

COLUMBIA

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6TL Engineering

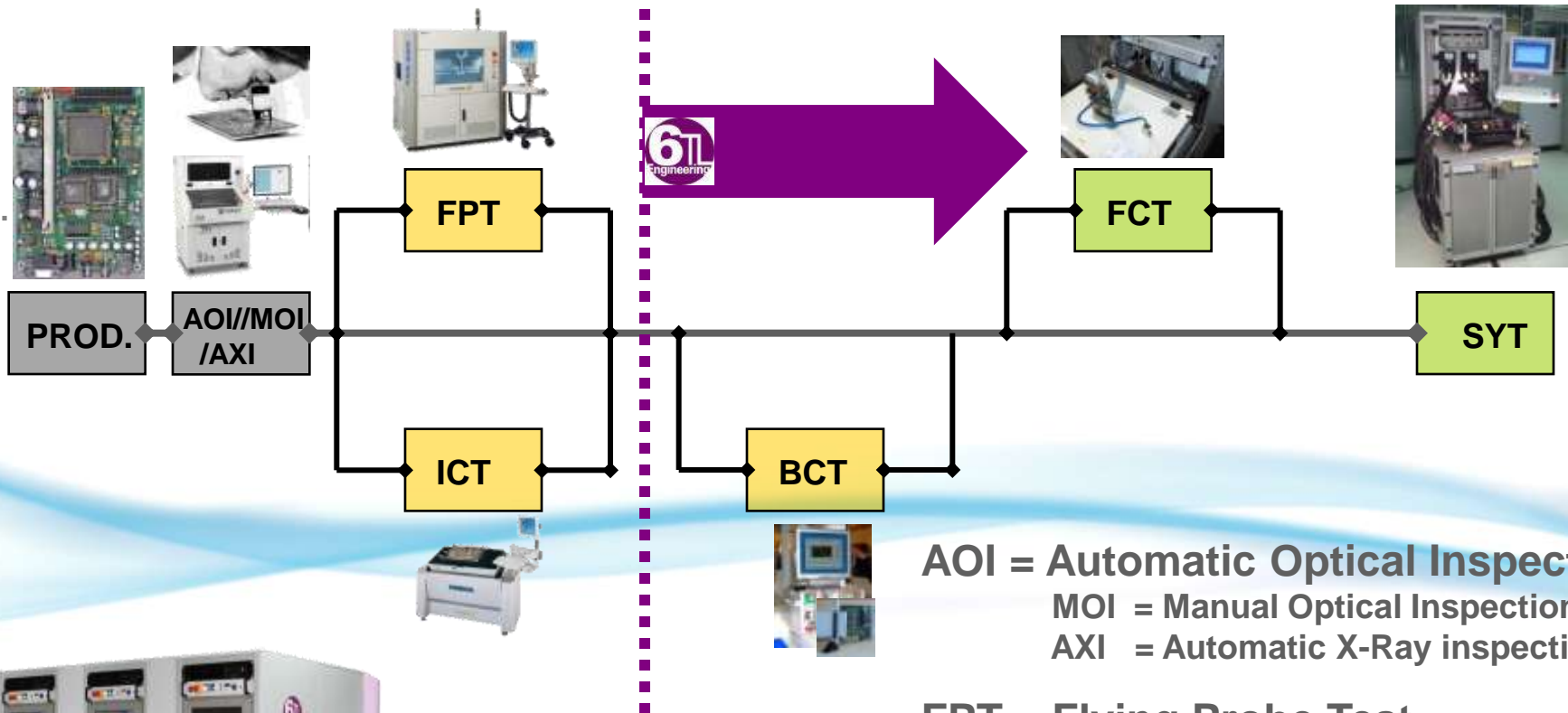
**Building a Reliable, Re-usable and  
Flexible Functional Test System  
out off a Catalogue,  
With Standard Building blocks from 6TL,  
Mass Interconnect from VPC and  
Additional Instrumentation and software from NI**

- Who is 6TL engineering.
- Testing Methods.
- What challenges do we all face in Test.
- Standard building blocks (advantages).
- Why use Mass Interconnect as the tester interface.
- Advantages of the Mass Interconnect concept.
- Minimize wiring saving time and money.
- Introducing the YAV board Technology.
- Combining YAV Technology with Mass Interconnect Receivers
- Advantages of the modular tester concept with 6TL Building blocks
- Summary

