EQCO400T

Evaluation Module

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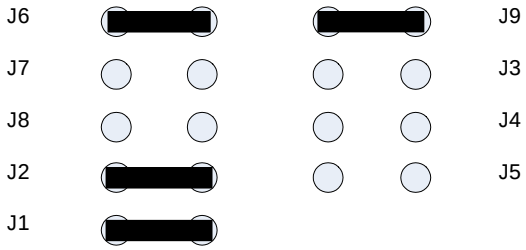
Introduction

The EQCO400T Evaluation Module (or Hub) is a 1394b Hub which is enhanced with the EqcoLogic EQCO400T Equalizer chip on each of the twisted pair ports, which demonstrates proper 1394 signaling over extended 1394b bus cable lengths using standard CAT5e and CAT6 infrastructures.

PHY Configuration Jumper Settings

The TSB41BA3B 1394b PHY has a number of signals brought out to jumpers allowing configurability of the advertised 1394 ports, power class on the 1394 bus, etc. This board does not supply bus power, has no link layer controller, and has fixed transceivers, so for normal use the module should be jumpered according to the diagram and table below. This puts both twisted pair ports in S400.



Jumper	Default	PHY Signal	Description
J1	**shorted**	S3	Port sleep/mode selection terminal 3
J2	**shorted**	S4	Port sleep/mode selection terminal 4
J3	open	S5_LKON	Port sleep/mode selection terminal 5 and link-on output
J4	open	TPBIAS2	Twisted-pair bias output and signal detect input 2
J5	open	TPBIAS0	Twisted-pair bias output and signal detect input 0
J6	**shorted**	S0_PC2	Port sleep/mode selection terminal 0, power-class pin 2
J7	open	S1_PC1	Port sleep/mode selection terminal 1, power-class pin 1
J8	open	S2_PC0	Port sleep/mode selection terminal 2, power-class pin 0
J9	open	BMODE	Beta mode input. Shorting this will put BMODE to ground, disabling the beta arbitration scheme (for BOSS) but not the beta signaling. This setting only has an effect with networks containing only 1394B devices.

Consult Table 1 of the TSB41BA3B data sheet for determining other configurations of the PHY signals using the jumpers. Mode numbers 7, 12, 13, 14, 15, and 19 are allowed for this board. The default mode is mode number 14.

http://focus.ti.com/lit/ds/symlink/tsb41ba3b.pdf

Power

The Hub requires a DC power supply between 5V and 12V, center positive, 2.5mm inner-diameter, 5.5mm outer diameter. The Hub does not provide bus power. It can be powered from the 9-pin 1394B port.

9-pin 1394b connector

Standard connector.

RJ-45 1394b connector

These 1394 ports transmit on pair 1,2 and receive on pair 3,6. Therefore a crossover cable is used to connect any two modules. Connecting with a straight-through patch cable will not cause damage to the device.

Note that this is how the evaluation board is wired, and can be changed in customer designs to match the required cable infrastructure.

Carrier Sense LED

When a twisted-pair port is properly connected to another module, this LED will be illuminated. It does not indicate 1394 data packet activity.

Cabling

As expected, the length between hops can be increased by using cabling with higher ratings.

Common questions

What twisted-pair lengths can be used?
Consult the data sheet for operating characteristics of the equalizer over CAT5e and CAT6 cabling under various test conditions.

http://www.tctechnologies.tc/downloads/eqco400t_prelim_ds_1_2.pdf

Can it be used with DICE?
The EQCO400T can be used with any of the chips in the DICE family.

What PHY is required with the EQCO400T equalizer?
It can be used with any B-PHY, and the Eqcologic Hub uses the TSB41BA3B

Are there any topology restrictions?
No.

How can I obtain samples of the EQCO400T chips and evaluation modules?
Contact TC Applied Technologies for samples, EVM's and volume pricing.

http://www.tctechnologies.tc