required between the Device Under Test (DUT) and a similar CAN, LIN, RS4xx or FlexRay Transceiver device.

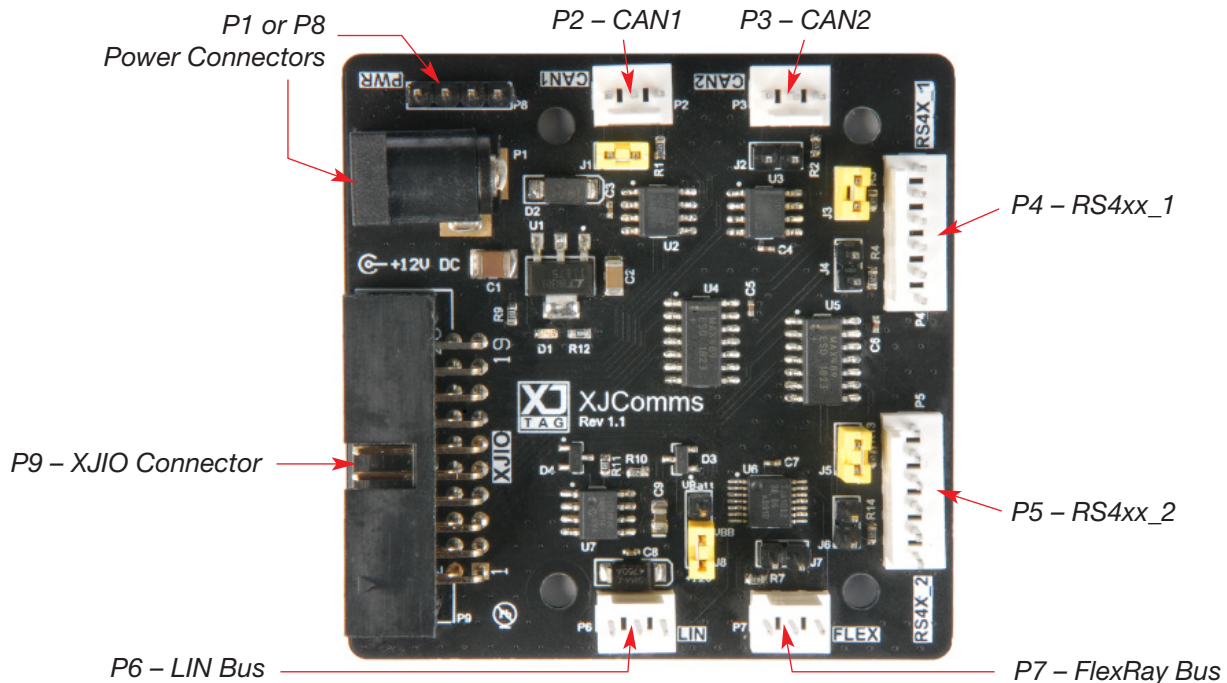


Figure 1 - XJComms Card Connectors

2. System Overview

Figure 1 shows the XJComms Card containing the following marked connectors:

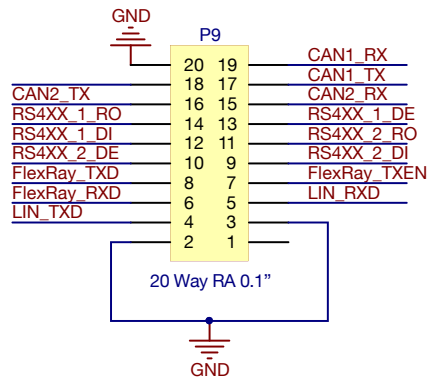
- **DC Power Input:** (P1) using a 2.1 mm DC Jack or 4-way Molex Header (P8) (8 to 14 V DC)
- **XJIO Connector:** A 20-way 0.1" connector (P9), which is pin compatible with the XJIO board I/O connectors. The interface is 5 V and allows 15 I/O signals to control the interfaces.
- **CAN1 (P2) and CAN2 (P3) Connectors:** These are 3-way 0.1" Molex headers providing CANH, CANL and GND; each channel has a jumper selectable termination resistor (120 R).
- **RS4xx_1 (P4) and RS4xx_2 (P5):** These are 6-way Molex 0.1" connectors providing a Transmit channel and a receive channel at each connector. Each channel has a jumper selectable termination resistor (120 R).
- **LIN Bus (P6) Connector:** This is a 3-way 0.1" Molex connector providing a jumper selectable VBATT, LIN Bus and GND.
- **FlexRay (P7) Connector:** This is a 3-way 0.1" Molex connector providing a differential bus and GND. The bus has a jumper selectable (100 R) termination resistor.

