



**ATE Interface Solutions**



# Complete ATE Interface Solutions

- Synergie-CAD is a leading international electronic manufacturing & design service provider offering a full turnkey capability in the design, development 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 service they need, at the level they need it, be it design, simulation, sockets, assembly or manufacturing.
- Strategic partner to Verigy in Europe

# COMPANY OVERVIEW

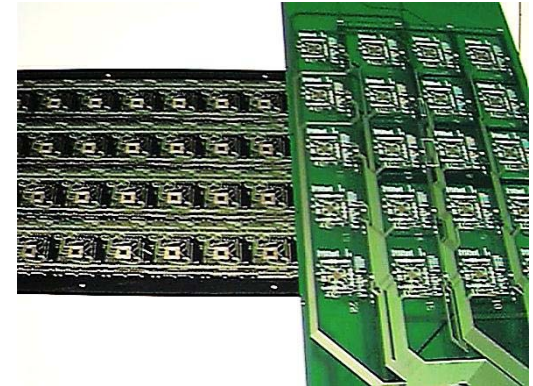


<b>President</b>	<b>: Alain LIBRATI</b>
<b>Headquarters</b>	<b>: Carros, France with 13 other locations world wide</b>
<b>Activity</b>	<b>: Semiconductor Interface Test Solutions.</b>
<b>Experience</b>	<b>: Over 20 years</b>
<b>Factory</b>	<b>: Production area covering 5000 m<sup>2</sup></b>
<b>Total Worldwide Staff</b>	<b>: ~ 400</b>
<b>Revenue</b>	<b>: €40 Million</b>

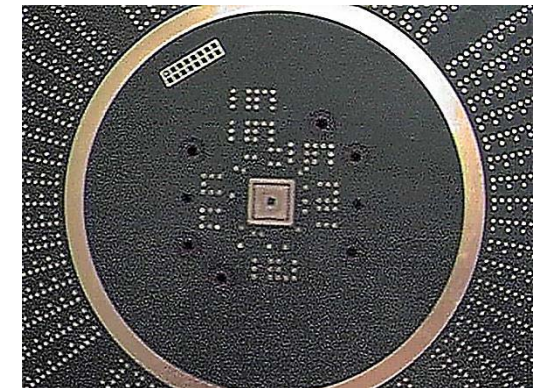
# Innovative Test Interface Products

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

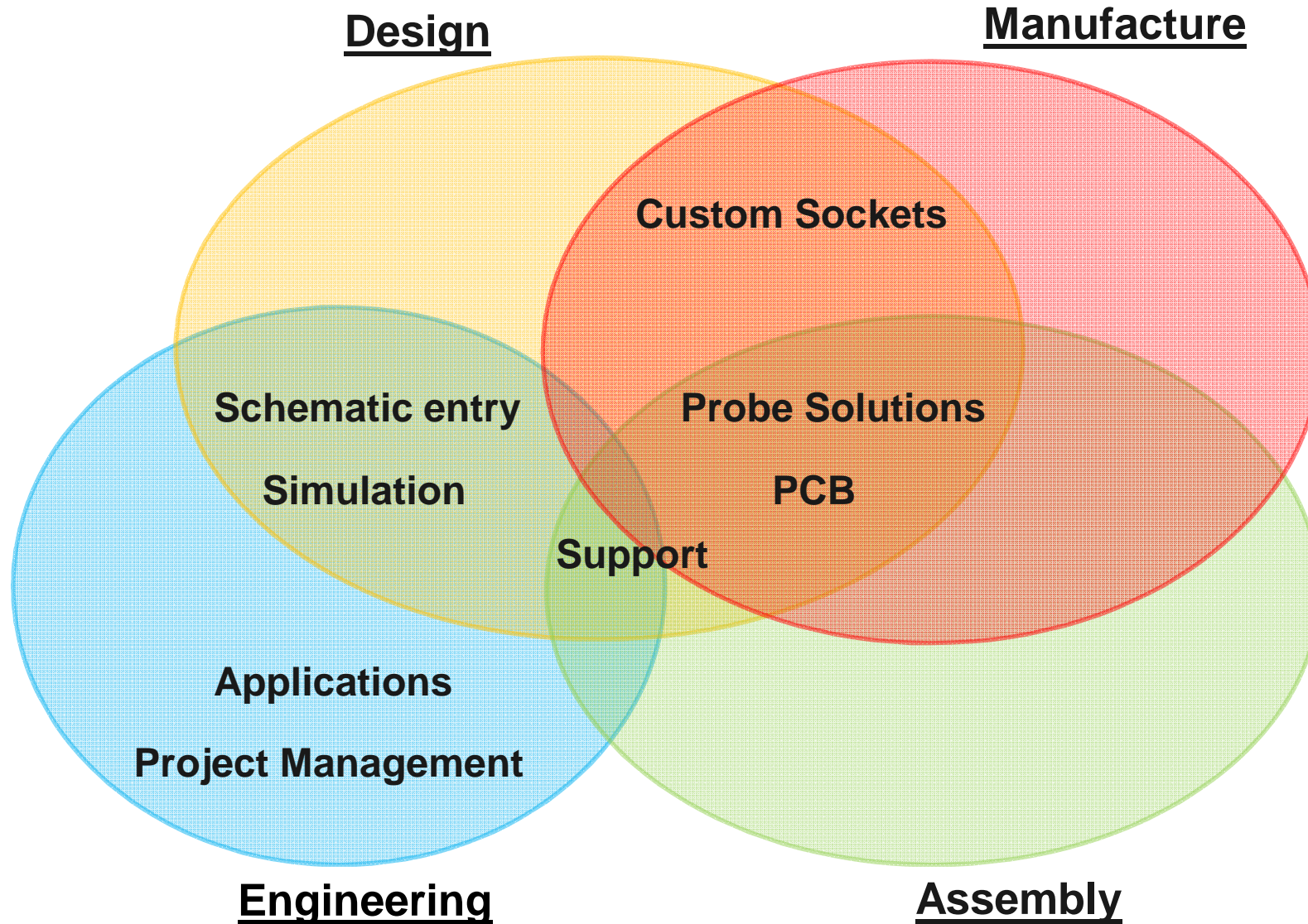
Example  
0.4mm BGA  
Burn-In- Board



Example  
0.4mm Final  
Test Board



# Services



under one management and control

# Global Support

## North America

- Phoenix
- Dallas
- Santa Clara

## EUROPE

- Carros (Headquarter) Fr
- Colombe Fr
- Toulouse Fr
- Meyreuil Fr
- Munich De
- Lincoln UK
- Casablanca Mr

