

COLUMBIA



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Business development manager

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**

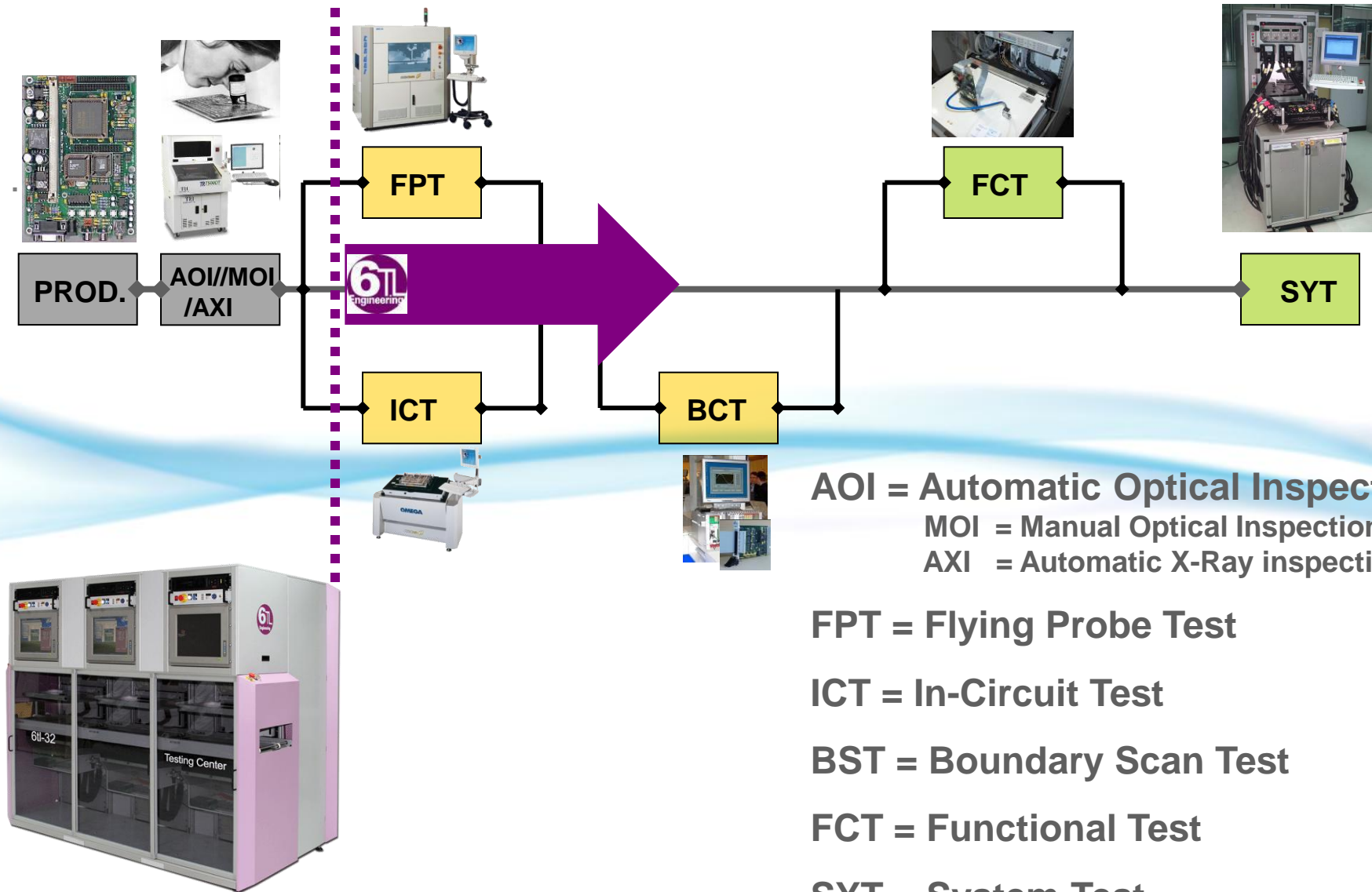
- Who is 6TL engineering.
- Testing Methods.
- What challenges do we all face in Test.
- Standard building blocks (advantages).
- Why use Mass Interconnect as the tester interface.
- Advantages of the Mass Interconnect concept.
- Minimize wiring saving time and money.
- Introducing the YAV board Technology.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



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- Our philosophy is to provide standard platform solutions, with below in mind;
 - Minimize engineering effort and cost,
 - Short integration time, (minimized wiring.)
 - Open platforms, instrument independence.
 - Short programming and commissioning time.
 - Standardization, high quality and re-usable.
 - Stock standard modules for fast delivery.
 - One partner to talk to (One Stop Shopping).





