



Wafer Level Functional test with mDDR



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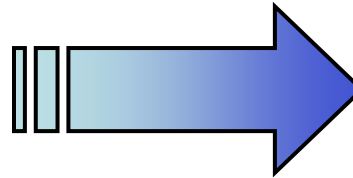
Mobile Trend



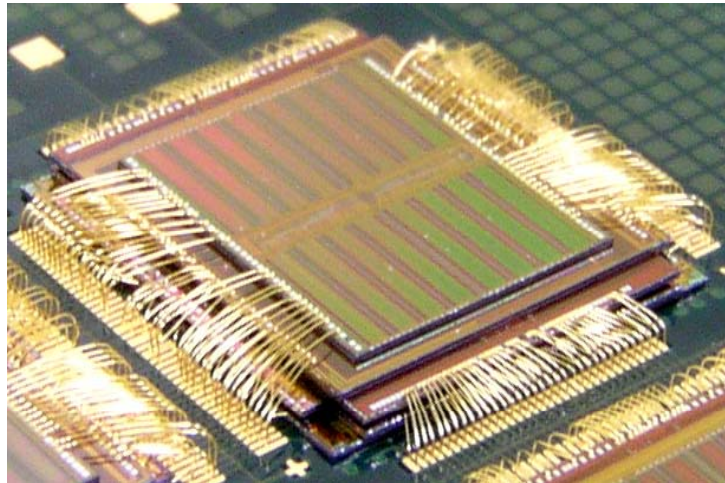
[사진·영상 장치]



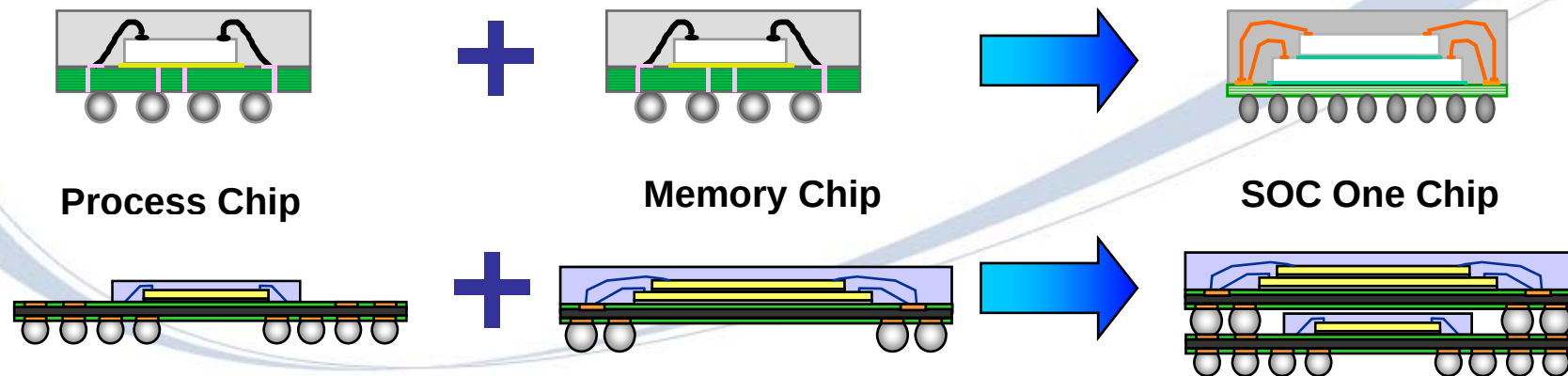
***More Smaller
More Faster
Multi-functional***