## Asia

- Singapore
- Korea
- Philippines

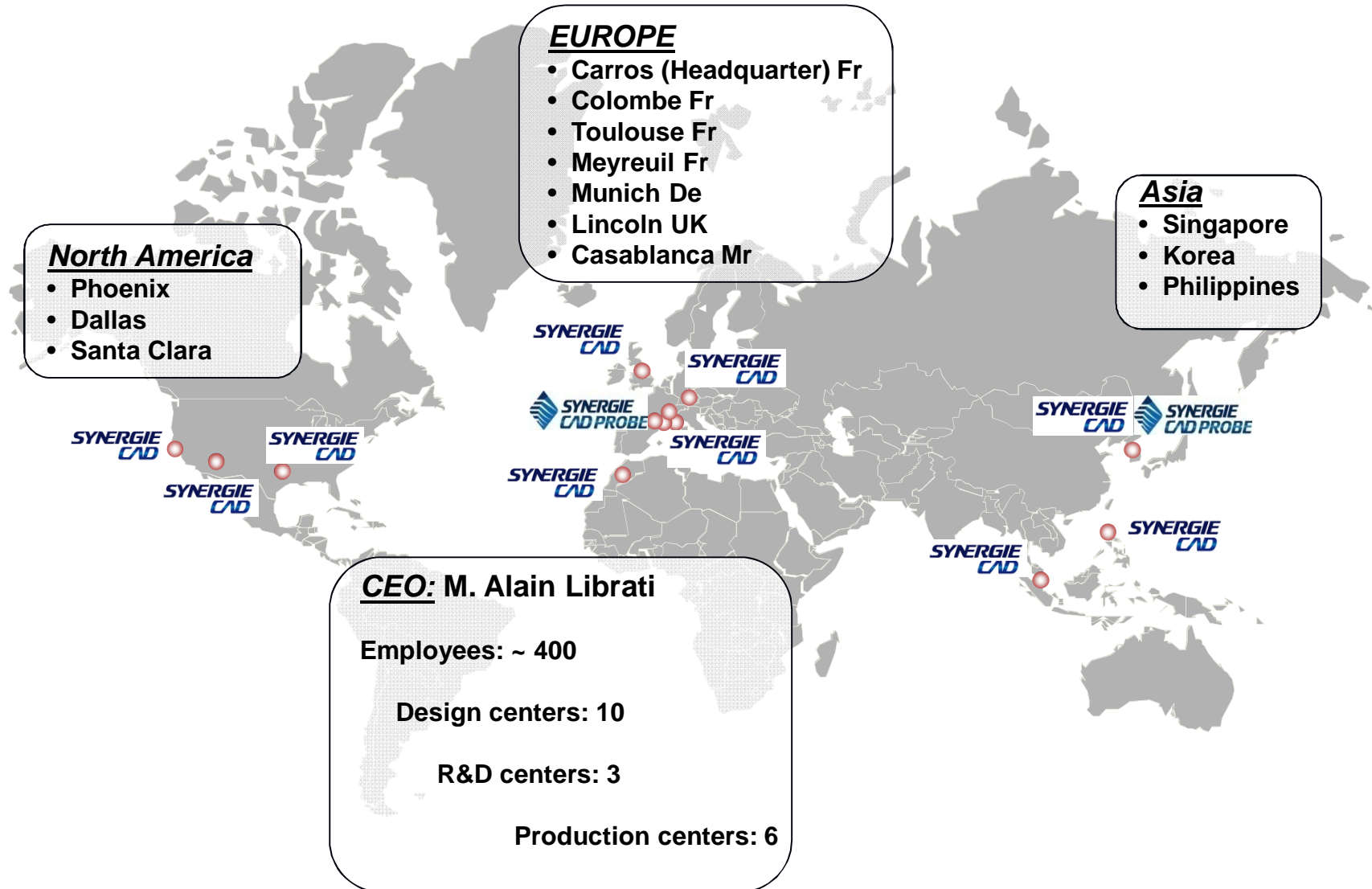
CEO: M. Alain Librati

Employees: ~ 400

Design centers: 10

R&D centers: 3

Production centers: 6





# Worldwide Services Offered by the Group

## SYNERGIE CAD HQ Carros, France

- Sales / Marketing
- Engineering
- PCB Design
- PCB Manufacture
- Assembly

## SYNERGIE CAD Probe Meyreuil, France

- Sales / Marketing
- Engineering
- Probe Card Design
- Probe Card Assembly

## SYNERGIE CAD PSC Toulouse, France

- PCB Design
- Engineering

## SYNERGIE CAD PSC Voiron, France

- Sales / Marketing
- Engineering
- PCB Design
- Probe Card Design
- Probe Card Assembly

## SYNERGIE CAD UK Ltd

- Sales / Marketing
- Test socket Sales and Development
- Engineering
- PCB Design
- Socket sales

## SYNERGIE CAD Germany GmbH

- Sales / Marketing
- PCB Design
- Probe Repair

## SYNERGIE CAD Fremont, USA

- Sales / Marketing
- Engineering
- PCB Design

## SYNERGIE CAD Phoenix, USA

- Engineering
- PCB Design

## SYNERGIE CAD Dallas, USA

- Sales / Marketing
- PCB Design

## SYNERGIE CAD, Inc. – Korea

- Sales / Marketing PCB & Probe Card
- Engineering
- PCB & Probe Card Design
- Probe Card Assembly

