SCANSTA112
7-port Multidrop IEEE 1149.1 (JTAG) Multiplexer
Evaluation Kit Documentation

Rev 2.0
January 14, 2005

SCANSTA112 Evaluation Card

The purpose of the evaluation card is to provide the user with a simple method to evaluate the features of the SCANSTA112 device. In order to use the card, the user will need a method to generate, deliver, and diagnose test vectors using the IEEE 1149.1 interface. The user will also have to provide a target boundary scan chain (one or more devices) connected to one or more of the STA112 local ports.

The STA112 Evaluation card has been designed to either function as a standalone card, or may be plugged into National's SCAN STA Evaluation Kit backplane (available on our web site, p/n SCANSTAEVK). There are two differences between the two functions: 1) How the B0 backplane 1149.1 signals are connected to the STA112, and 2) how the power is provided to the board.

Eval Card Features

Address Selection

The card (STA112) address can be selected by switching the two hexadecimal switches (S14 and S15) to the desired position. S15 is the least significant hexadecimal digit, and S14 is the most significant digit (Example: for the address 1F, S14 should be in position "1", and S15 should be in position "F").

Local Port Selection

The STA112 multiplexes the JTAG signals from the primary backplane BO bus to up to 7 local scan ports (LSPB1, LSP1, LSP2, LSP3, LSP4, LSP5, LSP6) in accordance with the device datasheet. The local ports LSPB1, LSP1 and LSP2 are passed onto the J1 DIN connector. Three LED's indicate their functional operation. Diode LED1 lights up when LSPB1 is active, LED2 lights up when LSP1 is active, and LED3 lights up when LSP2 is active. LSP3 on connector J2 also has an LED4 to show it's active state - this LSP should be used as the primary LSP when not using LSP's on the J1 DIN connector.

Control Switches

Switches are provided to manually set the state for the STA112 control inputs: TLR_TRST6, TLR_TRST, SB/S*, TRAN, MPSEL, OE*, and ADDMASK. Refer to the schematic and datasheet to determine the proper switch positions for the operating mode you are evaluating.

Using the STA112 Evaluation Card in Standalone Mode

External Power

When used in standalone mode, the STA112 does not receive power thru the J9 DIN connector; power must be supplied from an external source thru the connector block J8. The voltage should be 3.3V ± 5%.

Connecting a JTAG master to the STA112 Primary backplane B0 Port

In standalone mode, connector J6 must be used to connect the vector delivery tools/hardware to the STA112 Eval card. Refer to the schematic for the connector pin out.

Using the STA112 Evaluation Card with the SCAN STA Evaluation Kit

Two 64-pin DIN connectors (J1 and J9) are provided which map to the pin-out of the connectors on the STA EVK backplane. The J9 connector of the card should be plugged in to the backplane, another multidrop card, or to a pass-through card. The J9 connector receives the B0 (primary backplane) JTAG bus and passes it to U1, which is a STA112 device.

The signals that are passed thru the multidrop card from J9 to J1 without going through the STA112 device are a spare "passthru" JTAG bus, the DATA, and the analog buses AT1 and AT2. The power and ground from J9

supply the STA112 and are also passed through to J1. All these features are used when the complete STA Eval Kit is used. Please refer to the schematic for a more detailed view of the multidrop card.
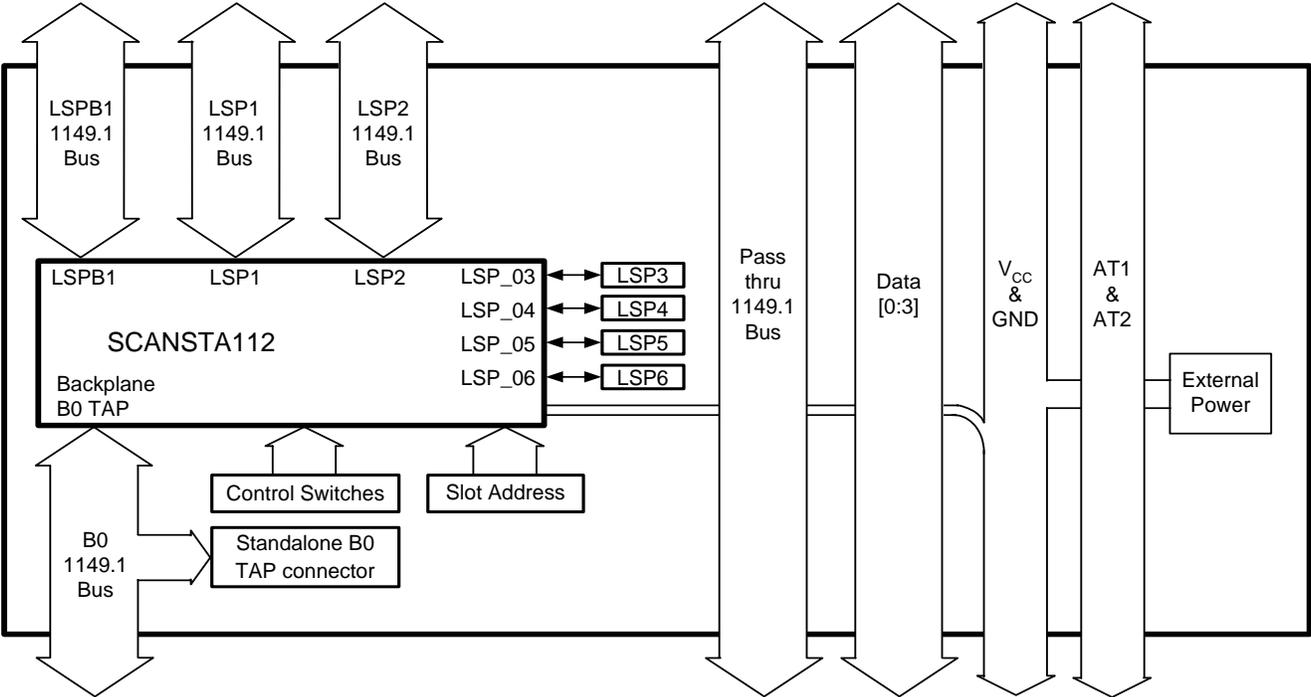
LSPB1 1149.1 Bus	LSP1 1149.1 Bus	LSP2 1149.1 Bus				Pass thru 1149.1 Bus	Data [0:3]	V_{CC} & GND	AT1 & AT2

