CPT-DAJ

DA Series JTAG Interface Card

Technical Brief

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Card Revision 1

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CREATIVE POWER TECHNOLOGIES

CPT-DAJ Manual Revision History

CARD REVISION 1: Initial Board.

Release 1.0 – Initial Release

Table of Contents

CPT-DAJ JTAG Interface Card

1.0 Overview of the CPT-DAJ

The CPT-DAJ is an isolated JTAG and Serial Communications Interface (SCI)/UART card. It provides an isolated USB interface for a Texas Instruments based microcontroller (MCU), as found on CPT's DA Series Control Cards. The JTAG Interface Card uses the same interfacing circuitry and EEPROM as found on Texas Instruments own controlCARD series.

The CPT-DAJ card measures 110mm x 46.75mm and is consistent with the DA Series Interface structure.

On-card facilities include:

- Isolated JTAG Emulation (XDS100V2 emulator)
- Isolation Interface (ISO7220CD)
- ESD Protection on USB signals
- EEPROM with Texas Instruments JTAG Emulator Definitions
- DA Series JTAG Interface
- DA Series Footprint
  - 14-way IDC header for compatibility with DA Series JTAG interfaces
  - 4-way SCI header for compatibility with CPT's 4-pin serial communications
- Mini-USB PC Interface
- Code Composer Studio compatible without additional hardware

Figure 1-1 shows a functional block diagram of the CPT-DAJ card, illustrating all major sections.

