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Find the *Ametek / VTI Instruments / VXI Technology MTS-7000* at our website: *Click HERE*

MTS7000

Integrated Circuit Failure Analysis Subsystem

VXI Technology™

- Modular approach allows testing of packages from 16 pins up to 1024 pins
- High-density switching and digital solutions reduce overall footprint, making them ideal for bench top applications
- Standard connectors allow simple interfacing to probe cards
- Ideal for wafer or packaged parts
- GPIB, RS232, Ethernet, PCI or fiber-optic control



Overview

This family of configured systems from VXI Technology is designed to place integrated circuits into a known state through the application of digital, DC and AC signals. The modular and high-density approach to configuring these systems, makes them ideal for supporting large pin count devices.

These systems save our customers hundreds of thousands of dollars when compared to large, complete verification systems from companies such as Cadence, LTX, Keithley, for device reliability testing and analyzing failure mechanisms. Applications include:

Yield enhancements

Customer returns

Failure analysis

ESD failures

Fab process improvements

The heart of these systems is the Switch Modularity and Interface Platform (SMIP//™) for high-density switching, and the VXI Modular Instrumentation Platform (VMIP™) for high-density digital. These products are then combined with standard curve tracers and power supplies. The SMIP//™ switches and VMIP™ instruments can be combined and mixed to provide the exact configuration.

For simple applications with no digital, 1024 channels of signal switching can be accommodated in a single 13-slot VXIbus mainframe. Any one of these 1024 points can be connected to a 4-line bus that can be connected to a curve tracer and VDD lines. This modular approach to system configuration also allows digital lines to be combined with the switching system and instruments, allowing customers to mix and match configurations and expand as needs require.

Example Systems

A typical system allows the testing of 384 channels (expandable to 512 channels). Each channel can be switched to VDD1, VDD2, VSS, force/measure, digital drive or a float state (see block diagram). The VDD supplies, current meters, and the force/measure units are controlled through the GPIB interface, and the switching and digital drive is controlled directly over the PCI bus from the host computer.

The current meters are used for precision measurements of IDD currents. The force/measurement unit is used to perform DC tests such as shorts, opens, and leakage. The digital drive cards are used to supply low frequency (<1kHz), NRZ formatted AC signals to the device under test. For applications with faster data rates, 50MHz digital drive cards can be substituted.

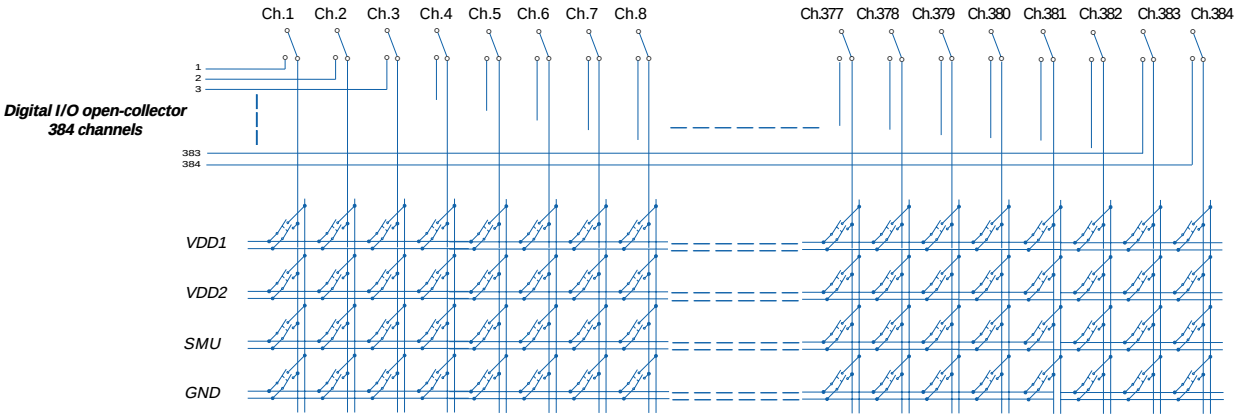
The VOH level on the digital drive card in this application is supplied by open-collector drivers pulled up to one of the VDD supplies to allow for programmable levels.

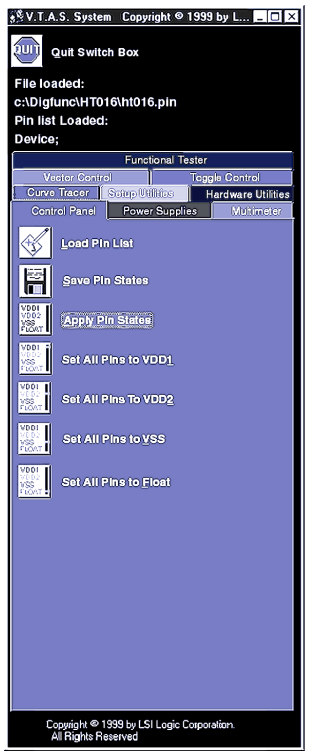
Each channel can be switched to one of four busses (VDD1, VDD2, VSS, Measure) or to a digital drive card independent of other channels. A real advantage of this configuration is the true float state of each pin, which turns the system from a 2-power supply, 1 measurement buss system into a system with virtually unlimited power supply/measurement units.

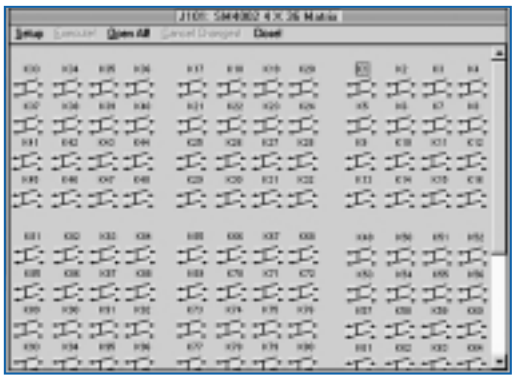
In this example the customer wrote his own software, allowing device pin lists to be loaded from file, with conversion from LTX or Credence platforms.

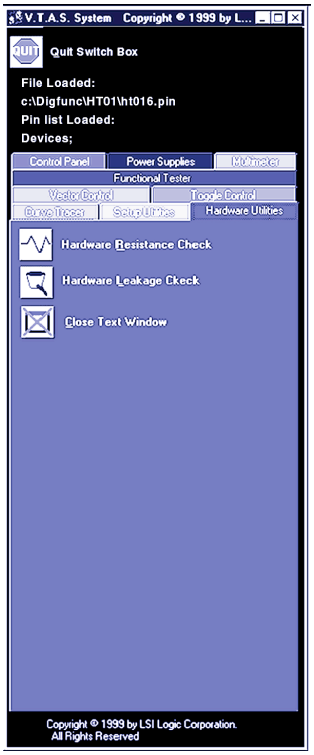
Flexible control of all pin states is achieved from graphical user interfaces (GUIs), i.e., setting pins to VDD1, VDD2, VSS or float state. GUIs were also developed to provide easy control of power supplies, curve tracer and DMM. The curve trace GUI also allowed measurements to be compared to a known-good device. Examples of software interfaces are shown (Courtesy of LSI Logic).

384 Pin DUT Board









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