FL_101
USER MANUAL

FlashLink User Manual

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FlashLink

User Manual

Features

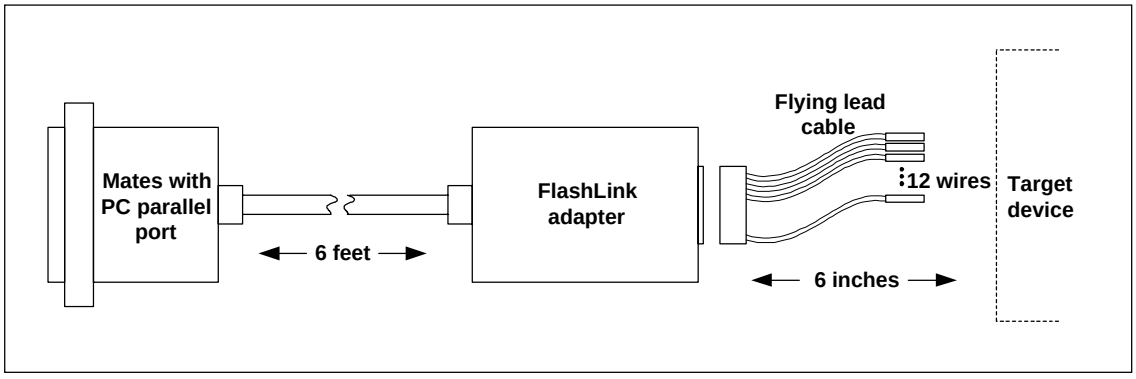
- ❏ Allows PC parallel port to communicate with PSD813F via PSDsoft
- ❏ Provides interface medium for JTAG communications
- ❏ Supports basic IEEE 1149.1 JTAG signals (TCK, TMS, TDI, TDO)
- ❏ Supports additional signals to enhance download speed ($\overline{TERR}$, TSTAT)
- ❏ Can be used for programming and/or testing
- ❏ Wide power supply range of 2.7 to 5.5V
- ❏ Pinout independent with target side flying leads
- ❏ Included loopback connector to validate FlashLink and PC connection
- ❏ Convenient desktop packaging allows varying applications (desk, lab or production)
- ❏ Synchronous JTAG interface allows speeds as fast as pc can drive

Overview

FlashLink is a hardware interface from a standard PC parallel port to one or more PSD813F devices located within a target pc board as shown below.

This interface cable allows the PSD813F to be exercised for purposes of testing and/or programming. PSDsoft is the software source for driving FlashLink.

Figure 1. FlashLink Adapter Application



Operating Considerations

Operating power for FlashLink is derived from the target system in the range of 2.7 to 5.5V. Compatibility over this voltage range is ensured by the design of FlashLink. No settings are involved.

On a cautionary note, it is recommended that the target system be powered with a well regulated and stable source of power which is energized at the final value of V_{CC}. It is not recommended that the input voltage be varied using the verneer on a regulated power supply, as this may cause the internal FlashLink IC's (74VHC240) to misoperate toward the lower end of the supply range.

Operating Considerations

(cont.)

Table 1. Pin Descriptions for FlashLink Adapter Assembly

Pin #	Signal Name	Description JTAG = IEEE 1149.1 EJTAG = WSI Enhanced JTAG	Type	FlashLink IS Signal:
1	$\overline{\text{JEN}}$	JTAG enable on PSD813F (optional)	OC	Source
2	$\overline{\text{TRST}}$	JTAG reset on target (optional per 1149.1)	OC	Source
3	**GND**	Signal ground		
4	CNTL	Generic signal, user defined (optional)	OC	Source
5	**TDI**	JTAG test data input		Source
6	TSTAT	EJTAG programming status (optional)		Destination
7	$\mathbf{V}_{CC}$	VDC source from target		
8	$\overline{\text{RST}}$	Target system reset (optional)	OC	Source
9	**TMS**	JTAG mode select		Source
10	GND	Signal ground		
11	**TCK**	JTAG clock		Source
12	GND	Signal ground		
13	**TDO**	JTAG serial data output		Destination
14	$\overline{\text{TERR}}$	EJTAG programming error (optional)		Destination

Notes

1. **Bold** signals are required connections.
2. All signal grounds are connected together inside FlashLink.
3. OC = open collector.

Operating Considerations

(cont.)