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 Hardware building blocks as possible.
- Test equipment asset management, factory, country, continent, world.
- Prepare wiring diagrams and operator manuals
- Training for operators and Test Engineers
- Cost-effective, long term test instrumentation availability and support.
- Test software and hardware obsolescence.
- Test preparation and testing during design.
- Minimize your vendor list and keep the price under control.
- Order to delivery - Production focus, test speed, handling etc.

**VPC** Virginia Panel Corporation

What has LEGO to do with building test systems?



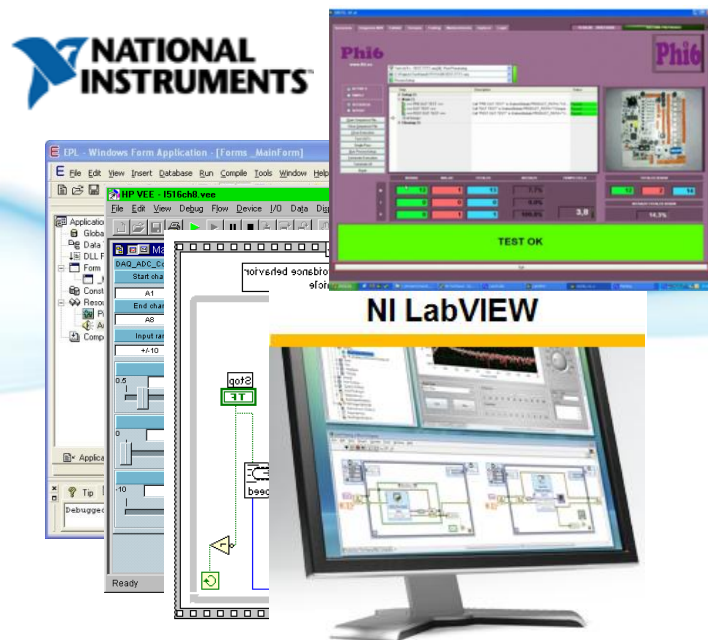
- LEGO is modular
- LEGO is re-usable
- LEGO re-configurable
- LEGO has standard building blocks
- LEGO has support all over the world.



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 .