- 6TL engineering is a division of the Sistel Group located in Sabadell, Barcelona, Spain. (100 People)
- 6TL is specialized in developing and building modules for functional or combinational test
- 6TL has global presence, manufacturing & support
- 6TL has over 25 years of experience, providing Test solutions for different industries
  - Automotive, Consumer Electronics, Aerospace, Telecom, etc.
- Our philosophy is to provide standard platform solutions, with below in mind;
  - Minimize engineering effort and cost.
  - Short integration time
  - Open architecture
  - Scalability







AOI = Automatic Optical Inspection  
MOI = Manual Optical Inspection  
AXI = Automatic X-Ray inspection

FPT = Flying Probe Test

ICT = In-Circuit Test

BST = Boundary Scan Test

FCT = Functional Test

SYT = System Test

- How can I keep the cost down, (minimize development and engineering cost!)
- Time to Market - R&D focus, manufacturability, testability, design for test.
- Will my system perform now and in the future?
- Will there be room to Expand my system and can I use all available resources?
- Standard, re-usable, flexible test software architecture with modular building blocks
- Standard expandable and reliable tester interface, (Mass Interconnect)
- Use as many standard building blocks as possible.
- Test equipment assembled in every country, continent, world.
- Prepare wiring diagrams and manuals
- Training for operators
- Cost-effective, long information availability and support.



**OUTPUT**



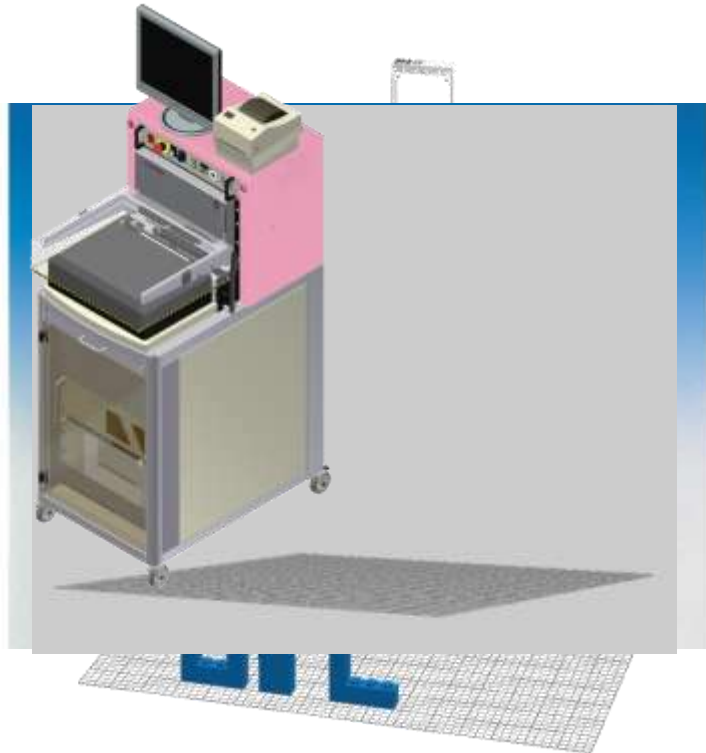
**NATIONAL INSTRUMENTS**



**VPC** Virginia Panel Corporation

High standard building blocks for Test.

What has LEGO to do with building test systems?



- LEGO is modular
- LEGO is re-usable
- LEGO re-configurable
- LEGO has standard building blocks
- LEGO has support all over the world.