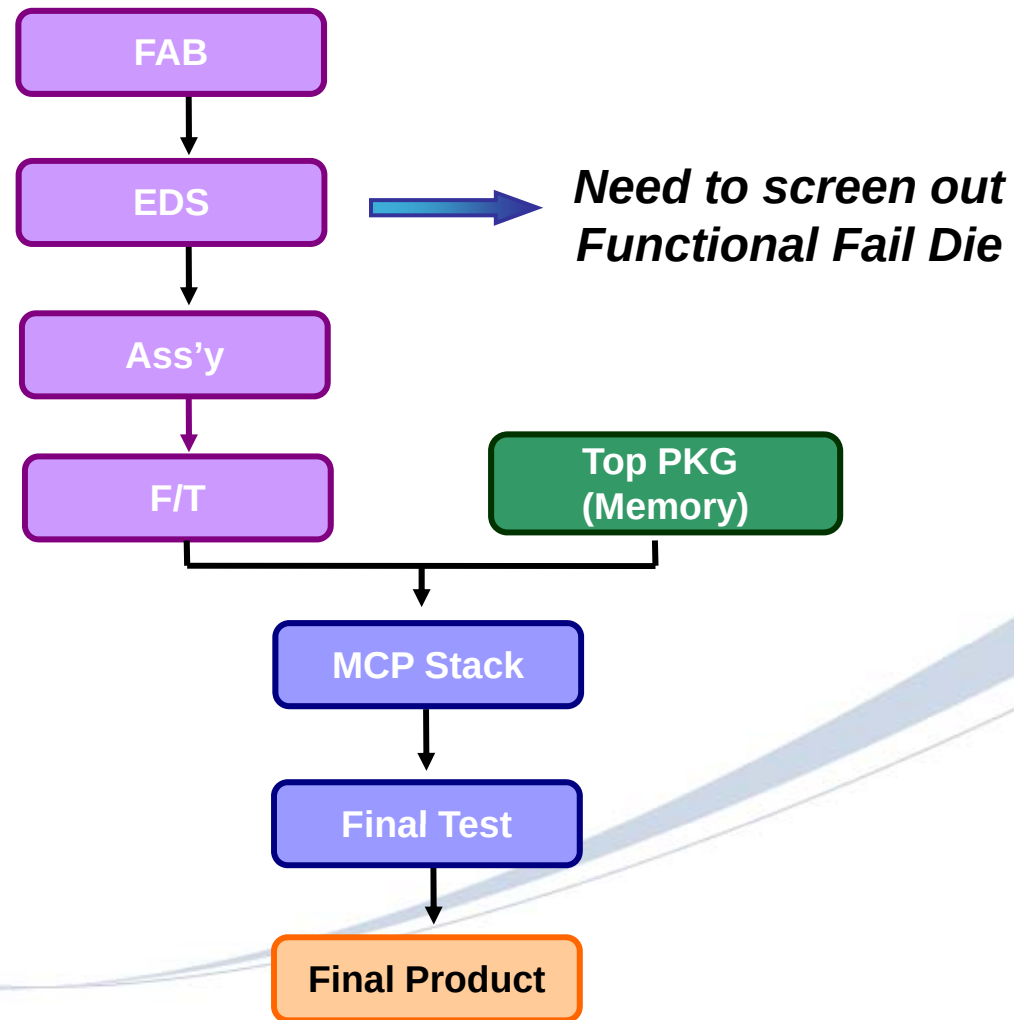
What is MCP ?



- ➡ MCP is the reword of “Multi Chip Package” that has 2 or more chips stacked in one package.
- ➡ MCP is the combination of a variety of memory, DRAM, NAND, NOR, UtrAM, etc..
- ➡ MCP is the high density package to save SMT area, and to increase memory volume.