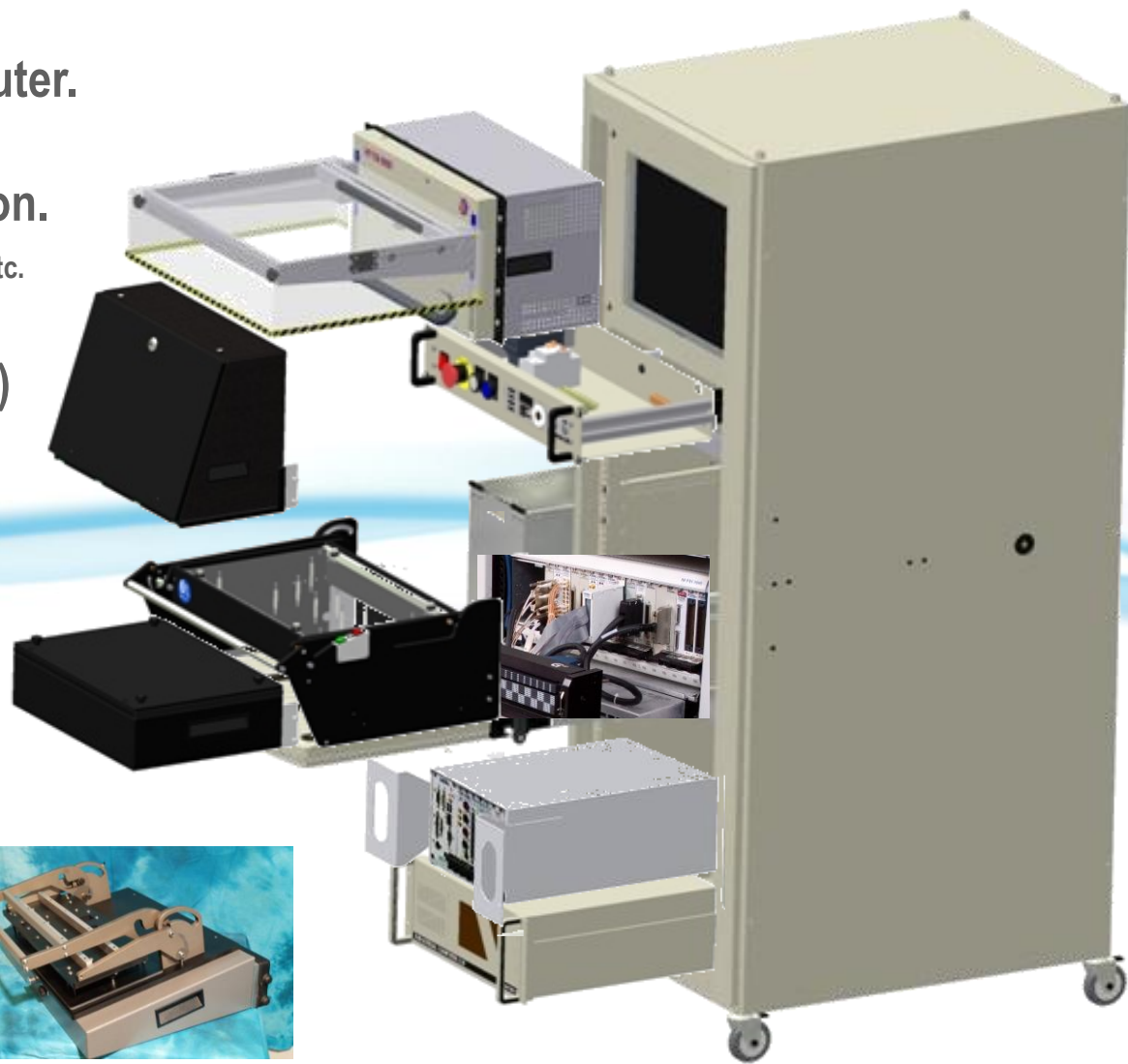


**Task: to get as much standardized
in the Base Tester platform.**



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



Maximize the ROI for Test Assets

- By Preventing Damage to Valuable Test Instrumentation

Test Instrument Card

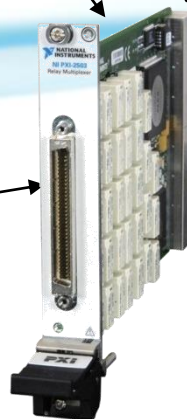
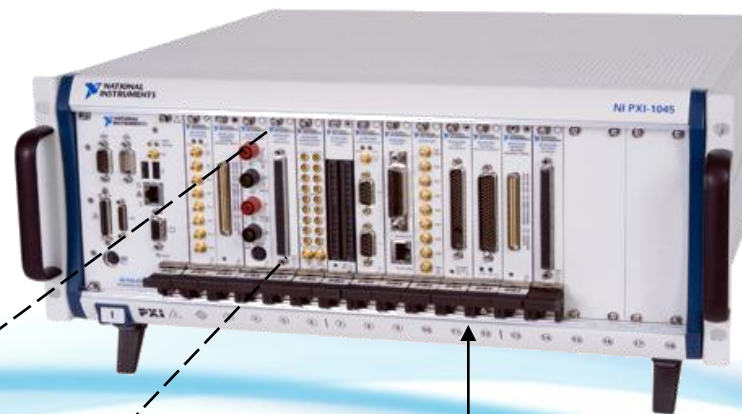
Delicate Commercial Connector

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!!



With MIC



Without MIC

Reducing this additional wiring, saves cost.



If there is a disadvantage to Mass Interconnect it is the additional wiring, it adds to the total system cost.

- Discrete wiring (Do it Yourself)

NOT Preferred.

