



## INFINITY ION BEAM ETCH SOLUTION

### TECHNICAL SPECIFICATION SHEET

Patented substrate bias option for low damage etching of sensitive structures used in advanced semiconductor processing.

#### BENEFITS INCLUDE:

- Low plasma damage etch
- High power etch with electrostatic chuck
- Etch rate selectivity for multiple materials by reactive ion etch and chemically assisted etch
- Precise delayering and end point control with SIMS detector
- Able to accommodate multiple substrate sizes up to 6"



| FEATURES                          |  | BENEFITS |  |
|-----------------------------------|--|----------|--|
| Bias substrate                    | Low plasma damage etch                     |          |  |
| Reactive ion beam etch            | Material etch rate selectivity             |          |  |
| Chemically assisted ion beam etch | Material etch rate selectivity             |          |  |
| Secondary ion mass spectrometer   | Precise delayering and end point control   |          |  |
| Compatible with front-end options | Easily scalable to meet throughput demands |          |  |
| Automation software               | Enhanced process control                   |          |  |
| Short MTTR/Long MTBF              | High system uptime and ease of maintenance |          |  |

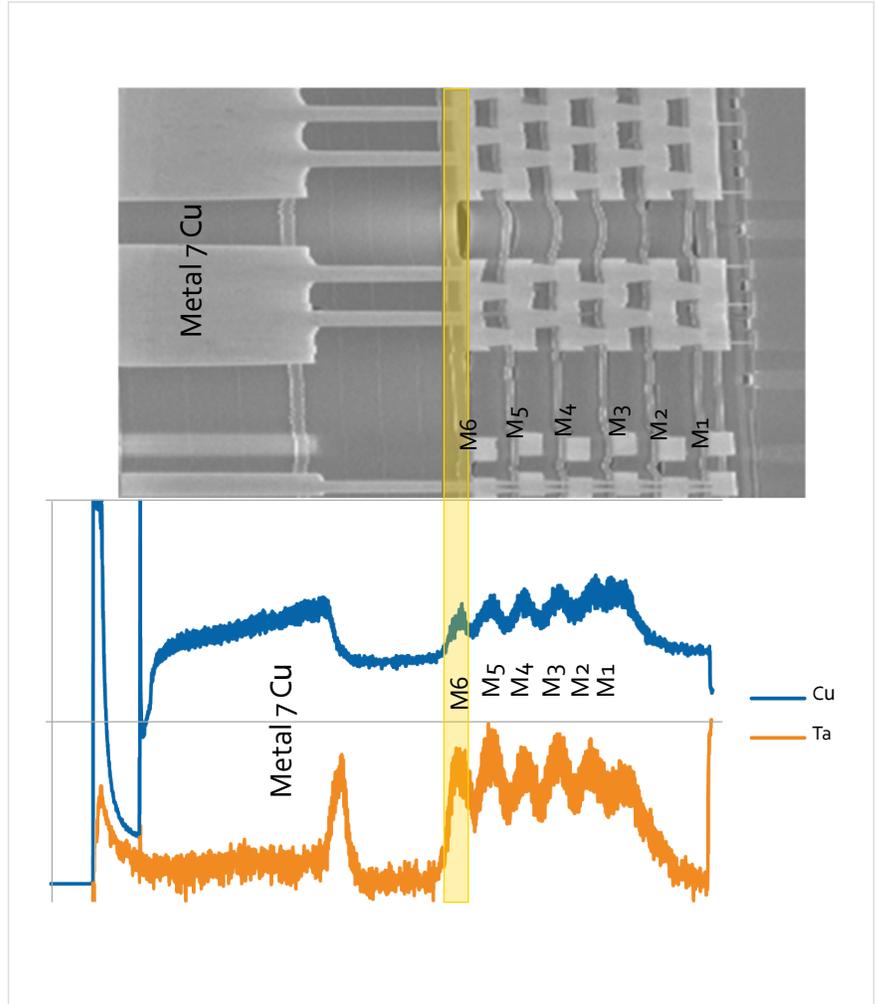
# SYSTEM OVERVIEW

Ion beam etching (IBE) uses an energetic, broad beam collimated and highly directional ion source to physically mill material from a substrate mounted on a rotating fixture with adjustable tilt angle. The ion sources used are gridded ion sources of the Kaufman type and are typically neutralized with an independent electron source. Large and small ion sources are available and capable of uniform etching over areas as large as 9 inches in diameter. The highly collimated, directional ion flux allows for anisotropic etching of any material. The ability to modify the angle of the substrate allows the creation of processes that result in tailored sidewall profiles with minimal sputtered redeposition on overlying masks.

The Denton Infinity Ion Beam Etch system is a versatile product addressing several significant markets. This system boasts high performance etching, critical thin film profile milling, glancing angle milling and more. It addresses the needs of customers seeking a flexible, high throughput, cost-effective failure analysis and yield improvement processing. The system is capable of single chip or multiple chip configuration. The system is available in three configurations: standard ion beam etch, reactive ion beam etch and chemically assisted ion beam etch.

### APPLICATIONS:

- Semiconductor process yield improvement with end point control
- Compound semiconductor Au etch
- Process control and chip design assessment
- Patterned etch
- FBAR and SAW device trimming for frequency control



SIMS detection of materials for delayering and endpoint.

## CONFIGURATION OPTIONS

| MODULE     | SIMS                   | Electrostatic Chuck | Bias Chuck                   |
|------------|------------------------|---------------------|------------------------------|
| ETCH       | Ion Beam               | Reactive Ion Beam   | Chemically Assisted Ion Beam |
| FRONT ENDS | Single Wafer Load Lock | Cassette Load Lock  | Cluster Tool Front End       |