

## ***TSB41BA3DI / TSB41BA3D Errata***

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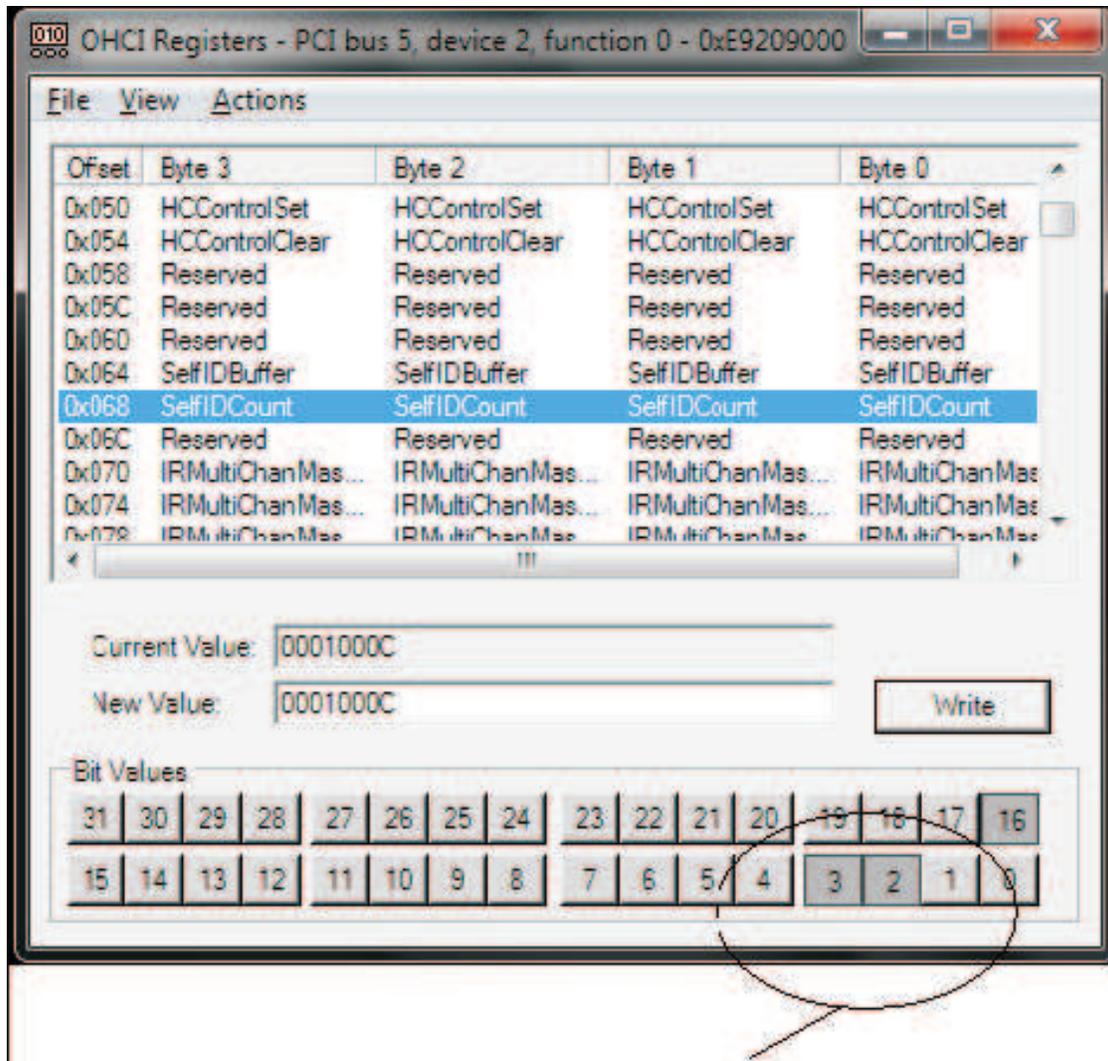
This document is provided to explain an erratum involving 1394 PHY Self-ID reporting on the PHY/LINK interface for the TSB41BA3DI / TSB41BA3D PHY device.

