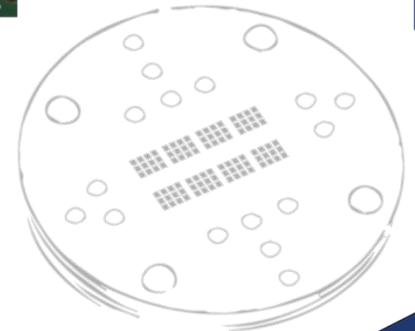
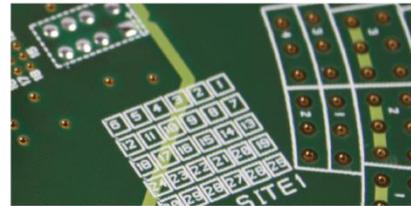
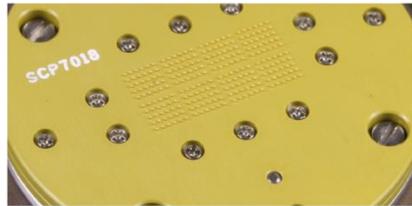
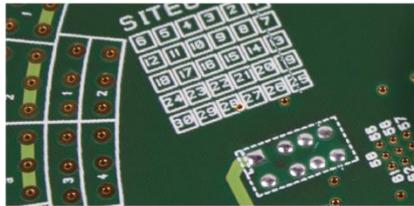
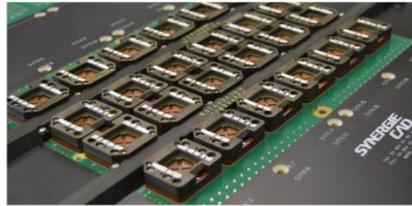
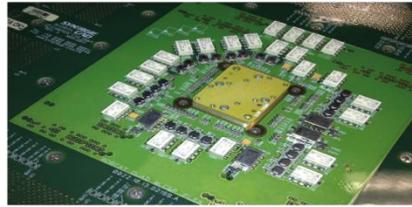
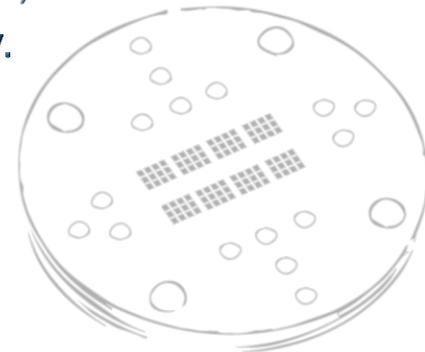


SYNERGIE CAD



Complete Semiconductor test Solutions

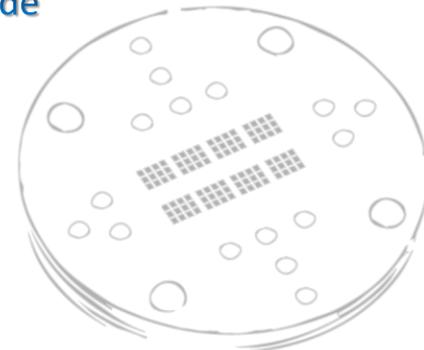
- Synergie-CAD is a leading international electronic manufacturing & design service provider offering a full turnkey capability in test programme development, hardware development ,design, simulation, and manufacture of complex electronic products, systems and assemblies for the Semiconductor test industry.
- Our offering is uniquely open ended, allowing clients total freedom in selecting the range of services they need or a single service, at the level they need it, be it design, simulation, sockets, manufacturing or full turn-key.
- Strategic partner to Advantest in Europe



COMPANY OVERVIEW

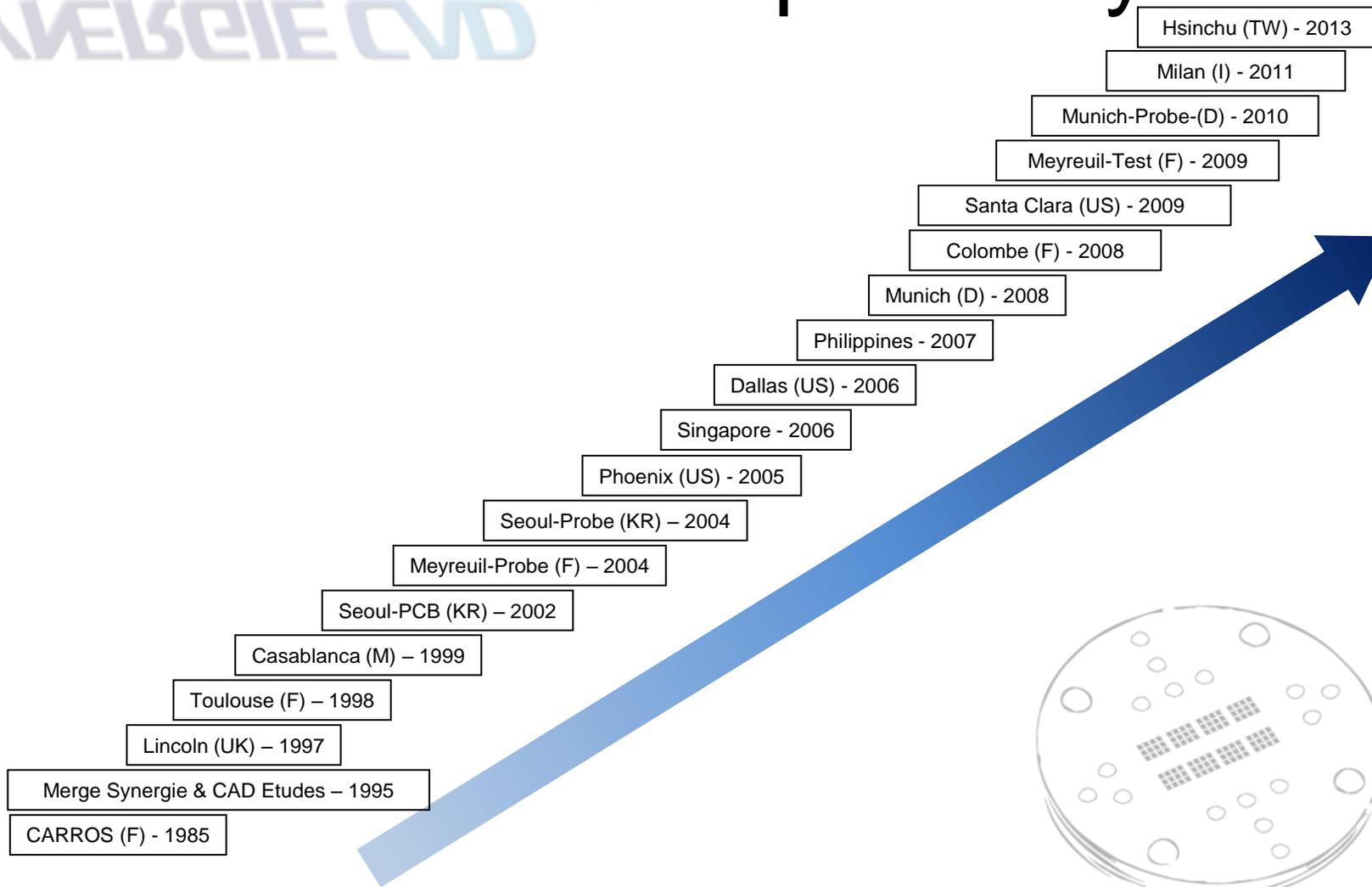


President	: Alain LIBRATI
Headquarters	: Carros, France with 13 other locations world wide
Activity	: Semiconductor Test Solutions.
Experience	: Over 30 years
Factory	: Production area covering 5000 m ²
Total Worldwide Staff	: ~ 400
Revenue	: €50 Million





