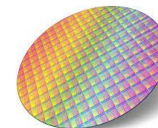
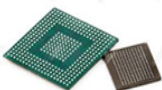
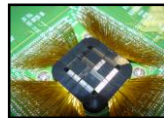
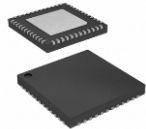


Your **KEY PARTNER** for All Semiconductor Applications

Semiconductors Industrialisation & Production Services



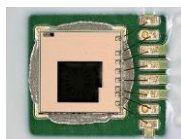
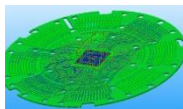
contact : sales-psc@synergie-cad.fr

Jan.-2021

Competences

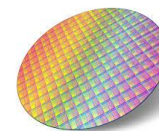
ELECTRONICS

- **PCB design**
- **PCB fabrication**
- **PCB assembly**
- **Application boards**
- **Test boards**
- **Probe cards**
- **Reliability boards**
- **Cabling**
- **Chip On Board**

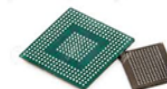


SEMICONDUCTORS

- **Wafers sourcing**



- **Packaging**



- **Wafer Test**
- **Final Test**



- **Reliability Qualification**

- **Supply Chain**
- **Storage**



Semiconductors Turn-Key Solutions

From 'Gds2 or wafers' to 'Finished Goods delivery'

Customer(s)
Partner

Synergie-Cad Semiconductors

Industrialisation

Design – GdS2

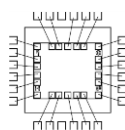
Package
development

Validation &
Application
boards

Test Devt
(Hw & Sw)

Reliability
Qualification

Product
characterization



Production Release

Production & Sustaining

Logistics
Inventory Mgt

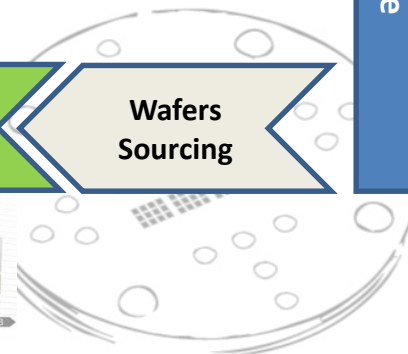
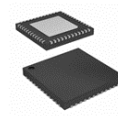
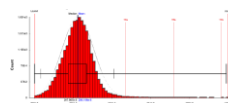
Production
Sustaining

Final Test

Assembly

Wafer Sort

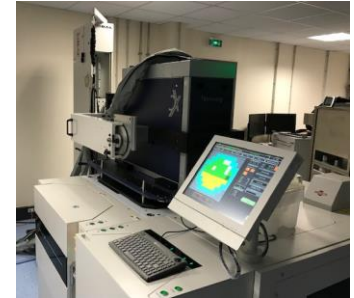
Wafers
Sourcing



Test & Product Engineering

✓ Test Solution Development

- Hardware (parametric cards, probe cards, loadboards)
- Software
- Specialties : Digital, Mixed-Signal, Analog, RF / MMW (up to 86GHz)
- Consumer / Industrial, Automotive



✓ Product characterization

✓ Prototyping & Production

- Europe
- Asia
- 6, 8, 12in. Probers [-55C / +200C]
- Automatic Handler



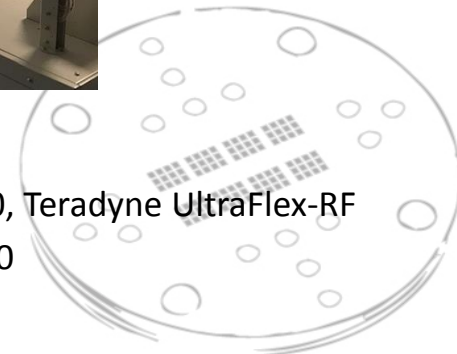
✓ Production Sustaining

- Cost optimization
- Product Q.A. & PPAP

✓ ATE's

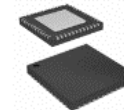
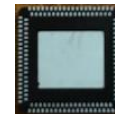
- In-House : Xcerra Diamond-X, Credence Sapphire, Advantest V93K, Teradyne J750, Teradyne UltraFlex-RF
- Other competences : Teradyne Flex, Eagle ETS364, Diamond D10, Advantest T2000

✓ Class 10K local environment



Packaging - Assembly

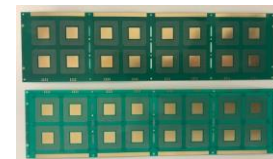
- **From Prototyping to Large series**



- **Small & mid series in Europe internal Packaging line**

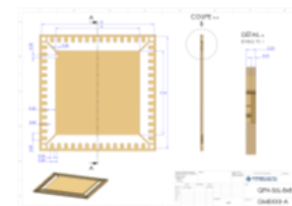
- Internal line / France – Toulouse (previous Freescale line)

- Moulded Frame packages (QFN, SO, QFP, DIL...)
 - Air cavity packages (QFN, SOIC, QFP...)
 - Ceramics packages (C-PGA, C-DIP, C-SOP, C-QFP...)
 - BGA / LGA packages (custom laminates, generic laminate available)