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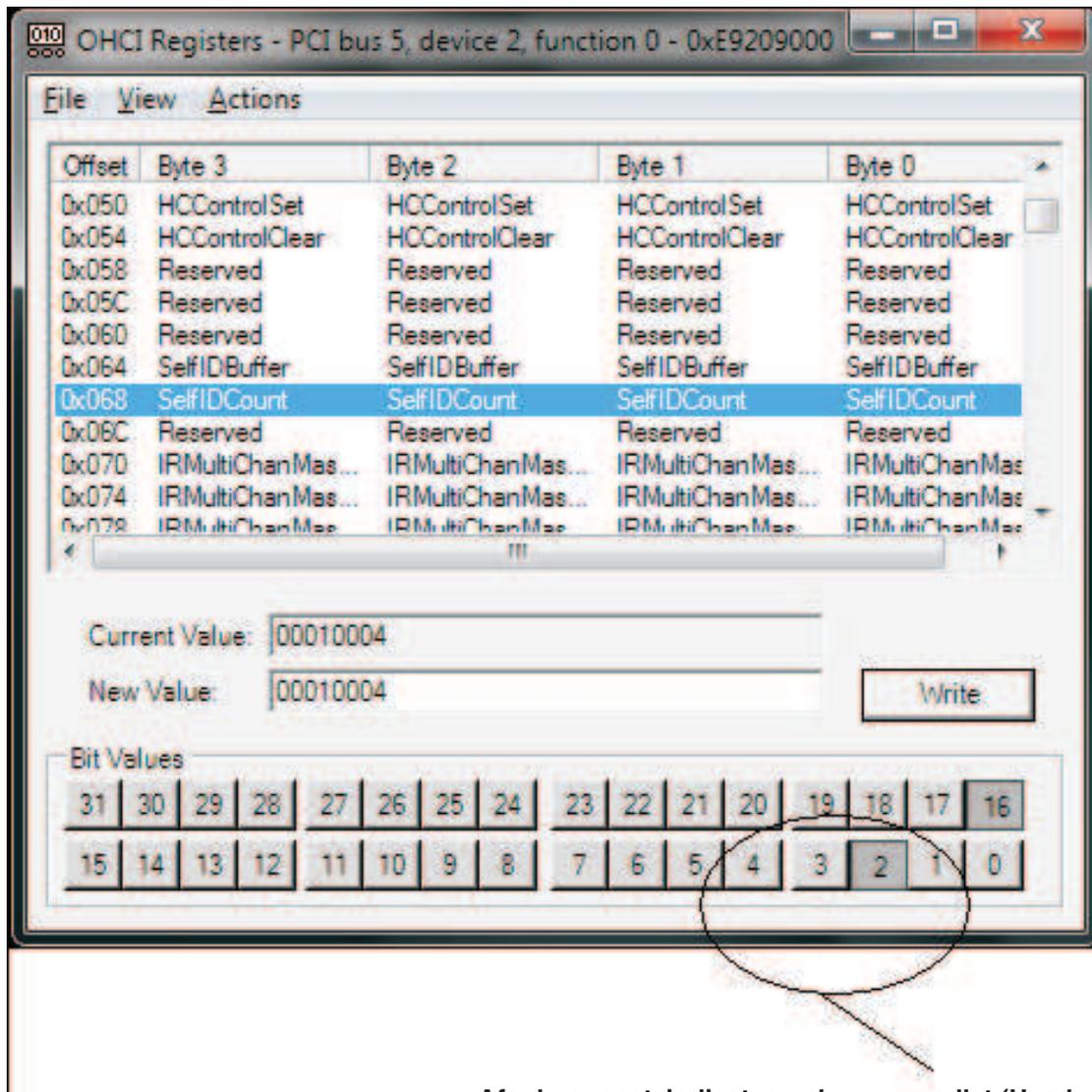
## 1 Detailed Description

When a bus reset occurs, the TSB41BA3DI / TSB41BA3D PHY Self-ID packet is not received by the OHCI link resulting in incorrect values in the OHCI Self-ID register (0 x 68) and missing Self-ID packet data in host memory.