Group History



Global Support

North America

- Dallas

Europe

- Carros (Headquarter) FRA
- Colombe FRA
- Toulouse FRA
- Meyreuil FRA
- Munich GER
- Lincoln UK
- Casablanca MAR
- Milan IT

Asia

- Singapore
- Korea
- Philippines
- Taiwan

SYNERGIE
CAD

SYNERGIE
CAD

SYNERGIE
CAD PROBE

SYNERGIE
CAD TEST

SYNERGIE
CAD

SYNERGIE
CAD

SYNERGIE
CAD

SYNERGIE
CAD PROBE

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CAD

SYNERGIE
CAD

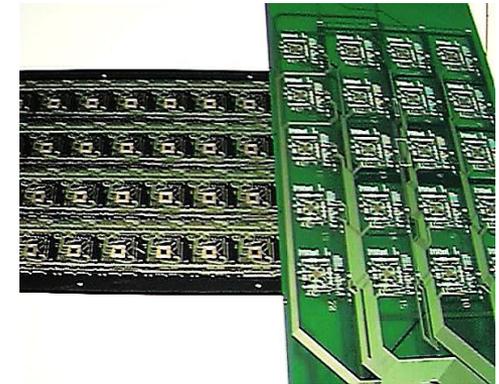
SYNERGIE
CAD PROBE

Design centers: 11
R&D centers: 3
Production centers: 6
Test House: 2

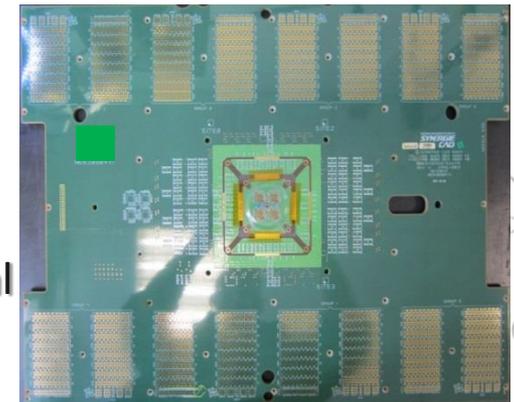
Innovative Test Interface Products

- Probe Cards
- Burn In Boards
- Final Test Boards
- Custom Sockets
- Engineering Boards
- Characterization Boards
- Emulation Boards
- Demo Boards
- Drivers
- Burn In Systems