## SYNERGIE CAD Inc. – Singapore

- Sales / Marketing
- Probe Repair

## SYNERGIE CAD Philippines

- PCB Design

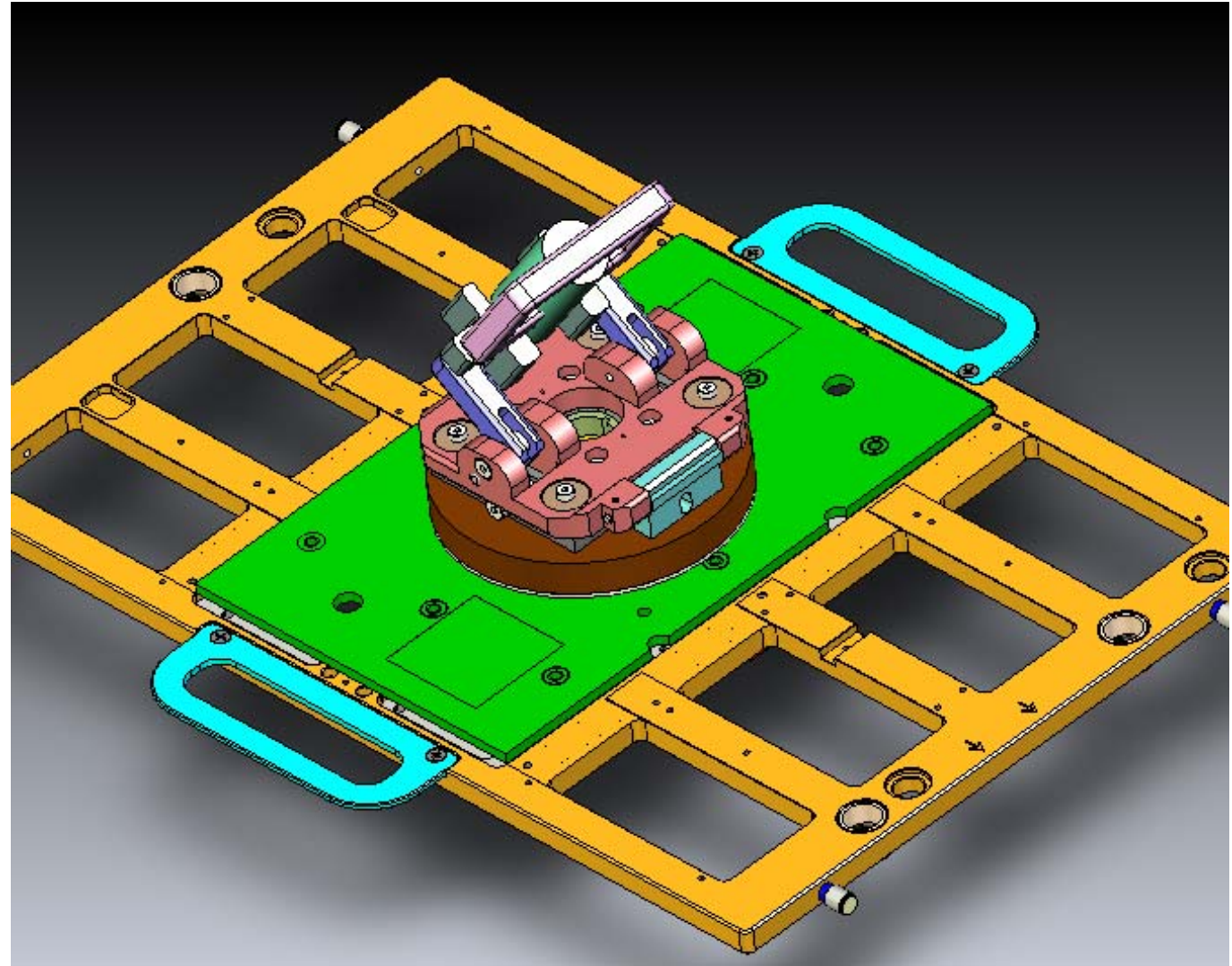
# Test Sockets

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.





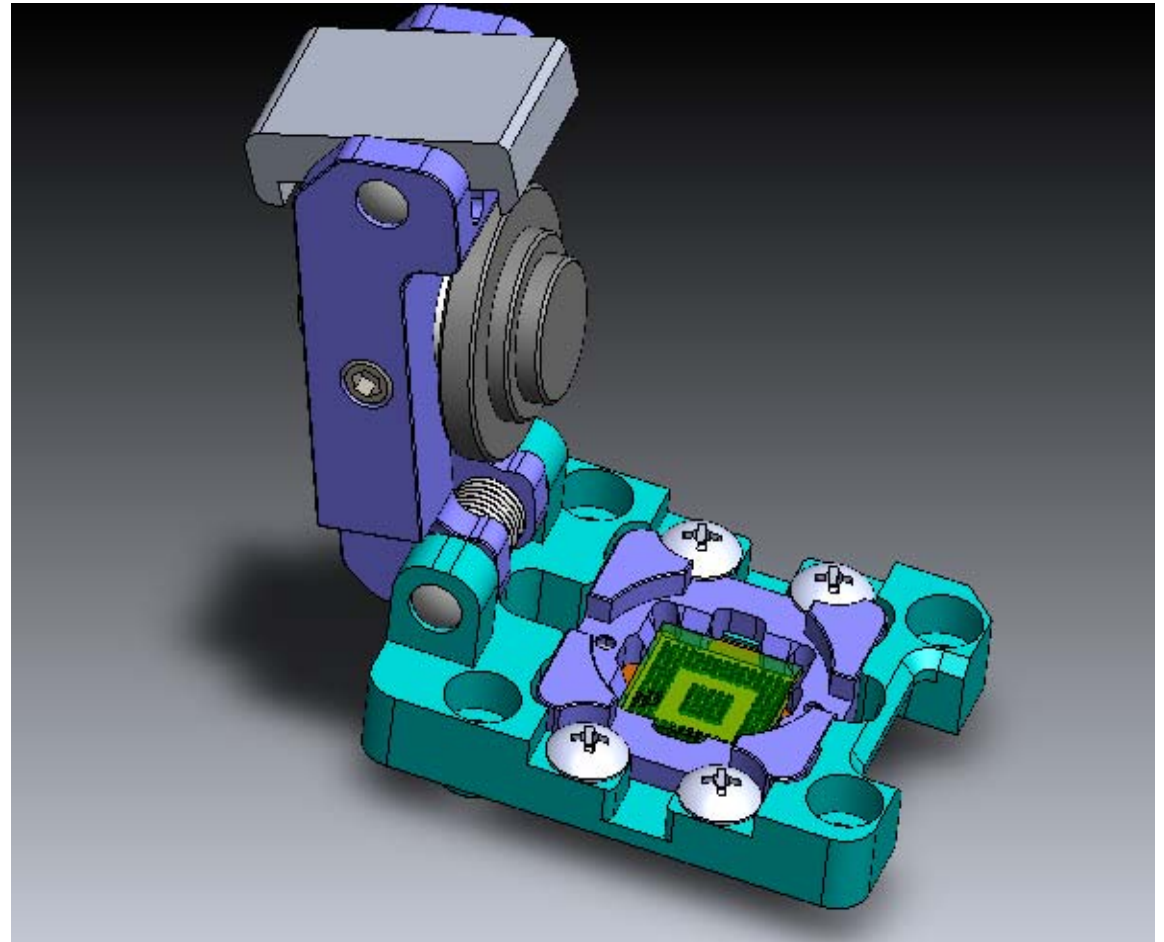
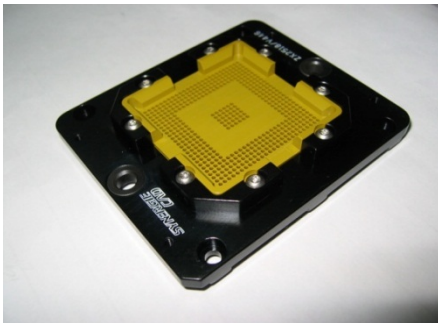
# Test Sockets

