Atomic Force Microscopy (AFM) analysis service

Atomic Force Microscopy (AFM) is used to narrow down the failure location of a via or transistor in an larger area, found after EMMI/OBIRCH/LIT failure localisation analysis. Further failure analysis step is delayering or FIB cross-sectioning.

PARK NX10 FEATURES:
- Auto engage by Slide-to-Connect SLD head
- Expansion slot for advanced SPM modes and options
- High speed 24-bit digital electronics
- Direct on-axis high powered optics with integrated LED illumination
- Accessible Sample Holder

STAGE & SCANNER:
Scanner:
- 100 μm x 100 μm XY Scanner (normal 50 μm x 50 μm)
- Max Resolution: 0.05 nm
- 15 μm Scan Range
- Pre-mounted tips

Electrical Properties:
- Conductive AFM mode
- I-V Spectroscopy

SCANNING MODES:
- True Non-Contact AFM
- Basic Contact AFM
- Intermitted (tapping) AFM
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**MEASUREMENT MODES:**
- Surface Morphology *
- Conductive AFM *
- Electrostatic Force Microscopy (EFM) *
- Surface potential Microscopy, kelvin Probe (SKPM)
- Force Modulation Microscopy (FMM) *
- Lateral Force Microscopy (LFM) *
- Magnetic Force Microscopy (MFM)
- Scanning Tunneling Microscopy (STM) *
- Fluid AFM
  * = Available at Maser

**AFM APPLICATIONS:**
- Identification of a leakage of a via or transistor
- Pinpoint of location with a very high accuracy after polishing
- Local I-V curve measurement while leaving the tips on a certain spot/contact
- Failure confirmation by further delayering or FIB cross-sectioning

**APPLICATION EXAMPLES:**
- Gate Oxide breakdown (SEM inspection after poly etch)
- Open plugs (via’s or transistor plugs)
- Molten plugs (via’s or transistor plugs)
- Surface roughness measurement