3. Connector Part Numbers

Connector RefDes.	Manufacturer	Manufacturer Part No.	Plug Mating Part No.
P1	Cliff Electronic Components	FC68148	FC68147
P2/P3/P6/P7	Molex	0022272031	0022013037
P8	Molex	0022272041	0022013047
P4/P5	Molex	0022272061	0022013067
P9	Würth Electronics	61202021721	61202023021

4. XJIO Connector (P9)

Connector	Signal
1	NC
2	GND
3	GND
4	LIN_TXD
5	LIN_RXD
6	FLEXRAY_RXD
7	FLEXRAY_TXEN
8	FLEXRAY_TXD
9	RS4XX_2_DI
10	RS4XX_2_DE
11	RS4XX_2_RO
12	RS4XX_1_DI
13	RS4XX_1_DE
14	RS4XX_1_RO
15	CAN2_RX
16	CAN2_TX
17	CAN1_TX
18	NC
19	CAN1_RX
20	GND



5. Power Requirements (P1/P8)

The XJComms Card requires a DC Power input of between 8 V and 14 V, and will draw a maximum current of 900 mA.

Power can be provided at Connector P1 (2.1 mm DC Jack) or alternatively at Connector P8.

Connector	Signal
P1.1	+Ve DC input (centre pin)
P1.2/3	GND
P8.3/4	+Ve DC input
P8.1/2	GND

6. CAN Interface (P2, P3)

The CAN interface is based around two identical devices (Texas Instruments SN65HVD251D).

Each Channel has a jumper selectable (J1 and J2) termination resistor with a value of 120 Ω between the CANH and CANL signals.

Connector	Signal
P9.19	CAN1_RX
P9.17	CAN1_TX
P2.1	CAN1_H
P2.3	CAN1_L
P2.2	GND
P9.15	CAN2_RX
P9.16	CAN2_TX
P3.1	CAN1_HI
P3.3	CAN1_LO
P3.2	GND

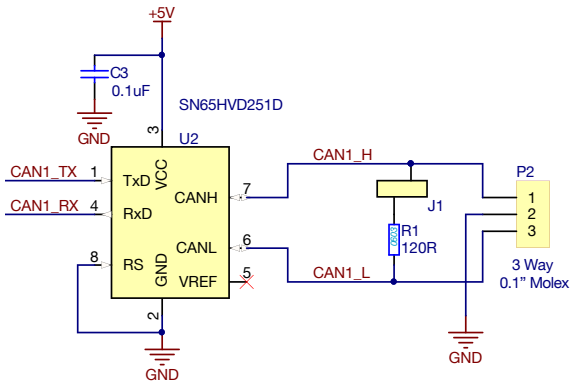


Figure 2 – CAN 1 Channel

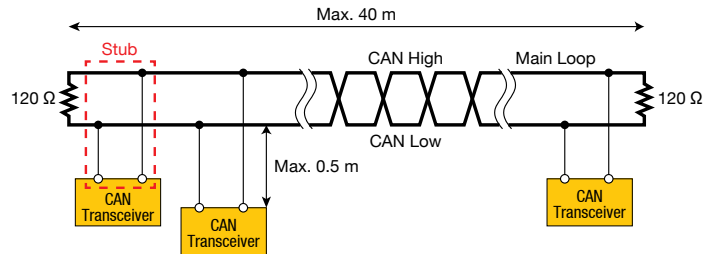


Figure 3 – Typical CAN Setup

7. RS4xx Interface (P4, P5)

The RS485/RS422 interface is based around two identical devices (Maxim Integrated MAX489ESD+).

Each part contains one driver and one receiver. Each Channel has a jumper selectable termination resistor of 120 Ω (J3 and J4) between the RS4xx Signals.

