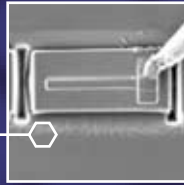


ANY WAY YOU LOOK AT IT,  
FEI PROVIDES THE WORLD'S BEST VIEW.



## Defect Analyzer™ 300HP DualBeam™ Family Advanced Root-Cause Analysis for the Fab



### Higher productivity below the surface

In today's demanding fab environment, it's essential to quickly and efficiently locate and visualize all types of defects to determine the root cause of a yield or process problem. With more than 80 percent of today's defects occurring below the surface, effective defect analysis has exceeded the capabilities of optically-based tools and conventional scanning electron microscopes (SEMs). To overcome these new challenges, FEI's Defect Analyzer 300HP family is the ultimate solution. The Defect Analyzer 300HP addresses and eliminates systematic defects during development and ramp. By design, the Defect Analyzer 300HP significantly improves your fab's performance by delivering superior, rapid root-cause analysis for defect excursions occurring in high-volume production.

### Enjoy these key benefits:

- *Fully automated defect cross-sectioning with ADX*
- *Get statistical data to characterize systematic and random defects*
- *Quickly resolve yield excursions by cross-sectioning optical or e-beam detected, current- or prior-level physical defects*
- *Execute in-fab TEM sample preparation and lift-out for extensibility to 45 nm and below*
- *Use statistical analysis to correlate defect and process marginality*
- *Monitor the health of your manufacturing line with process monitoring mode*

RIGHT  
First the first time  
FIRST  
First to market  
FAST  
Fast to volume

## Applications:

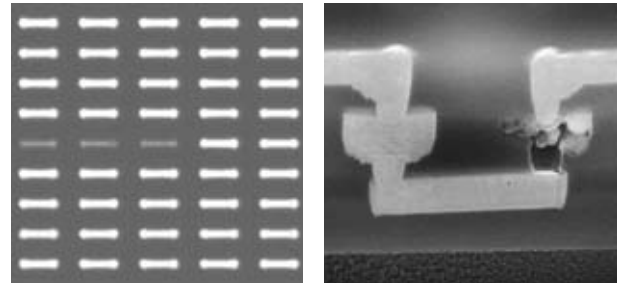
### Failure Analysis

- Cross section
- Ultra hi-res FIB milling and imaging
- HR-SEM imaging
- General purpose SEM imaging
- Low damage TEM sample preparation
- EMI active cancellation
- Metal deposition
- Insulator enhanced etch
- Dielectric deposition
- Automated defect relocation and cross-sectioning
- TEM prep automation
- Wafer to TEM grid sample extraction (NanoLift™)
- EDX analysis
- CAD navigation
- Metal etch