## 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

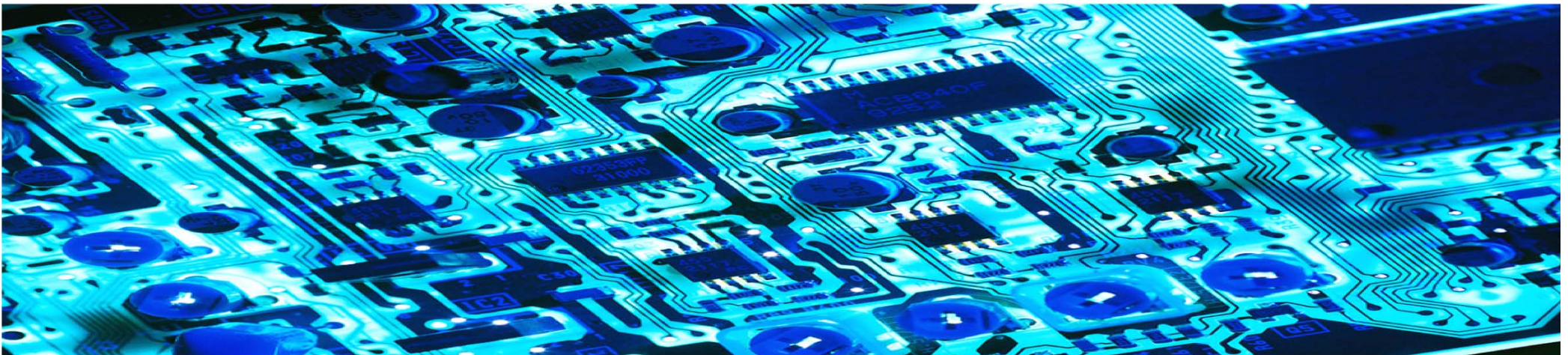
## Test Socket Specifications

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



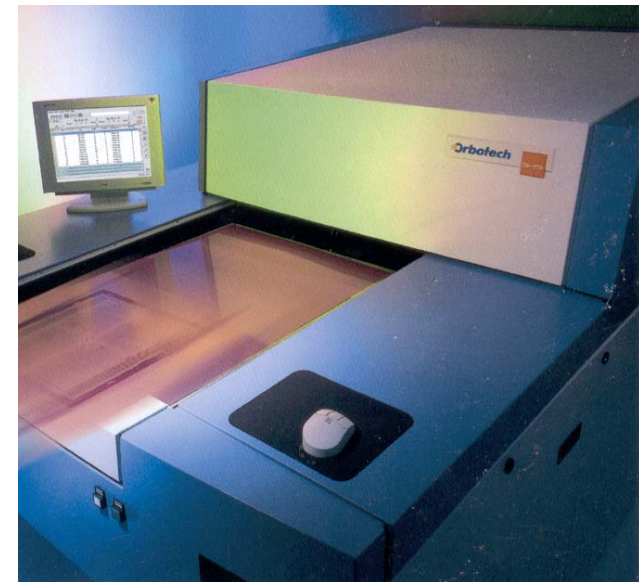
# PCB Design

- Schematic driven designs
- Designs centers in France, UK, Germany, USA, Korea and Philippines
- Design Platforms
  - CADSTAR (56 stations)
  - Mentor Expedition (11 stations)
  - Cadence Allegro (7 stations)
  - Ansoft HFSS and Slwave



# PCB Manufacturing

- Up to 50 multi-layers
- Thickness: Up to 6.5mm
- Maximum Board Size: 750 mm x 580 mm
- Improved Planarity through CIC Technology
- Micro BGA boards down to 0.3 mm pitch
- Dry Film Exposure
  - Clean Room rated 1,000
- Laser Direct Imaging
- Blind and buried via
- Laser Drilling
- Minimum hole diameter 0.075 mm
- Impedance Control



# Assembly

- Assembly Department more than 60+ employees
- Component sourcing
- 18,000+ components per board with complete testing
- Dedicated CAM department for assembly data preparation
- Complete Loaded and Tested Board Solution



# ISO 9001 Certification



## CERTIFICATE OF REGISTRATION

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



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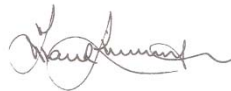
ISO 9001: 2008

**Scope of Activities:**

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

Initial Registration Date: 11 July 2002  
 Re-issue Date: 20 July 2011  
 Expiry Date: 11 July 2014

Signed:  
 (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 the organisation.

ISOQAR Limited, Cobra Court, 1 Blackmore Road, Stretford, Manchester M32 0QY  
 T: +44 (0)161 865 3699 F: +44 (0)161 865 3685 E: enquiries@isoqar.com www.isoqar.com  
 This certificate is the property of ISOQAR and must be returned on request

## CERTIFICATION



N° QUAL/1998/8877b

**SYNERGIE CAD**

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

**DESIGN AND MANUFACTURING  
 OF PRINTED CIRCUIT BOARDS AND ELECTRONIC ASSEMBLIES.**

ZI 1ère avenue / 2ème rue BP 423 F-06515 CARROS

AFAQ certifie que pour les activités et les sites référencés ci-dessus toutes les dispositions mises en oeuvre pour répondre aux exigences requises par la norme internationale :  
 AFAQ certifies that all the arrangements covering the above mentioned activities and locations are established to meet the requirements of the international standard :

**ISO 9001 : 2000**

ont été examinées et jugées conformes.  
 have been examined and found conform.

2004-01-08

2007-01-14

(année/mois/jour) Il est valable jusqu'à / It is valid until\*

(year/month/day)

Le Président du Comité de Certification  
 The President of the Certification Committee

