The ICE/ITP Reset Connection

An Application Note

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Introduction

Although it is often overlooked, the reset connection from the ICE or ITP to the target system is critical for proper operation. In fact, most of our support calls are solved by simply having the user install the yellow/black twisted pair reset cable that is provided with all American Arium ICE and ITP tools.

Background

In order for a system to run correctly, the processor must be properly reset. In addition to the processor, a host of other devices such as the system chipset, memory controller, and peripheral devices need to be properly reset in order for the system to successfully initialize and boot. This is generally accomplished by generating a reset signal from a combination of signals including the power supply's POWERGOOD signal and the pushbutton reset switch.

For an ICE or ITP tool to function properly, it must be able to reset the target system and begin execution from a known state. Furthermore, the ICE or ITP user needs the ability to initiate a reset of the target system from within WinDb as part of the normal debugging process. There are two possible methods for the ICE or ITP tool to reset the target system:

- Reset the target system by asserting a reset signal on the debug port.
- Reset the target system by providing the equivalent of a switch closure that can be connected to the target system's pushbutton reset connector using the yellow/black reset cable.

Reset Implementation When Using A Target System's debug port

When the ICE or ITP is connected to the target system's onboard debug port, it is usually not necessary to use the yellow/black reset cable because the debug port specification provides the ability for the ICE or ITP tool to reset the target system. This debug port signal used to accomplish this is called DBRESET# or DBR#. However, the yellow/black reset cable is sometimes needed if the reset signal on the target's debug port is not properly implemented.

Reset Implementation When Using A TAP Adapter

When the ICE or ITP is connected to a TAP adapter because the target system lacks its own onboard debug port, the use of the yellow/black reset cable is required. This is because the TAP adapter cannot reset the target system through the target processor connector. The yellow/black reset cable is the only means available to reset the target system.

## Reset Implementation When Using A TRC-6

When a TRC-6 (full trace ICE) is connected using a bus analyzer pod (TGI) that is inserted between the target processor and the target board, the use of the <u>use the yellow/black reset cable is required</u>. This is because the TGI cannot reset the target system through the target processor connector. The yellow/black reset cable is the only means available to reset the target system. If however, the TRC-6 is also connected to the target system's onboard debug port, it may not be necessary to use the yellow/black reset cable.

Advice That Works In All Cases

If in doubt about the need to use the yellow/black reset cable or if your target system's debug port is at all suspect, it is a recommended that you use the reset cable. Using the reset cable when it is not necessary will not hamper operation of the target, ICE, or ITP.

Attaching The Yellow/Black Reset Cable

When using the yellow/black reset cable, it is connected between the pins labeled **Target Reset Out** on the ICE or ITP and the two pins on the system board where a reset pushbutton would normally be connected. This connection is shown on the following figure. It is essentially a switch closure and is not polarity sensitive.
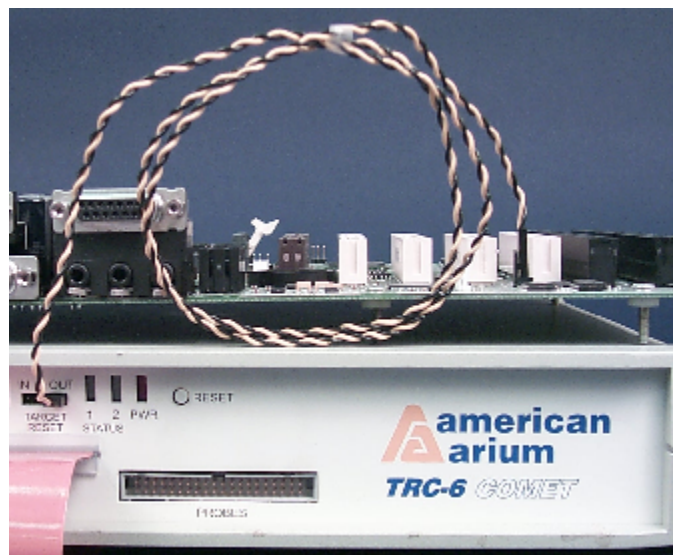
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