

New Hardware and Software Enhancements to the TestStation In-Circuit Tester Platform Q&A December 13, 2006

Q: Does Debug Pro include any improvements for Digital Debug?

A: The first release of Debug Pro was focused on improving analog component debug. Future releases of Debug Pro are being planned that will simplify and improve the digital debug user interface.

Q: Does TestStation version 6.2.0 run on 228X systems?

A: Version 6.2.0 can only be installed on TestStation systems configured with UltraPin I or II D/S pin boards. Version 5.8.0 is the last software version that supported the 228X and TS8X ICA based test systems. Contact your Teradyne sales representative for information on affordable 228X and TS8X trade-in programs that allow you maintain program and fixture compatibility while obtaining all the benefits of the latest TestStation technology.

Q: Can the TestStation 6.2.0 version with the Debug Pro software be installed on a development system running version 5.8.0?

A: Technically yes, but if the development system is being used to support older 228X and TS8X test systems that are running version 5.8.0 software, then it should not be upgraded to version 6.2.0 software. The Debug Pro feature provides no real benefit for stand-alone development systems because real test debug must occur on a test system.

Q: Can you explain what is involved in re-configuring a TestStation system? What if I want to move the tester to a different location to test a different product application?

A: The first thing that must be done is to determine the test requirements of the target product application (pin count, technology, fault coverage, etc.) and then compare those requirements with the tester configuration. It may be that you may need to add pin cards or hardware options to achieve your test objectives. An analysis of the configuration could also reveal that the test system has more features than are required for the test application, In that case, you could decide to reconfigure the system to remove options that are not needed (and deploy them on testers that are testing applications that require them).

The important thing is that the TestStation platform and software architecture supports fast re-configuration of the tester to add or remove capabilities as they are needed. The unique configuration tolerant features of the software allow developers to maintain a single test program and fixture that will run on many different hardware configurations. Tests that can be run will be executed, while those that cannot be executed because the tester has not been configured with the appropriate hardware will be skipped. The tester tests what it can and reports the tests that it was not able to run. This design makes it easier to support distributed testing manufacturing environments.

Q: I would like to get an idea of price range between LH and high end - what would be price range factors (2X,3X,4X?) for fully loaded systems ?

A: The price of the TestStation system is highly dependent on the hardware and software options that are selected. A basic TestStation LH system configured with 5 analog only pin boards can be as low as \$100K. A mid-range ICT system would cost 2-3X times more and a fully loaded high performance, high pincount ICT system would be 4-6X times more.

Q: Could you show an example of the backdrive current display?

A: Below is a slide showing the format of the real-time backdrive current displays. Refer to Teradyne’s past SafeTest webinars for more details on the Backdrive Current measurement and control features.

Solution 4: Real Time Backdrive Current Measurement and Control

Capabilities that measure and control **Backdrive Currents** and duration in Real Time, on a per pin basis

Debug environment

DEVICE LABEL: U33_B1: (NAND tree Test)
 DEVICE NAME: U33
 DEVICE TYPE: 82801 (I/O Controller Hub - 3V)

PIN	NODE	NAIL	BACKDRIVE
A3	PICH_HLCOMP	106	79.06 mA
G1	LAN_RXD1	640	73.79 mA
R21	RSMRST_	90	131.76 mA
W11	PCLK_ICH	105	84.33 mA
Y20	OVCUR_1	147	469.08 mA
R22	FERR	614	76.42 mA
C12	CPUINIT_	743	450.64 mA
D11	SB_A20M_	575	563.95 mA
Y17	SUS_STAT	531	73.79 mA
	GGNT_	61	171.29 mA
	RBF_	67	237.18 mA
	SBA0	122	176.56 mA

- Program safe limits for IC devices
- Identifies and eliminates excessive backdrive currents that can stress IC components
- Identifies faults that are not normally detected
 - **Bad Output Transistors**
 - **Open or Faulty Enable Pins**
 - **Incorrect Isolation Vectors**

Backdrive Failure

Device: U33
 Type: 82801
 Pin: R22
 Net: CPUINIT_

Production environment

Exceeded Backdrive Current Limit of 100 mA

Q: Can Debug Pro be used if Monitor Pages were used to develop the application?

A: Yes. The Debug Pro user interface is available from both the Navigate and Monitor development environments.

Q: Can I mix Ultrapin I and Ultrapin II pin boards in the same system?

A: No. Mixing UltraPin I and II pin boards in the same system is not supported. Newer TestStation systems that have the Integrated System Controller board can trade-in their UltraPin I pin boards for UltraPin II board types.

Q: Does Teradyne plan to release multiplexed analog only 124A and 128A pin cards?

A: No, the removal of digital D/S pins from the lower priced 128 and 124 multiplexed pin cards would not provide a big cost advantage, therefore we will continue to offer these pin cards with digital test capabilities.

Q: Do you have plans to build an adapter to run Z18 fixtures on TS LH platform?

A: This is currently under investigation. Contact Teradyne if you require more information.

Q: Can failing components be set to automatically highlight in the board display in test mode?

A: During debug, selected components using the Label Navigator, Component, or Property tools will automatically be highlighted in the D2B viewer. A Production version of the UI will be available that will be able to automatically highlight all components that failed during the last Production test run.

Q: Were there changes to the development software to support Debug Pro?

A: No changes were required to the TestStation development software to implement the Debug Pro feature. This was a design goal because we wanted to make sure that TestStation users could use the new debug environment without making any changes to their existing test programs and fixtures.

Q: Is the rack-mount tester available without the board handler?

A: Yes. Teradyne sells the TestStation rack-mount components and the automated handler equipment vendor, a third-party integrator, or the customer usually integrates them. This provides the maximum implementation flexibility for our customers.

Q: Is it easy to migrate a 228X program and fixture to the TestStation running the new Debug Pro environment?

A: Yes. Older 228X test programs and fixtures are compatible with the new TestStation systems. Most programs and fixtures can be migrated in minutes and only require re-translating the source test program. The primary difference is the different digital voltage range of UltraPin systems compared to older Combo based 8X testers. Any tests that require driving or sensing of digital voltages outside the range of $-2.5V$ to $5.5V$ must be modified so that they comply with these voltage limits of the UltraPin technology.