StreamStor LVDS32 Daughter Board

User Manual

Copyright and Trademarks

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About This Manual

This manual is intended to serve the following purposes:

- to provide an overview of the StreamStor LVDS32 daughter board;

- to act as a reference for the operator; and

- to provide guidance on software capabilities and choices.

It is suggested that you periodically check the Conduant web site for the most recent software updates, application notes, and technical bulletins.

If you are unable to locate the information you need, please feel free to contact us by e-mail or phone.

Overview

The StreamStor LVDS32 daughter board is a set of two mezzanine IO boards that can be used with some StreamStor controllers such as the StreamStor Amazon controller. Adding these daughter boards provides a high-speed data interface that allows a simple 32 bit LVDS data source to transfer data directly to the StreamStor controller for recording to disk.

The LVDS32 daughter board set provides a single interface made up of two independent 16 bit connectors. The port includes an input clock and a flow control signal to indicate valid data is being output.

Interface Electronics

Interface electronics and termination values on StreamStor are those recommended by the ANSI standard. In reading the following sections on using this daughter board, it is important to be familiar with the American National Standard entitled "Electrical Characteristics of Low Voltage Differential Signaling (LVDS) Interface Circuits" (ANSI/TIA/EIA-644-A-2201). For information, please visit the Telecommunications Industry Association's website at www.tiaonline.org.

The data source must supply up to 32 data bits, a clock signal and a "DATA VALID" signal. When the StreamStor recorder is in record mode, the LVDS32 board will capture one 32 bit value on each clock rising edge if the DATA VALID signal is active.

Data Formats

The LVDS32 provides a point-to-point 32-bit connection. Data is stored in the order received and is unframed.

Connector / Cabling

The LVDS32 board set has 2 connectors and uses 2 physical slots in the chassis to present these connectors on the panel. Figure 1 illustrates the connector designations and position.
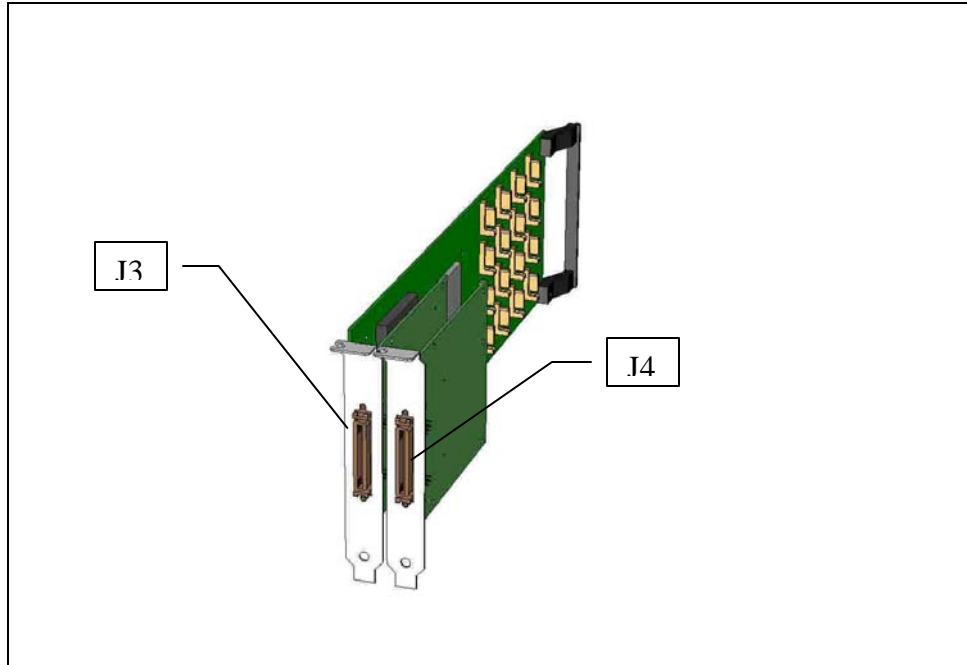
Figure 1 - Connector Position

You can build your own cables to connect a data source to the LVDS32 recorder, or you can order a cable from Conduant. If building your own cables, you will need 3M™ cable connectors, manufacturer's part number 10150-6000EC. The recommended shell for this connector is part number 10350-3210-000.