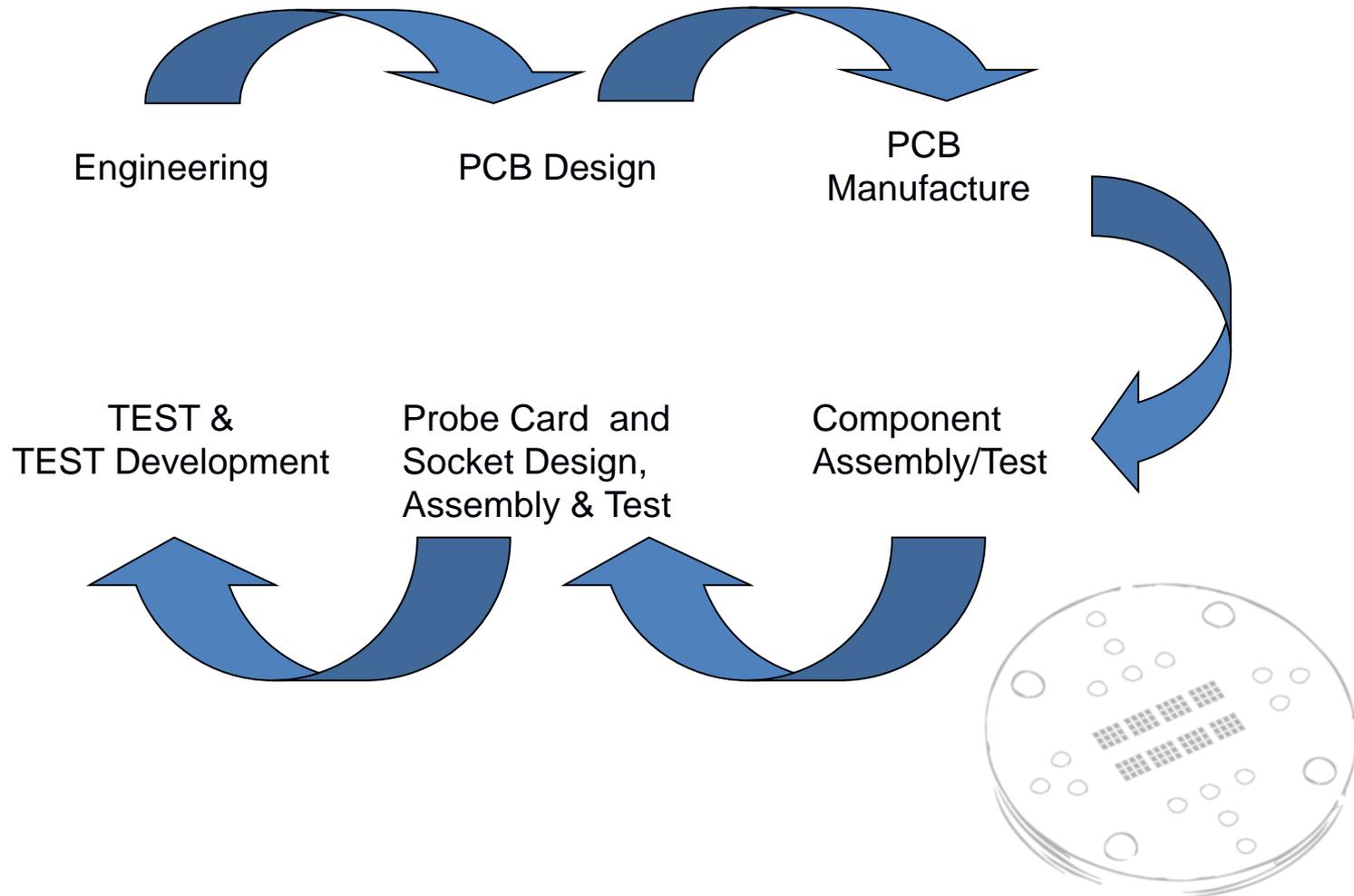
Example
0.4mm BGA
Burn-In- Board



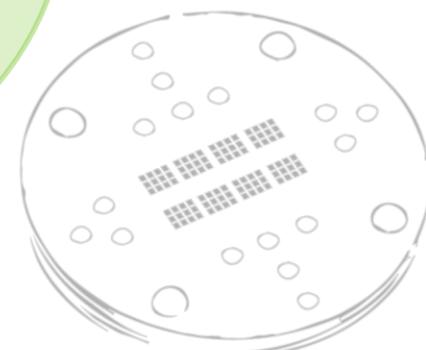
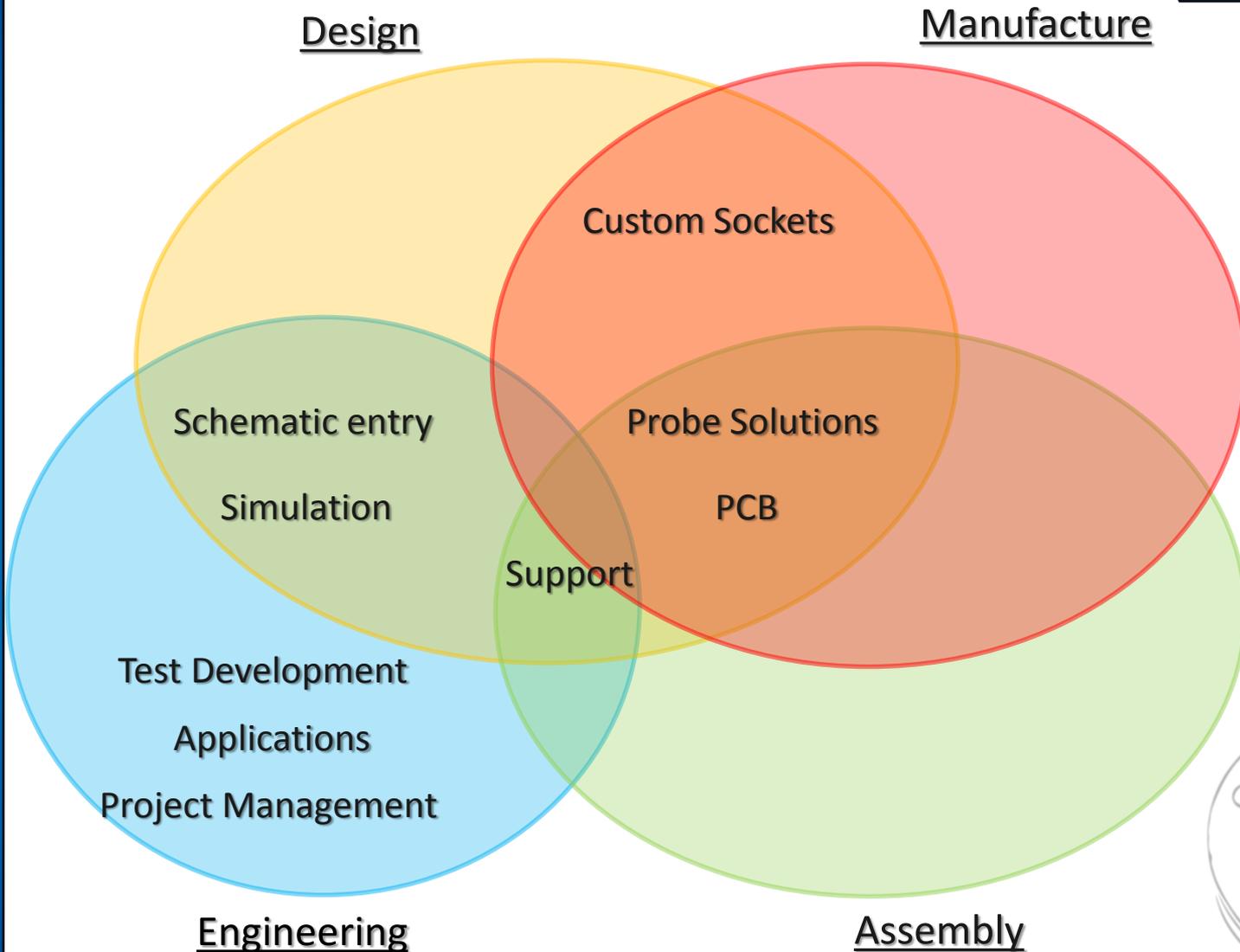
Example
0.4/0.35mm Final
Test Board