Connector	Signal
P9.14	RS4XX_1_RO
P9.13	RS4XX_1_DE
P9.12	RS4XX_1_DI
P9.11	RS4XX_2_RO
P9.10	RS4XX_2_DE
P9.9	RS4XX_2_DI
P4.1	Y1
P4.2	Z1
P4.4	A1
P4.5	B1
P4.3/6	GND
P5.1	Y2
P5.2	Z2
P5.4	A2
P5.5	B2
P5.3/6	GND

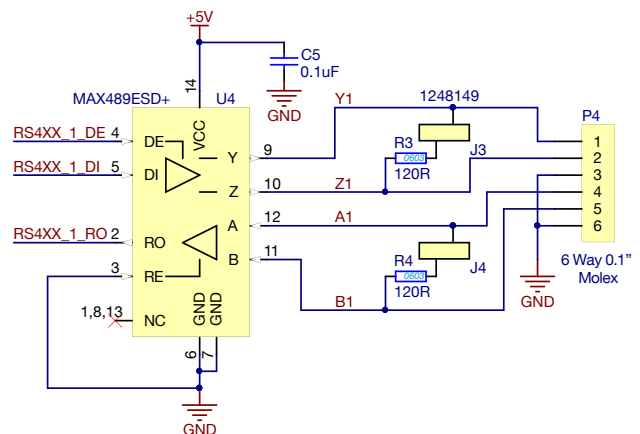


Figure 4 – RS485/RS422 1 Channel

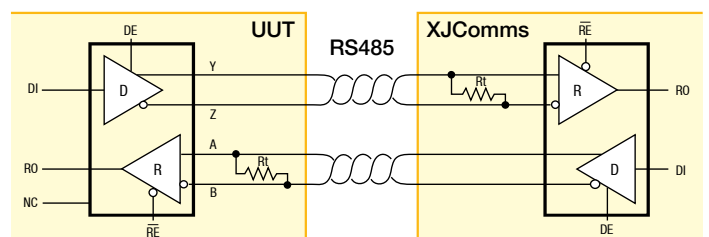


Figure 5 – Typical RS4xx Setup

8. FlexRay Interface (P7)

The FlexRay interface is based around the NXP TJA1082 device.

There is a jumper selectable termination resistor of 100 Ω between the BP and BM signals.

Connector	Signal
P9.8	FlexRay_TXD
P9.7	FlexRay_TXEN
P9.9	FlexRay_RXD
P7.1	FlexRay_BP
P7.3	FlexRay_BM
P7.2	GND

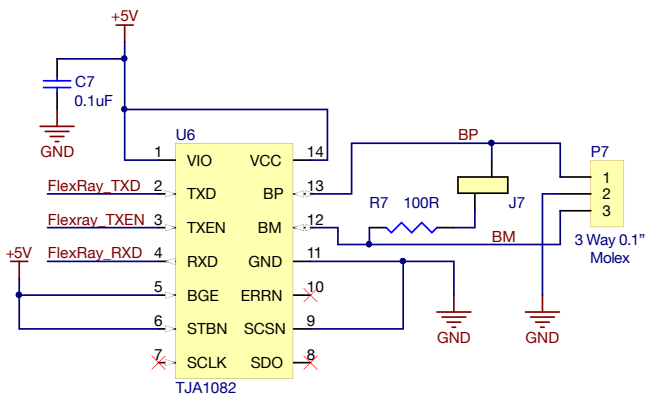


Figure 6 – FlexRay Channel

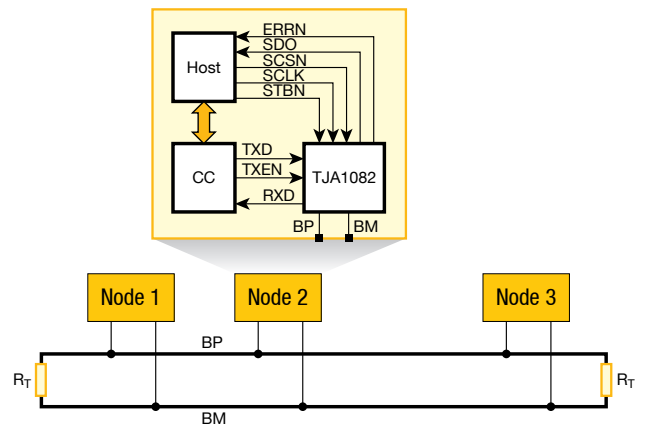


Figure 7 – Typical FlexRay Setup

9. LIN Interface (P6)

The LIN interface is based around a Microchip MCP2003.