Indicated three quadlets (Header, Self-ID, Inverse of Self-ID) of Self-ID data present in host memory.

Figure 1. TSB82AA2 Self-ID Register With TSB41BA3AI PHY



Afer bus reset, indicates only one quadlet (Header) of Self-ID information in host memory.

Figure 2. TSB82AA2 Self-ID Register With TSB41BA3DI / TSB41BA3D PHY

Capturing data on the PHY/LINK interface after a bus reset reveals that both the TSB41BA3AI and TSB41BA3DI / TSB41BA3D do send their respective Self-IDs to the OHCI link. The TSB41BA3AI however sends a Data On indication preceding the Self-ID data, the TSB41BA3DI / TSB41BA3D does not. The sending of the Data On indication is not required per the 1394 specification (Not needed per 1394-1995 specification), but the OHCI link expects the Data On indication to precede the Self-ID, otherwise the data is ignored. The review of the design verified that the OHCI Link does expect to see the Data On indication before the Self-ID.

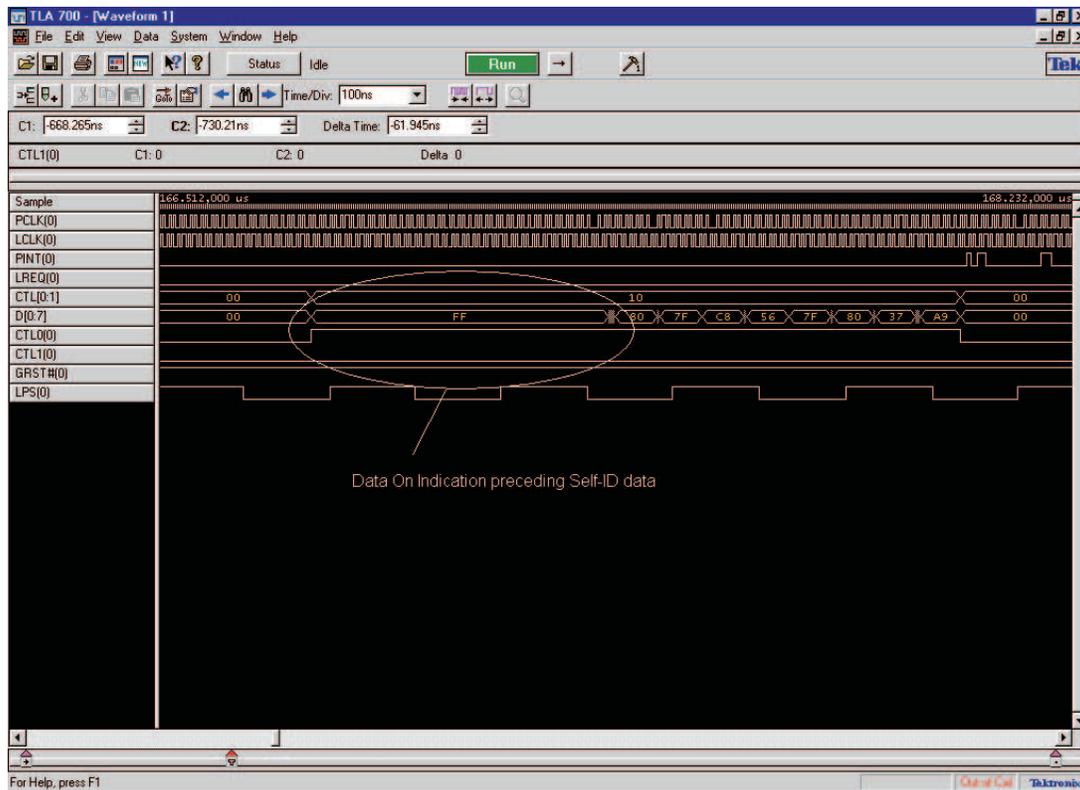


Figure 3. PHY/LINK Interface After Bus Reset With TSB41BA3AI

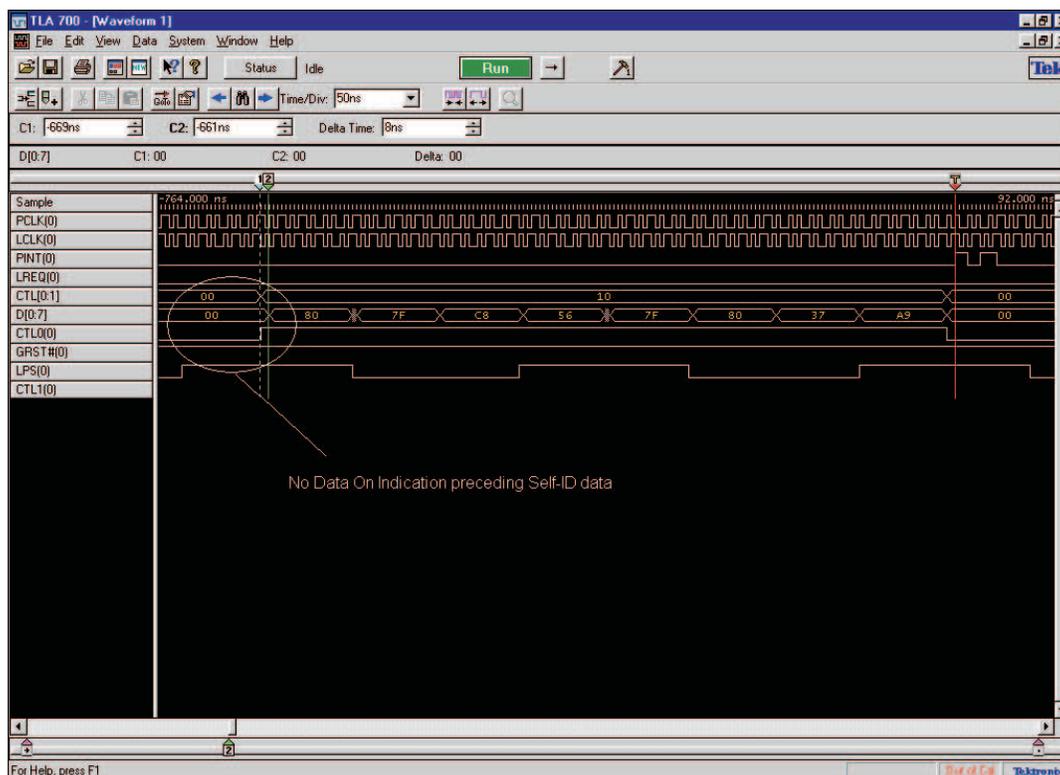


Figure 4. PHY/LINK Interface After Bus Reset With TSB41BA3DI / TSB41BA3D

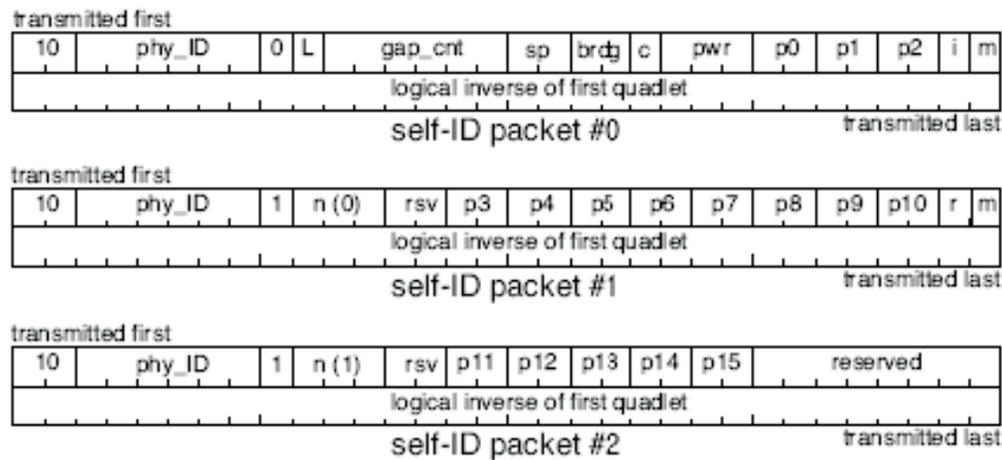
## 2 Overall Impact

If the host utilizes memory to build the bus topology, the TSB41BA3DI / TSB41BA3D (host PHY) Self-ID will be missing in the topology. The bus topology map will be incomplete.

## 3 Workaround

The missing Self-ID from the host PHY (TSB41BA3DI / TSB41BA3D) can be created by reading registers directly from the PHY, then the topology map can be built using the data from the PHY and Link registers.