Le Directeur Général d'AFAQ  
 The Managing Director of AFAQ

Le Représentant de l'Entreprise  
 On Behalf of the Firm

A. YOUNAN

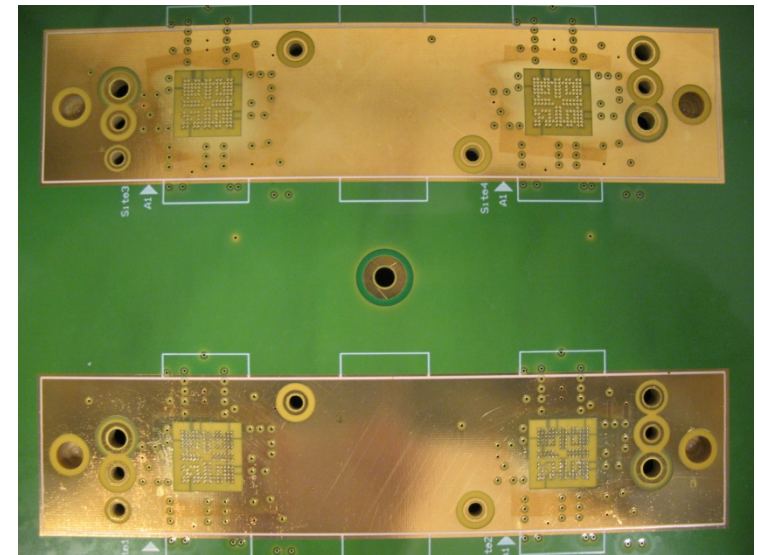
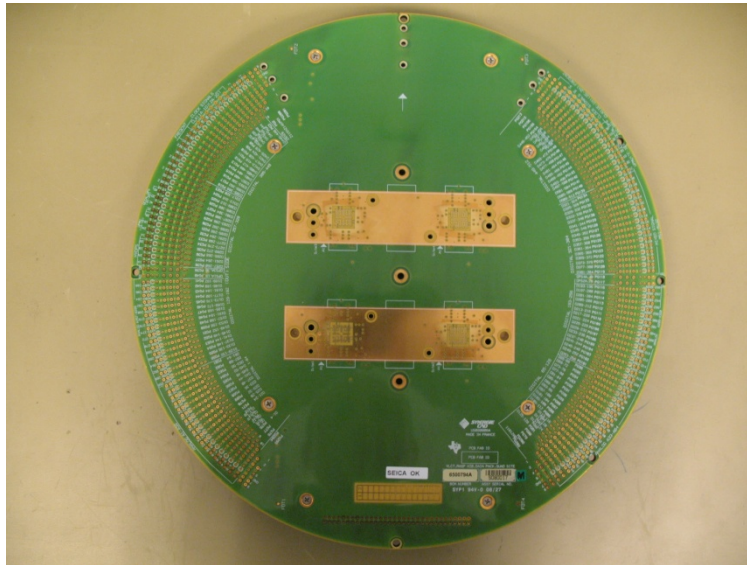
J.F. SOBBO

A. LIBRATI

\*Ce certificat certifie en ce qui concerne l'activité déclarée, le présent document n'est pas un document officiel. Toute réclamation doit être adressée à l'organisme de certification AFAQ accessible à l'adresse Internet : <http://www.afaq.org>  
 \*This certificate certifies in respect of the activity declared, the present document is not an official document. Any complaint should be addressed to the certification body AFAQ accessible at the Internet address : <http://www.afaq.org>  
 \*Este certificado certifica en relación con la actividad declarada, el presente documento no es un documento oficial. Toda reclamación debe dirigirse al organismo de certificación AFAQ accesible en la dirección de Internet : <http://www.afaq.org>

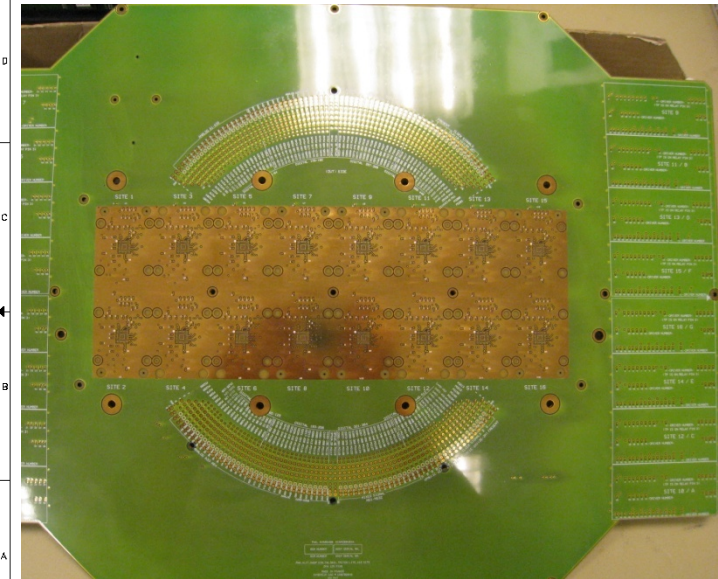
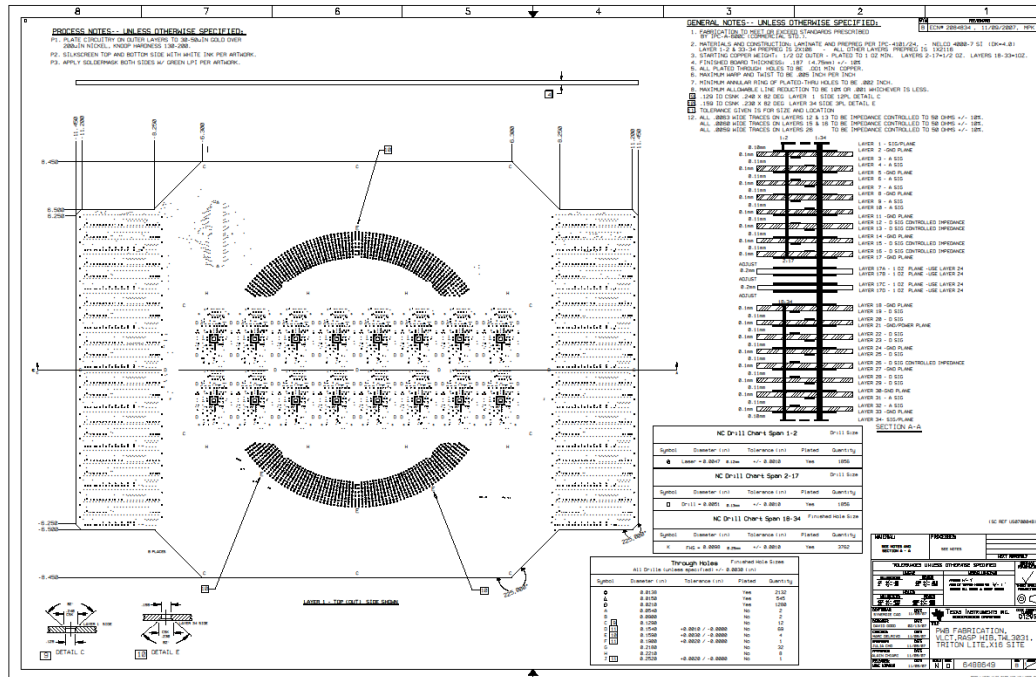
# Technology Example I

- Fine pitch final test boards
- Pitch down to 0.3 mm
- Stack-up with sandwiches and sequential built-up



