

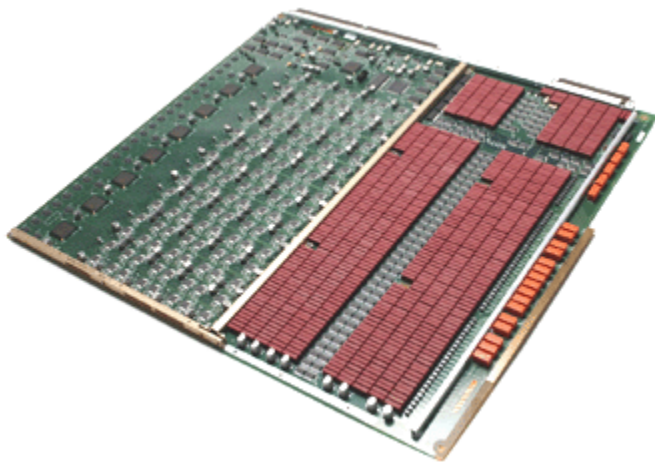


## Analog/digital pin-boards, GUI software, extend ATE scalability

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North Reading, Mass.—ATE (automatic test equipment) maker **Teradyne**, announces the availability of two pin-cards for its existing *TestStation ICT* platform. The company's latest *UltraPin II 121* and *UltraPin II 121a* boards make the company's TestStation a scalable *ICT* (in-circuit test) platform.

With the addition of these pin-cards, Teradyne's TestStation now offers a choice of options that include *MUX* (multiplexed) or pure-pin, analog only or hybrid, and low pin-count or high pin-count configurations.

### Mix And Match

Backed by Teradyne's latest user-friendly *Debug Pro* development software environment, these boards can be mixed and matched in TestStation systems to make supporting multi-line ICT floors more adaptable to fluctuating test needs. More about Debug Pro in a moment.

The UltraPin II 121 also lowers the entry price point of for pure-pin test configurations, packing

ultra-low voltage capabilities. The 121 has 128 non-multiplexed digital/analog pins per board. It supports a maximum of 2048 pins when configured in a *TestStation LH*, or 3840 pins when installed on the company's *LX* model ICT.

For its part, the UltraPin II 121a (with the same pin capability) comprises a pure-pin analog-only board with 128 analog pins. It offers real-pin stimulus and detection capabilities that are optimized for powered and un-powered functional testing of analog components and characteristics testing.

TestStation systems support mixing the UltraPin II 121 and 121a analog-only pin boards in the same system.

### **Unrestricted Pin Assignments**

Both UltraPin II 121 and UltraPin II 121a pin boards offer true non-multiplexed operation. Their architecture enables unrestricted pin assignments for both analog and digital test applications, ensuring flexibility when programming driver/sensor logic levels, sense thresholds, slew rates, and back-drive limits. In contrast, other competitive testers tend to compromise in these areas; that can result in unwanted programming, and fixture and debug difficulties.

The UltraPin II 121 pin board offers 15-mV drive and sense accuracy, 2.3-mV programming resolution, low driver-impedance, and the ability to monitor and program back-drive currents to 15-mA. Teradyne claims its specified accuracy is up to 13 times greater than the majority of conventional ICT systems available. With that, this system looks ready for ultra-low voltage technologies.

### **Modular Resources**

Both boards utilize a module used to passively detect shorts, opens, and incorrect component values. Their analog functional test capacity can verify active (powered) component parameters such as transistor beta, op-amp closed-loop gain, diode characteristics, and transfer measurements.

The module also provides additional resources for *DDS*-based (direct digital synthesis) arbitrary waveform generation, as well as offering 8-wire measurement capability, [synchronous](#) sampling techniques for precise *RLC* (resistive, inductive, capacitive) measurements, and a universal 16-bit sampling *DVM* (digital voltmeter).

With true non-MUXed operation, the board's architectures solve problems that often limit other pure-pin approaches. These include the number of available drivers and sensors, how the drivers and sensors are applied, how the analog instrument bus is accessed, how many logic levels are assigned, how many sense thresholds are specified, whether or not slew rates are programmable on each pin, and whether available fixtures place restrictions on pin assignments.

Other so-called pure-pin techniques tend to compromise or limit these [multiplexing](#) dimensions. That can result in cause unwanted program, fixture, and debug difficulties.

Another limiting design factor for competitive analog pin-cards is the quantity, speed, and availability of analog bus channels for multi-wire testing. The UltraPin II 121 and 121a support standard 4-wire non-multiplexed testing, with operation over a standard 8-wire analog bus.

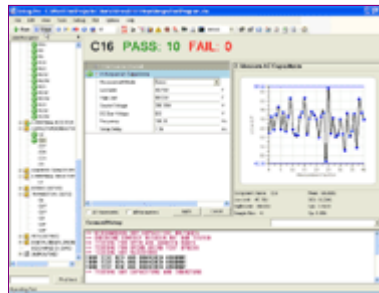
These systems also permit dynamic 6-wire and 8-wire testing to be performed when maximum accuracy is required. This often eliminates the need to perform analog test analyses before designing fixtures, and reduces subsequent development cycles. Analog-only TestStation systems configured with 121a pin boards can perform high-speed analog measurements with repeated

accuracy and reliability.

Starting prices of UltraPin II TestStation configurations are under \$100,000.

## The Software

Let's look at Teradyne's Debug Pro software. It's a user-friendly program development and debug software environment for the TestStation ICT machines. Debug Pro features an intuitive *GUI* (graphical user interface) and comprehensive tools with simplified command menus, structures, and operational displays.



[Click for larger typical screen image](#)

A key element of Debug Pro is a *Label Navigator* that graphically displays each of the program's tests. Common resistor, capacitor, inductor, and other user-defined tests are automatically grouped using folders. Status icons are used to clearly indicate *Pass/Fail* status of tests. Operators can also select individual debug tests by clicking on menus or by using built-in search capabilities.

Debug Pro also includes a *Statement Editor* that displays test-specified parameters available for user-selected tests. It permits operators to select and modify those parameters using a mouse or keystrokes. This configurable editor can be set to display only the test parameters that operators commonly modify during debug activities.

## Relevant Interconnections

Debug Pro also has a *Guard Editor* window that displays test instrument connections and relevant in-circuit interconnections associated with *DUTs* (devices under test). You can add and remove test guard points using the mouse. Debug pro also includes a *Charting Tool* that displays measurement results using run or histogram charts.

It reports test statistics such as mean, standard deviation,  $C_{p'}$ , and  $C_{pk}$ . Operators can acquire and view charts to quickly determine the reliability of all test measurements. *Component* and *Property Information* windows display more information about board components, nets, and other tester resources.

A customizable tool bar provides access to comprehensive debug tools, including board and schematic viewers, data collection charts, vector-less test programming, and test quality tools. An optional *Untranslator Window* provides experienced users with the ability to perform debug activities using familiar commands and keystrokes of legacy run-time debug environments. Teradyne will begin shipping Debug Pro v6.2.0 this month. Existing TestStation users with software support contracts will receive the keys to the new software early next year.

For more details on the pin-boards and Debug Pro executables, contact Teradyne, Inc., 600 Riverpark Dr., North Reading, Mass. 01864. Phone: 800-Teradyne

**Teradyne**, 800-Teradyne, [www.teradyne.com/atd](http://www.teradyne.com/atd)

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