The Self ID contains the following information which can be read from the PHY registers (taken from 1394-1995):



**Table 1. Self ID**

Field	Derived From	Comment	
10		Self-ID packet identifier.	
phy_ID	physical_ID	physical node identifier of the sender of this packet.	
L	link_active	If set, this node has an active Link and Transaction Layer.	
gap_cnt	gap_count	Current value for the PHY_CONFIGURATION.gap_count field of this node.	
sp	PHY_SPEED	Speed capabilities:	
		00	98.304 Mbit/s
		01	98.304 Mbit/s, 196.608 Mbit/s
		10	98.304 Mbit/s, 196.608 Mbit/s, and 393.216 Mbit/s
		11	Reserved for future definition
del	PHY_Delay	Worst-case repeater data delay.	
		00	≤ 144 μs (≈14/BASE_RATE)
		01	Reserved
		10	Reserved
		11	Reserved
c	CONTENDER	If set and the link_active flag is set, this node is a contender for the bus or: isochronous resource manager as described in 8.4.1	
pwr	POWER_CLASS	Power consumption and source characteristics:	
		000	Node does not need power and does not repeat power.
		001	Node is self-powered and provides a minimum of 15 W to the bus.
		010	Node is self-powered and provides a minimum of 30 W to the bus.
		011	Node is self-powered and provides a minimum of 45 W to the bus.
		100	Node may be powered from the bus and is using up to 1 W.
		101	Node is powered from the bus and is using up to 1 W. An additional 2 W is needed to enable the link and higher layers.