Capabilities



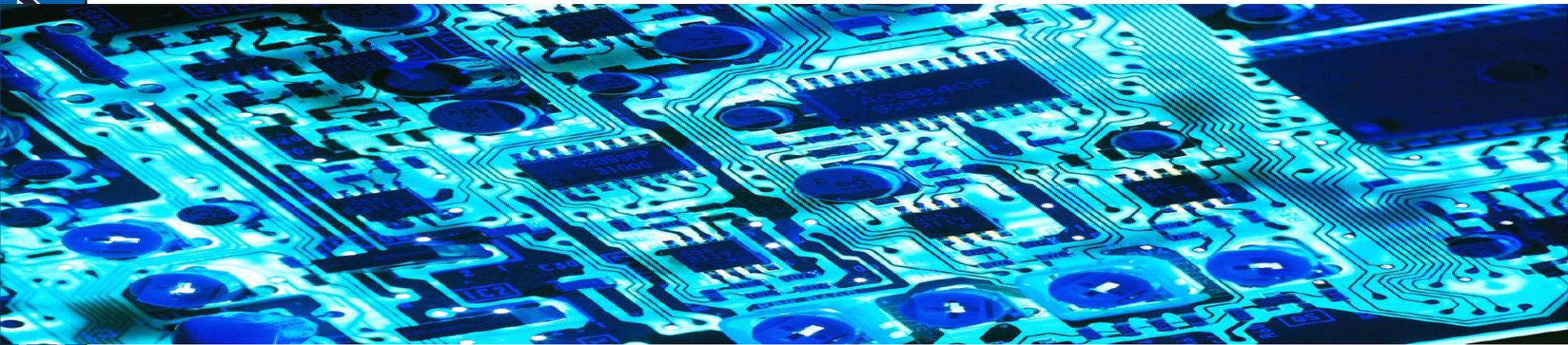
Services



under one management and control

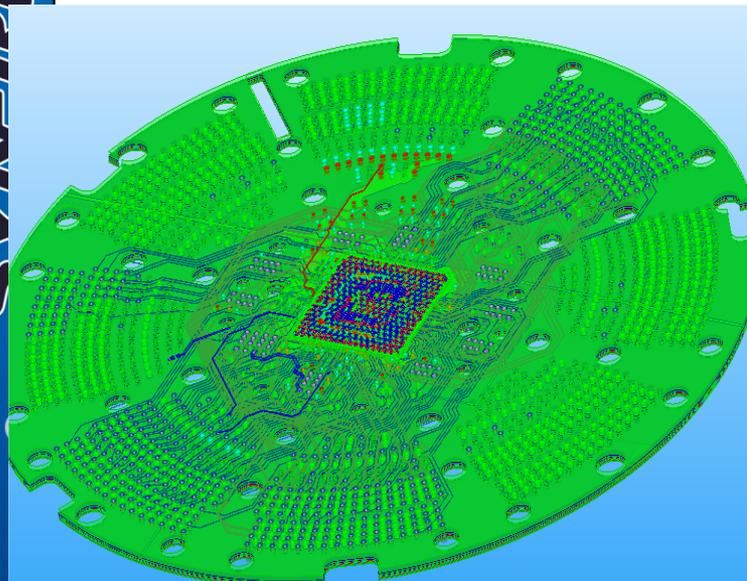
PCB Design

- Schematic driven designs
- Designs centers in UK, France, Germany, USA, Korea and Philippines
- Design Platforms
 - CADSTAR (65 stations)
 - Mentor Expedition (4 stations)
 - Cadence Allegro (15 stations) (UK office main software)
 - Altium (4 stations)
 - ANSYS HFSS and SIwave Simulation tools

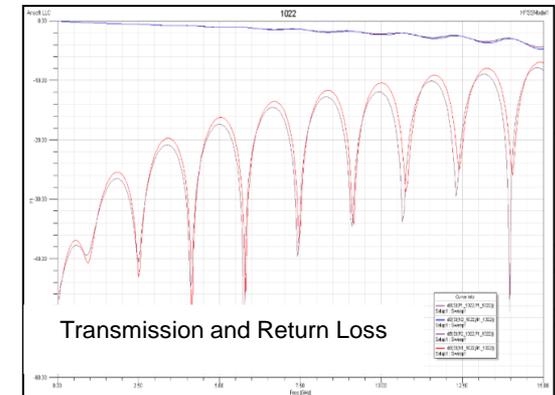
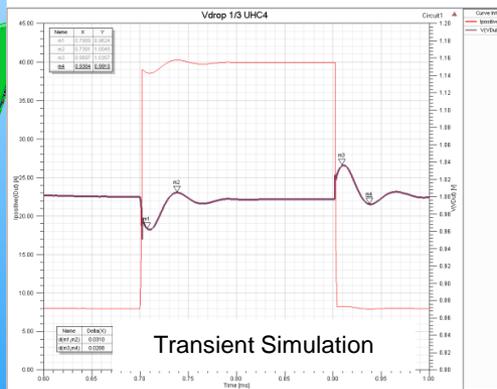
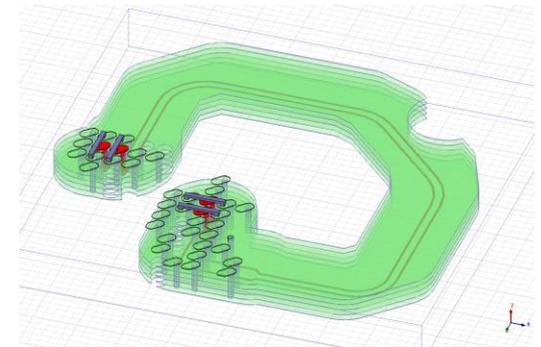


Simulation

- ANSYS HFSS and Siwave Simulation tools.
- Aids in the identification of signal-integrity, power-integrity and RF problems.
- Enables optimisation of the design to improve performance.
- Critical to first-pass system success.
- S-Parameter and Transient results.



Advantest 93K 9.5" Vertical Probecard, 32 Layer



Semiconductor Testing Services

With our in-house Advantest and Teradyne tester platforms we aim to support customers hardware verification, test program development and test platform transfer. Working closely with the Probe team we have access to 200mm and 300mm wafer probe handlers.

ATE Systems are available for customers to access, supported development or remote access. We can support Qualification & Characterisation electrical testing.

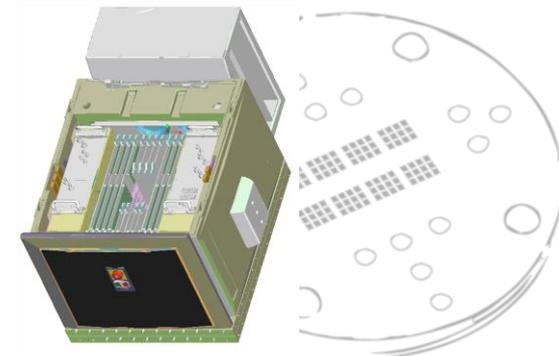
The Advantest V93000 C-Class Smart scale 712 pin tester is based at our facility in Munich and has been loaded with the following instruments;

- ❑ MBAV8+ : LF,HF and VHF Mixed Signal communications including LTE Advanced, 802.11ac, WiMAX
- ❑ DPS128 : DC Scale DPS128 High voltage and High Current power with fast sequencer control.
- ❑ PS1600 : Digital 1.6G 1mV accuracy universal pin.



The two Teradyne J750 IGXL version V3.40.09 / V3.40.14 are based at our facility near Marseille and have been loaded with the following instruments;

- ❑ J750 #1 : 384 Channels, 4M LVM
- ❑ J750 #2 : 512 Channels, 4M LVM
- ❑ 32 DPS 10V/1A each can be ganged.
- ❑ Flexibility to configure head with 128 channels at 8M.