- Using custom made Patch cords

- Connect with custom made cable assemblies

- Connect using COTS Cabling and PCB Adapters

- Connect direct with the use of Funnels

- Connect using direct PCB Connections **NO WIRING NEEDED !!**



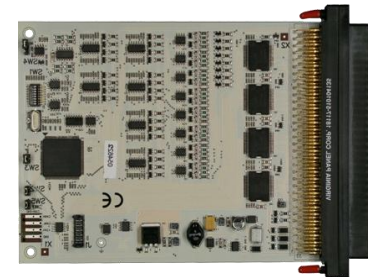
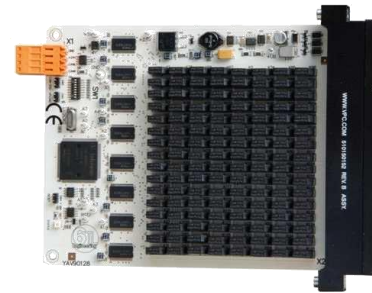
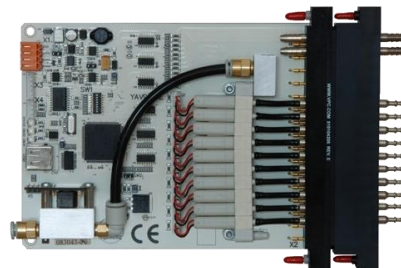
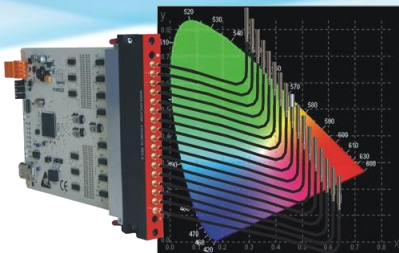
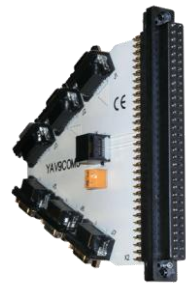
Preferred. Solution !!



- 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 & Ethernet etc. we have a solution.

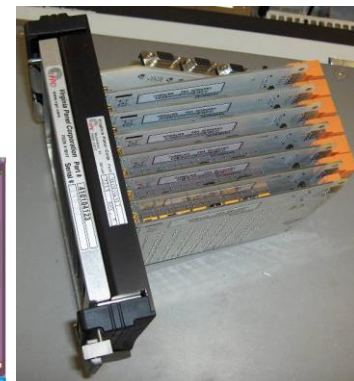


- Select an appropriate VPC Interface.
 - The G12, 12 module positions.
- Select the needed YAV Configuration
 - You created your basic Test system.
- Add some additional Building blocks
 - And you have a complete Tester.

TTT-1 – Bench-top Functional test system.

