EURIPIDES Forum 2010 in Paris

September 30th – October 1st, 2010 in Paris

IPITECH

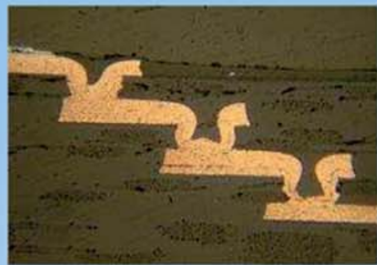
Innovative PCB Integration Technologies for HDI Boards in Harsh Environment

Objectives

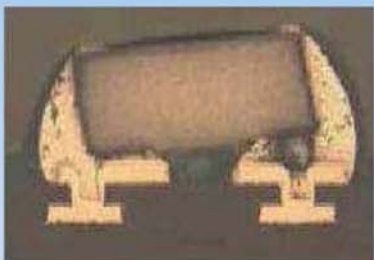
- ❑ Assess, adapt and validate new High Density PCB technologies in HARSH ENVIRONMENTS
  - ➢ Copper filled microvias
  - ➢ Stacked-microvias
  - ➢ Microvias-in-pad
- ❑ Assess the impact of these new technologies on Signal Integrity
  - ➢ Define by an experimental approach the contributions of the IPITECH technology on Signal Integrity
  - ➢ Establish new design rules to ensure reliable multi-gigahertz data transmissions