Alternatively, you can order 1.5 meter cables from Conduant. Conduant's part number for the cable is 300000207.

Figure 2 shows how the pins are numbered on the connector.

Figure 2 - J3/J4 Pin Numbering

J3 Connector pin assignment

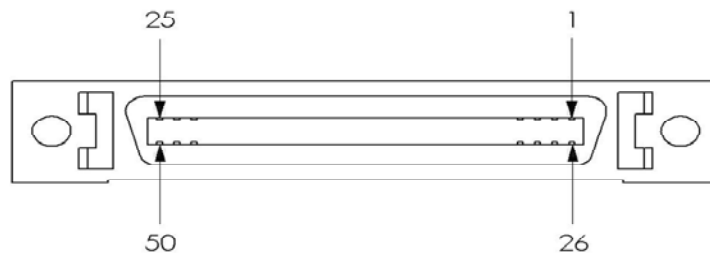| Pin number	Signal name	Description
1	GND	Ground
26	GND	
2	RSVRD-	Reserved for future use
27	RSVRD+	
3	EXT_0-	Input data (bit 0), LVDS
28	EXT_0+	
4	EXT_1-	Input data (bit 1), LVDS
29	EXT_1+	
5	EXT_2-	Input data (bit 2), LVDS
30	EXT_2+	
6	EXT_3-	Input data (bit 3), LVDS
31	EXT_3+	
7	GND	Ground
32	GND	
8	EXT_4-	Input data (bit 4), LVDS
33	EXT_4+	
9	EXT_5-	Input data (bit 5), LVDS
34	EXT_5+	
10	EXT_6-	Input data (bit 6), LVDS
35	EXT_6+	
11	EXT_7-	Input data (bit 7), LVDS
36	EXT_7+	
12	GND	Ground
37	GND	
13	EXT_8-	Input data (bit 8), LVDS
38	EXT_8+	
14	EXT_9-	Input data (bit 9), LVDS
39	EXT_9+	
15	EXT_10-	Input data (bit 10), LVDS
40	EXT_10+	
16	EXT_11-	Input data (bit 11), LVDS
41	EXT_11+	
17	GND	Ground
42	GND	
18	EXT_12-	Input data (bit 12), LVDS
43	EXT_12+	
19	EXT_13-	Input data (bit 13), LVDS
44	EXT_13+	
20	EXT_14-	Input data (bit 14), LVDS

Pin number	Signal name	Description
45	EXT_14+	
21	EXT_15-	Input data (bit 15), LVDS
46	EXT_15+	
22	GND	Ground
47	GND	
23	GND	
48	GND	
24	EXT_DAV-	Data Valid indicator, LVDS
49	EXT_DAV+	
25	EXT_CLK-	Input clock, LVDS
50	EXT_CLK+	

J4 Connector pin assignment

Pin number	Signal name	Description
1	GND	Ground
26	GND	
2	GND	
27	GND	
3	EXT_16-	Input data (bit 16), LVDS
28	EXT_16+	
4	EXT_17-	Input data (bit 17), LVDS
29	EXT_17+	
5	EXT_18-	Input data (bit 18), LVDS
30	EXT_18+	
6	EXT_19-	Input data (bit 19), LVDS
31	EXT_19+	
7	GND	Ground
32	GND	
8	EXT_20-	Input data (bit 20), LVDS
33	EXT_20+	
9	EXT_21-	Input data (bit 21), LVDS
34	EXT_21+	
10	EXT_22-	Input data (bit 22), LVDS
35	EXT_22+	
11	EXT_23-	Input data (bit 23), LVDS
36	EXT_23+	
12	GND	Ground
37	GND	
13	EXT_24-	Input data (bit 24), LVDS
38	EXT_24+	
14	EXT_25-	Input data (bit 25), LVDS
39	EXT_25+	
15	EXT_26-	Input data(bit 26), LVDS
40	EXT_26+	
16	EXT_27-	Input data (bit 27), LVDS
41	EXT_27+	
17	GND	Ground
42	GND	
18	EXT_28-	Input data (bit 28), LVDS
43	EXT_28+	