		110	Node is powered from the bus and is using up to 5 W. An additional 2 W is needed to enable the link and higher layers.
111	Node is powered from the bus and is using up to 9 W. An additional 2 W is needed to enable the link and higher layers.		
p0...p26	NPORT child [NPORT] Connected [NPORT]	Port status	
		11	Connected to child node
		10	Connected to parent node
		01	Not connected to any other PHY
		00	Not present on this PHY
i	initiated_reste	if set, this node initiated the current bus reset (i.e., it started sending a bus_reset signal before it receives one) (optional. If not implemented, this bit shall be returned as a zero)	
m	more_packets	If set, another self-ID packet for this node will immediately follow (i.e., if this bit is set on the next self-id packet received has a different phy_ID, then a self-id packet was lost)	
n		Extended self-ID packet sequence number (0 through 2, corresponding to self-ID packets #1 through #3). If n has a value of 3 through 7, then the rsv.pa_ph.r and m fields in figure 4.18 are reserved.	
r.rsv		Reserved for future definition. set to zeros.	

Sample code is provided in the specification regarding the generation of Self-ID.

## Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

### Changes from Original (December 2009) to A Revision

**Page**

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- Changed TSB41BA3DI to: TSB41BA3DI / TSB41BA3D throughout the document..... 1
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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
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