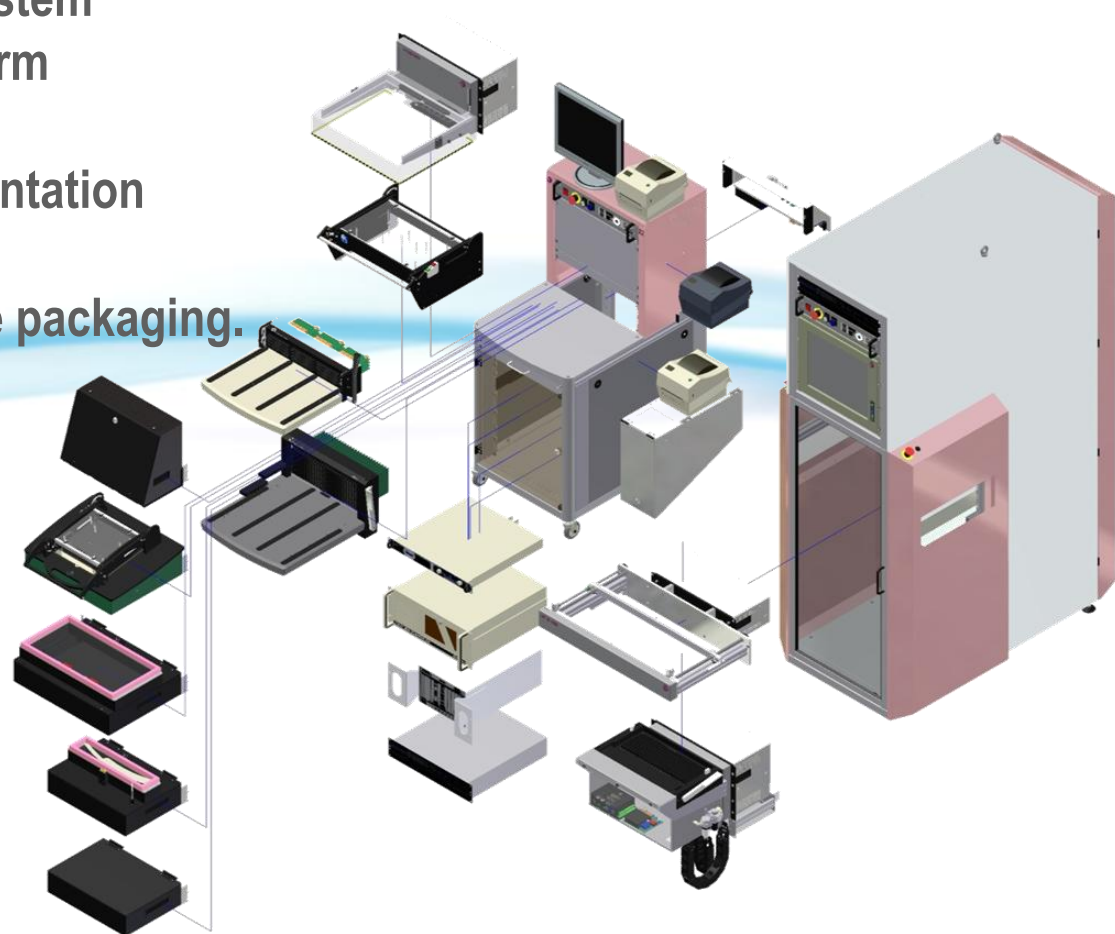
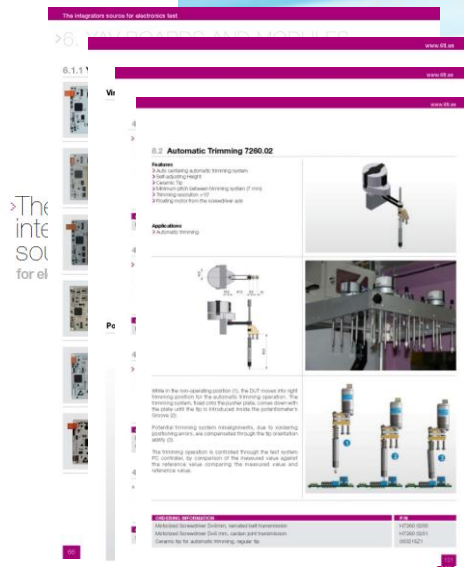
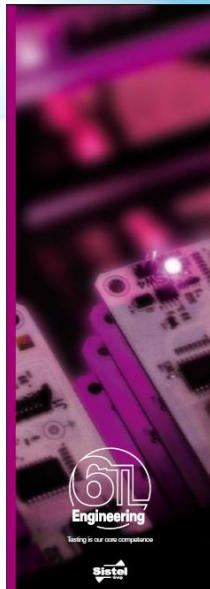


- YAV series instrument & switching boards, cover most of your testing needs
- No wiring needed connect the boards directly to the Interface. (Cost Saving)
- Short signal pads, provide better signal integrity.
- More space in the Test-rack, Smaller, cheaper Test chassis needed. (Cost saving)
- Simple and fast integration, no wiring needed.
- Use of a real Mass interconnect interface connector up to 20.000 cycles.
- Interface compatible with all VPC 90 series Mass Interconnect receivers.
- CAN Bus controlled, Reliable, simple and fast wiring.
- Labview or Teststand integration with available drivers.
- 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 Optic,
- Additional instrumentation can easily be added.
 - PXI, VXI, LXI, SCXI, Rack and Stack, etc. etc.
- VPC Interface provides standardization & Reliability



The 6TL Solution

- Pick an appropriate platform
 - Select the parts from our catalogue
- 6TL will assemble and wire the system
- And send you the complete platform
 - Including wiring diagrams
 - Schematics and documentation
 - CE Certification
 - And a re-usable packaging.



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



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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