Tester Platform Experience



Preferred Supplier in Europe



Preferred Supplier and Development Partner



Global Preferred Supplier and Development Partner



Development Partner in Germany



Preferred Supplier and Development Partner



Preferred Supplier in Korea



Development Partner



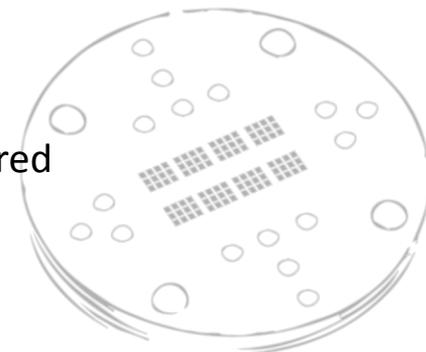
Development Partner

Ando Electric Co., Ltd

more than 5000 BIBs manufactured

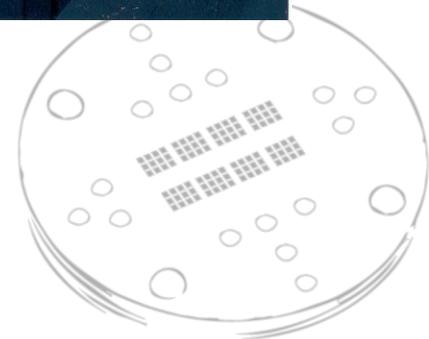
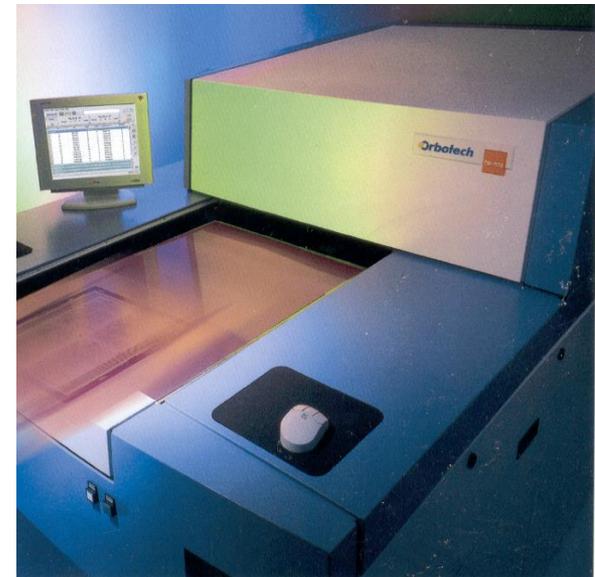


Preferred Supplier



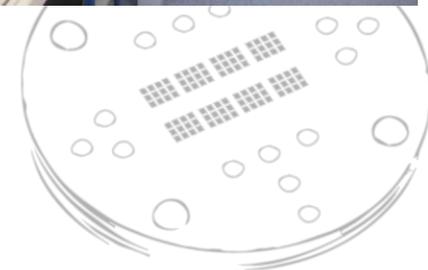
PCB Manufacturing

- Up to 50 multi-layers
- Thickness: Up to 7mm
- Maximum Board Size: 750 mm x 580 mm
- Improved Planarity through CIC Technology
- Dry Film Exposure
 - Clean Room rated 1,000
- Laser Direct Imaging
- Blind and buried via
- Laser Drilling
- Minimum Mechanical drill hole diameter 0.075 mm
- Minimum Laser hole Diameter 0.05mm
- Maximum Aspect Ratio, 22
- Impedance Simulation and Control
- Micro BGA boards down to 0.25 mm pitch
- Probecard direct attach down to 0.11mm pitch



Assembly

- Assembly Department more than 60+ employees
- Component sourcing
- 12,000+ components per board with complete testing
- Dedicated CAM department for assembly data preparation
- Complete Loaded and Tested Board Solution



ISO Certification

CERTIFICATE OF REGISTRATION



This is to certify that the Management System of:
Synergie-Cad (UK) Limited
 Greetwell Place, Limekiln Way,
 Greetwell Road, Lincoln, LN2 4US
 has been approved by ISOQAR



3223
 ISO 9001: 2008

Scope of Activities:

The design and sub-contract manufacture and assembly of printed circuit boards and associated products for the semi-conductor testing and other industries.

Certificate Number: **3223-QMS - 001**
 Initial Registration Date: **11 July 2002**
 Re-issue Date: **11 June 2014**
 Expiry Date: **11 July 2017**

Signed by:
 Steve Stubbley, Technical Director
 (on behalf of ISOQAR)

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards' requirements may be obtained by consulting ISOQAR.

ISOQAR Limited, Alcumus Certification, Cobra Court, 1 Blackmore Road, Stretford, Manchester, M32 0QY.
 T: 0161 865 3699 F: 0161 865 3685 E: isoqar@alcumusgroup.com www.alcumusgroup.com/isoqar
 This certificate is the property of ISOQAR and must be returned on request.



Certificat Certificate

N° 1998/8877.6

AFNOR Certification certifie que le système de management mis en place par :
 AFNOR Certification certifies that the management system implemented by:

SYNERGIE CAD

pour les activités suivantes :
 for the following activities:

CONCEPTION ET FABRICATION DE CIRCUITS IMPRIMES
 ET D'ENSEMBLES ELECTRONIQUES.

DESIGN AND MANUFACTURING OF PRINTED CIRCUIT BOARDS
 AND ELECTRONIC ASSEMBLIES.

a été évalué et jugé conforme aux exigences requises par :
 has been assessed and found to meet the requirements of:

ISO 9001 : 2008

et est déployé sur les sites suivants :
 and is developed on the following locations:

ZI - 1ère avenue 2ème rue BP 423 FR-06515 CARROS CEDEX 1

Ce certificat est valable à compter du (année/mois/jour)
 This certificate is valid from (year/month/day)

2016-06-28

Jusqu'au
 Until

2018-09-14

Directeur Général d'AFNOR Certification
 Managing Director of AFNOR Certification

F. LEBEUGLE

Ce certificat électronique, accessible sur www.afnor.com, fait partie intégrante de la certification de l'organisme. The electronic certificate only, available at www.afnor.com, makes an integral part of the certification of the organization. Aucun certificat papier ne sera délivré. No paper certificate will be issued. (2014) AFNOR Certification, 11 rue de Valenciennes, 93571 La Plaine St-Denis Cedex, France. Responsable des activités ISO 9001:2008 AFNOR Certification - AFNOR Certification - 0333 1 30 30 30 30



Placer ce QR Code
 pour vérifier la validité
 du certificat



Certificat Certificate

N° 2011/42356.2

AFNOR Certification certifie que le système de management mis en place par :
 AFNOR Certification certifies that the management system implemented by:

SYNERGIE CAD

pour les activités suivantes :
 for the following activities:

FABRICATION DE CIRCUITS IMPRIMES ET D'ENSEMBLES ELECTRONIQUES.