Wafer Level at-speed function 필요성



Wafer Level At-speed Setup 장단점

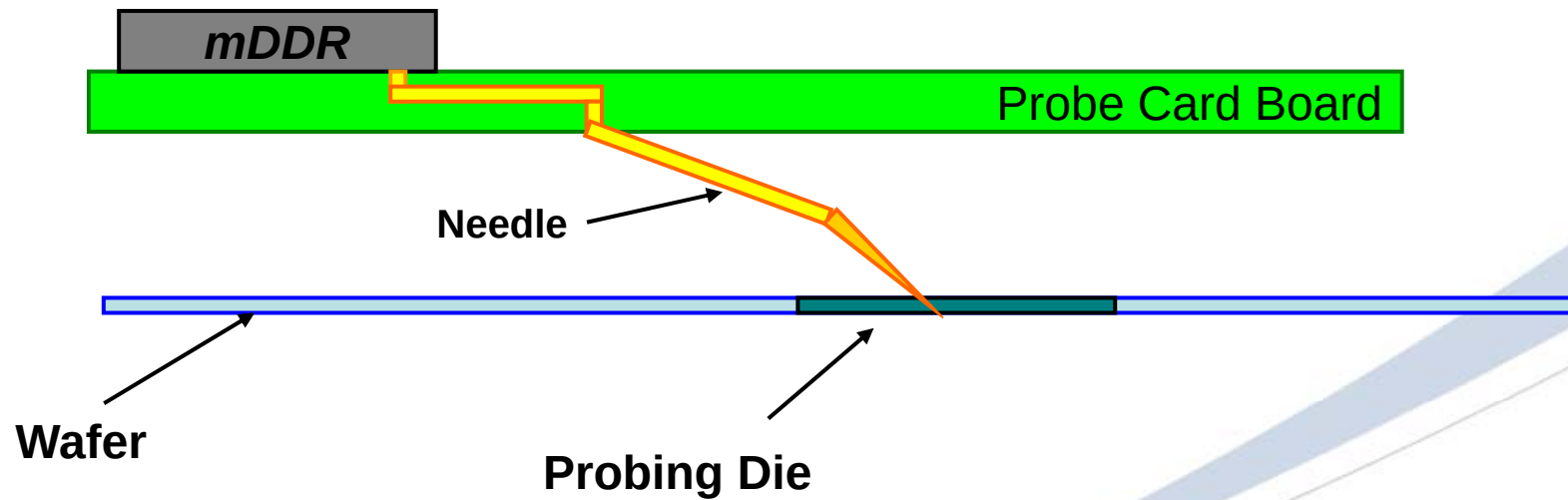
장 점

- **Package**상의 불량률 조기에 **Screen**
- **Wafer** 상에서의 불량 분석을 통한 공정개선
- **Para**수 증가 생산성 향상

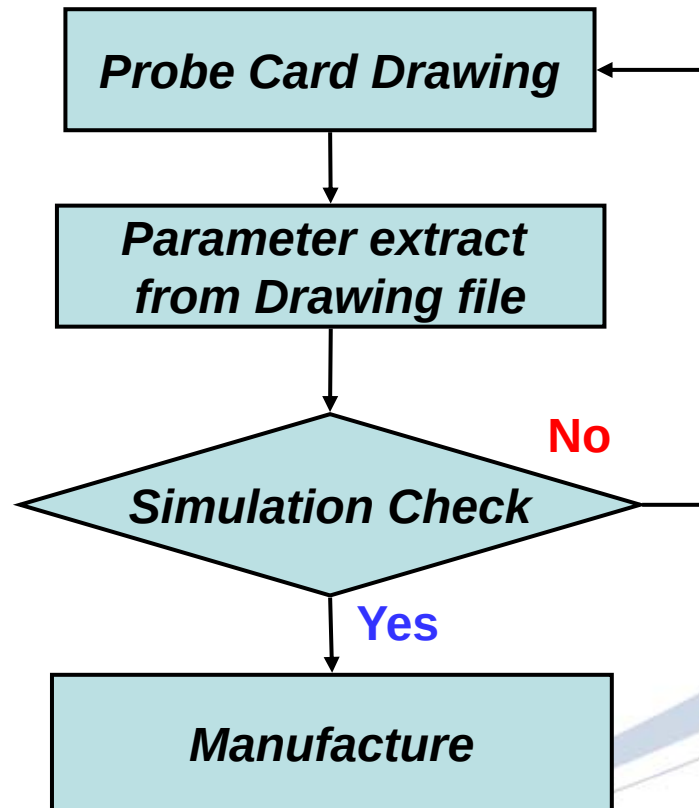
단점

- **Probe Card Needle**의 **High speed** 특성
- **M-DDR**등의 **At speed**동작에 따른 보드특성
- **Wafer Level** 특성과 **PKG**특성 **correlation**