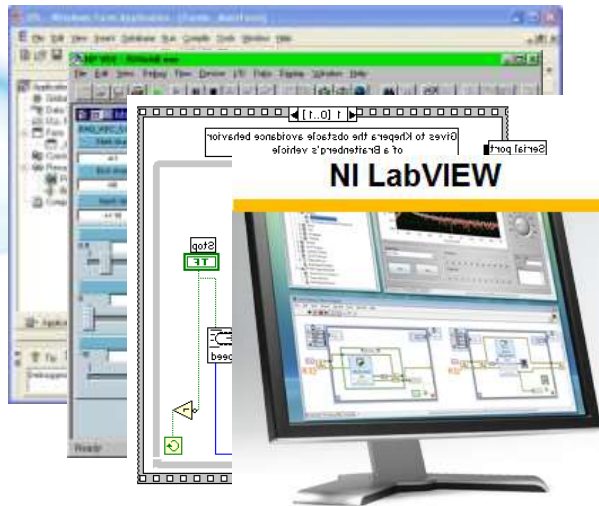


So why not use the LEGO principle to build a computer or even a complete test system.





- So if we talk modularity we differentiate two standard and one variable building block,
  - 1 – input side – Software platform and the software application (Standard)
  - 2 – output side – Interface to the unit under test (Standard)
  - 3 – tester electronics, instruments and housing + options.



Standard Input .

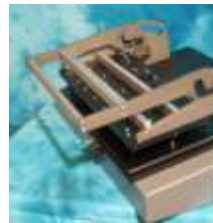


**Task: to get as much standardized  
in the Base Tester platform.**



Standard Output.

- A typical housing 19" Rack.
- A controller / Industrial computer.
- A Man-Machine interface.
- Additional Test instrumentation.
  - SCXI, PXI, VXI, LXI, VME, Rack & Stack, Etc.
- Standard VPC Interface.
- Standard wiring. (Assemblies)
- A manual pusher system
- An automatic pusher system
- ITA's or test fixtures



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## Maximize the ROI for Test Assets

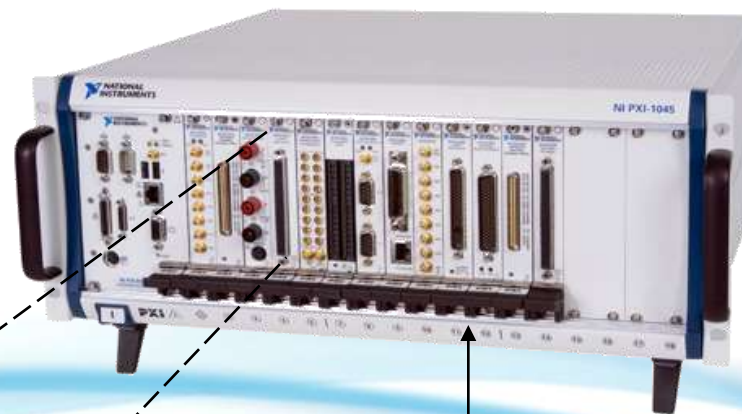
- By Preventing Damage to Valuable Test Instrumentation

Test Instrument Card

Delicate Commercial Connector

Life cycle: +/-200 cycles

Connector bad, instrument bad, Tester down



(Valuable Test Instrumentation)



**Mass Interconnect Systems are designed for 20,000 mating & un-mating cycles. They protect Valuable test Instrumentation**

- It provides company-wide standardization,
- High reliability, 20.000 error free connection cycles.
- One connection for all tester Inputs and Outputs,
- Signal, Power, Coax, Air, Optical, and HF contacts.
- Reducing possible connector pin damage dramatically.
- Less down time with as a result higher productivity
- Additional system flexibility,
- It is Modular and can provide Scalable solutions,
- With COTS cable assemblies, PCB adapters and Patch cords, faster and easier wiring.

## Improved throughput!!





- Discrete wiring

**NOT Preferred.**

- Use of cables

- Connect with cables

- Connect direct with the channels

- Connect using direct PCB Connections **NO WIRING NEEDED !!**  
If there is a disadvantage to Mass Interconnect it is the additional wiring, it adds to the total system cost



Reducing this additional wiring, saves cost.