MANUFACTURING OF PRINTED CIRCUIT BOARDS AND ELECTRONIC ASSEMBLIES.

a été évalué et jugé conforme aux exigences requises par :
 has been assessed and found to meet the requirements of:

ISO 14001 : 2004

et est déployé sur les sites suivants :
 and is developed on the following locations:

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 Managing Director of AFNOR Certification

F. LEBEUGLE

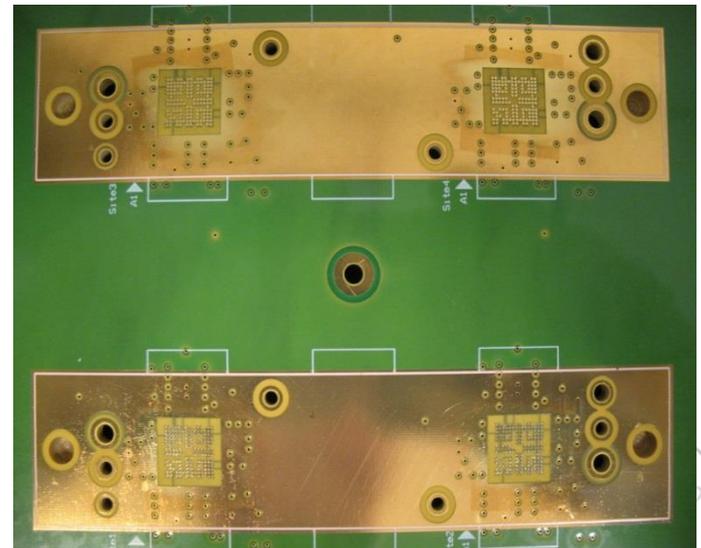
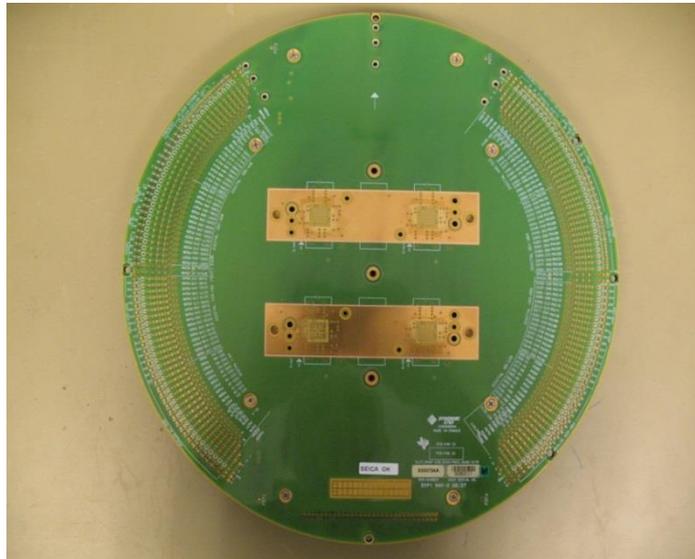
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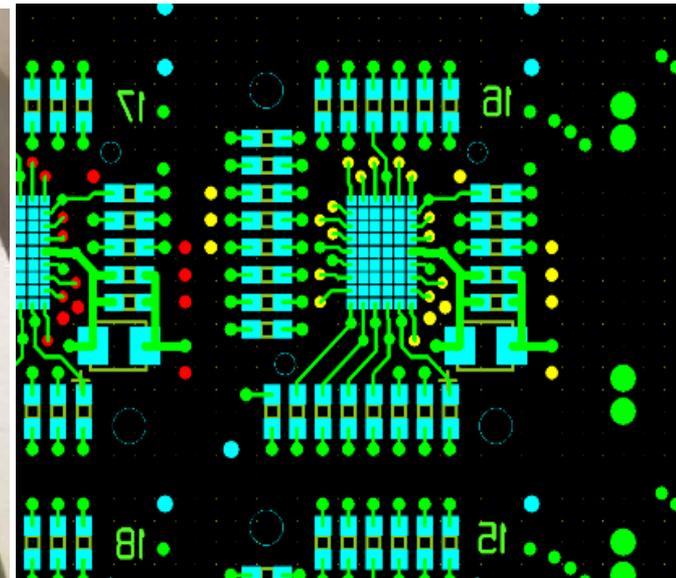
Technology Example I

- Fine pitch final test boards
- Pitch down to 0.25 mm
- Stack-up with sandwiches and sequential built-up



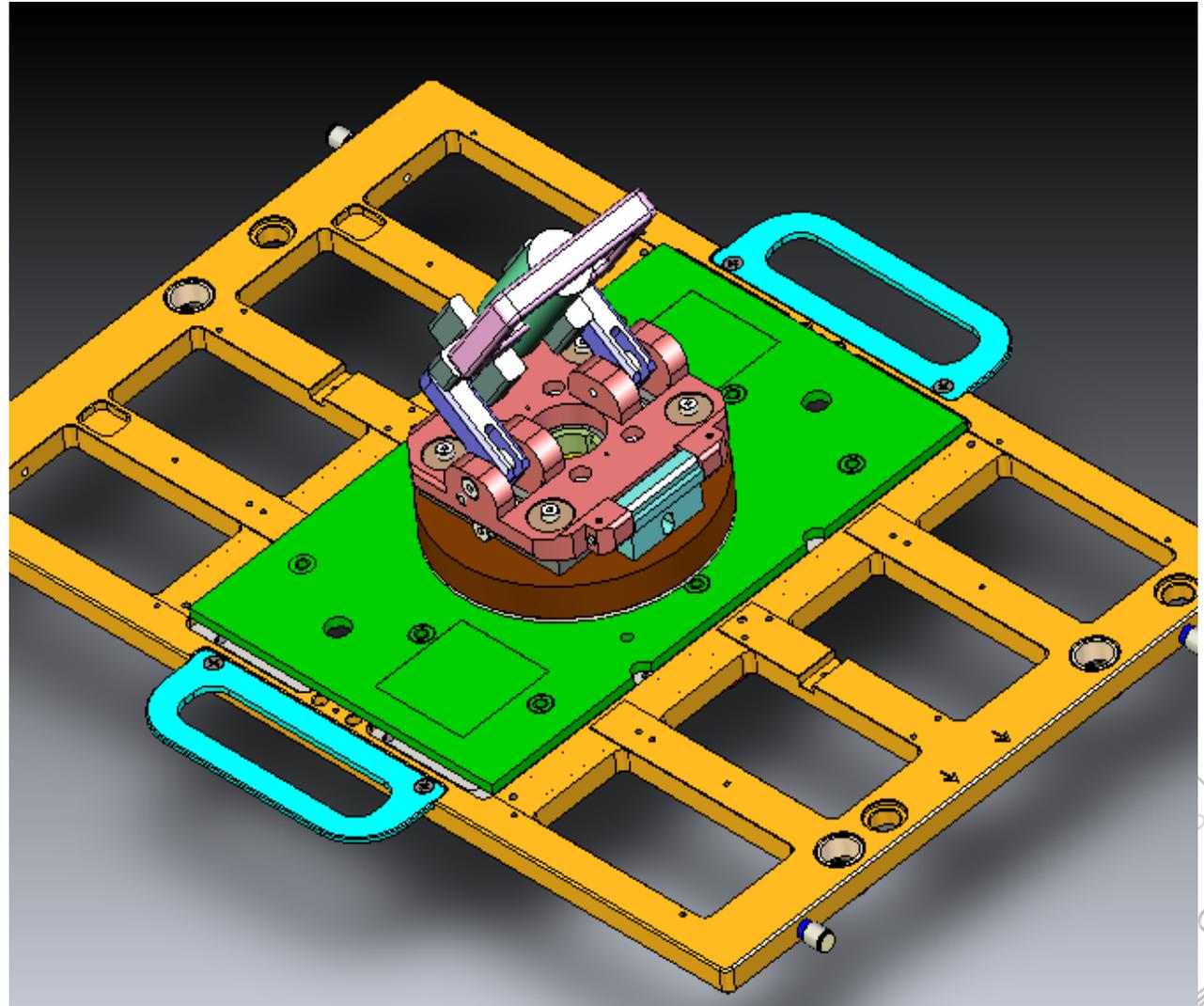
Technology Example III

- Burn In Board with Micro BGA down to 0.3 mm Pitch
- Copper Filled vias for socket compression contact (SMT)
- Down to Pitch 0.5mm also for through hole socket
- More than 20K BIB's manufactured.