Connector	Signal
P9.5	LIN_RXD
P9.4	LIN_TXD
P6.1	VBATT
P6.2	LBUS
P6.3	GND

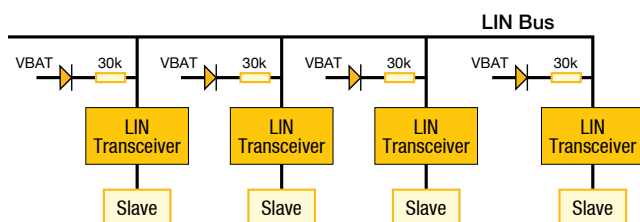


Figure 8 – Typical LIN Setup

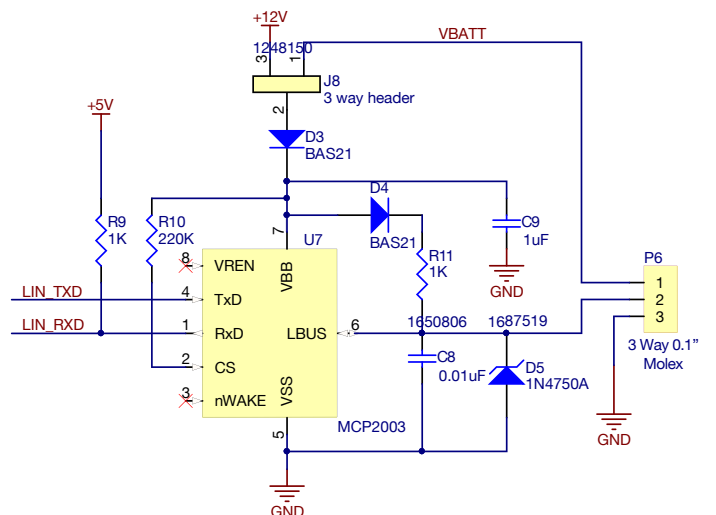
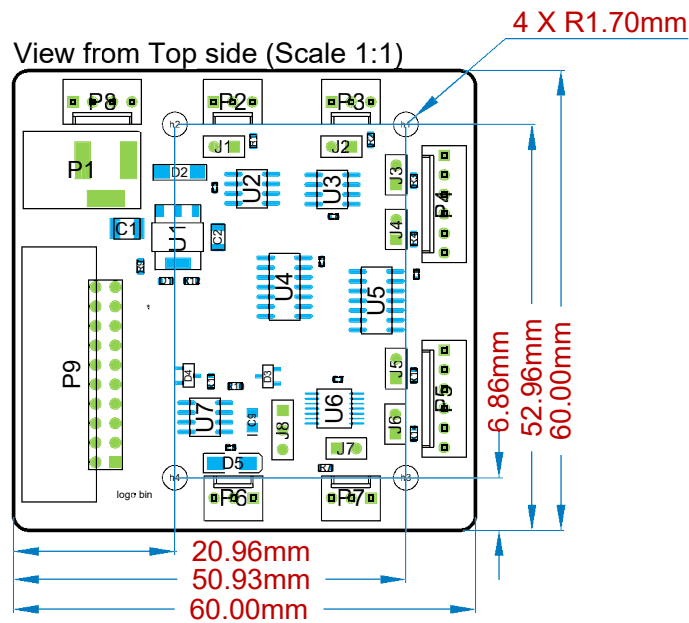


Figure 9 – LIN Channel

10. Electrical and Operational Specification

Outer dimensions (including connectors)	60 mm (L) x 60 mm (W) x 13 mm (H)
Power Supply Requirement	2.1 mm Jack Plug (centre pin positive) 8 to 14 VDC @ > 900 mA
Temperature range	+5 °C to +45 °C (operational)
Humidity	< 95% (non-condensing)

11. Dimensions



12. Programming Example

The following Zip file contains an [example XJDeveloper project](#) which uses the XJIO Board along with an XJComms Card.