Note: The target device must supply V_{CC} to the FlashLink Adapter (2.7 to 5.5 VDC, 15mA max @ 5.5V).

Not all 14 signals may be needed for a given application. Here's how they break down:

- ❏ (6) Core signals that must be connected: TDI, TDO, TMS, TCK, V_{CC}, GND
- ❏ (2) Optional signals for enhanced ISP: TSTAT, $\overline{\text{TERR}}$
- ❏ (1) Optional signal to control multiplexing of the JTAG signals: $\overline{\text{JEN}}$
- ❏ (1) Optional IEEE-1149.1 signal for JTAG chain reset: $\overline{\text{TRST}}$
- ❏ (1) Optional signal to allow FlashLink to reset target system after ISP: $\overline{\text{RST}}$
- ❏ (1)* Optional generic control signal to target system from FlashLink: CNTL
- ❏ (2) Two additional ground lines to help reduce EMI if a ribbon cable is used. These ground lines "sandwich" the TCK signal in the ribbon cable.

* = Not supported initially by PSDsoft

Target Side Pinouts

There is no indsutry "standard" JTAG connector. Each manufacturer differs. ST has a specific connector and pinout for the FlashLink programmer adapter. The connector scheme on the FlashLink adapter can accept a standard 14 pin ribbon connector (2 rows of 7 pins on 0.1" centers, standard keying) or any other user specific connector that can slide onto 0.025" square posts. The pinout for the FlashLink adapter connector is shown in Figure 2.

If a standard ribbon cable is used for quick connection of the FlashLink adapter to the target circuit card assembly, then the target system should use the pinout as shown in Figure 2.