Pin number	Signal name	Description
19	EXT_29-	Input data (bit 29), LVDS
44	EXT_29+	
20	EXT_30-	Input data (bit 30), LVDS
45	EXT_30+	
21	EXT_31-	Input data (bit 31), LVDS
46	EXT_31+	
22	GND	Ground
47	GND	
23	GND	
48	GND	
24	GND	
49	GND	
25	GND	
50	GND	

Programming

Configuring LVDS with XLRSetDBMode

The `XLRSetDBMode` function provided by the StreamStor API is used to set most of LVDS parameters and options (see the SDK User Manual). Table 1 lists the supported modes for this daughter board. Note that the board must be in a compatible mode for the StreamStor operation being requested (i.e., receive mode for `XLRRecord`).

TABLE 1 – LVDS32 Modes	
XLRSetDBMode Mode	**Description**
`SS_LVDS16MODE_RECV`	Receive data, receive master termination applied.

The LVD32 has no `XLRSetDBMode` options, so specify 0 (zero) as the value of the option parameter.

Setting the Channel Mode

The function `XLRSetMode` is used to set the input/output path on the StreamStor. The only valid channel mode for an LVDS daughter board is `SS_MODE_SINGLE_CHANNEL`. This is the default mode. In this mode, data is received over a single channel.

Binding Input and Output Channels

Each data port is considered a channel and must be bound into the StreamStor controller before recording or reading will occur from that port. By default, the PCI bus is bound as the input and output port in single channel mode. The StreamStor API functions `XLRBindInputChannel` and `XLRBindOutputChannel` must be called to define an input and output port if other than the PCI bus. Table 3 defines the constants to use to select the appropriate channel for your application. Since the LVDS32 daughter board is a record only interface you should call `XLRBindInputChannel` for channel 30 to record from the external LVDS 32 bit interface. Note that XLRClearChannel should be used to clear any existing bindings before setting an input or output channel binding.

TABLE 3 – LVDS32 Channel definition	
Channel Number	**Channel Description**
0	PCI
30	LVDS record port

Technical Support

Conduant wants to be sure that your StreamStor system works correctly and stays working correctly. In the event, however, that you are unable to get your system to work properly, or if a working system ceases to function, we will do all that we can to get your system back online.

Solving the problem is largely a matter of data collection and steps that must be taken one at a time. In order for us to better serve you, we ask that you take the time to perform the following steps prior to calling us. This way, you can provide us with the most meaningful information possible that will help us solve the problem.

Is the problem one that obviously requires replacement parts due to physical damage to the system? If yes, then please gather the information described below and report the problem to tech support, by phone or through the Conduant web site.

Have you confirmed that no cabling has been inadvertently disconnected or damaged while working around the equipment?

Is the StreamStor card properly seated in the PCI (CPCI/PXI) slot?

Do all the systems have good power connections and voltages?

Does the confidence test sscfg.exe (on Windows) or ssopen/sstest (on Linux) run OK?

Has the software installation been corrupted? Try re-installing software.

Have you checked the Conduant web site for technical bulletins?

Have you recently installed a new Linux kernel or compiler or a new Windows Service Pack?

If the above steps did not resolve the problem, then please initiate a trouble ticket on the support section of the Conduant website at www.conduant.com. Click on "Support" and then click on "Submit a Ticket." Please provide as much information about your system and the problem as possible. We will do all that we can to resolve the problem as quickly as possible.

Contacting Technical Support

        E-mail: support@conduant.com

        Web: www.conduant.com

        Mail: Conduant Corporation
                    Technical Support
                    1501 South Sunset Street, Suite C
                    Longmont, CO 80501