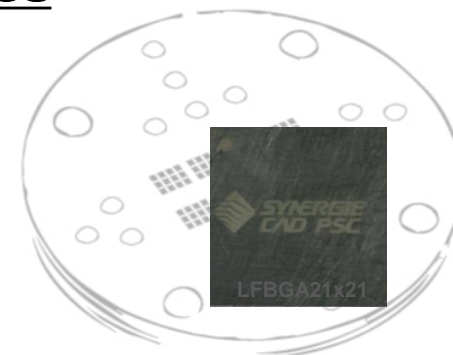
- Package Design

- Inspection : Xrays, Acoustic Microscopy



- **Partnership with major OSAT for mid and large series**

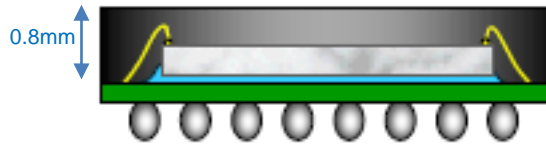
- Lead packages : QFP, SO, ...
 - CSP Packages : QFN, WLCSP (Fan In)
 - Organic packages : BGA, LGA, TE-FCBGA
 - Optical packages : OLGA type



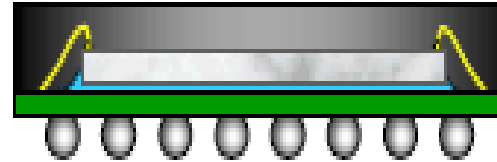
INTERNAL Production line Roadmap

Small & mid series

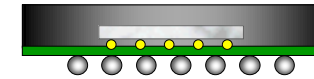
LfBGA < 1.7mm
pitch 1.7 / 1.0 / 0.8mm



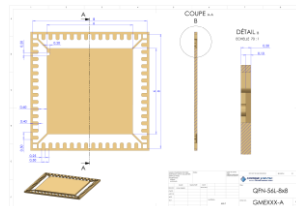
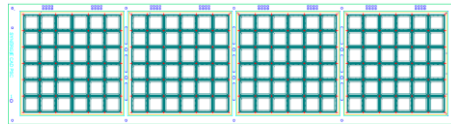
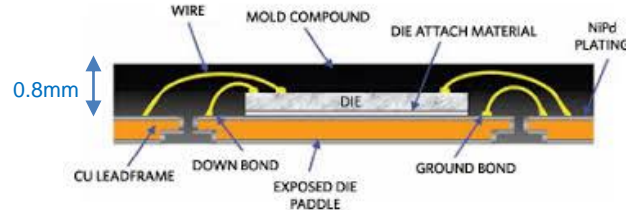
PBGA < 2.4mm
pitch 1.0 mm



FCBGA
pitch 1,0mm



T-QFN < 1.1mm (3x3 to 12x12 dual row 156L)
pitch 0,5mm



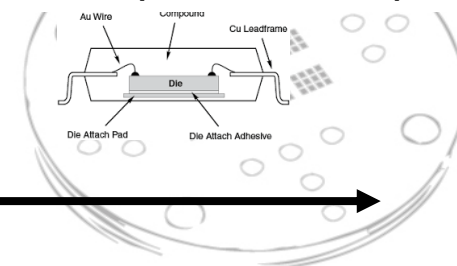
PQFP
pitch 0.5mm



TQFP
pitch 0.5mm



Small Outline (SOIC / TSSOP)



Reliability

- **Jedec, AEC-Q100,...**
- **Qualification, Burn'In, L.A.T, Monitoring**
- **Environmental tests**
 - HTOL / LTOL
 - THB 85C/85% RH
 - Hast
 - Preconditionning/Reflow
 - Thermal Cycling / VRT 15C/min.
 - THNB/Thu 85C/85%
 - High Temperature Storage 300C
- **(ESD / Latch-Up)**
 - ESD HBM / MM
 - ESD CDM
 - Latch-Up
- **Xrays inspection - External Visual - Decapsulation**
- **Delamination analysis - Acoustic Microscopy (SAM)**



Wide Hardware Capabilities for Semiconductors

In-House development and fabrication

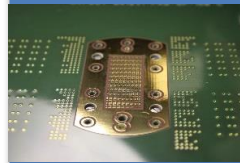
Engineering Boards



Final Test Boards



Probe Cards



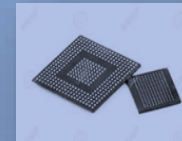
Burn-in Solutions



Special Drivers



Test Engineering

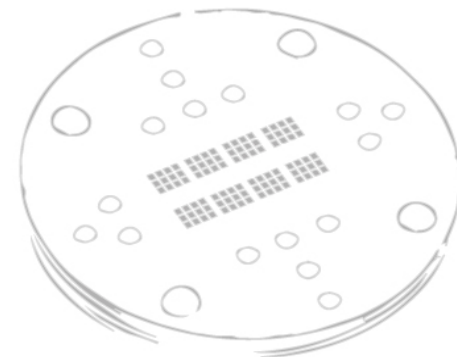


Mechanical Interfaces & Parts



Why choosing Synergie Cad Semiconductors...

- Staff with more than 15years average experience in Semiconductors development, industrialisation and manufacturing
- True TurnKey offer (Packaging, Test, Reliability, Supply chain, PCB)
- Large experience and deep knowHow in New Product Introduction, product industrialisation, and production sustaining / Quality Assurance from small to High volumes.... *We are not only a simple Test House or Assy house ...*
- Unique combined offer in both Packaging & Test services
 - Packaging Line for prototyping & small series in Toulouse (France)
 - Partnership with Tier1 OSAT for mid & large series
- Flexible, reactive, and 'easy-to-work with' organization



Thank You