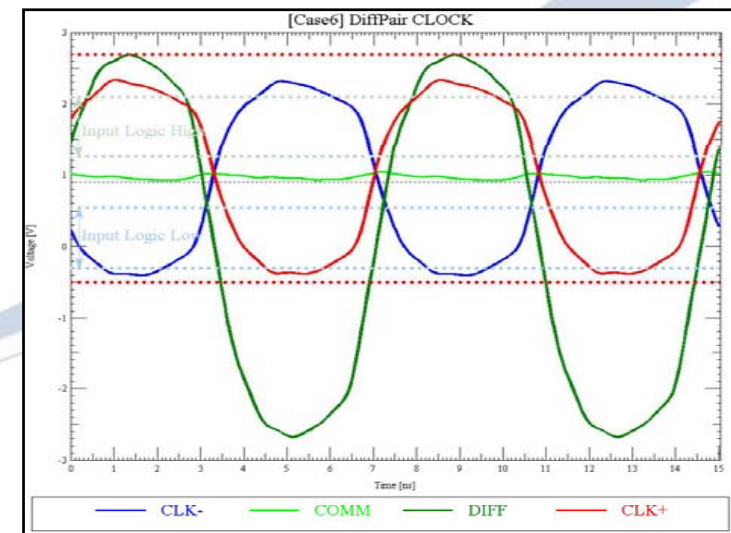
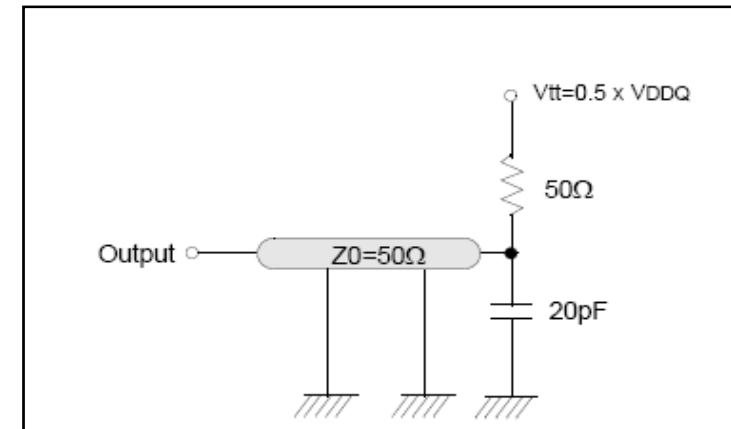
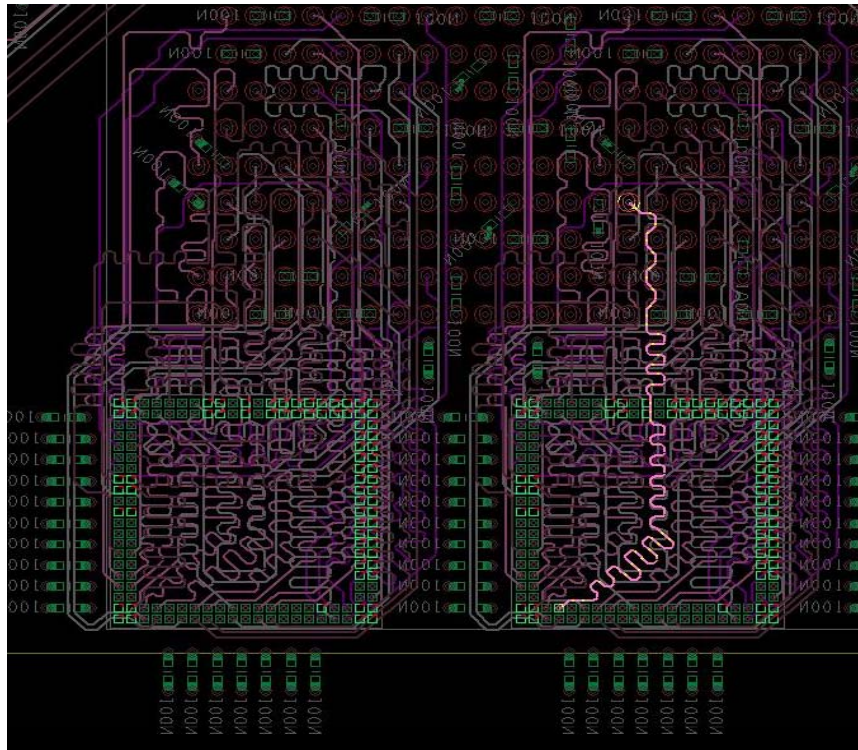
Wafer Level Test Configuration