Figure 2. JTAG Connector Recommended Pinouts

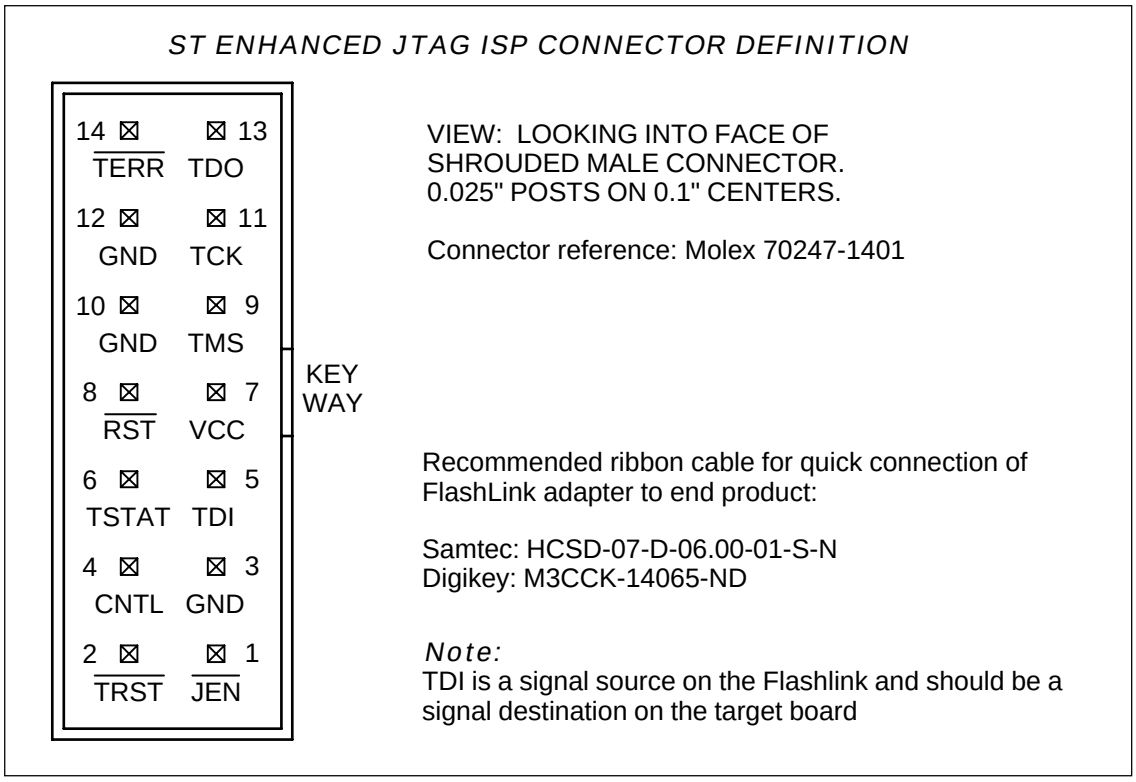
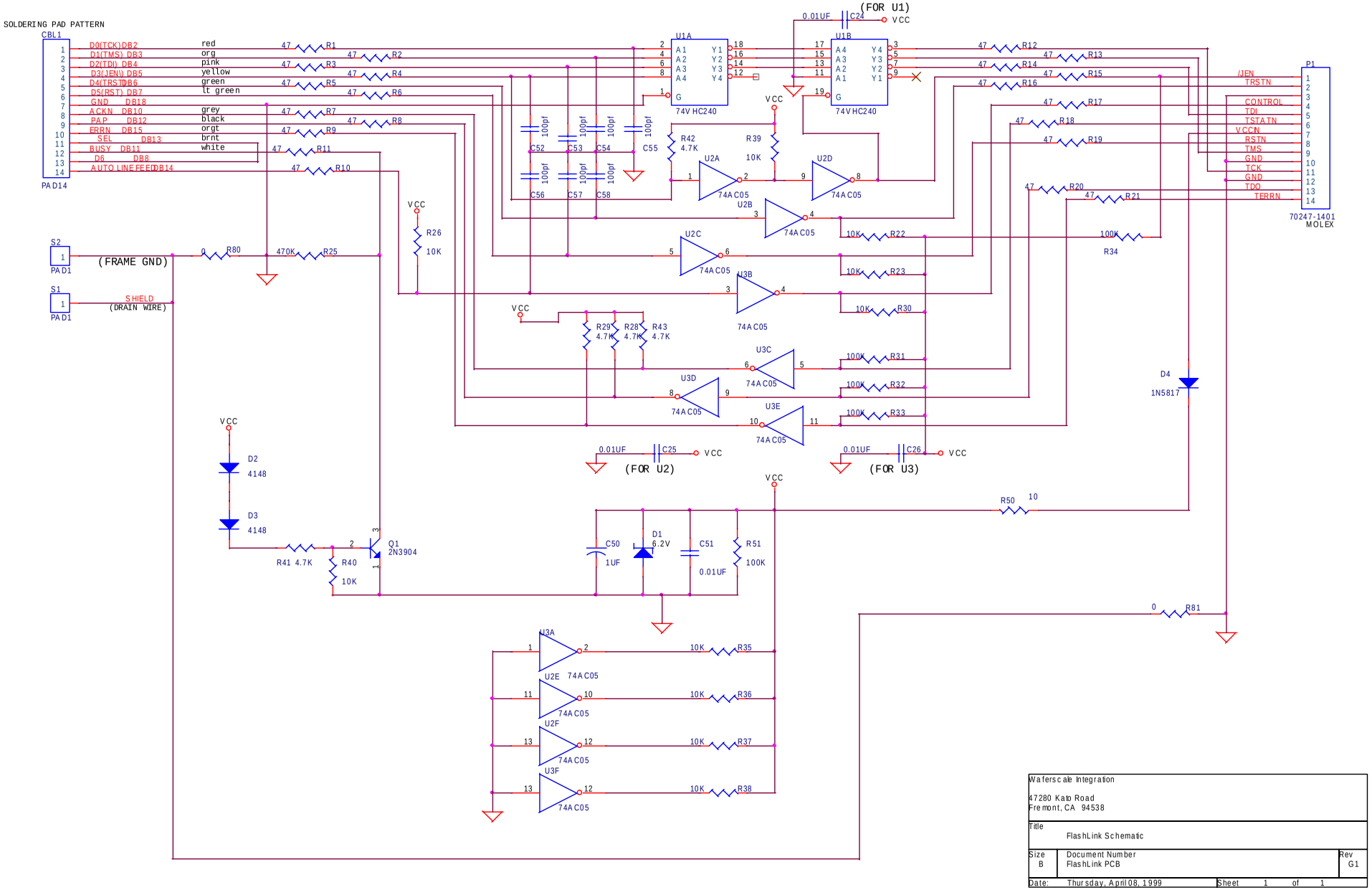