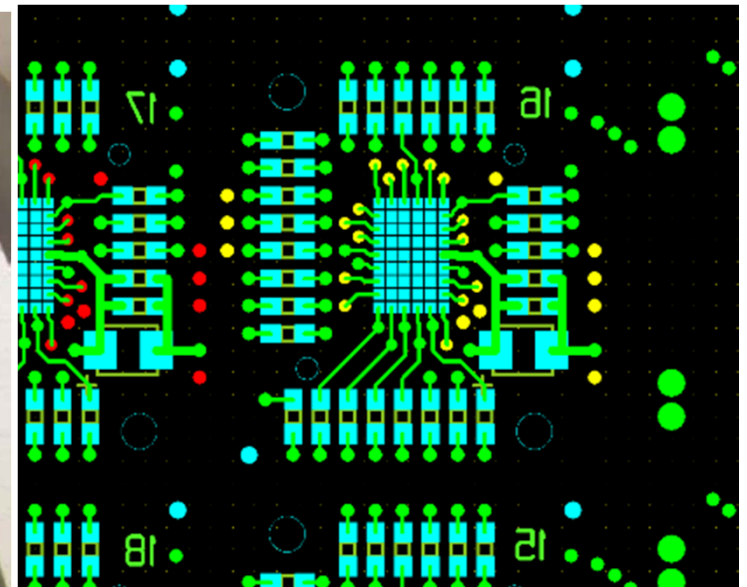
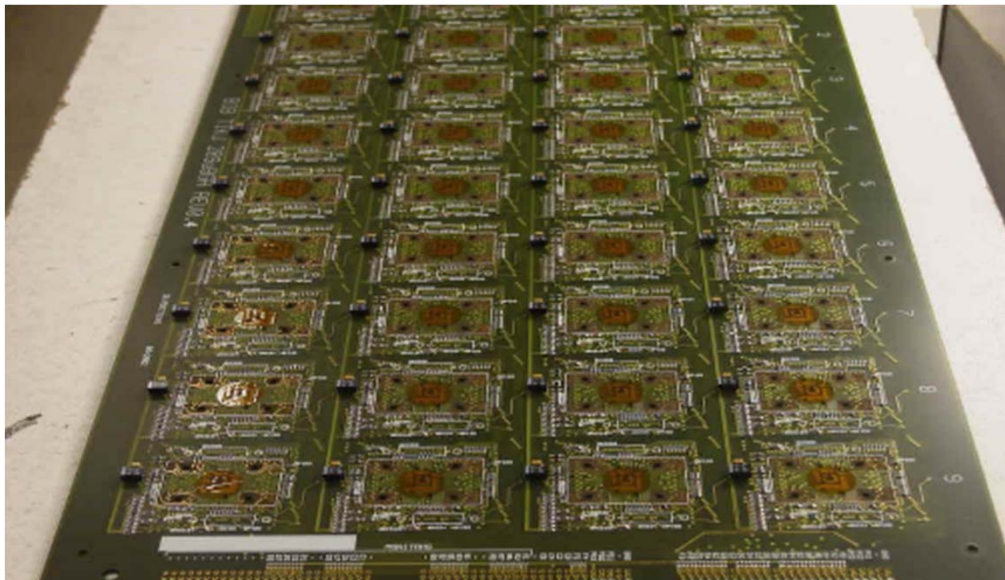
# Technology Example II

- BGA 18 x 18, 120 active pads
- Pitch 0,5 mm
- 16 sites on VLCT extended format 581 x 429 mm



# Technology Example III

- Burn In Board with Micro BGA down to 0.4 mm
- Filled vias for socket compression contact (SMT)
- Down to Pitch 0.5mm also for through hole socket
- Maximum realized number of sockets: 480 for DRAM application



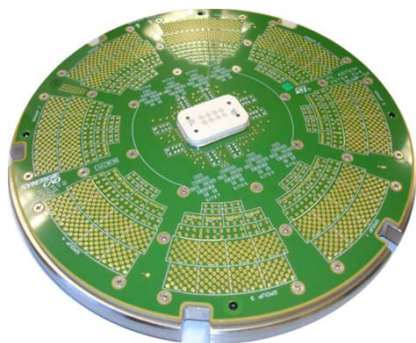


# Burn-In System

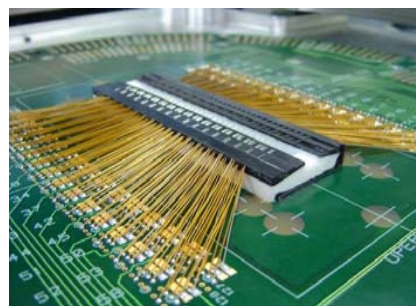
- SYNERGIE CAD develops and manufactures
- Driver Boards
- More than 400 BIB systems running with SYNERGIE CAD drivers
- Interface Boards
- Burn-In Boards
- -> Complete Burn-In Systems
- Engineering Oven with 30 slots
- Production Oven with 60 slots
- Interface SW “Universal Driver Supervisor”



