



## Realization of a demonstrator for the mobile project at PRC in the substrate team

Guillaume LAPOUGE

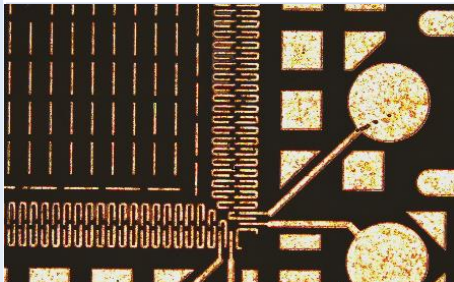
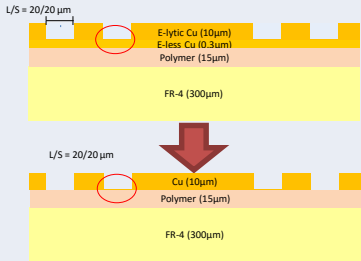
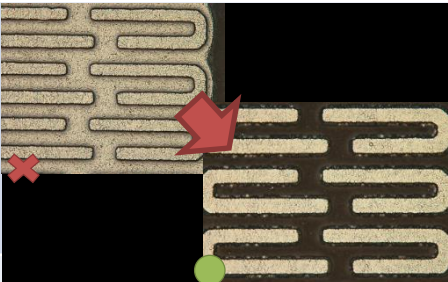
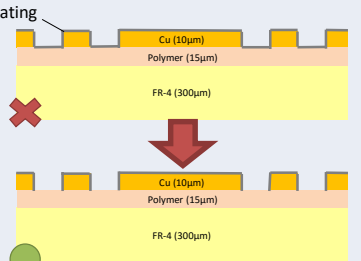
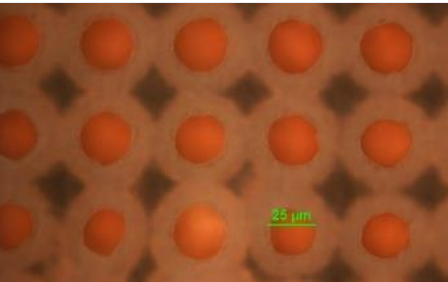
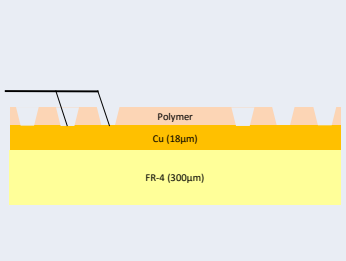
3D Packaging Research Center (PRC) @ Georgia Tech Atlanta

**Abstract :** In systems packaging, because the systems are becoming compacter, the mechanical stress at the interconnections are a main source of failure and have led the PRC to focus its research on glass for the realization of the package.

In cooperation with companies such as Qualcomm and NTK, this state of the art process must be proven feasible through the realization of a mobile demonstrator.



**Work :** The new processes involved in the realization of this demonstrator require investigation:

Investigation of the E-less Copper etching	Investigation of the Palladium stripping & Nickel plating	Investigation of the Microvias drilling
  <p><u>Sample cross-section</u></p>	  <p><u>Sample cross-section</u></p>	  <p><u>Sample cross-section</u></p>
Choice of pressure, temperature and etching time, no Copper residue.	Choice of chemicals and dispensing modes for Pd stripping and Ni plating	Plasma, chemical and Ozone etching investigation. Electrical reliability testing.

### Conclusion :

With the help of Mr. Yuya Suzuki and Mr. Hiroyuki Matsuura, we proved that these three processes are feasible. We can therefore include these three new processes to the process flow of the mobile project.

### Special thanks:

To Mr. Yuya Suzuki, to Mr. Hiroyuki Matsuura and Ms. Vanessa Smet

### References :

Fundamentals of microsystems packaging, Pr. Rao Tummala  
System on package, miniaturization of the entire system, Pr. Rao Tummala  
Mobile demonstrator overview May IAB, Dr. Venky Sundaram  
<http://www.amd.com/en-us/innovations/software-technologies/hbm>, AMD's paper on HBM  
Design update July Biweekly meeting, Tailong Shi