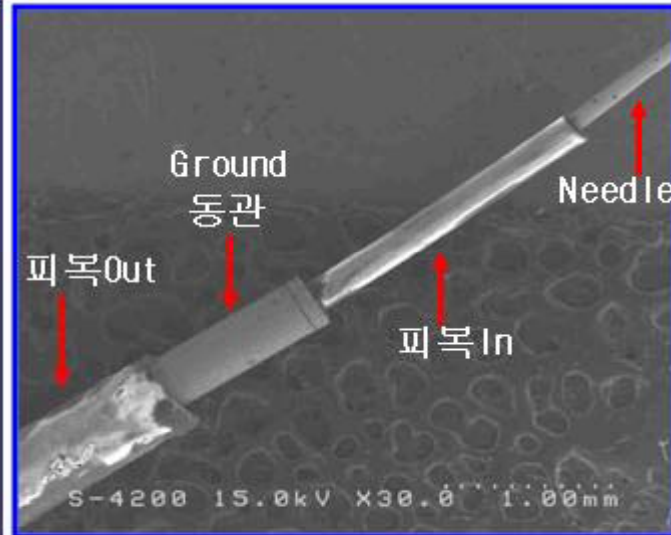
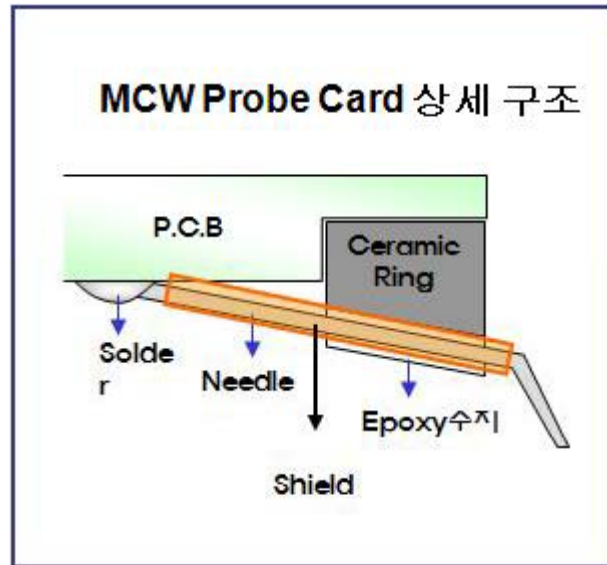
Probe Card Design Process