# Probe Cards Solutions



VERTICAL PROBE

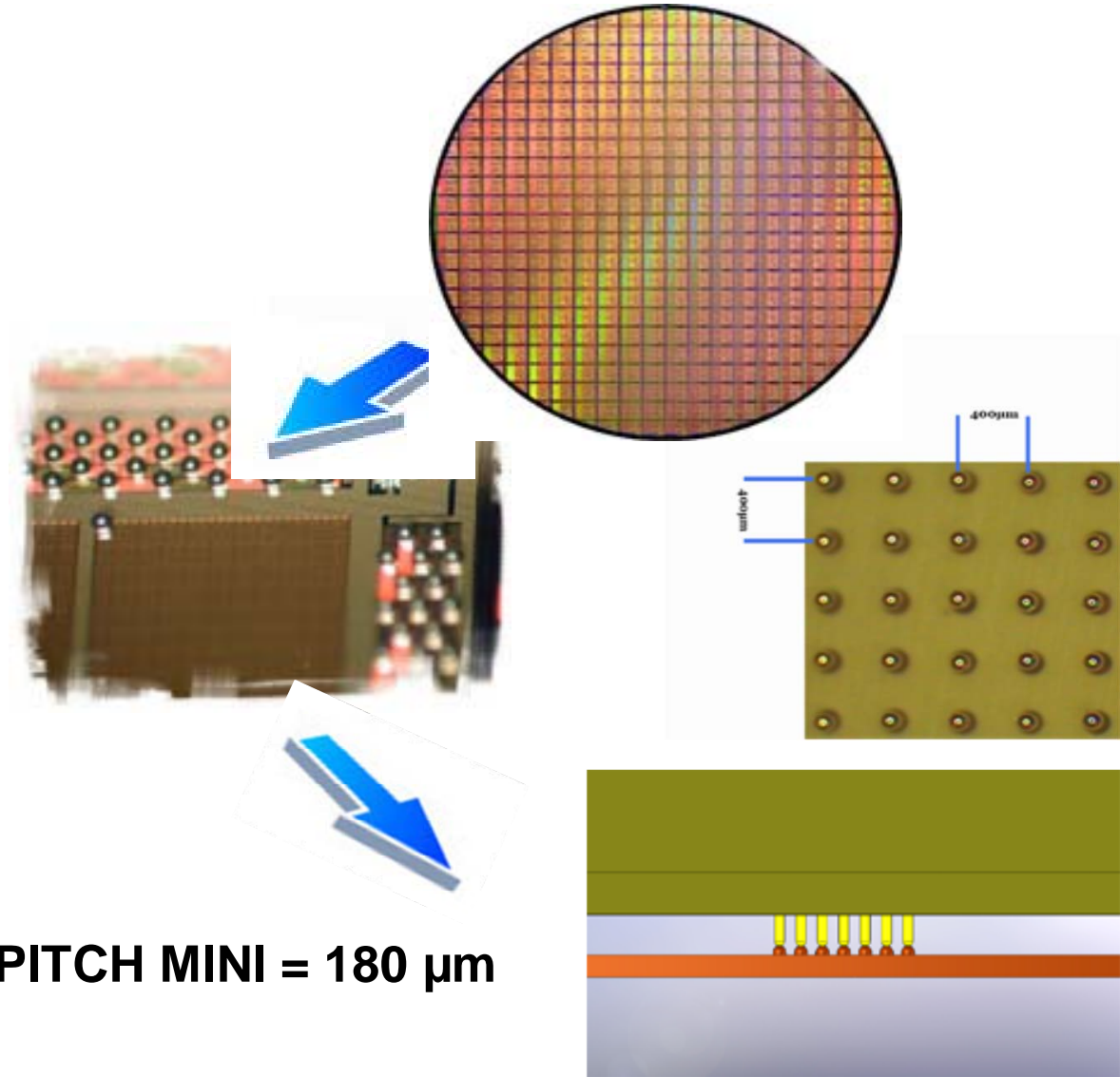


CANTILEVER

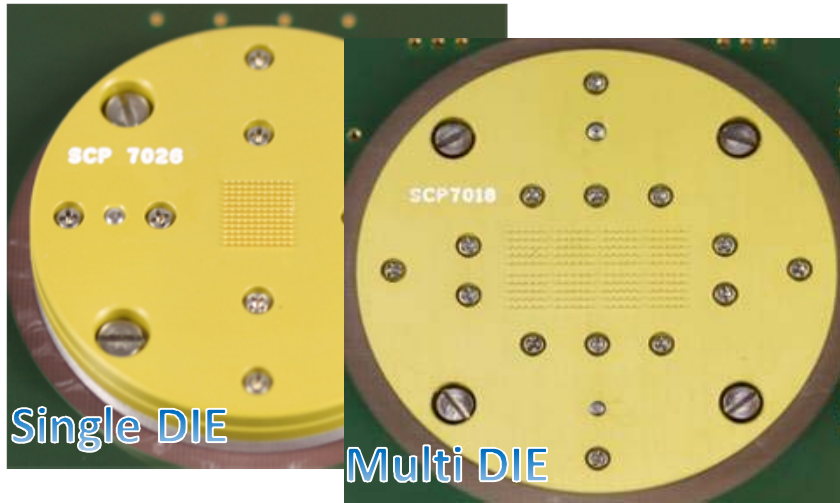
PROBE SOLUTION	DESCRIPTION	SPEC
VERTI - P	DIRECT PROBING ON WAFER PAD. SHORT PROBE LENGTHS. GOOD PERFORMANCE AT HIGH FREQUENCY.	140μM PITCH
VERTI - B	DIRECT PROBING ON BUMPED SILICON. NO BUMP DAMAGE. GOOD PERFORMANCE AT HIGH FREQUENCY.	140μM PITCH
VERTI - T	DIRECT PROBING ON WAFER. LOW FREQUENCY. FINE 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 more information ask for individual presentations

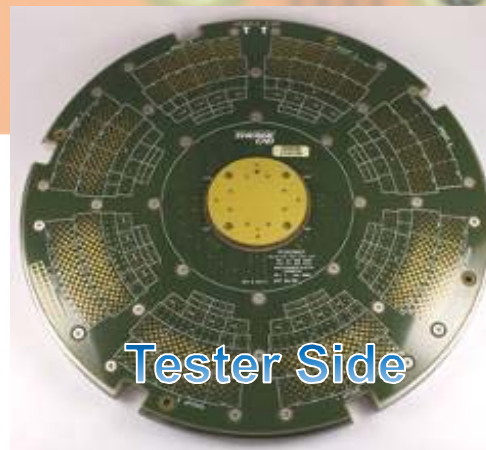
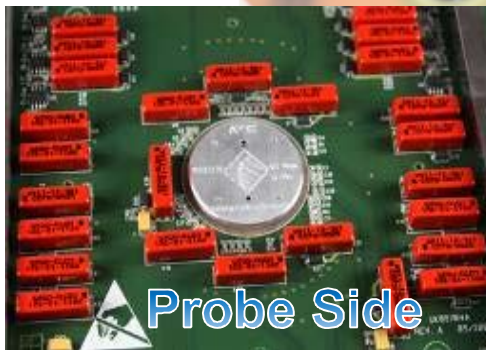
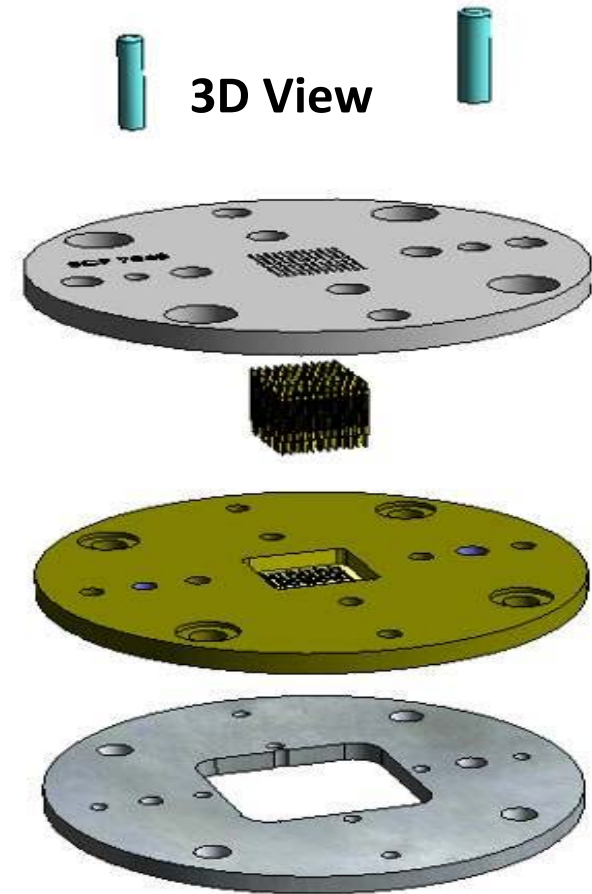
# Verti-B Direct-Attach Solution