Figure 3. FlashLink Schematic



Operating Considerations

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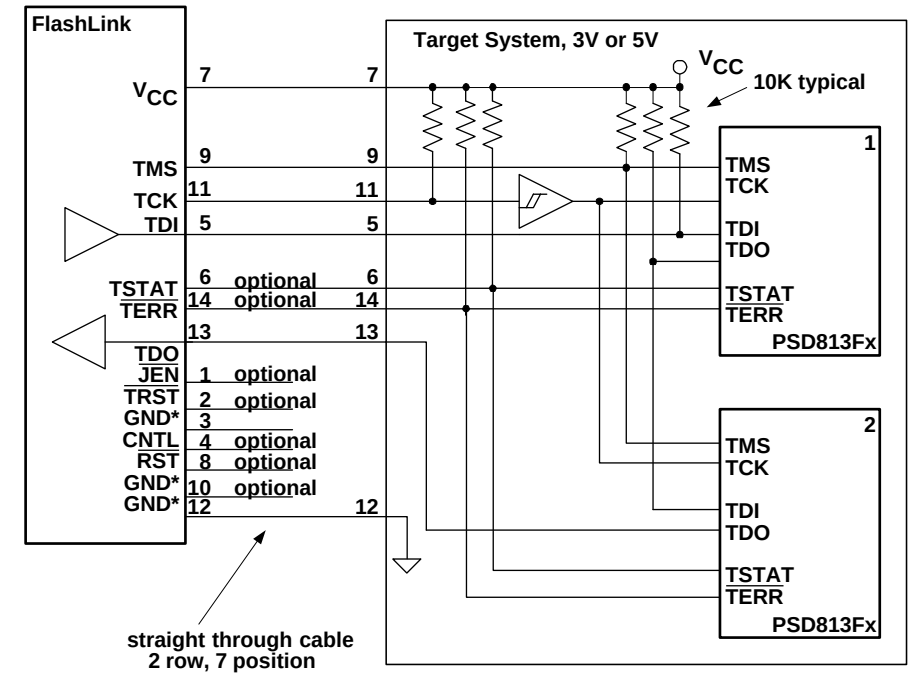
A schematic of FlashLink is shown on the previous page.

For further information, see the *PSDsoft Users Manual*.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Figure 4. Chaining Example



Operating Considerations

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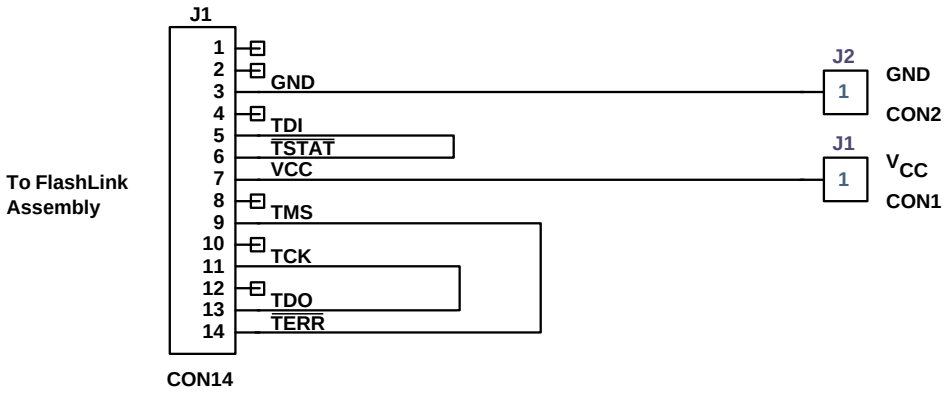
Figure 5. Loopback Adaptor



14-pin Dual Row 0.025 square Receptacle

Output Signal	*Signal*	*PC Parallel Port Connector Line (DB25 Pin No.)*
JEN	STAT	SEL (11)
TDI	TSTAT	ACKN (8)
TMS	TERR	ERRN (10)
TCK	TDO	PAP (9)

Table 1. Document Revision History

Date	Rev.	Description of Revision
	1.0	Document written in the WSI format
30-Jan-2002	1.1	FL_101: FlashLink User Manual Front page, and back two pages, in ST format, added to the PDF file Any references to Waferscale, WSI, EasyFLASH and PSDsoft 2000 updated to ST, ST, Flash+PSD and PSDsoft Express

For current information on PSD products, please consult our pages on the world wide web:
www.st.com/psm

If you have any questions or suggestions concerning the matters raised in this document, please send them to the following electronic mail addresses:

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ask.memory@st.com (for general enquiries)

Please remember to include your name, company, location, telephone number and fax number.