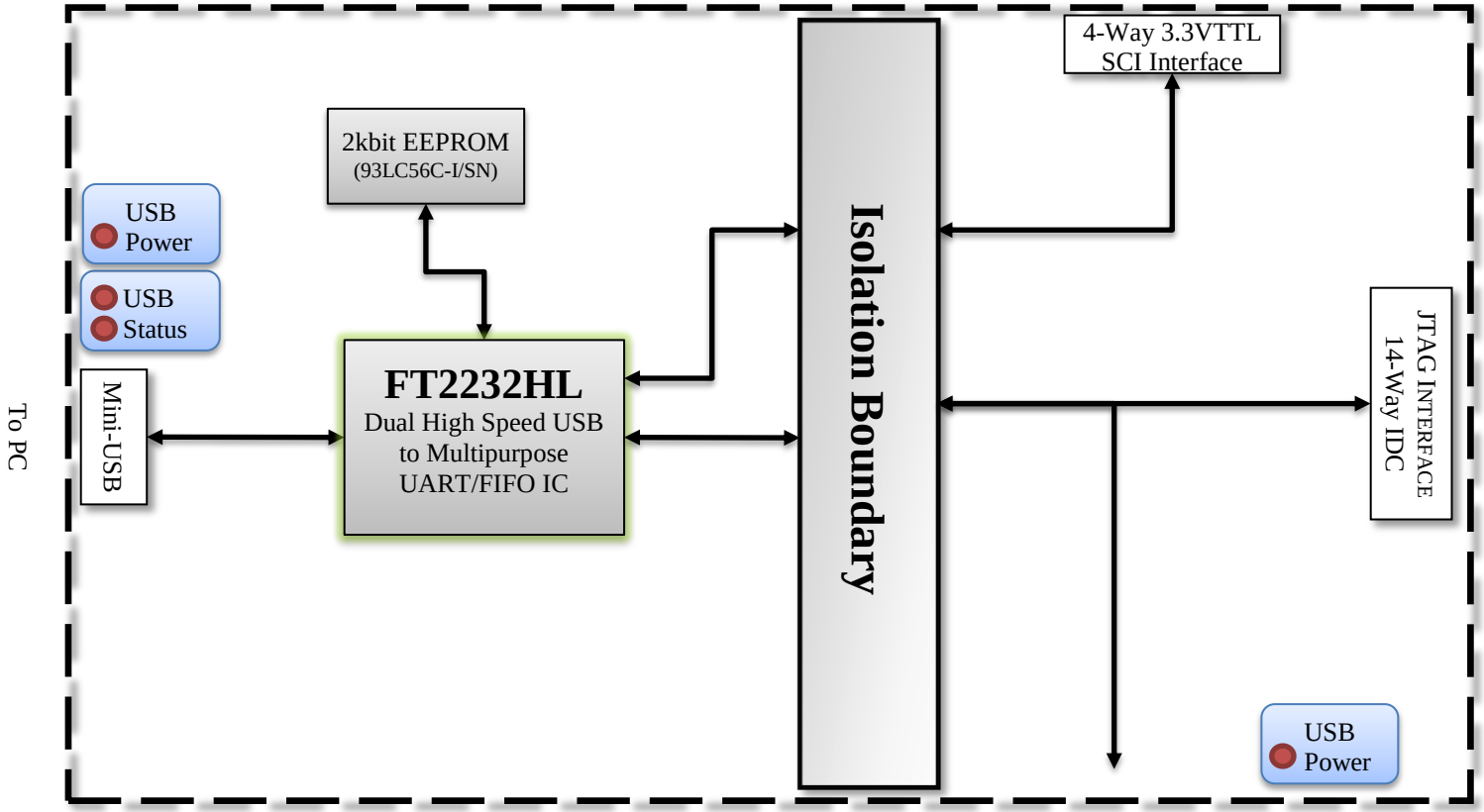


Figure 1-1: Functional Diagram of CPT-DAJ JTAG Interface Card

2.0 Specifications

2.1 Communications Interface

Definition	The JTAG Interface Card allows one 3.3V-TTL serial communications interface to be connected through the isolation to the USB. The FT2232HL IC provides conversion of the isolated 3.3V-TTL UART signals into a USB Virtual UART Port
Isolation	ISO7220CD 2500Vrms isolation per UL1577 Please consult the datasheet for these components for full isolation information

2.1.1 DA Series: Serial Communication Interface – SCI

Definition	Two-wire asynchronous serial port (UART) that supports a 16-level, receive and transmit FIFO for reducing servicing overhead. The receiver and transmitter are double buffered with separate enable and interrupt bits
Signals	SCITX, SCIRX
PCB Connections	4-way MOLEX header with +3.3V and GND_MCU connections (**X5**)

2.2 JTAG Interface

Definition	MCU programming interface, which enables the MCU to interface the real-time debugging environment
Compatibility	Compatible with IEEE 1149.1 standard for scan-based emulation
Isolation	ISO7220CD 2500Vrms isolation per UL1577 Please consult the datasheet for these components for full isolation information
Configuration	3.3V-TTL Level signals
PCB Connection	14-way DA Series JTAG Header (**X6**)

2.3 Software

Support Software (Available Separately)	Standard library source code, sample programs Texas Instruments: Code Composer Studio V5.5 and above compatible
EEPROM Software	FT2232HL Programming Image available within Texas Instruments ControlSuite Package - Appendix B

2.4 General

Physical Dimensions	L: 110mm
	W: 46.75mm
	H: 11mm approx.
Mounting Arrangement	4 off 3.5 mm holes located in the corners of the card 1 off 3.5mm hole located in the bottom left corner as an additional mounting point Note only the two holes along the top of the card are used when connected to a DA Series control card. The stability is obtained through the JTAG 14-way socket plug-in and the 1 off 3.5mm hole. 102mm x 38.75mm hole centres.
Environmental	-40 – 60°C ambient operating temperature 5% – 95% non-condensing humidity