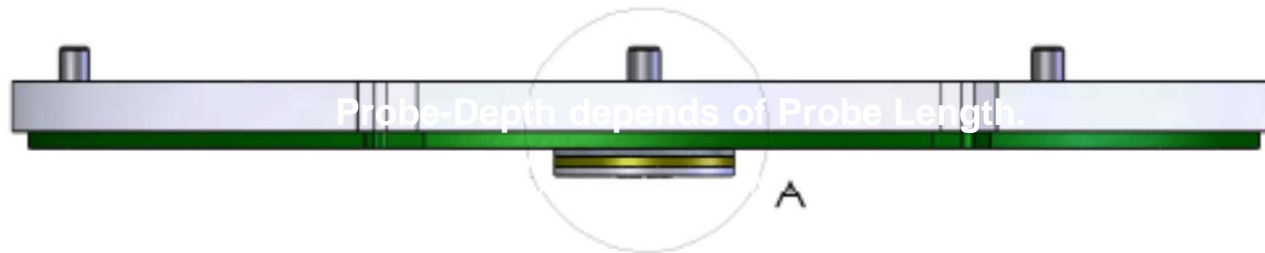
# Verti-B Direct-Attach Solution



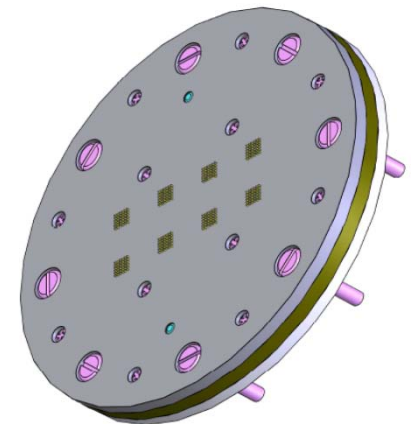
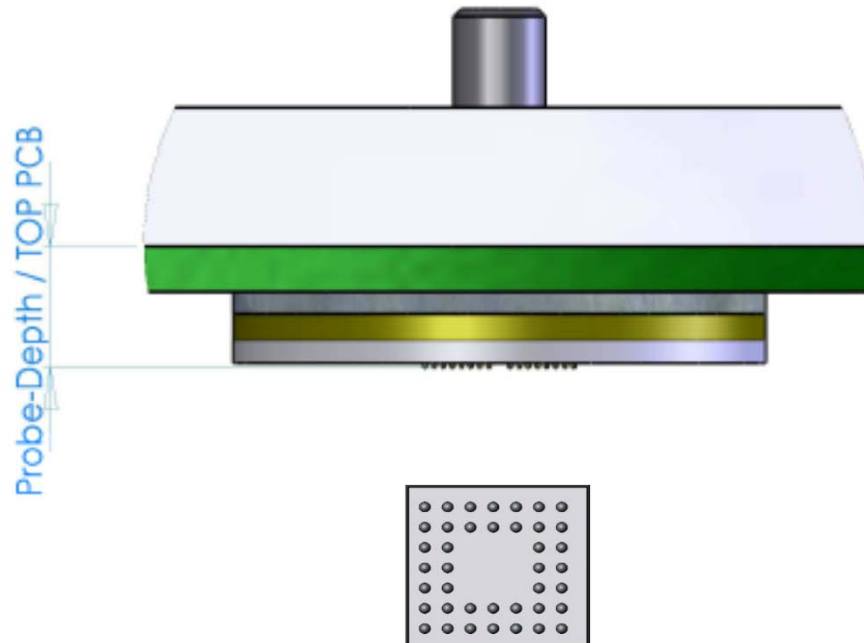
PCB



# ■ Verti-B Direct-Attach Solution



Probe-Depth depends of Probe Length.





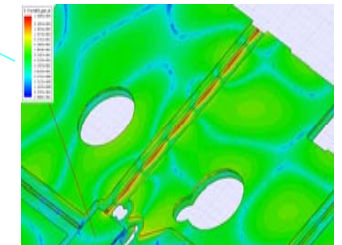
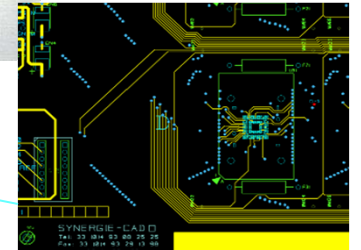
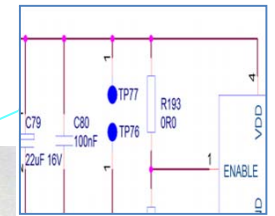
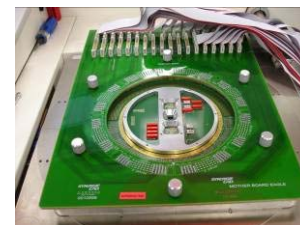
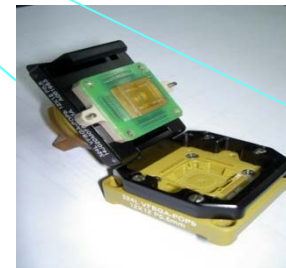
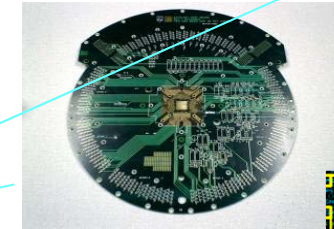
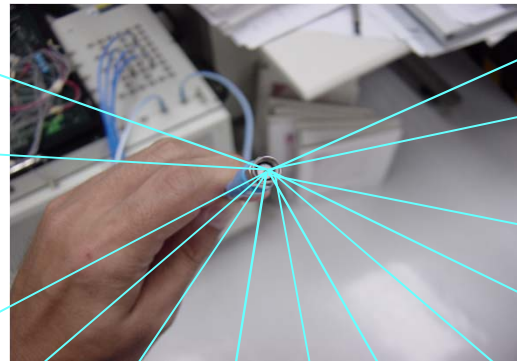
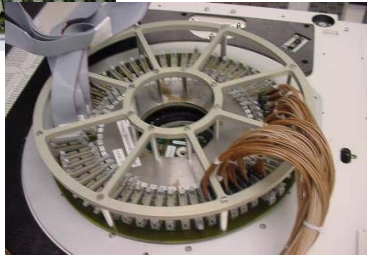
# Semiconductor Testing Services



**In House Testing service on our J750 Testers**

**Currently we have installed x2 J750 for final test.  
For probing we have x2 Accretech UF200.**

# Global Turn-Key Test Solutions



**Thank You**