SCANSTA112

LSPB1   LSP1   LSP2   LSP_03 ↔ LSP3
                                 LSP_04 ↔ LSP4
                                 LSP_05 ↔ LSP5
                                 LSP_06 ↔ LSP6

Backplane B0 TAP

Control Switches   Slot Address

B0 1149.1 Bus   Standalone B0 TAP connector

External Power

Figure 1, Basic block diagram of the STA112 Multidrop card

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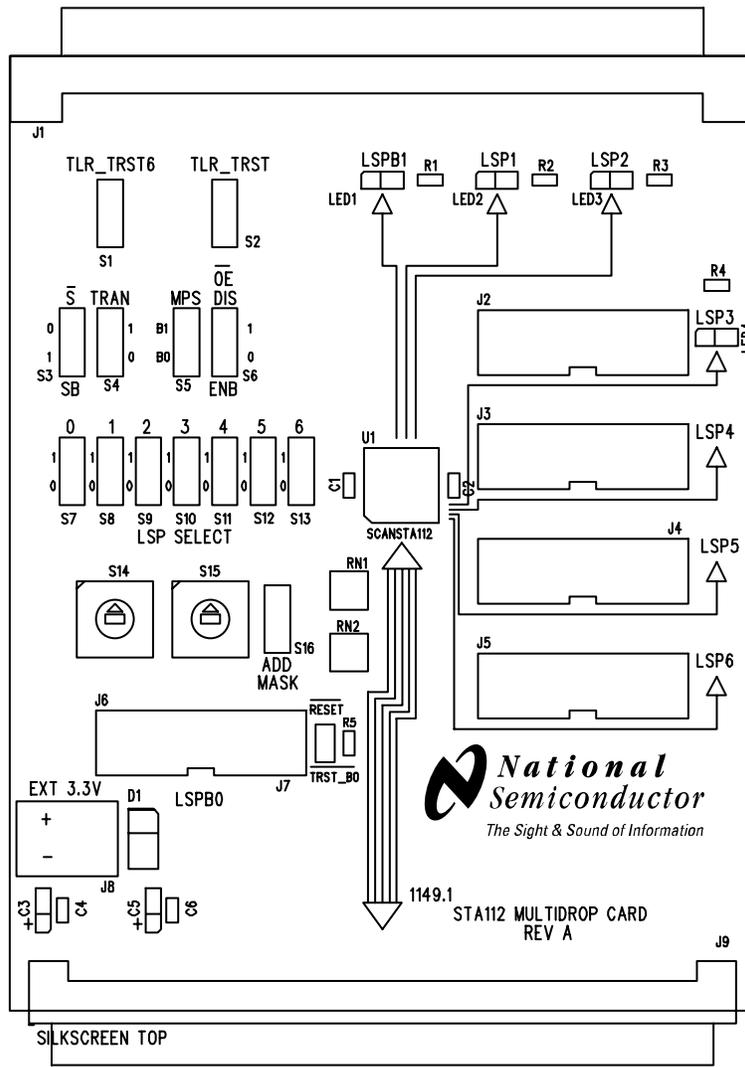
Figure 2, SCANSTA112 Evaluation Board Layout

ERATTA:

Note that there are two errors in the silkscreen for the SCANSTA112EVK:

1) Label J7 is misplaced slightly, it should be directly under "/TRST_B0" since J7 is the jumper used to connect /TRST_B0 to the RESET pin.

2) The LED's indicating LSP activities are mislabeled. LED1 is for signaling activity on LSP2 (not LSPB1), and LED3 is for signaling activity on LSPB1 (not LSP2). The LED's are labeled correctly as LED1, LED2, and LED3.

IMPORTANT NOTICE