Test Sockets

Synergie Cad Test Sockets are designed for all your testing needs, providing sophisticated electrical and superior mechanical performance. These sockets are designed and built with high quality ESD material and reliable test probes for long life and for cost effective operations. Any worn out parts can be easily replaced on site ensuring the customer can keep them performing like new. Synergie Cad Test Products will custom design your socket contactor needs with your load board design allowing custom features to be incorporated for your component clearance needs or lid cover requirements. Packages include BGA, QFN, QFP, LGA and MLF designs, on pitches from 0.3mm to 1.27mm.



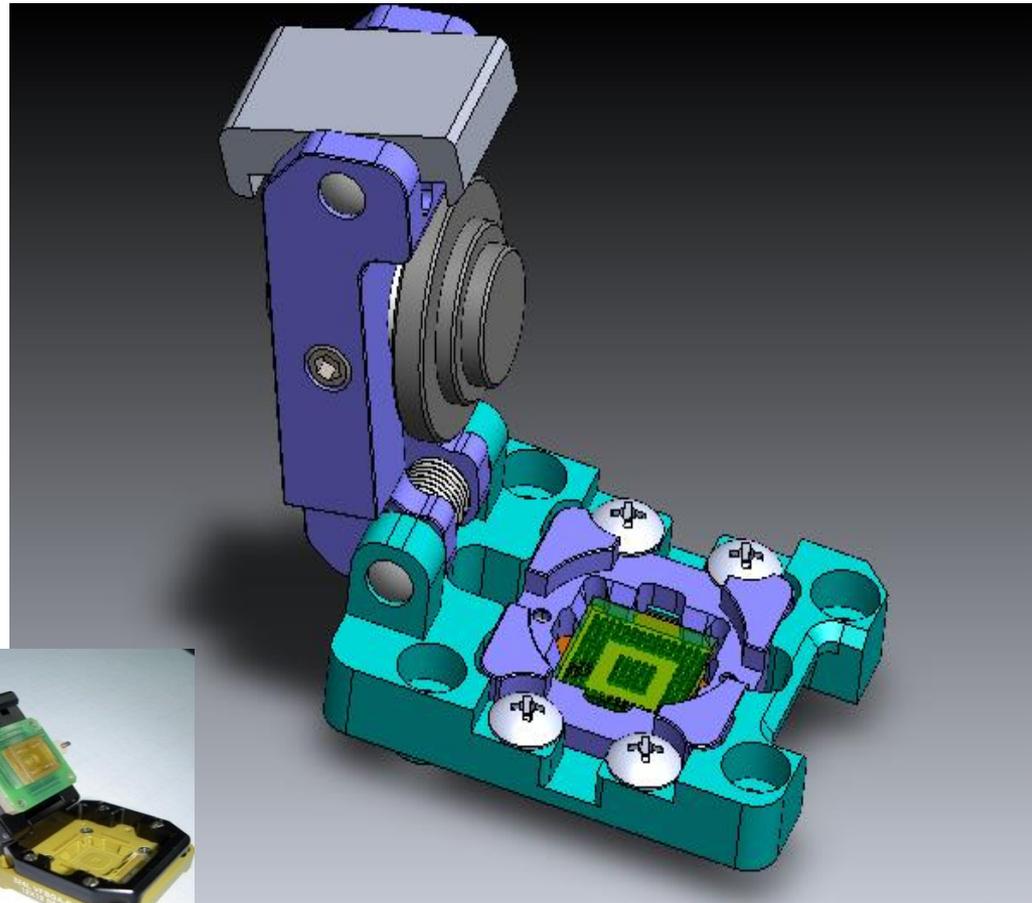
Test Sockets

Performance Features/Capabilities

- High Frequency up to 40GHz
- Low Inductance & Capacitance
- Test height as short as 2.8mm (0.110)
- 0.3 to 1.27mm pitches
- High Current

Test Socket Specifications

- ESD Material : Torlon 4203
- Resistance : Less than 50m Ω
- Operating Cycle : > 50,000 insertions

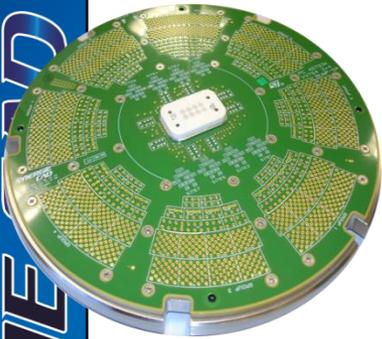


Burn-In Systems

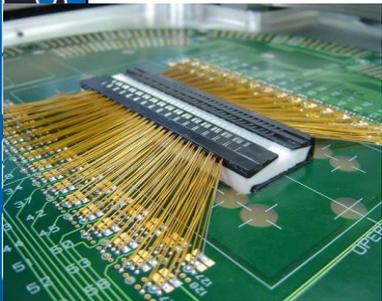
- SYNERGIE CAD develops and manufactures
- Driver Boards
- More than 400 BIB systems running with SYNERGIE CAD drivers
- Interface Boards
- Burn-In Boards
- Complete Burn-In Systems
- Engineering Oven with 30 slots
- Production Oven with 60 slots
- Interface SW “Universal Driver Supervisor”
- Udx Universal Reliability and Test system



Probe Cards Solutions



VERTICAL PROBE

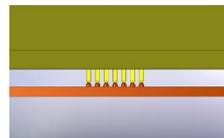
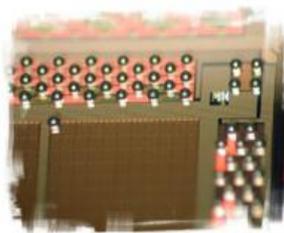
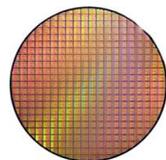