# Minimize Wiring.

- Wiring is labor intensive & needs to be minimized
  - This leads to shorter assembly times
    - better signal quality and integrity
      - Higher reliability of the entire system
        - Simplifies wiring diagrams
          - Provides easier serviceability
            - And leads to lower cost
- In each tester the **Base instrumentation** is always needed,
  - DVM, Digital Analog I/O, Switching, Power supplies, etc.
- For basic test applications 6TL developed their YAV Range.
  - It has a Mass Interconnect interface on board
  - It can be mounted directly into the Interface Receiver
  - No wiring between YAV instrument and receiver needed
    - Provides an easy access for calibration or repair
      - Provides a better signal integrity
        - This saves money



- **Base instrumentation from 6TL, no wiring needed.**

- If you need pneumatic actuators, there is the YAV90PNEU
- If you need to test LED's Color & Brightness, there is the YAV90CLR
- If you need to test up to 3000V, there is the YAV90HVT
- If you need High Density Switching, there is the YAV90128
- If you need to switch power and loads, there is the YAV90PIN
- If you want to add In-Circuit Test, there is the YAV90096
- If you need Audio & Video switching, there is the YAV91616
- If you need Digital and Analog I/O, there is the YAV90832 (Multi-function)
- If you need Loads, Power supplies, identification or a light beacon
- Switch Coaxial, Active probes, route RS232 & F





- Select an appropriate VPC Interface.
  - The G6, 6 module positions.
- Select the needed YAV Configuration
  - You created your basic Test system.
- Add some additional Building blocks
  - And you have a complete Tester.

**Cable Tester** Bench Function blocks using VPC G6.



9025TR





- YAV series instrument & switching boards, cover most of your testing needs
- No wiring needed connect the boards directly to the Interface. (Cost Saving)
- Short signal pads, provide better signal integrity.
- More space in the Test-rack, Smaller, cheaper Test chassis needed. (Cost saving)
- Simple and fast integration, no wiring needed.
- Use of a real Mass interconnect interface connector
- Interface compatible with all VPC 90 series Mass Int
- CAN Bus controlled, Reliable, simple and fast wiring
- Labview or Teststand integration with available drive
- Modules have their own virtual instrument panel (easy debug & serviceability).
- Separate VPC Interface modules available for:



- Power 50Amp, Coax 1-40GHz, Signal 3-10Amp, Pneumatic, POF, Fiber

easily be added.

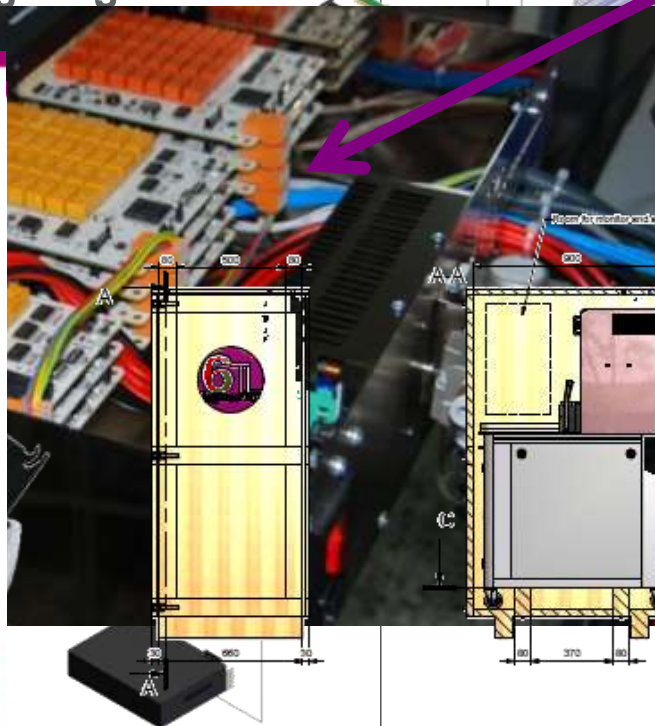
ck, etc. etc.

rdization & Reliability



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**CAN BUS provides Easy Wiring.**





- Let us provide the pieces of the puzzle.
- So you can fully concentrate on the application
  - If Table Top
  - Rack Mount
  - or in-line
- We provide off the shelf, reusable modular BASE Test platform solutions for any test application.



Thank you!

Any Questions?



## COLUMBIA



True Modular Base Test Platforms, Functional (FCT) (FCT+ICT)

Special boards, LED color Detection & Pneumatic Switching

Mass Interconnect interface systems (VPC Interface)

Test Fixture Solutions, Fixture kits or Turn-Key (Mech. & Vac)

Test Probes, other Test Tools and consumables



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