Allied High Tech Products, Inc.
2020 Product/Application Overview

Introduction

- Allied High Tech Products, Inc.
  - 35+ years
  - Specializing in Sample Preparation

- Gary Liechty – gdliechty@alliedhightech.com
  - 25+ years experience in sample prep
  - Author/co-author and contributor to several (IEEE) published works on sample prep
  - Co-inventor/engineer of the MultiPrep (1998)
    - Over 3K units worldwide
  - Co-developer X-Prep (2008)
    - 150+ units worldwide

MultiPrep

- High precision grinding/polishing machine
- Precision mechanical control of sample
  - Tilt/axis control
  - Dynamic and static indication of position/material removal
- Suited mostly for small/unencapsulated samples - contemporary applications
  - Flat wheel/platen uses disc form abrasives/cloths for grinding/polishing
- Introduced 1998
  - Optical and Electron Microscopy Sample Prep
  - Semiconductor, Material Research
- Cross-sectioning for SEM/TEM sample prep
  - Package – Defect Analysis
    - Solder ball/bond wire and die attach
      - Au (2005) – Cu (2004 to present)– Ag & SnPb to SnAg (RoHs) – artifacts in prep
  - Thin-film (TEM)
- Parallel delayering/deprocessing
  - Die level deprocessing/reverse engineering
  - Challenges with uniformity due to curvature

X-Prep

- Highly specific, precision mechanical (CNC type) milling instrument introduced 2008
  - Small diameter cutting and diamond grinding tools as well as polishing abrasives
  - Non-planar sample prep
- Semiconductor applications (mostly)
- Addresses challenges of semi in shrinking scale/package density and complexity due to drive to newer technologies
  - Curvature, stress/warpage
  - Enables EFI for DPA – locate (electrical)the physical defect, verify through cross-section (physical dest.)
- Extends benefits of CNC milling to FA with easier to use interface and level of precision required in semi
- Uses miniature cutting and diamond grinding tools for mechanical removal (cutting/grinding) of materials without damage to the functionality of the sample/device
  - Highly versatile
  - Micron level precision

Thank you for your attention.

- Questions?