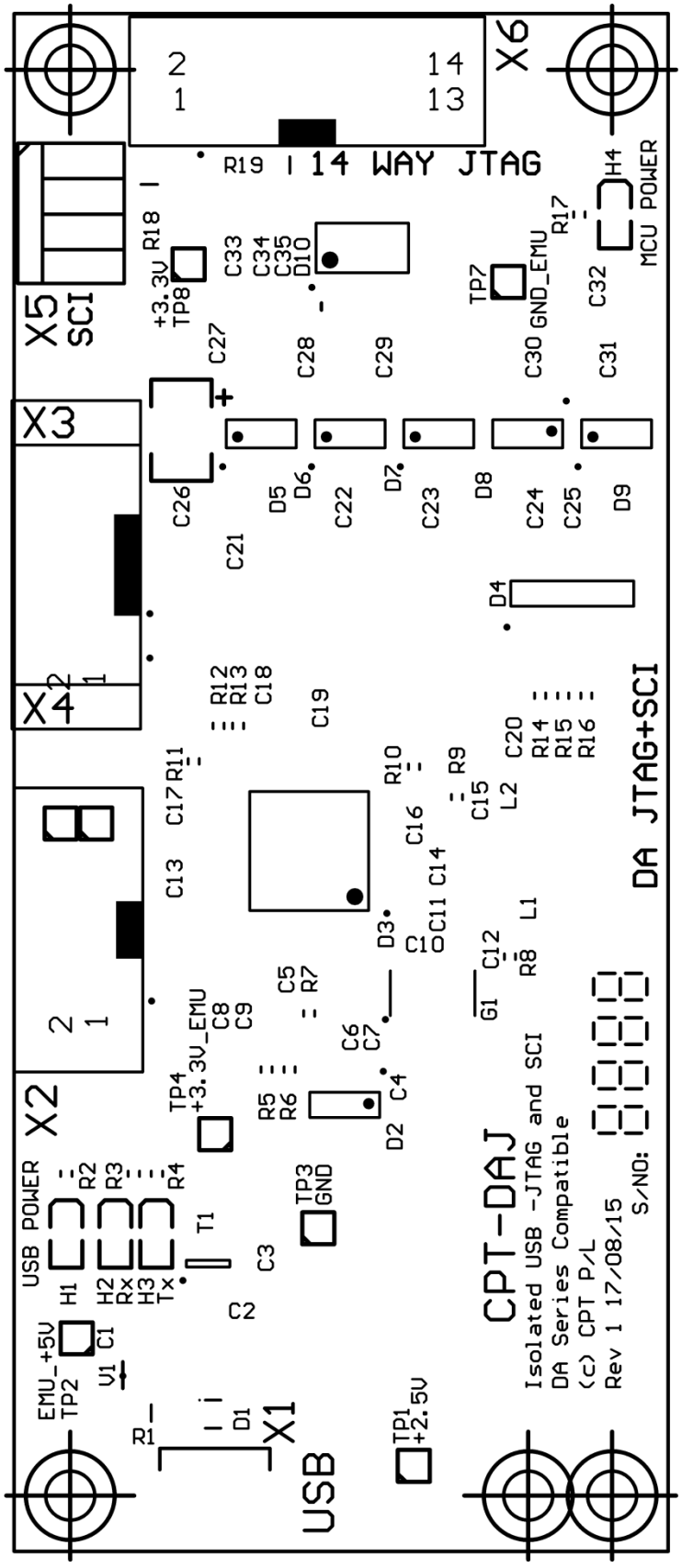
2.5 Order Codes

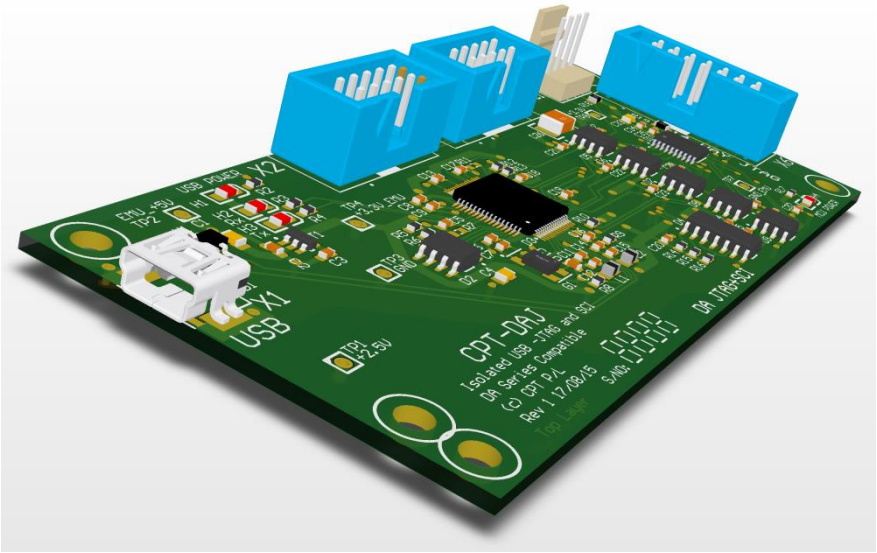
CPT-DAJ-2810	Connector **X3** loaded as a socket to connect with DA2810 **X2**
CPT-DAJ-28035	Connector **X4** loaded as a socket to connect with DA28035 **X3**

Appendices

Appendix A Component Layout

Top Layer




X2
USB
X1
CPT-DAJ
Isolated USB -THS and SCI
DA Series Compatible
(c) CPT S.A.
Rev 1 17/08/15
DA JTAG-SCI

Appendix B Texas Instruments Documentation

ControlSuite

Texas Instruments Website: http://www.ti.com/tool/controlsuite

Location: ControlSUITE\development_kits\~Utilities
Document: How to Program On Board XDS100 USB Jtag.doc
EEPROM Programming File: XDS100_wUART.ept