

## Automated Test Stand With Integrated Vision System

Automated Test Stand with Integrated Vision System is a test facility used to test the Display Systems. It automates the driving of different categories of signals with sensor and engine output simulation modules and many interfaces such as ARINC, RS422 and CAN etc.

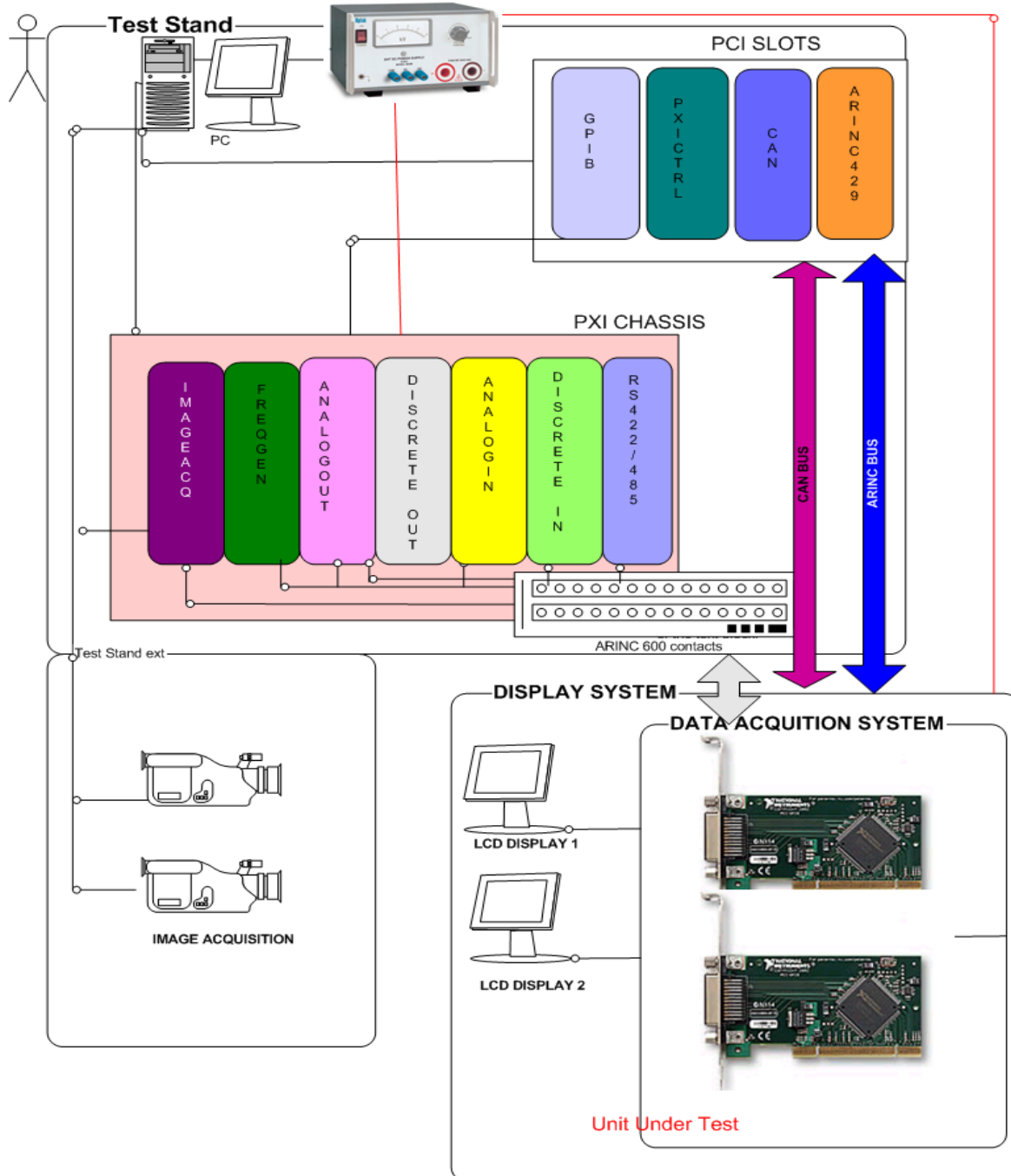


Figure 1: Automated Test facility components and interfaces

The Automated Test Stand can be used as cost-effective solutions to system testing of Display System when compared to manual rigs. The main functions of this facility are as follows:

1. Creation of Test scripts and Test Procedures
2. Configuration of Test Stand /facility
3. Execution of Test scripts and Test Procedures

The advantage of such a facility is that test engineers can create test scripts using a visual interface .

Test scripts can have sequences of operations (with time delays and periodicity). Any number of waveforms and any kind of waveform can be generated for special signal types. Most of inputs are automated, hence while executing the test procedure/script there is no manual intervention required, as it is capable of producing a separate test file. However, while creating test scripts, the test engineer needs to enter the expected output.

To store the test scripts/procedures the facility uses a personal computer with database.

## **Hardware**

The PXI chassis has cards different vendors, which can generate following types of signals:

- TTL /CMOS type
- Discrete logic generators like 28V/GND, 28V/OPEN, GND/OPEN etc
- Analog outputs
- RS 422 Tx and Rx channels
- The image acquisition and graphics card
- Function Generator cards
- Analog Input cards
- Discrete signal receivers

The PCI slots contains bus interface such as, CAN, ARINC and GPIB control cards. The GPIB control cards are required only in those cases where the test facility has to generate an analog signal in higher ranges of AC Voltage.

The Automated Test Stand chassis contains the Image acquisition cards. Each image acquisition card is connected to an independent digital camera. For the Stand to capture image from the LCD screens it is required to have to image acquisition boards and digital cameras (the figure shows two LCD screens and two display system only for representation).

## **Software**

The software allows the user to create new test cases, modify or update existing Test Cases/Procedures and has the capability to automatically execute all selected Test Procedures. In case, manual intervention is required for executing a Test Procedure, the software prompts the user to do so.