Board Level simulation



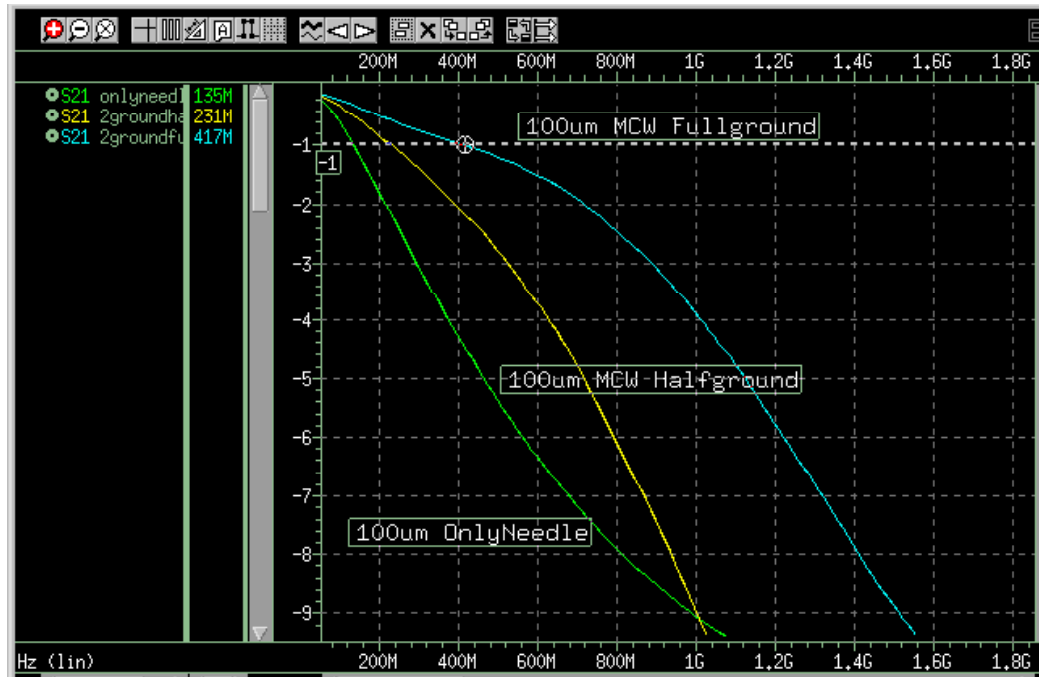
MCW (Micro Coaxial Wire) Needle 구조



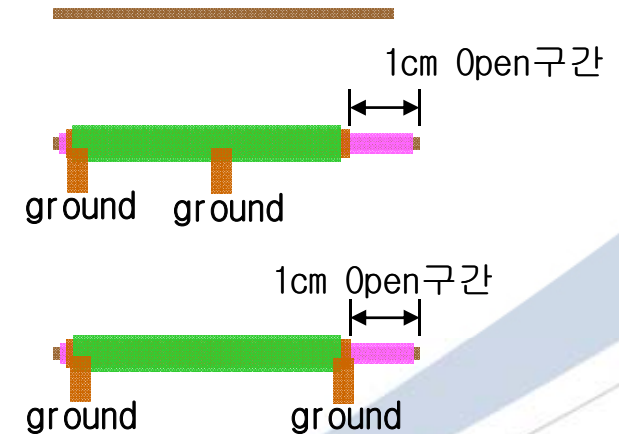
MCW 조합된 사진

- ◆ MCW 배경 : 일반 W-Needle은 자체 L (Inductance)값이 커서 Z (Impedance) 및 Signal Loss 가 크다. 이에 Needle의 특성을 향상시키고자 Ground 처리를 실시함.