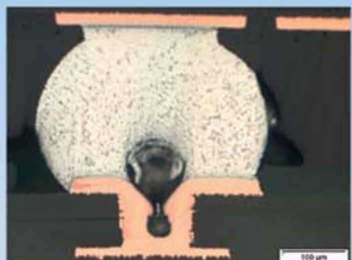
Microvia Technology

Standard microvias technology



Standard 'stair' route

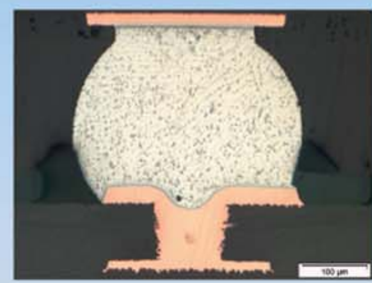




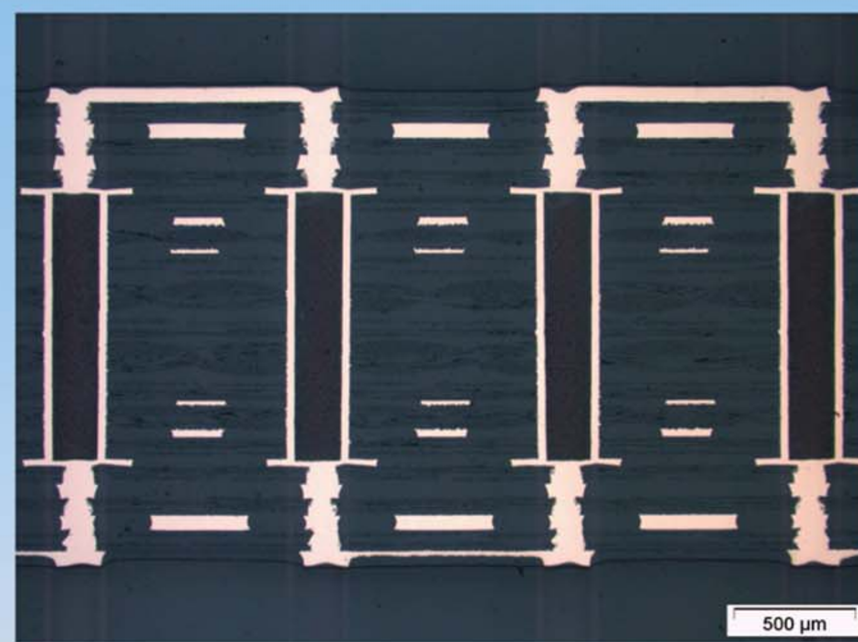
Standard microvias-in-pad weakness

New High Density PCB technologies

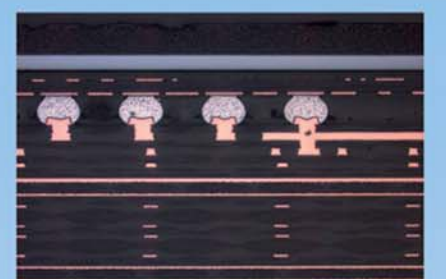
Filled microvia



Dimple definition



Stacked and copper filled microvias



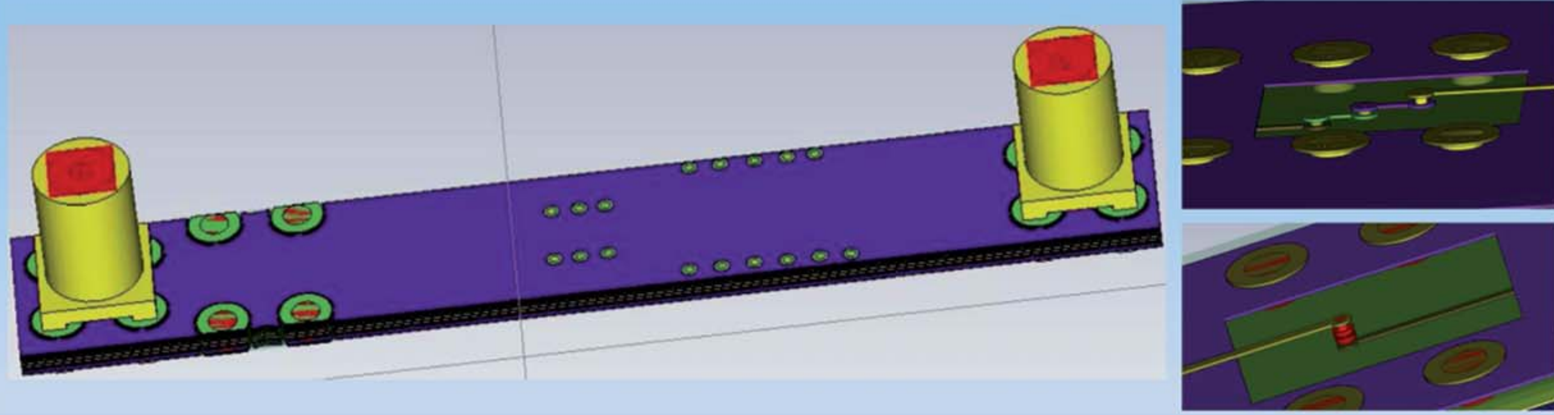
Microvias-in-pad

Technical Advantages

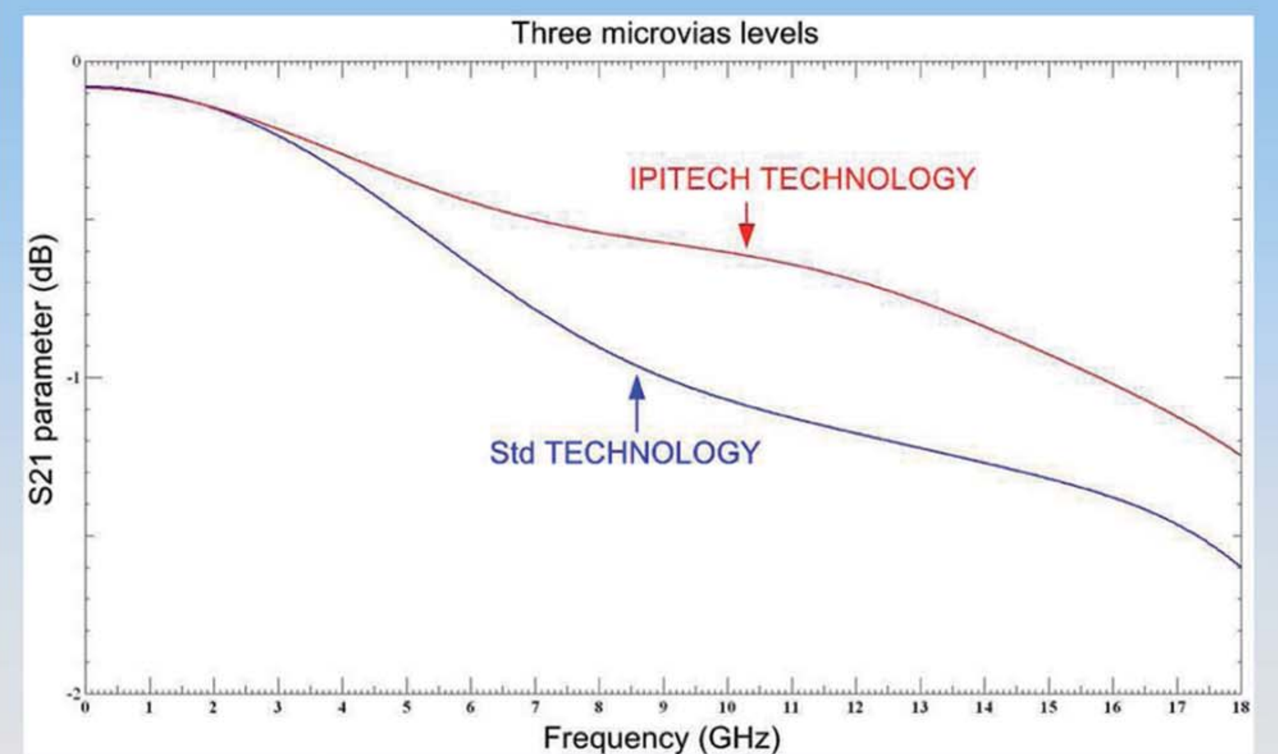
- ❑ Route BGA with a pitch as small as 0.4 or 0.5 mm
- ❑ Allow densification of routing and surface components
- ❑ Improve the thermal impedance of vias

Signal and Power Integrity

3D Signal Integrity models



S21: Transmission coefficients



Technical Advantages

- ❑ Reduce line impedance discontinuities
- ❑ Improve the integrity of powers planes

EUREKA | EURIPIDES – Eureka Initiative for Packaging & Integration of µDevices & Smart Systems | MINISTÈRE DE L'ÉCONOMIE DE L'INDUSTRIE ET DE L'EMPLOI | Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE | martec | THALES | ACB ADVANCED CIRCUIT BOARDS