CANTILEVER

PROBE SOLUTION	DESCRIPTION	SPEC
VERTI - P	DIRECT PROBING ON WAFER PAD. SHORT PROBE LENGTHS. GOOD PERFORMANCE AT HIGH FREQUENCY.	100μM PITCH
VERTI - B	DIRECT PROBING ON BUMPED SILICON. NO BUMP DAMAGE. GOOD PERFORMANCE AT HIGH FREQUENCY.	100μM PITCH
VERTI - T	DIRECT PROBING ON WAFER. LOW FREQUENCY. FINE PITCH.	60μM PITCH
EPOXY	STANDARD CANTILEVER USED FOR LOGIC, ANALOG AND MEMORY TEST. MULTI-SITE UPTO 256 DUTS	FINE PITCH 35μM
CANTIIMAGER	FOR CCD SEMICONDUCTOR APPLICATIONS	
RF	SHORT CANTILEVER ASSEMBLY COMBINED WITH PCB DESIGN TO MINIMISE RESISTIVITY AND NOISE	UPTO 5GHz
PARAMETRIC	EXCELS IN APPLICATIONS REQUIRING LOW LEAKAGE, HIGH FREQUENCY AND HIGH TEMPERATURE.	< 1pA/V UPTO 200°C
BLADES	EXCELS IN APPLICATIONS REQUIRING LOW LEAKAGE, HIGH FREQUENCY AND HIGH TEMPERATURE.	< 1pA/V UPTO 200°C

For m

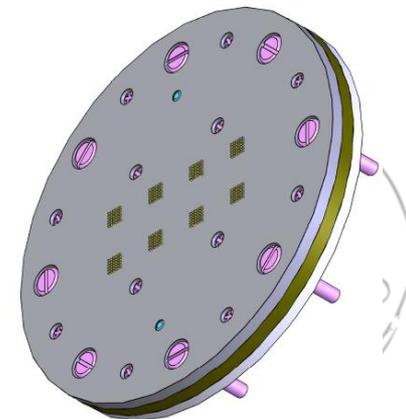
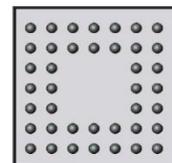
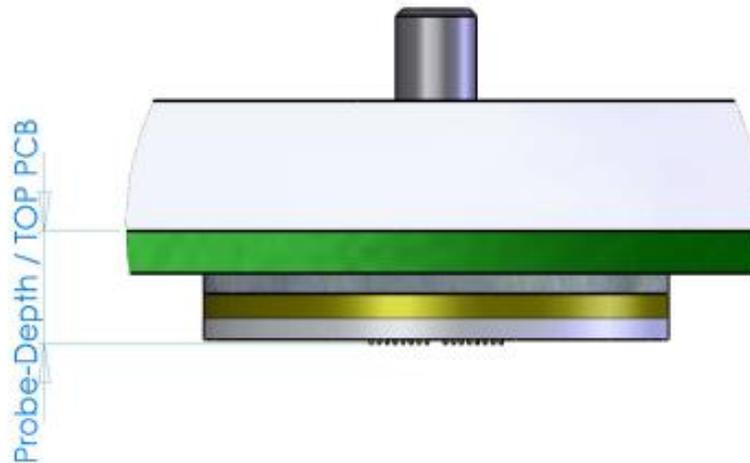
Verti-B Direct-Attach Solution



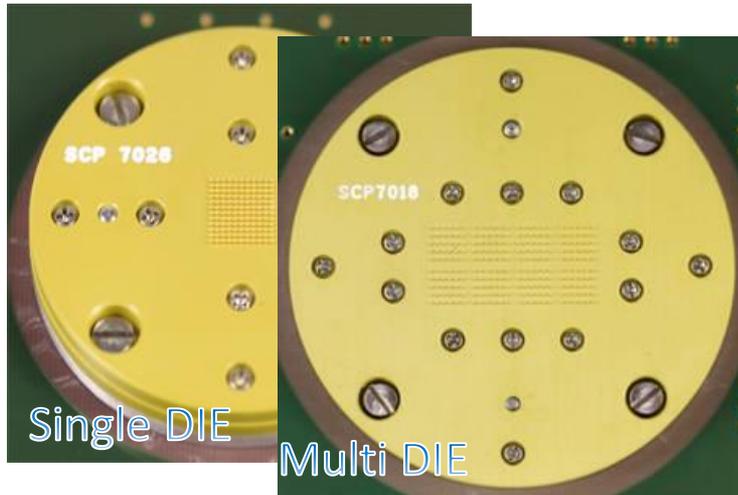
PITCH MINI = 140 μ m



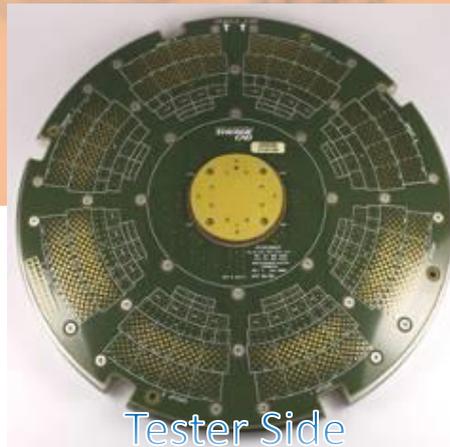
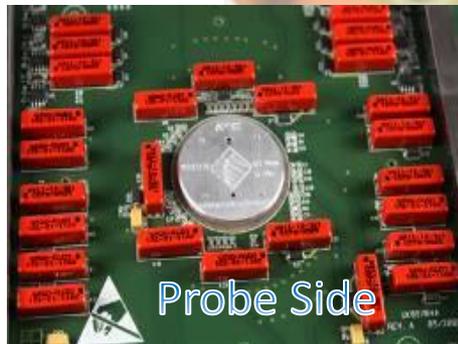
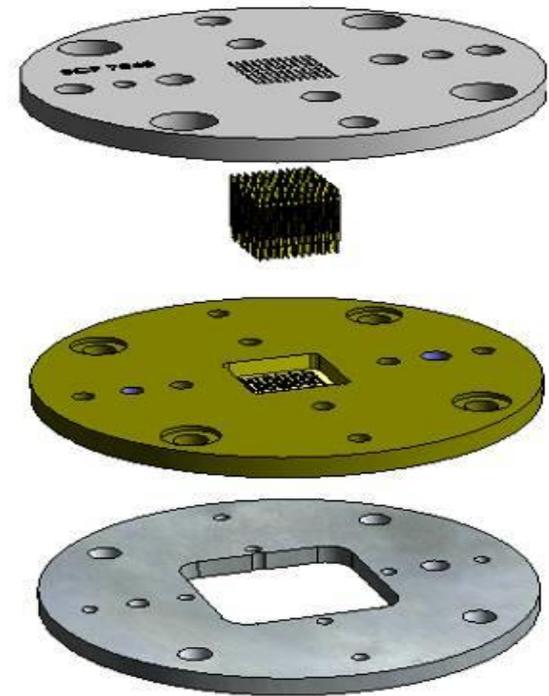
Probe-Depth depends on Probe Length.



Verti-B Direct-Attach Solution



PCB



Thank You