MCW Needle 주파수특성

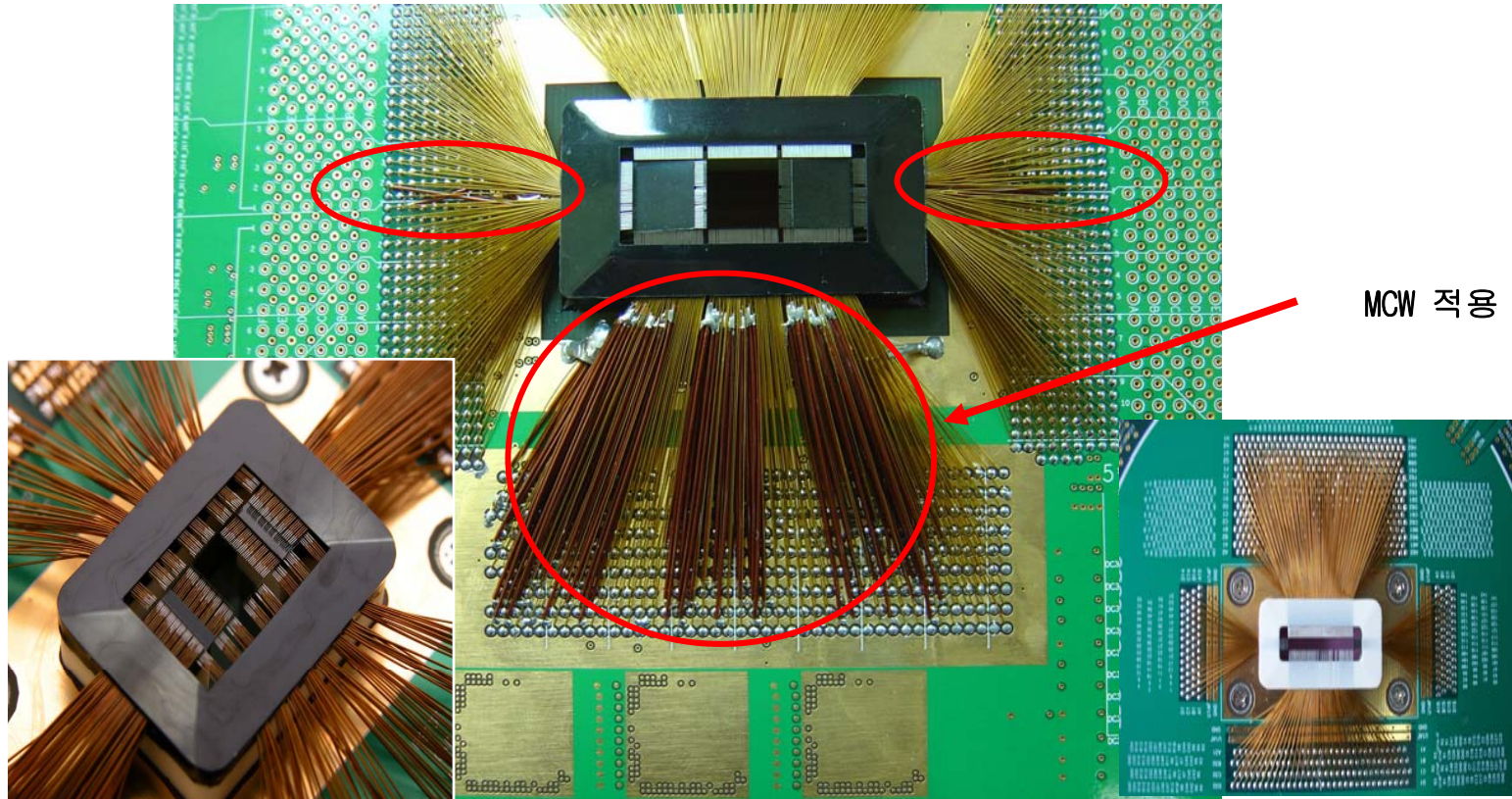


Normal Needle



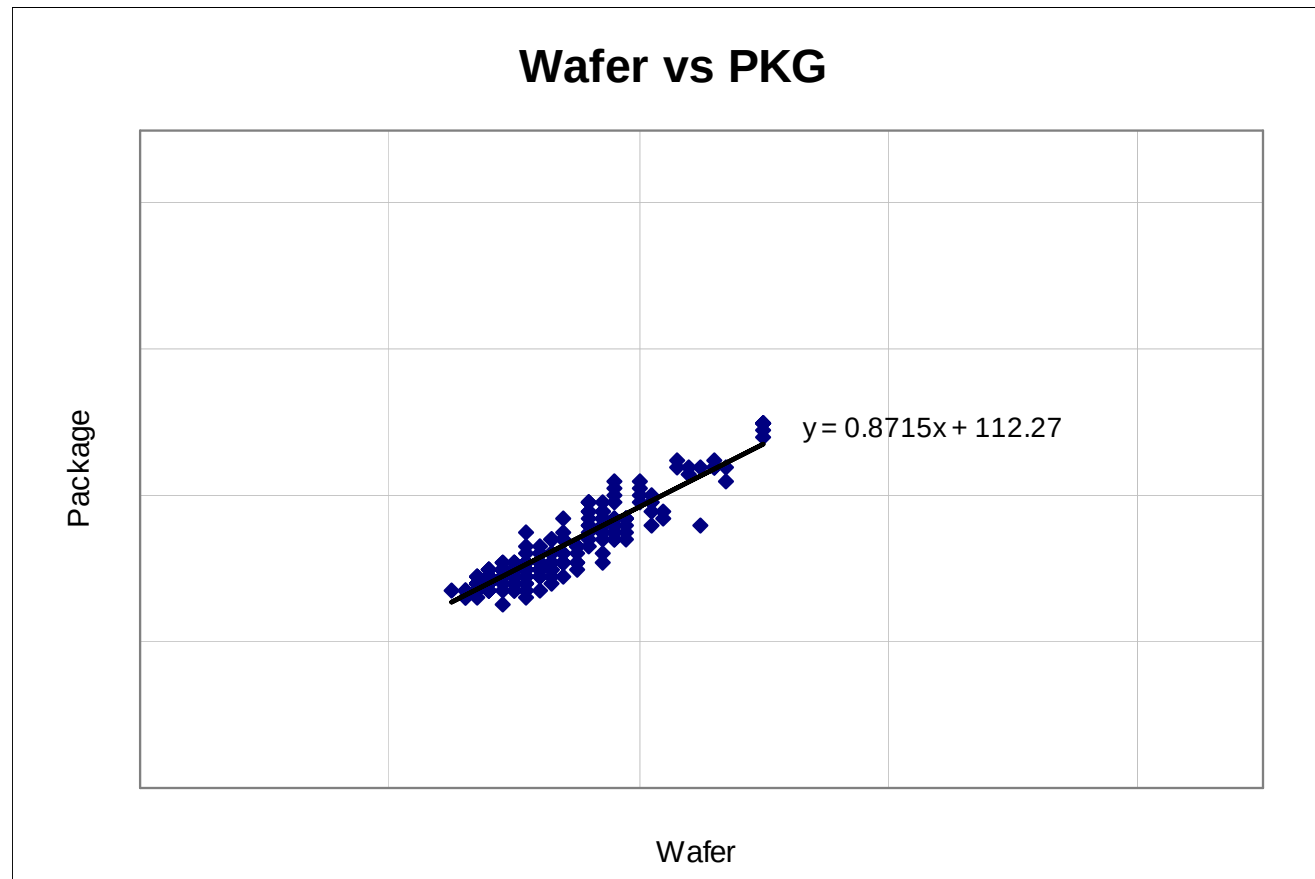
측정항목		-1dB	-3dB
1	100um 순수 Needle	135MHz	292MHz
2	100um MCW Half Ground	231MHz	524MHz
3	100um MCW (1cm open)	417MHz	885MHz

MCW 적용 제품 Overview



- ◆ Needle 재원: 80um
- ◆ MCW Full Ground
- ◆ MCW 적용 핀 : DDR 45x3=135 pin
USB 2X3= 6 pin

Correlation



PKG에서 Functional 불량률 0.6%이하

Conclusion

- ◆ **Wafer level Functional TEST** 필요성
- ◆ **Speed**에 맞는 적절한 **Needle** 선택
- ◆ **Board Level Simulation**



Thank You