### Circuit Edit

- Front-side edits

- Standard
- Optional



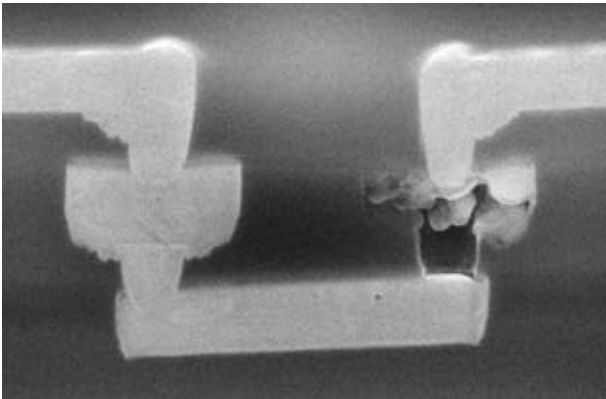
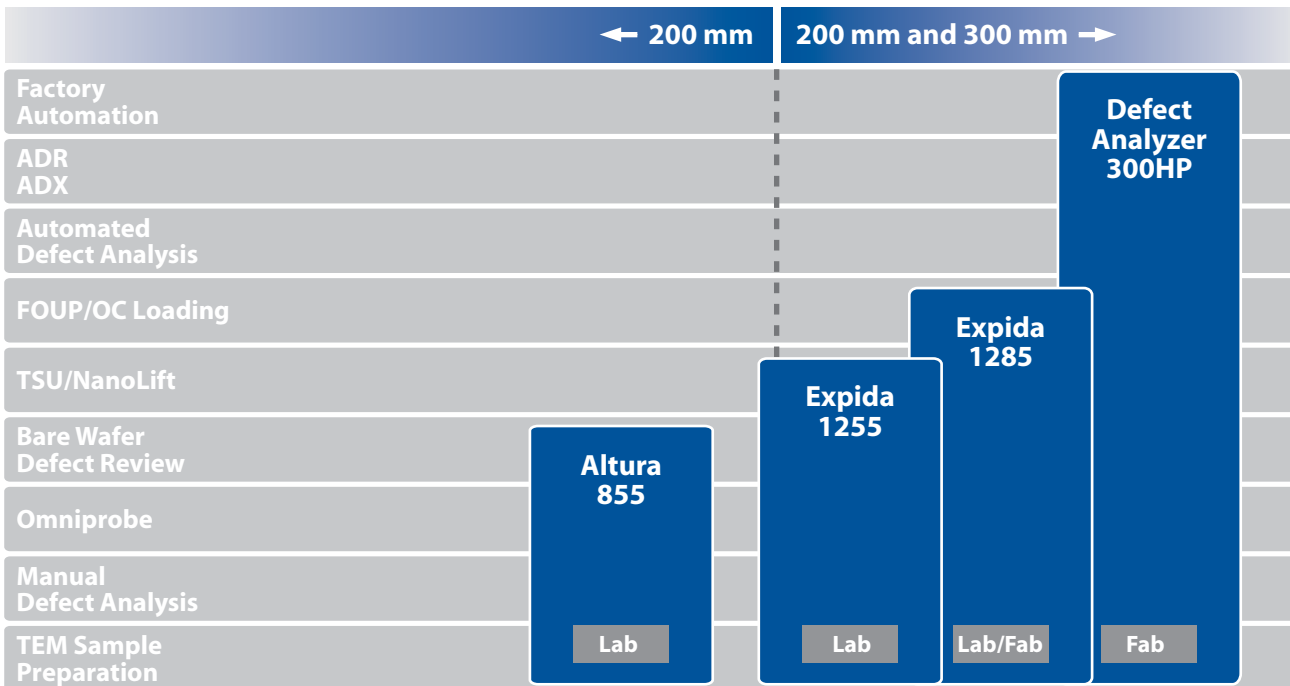
A top-down and corresponding cross-sectional image of a voltage contrast defect after metal 2 Copper CMP

### The ultimate in-line analysis solution

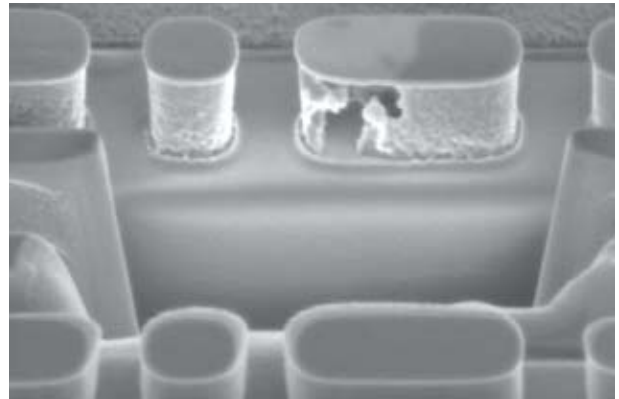
The Defect Analyzer 300HP was engineered to operate in the most demanding fab environments. Accommodating automated root-cause analysis of 200 mm and 300 mm wafers, the tool delivers unmatched versatility in support of the entire product life cycle. Taking advantage of FEI's industry-leading technology, the Defect Analyzer 300HP's cutting-edge components deliver the high-quality, consistent analysis that allows you to get to production faster, ensuring enhanced yields, reduced time to market and drastically reduced process-development costs.

### Streamline your processes with the following:

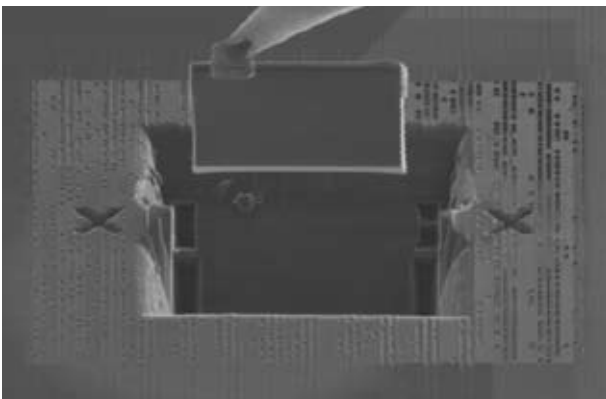
- *The wafer alignment wizard makes it easy to set up automated wafer alignment for subsequent wafers of the same type*
- *Integrated defect-file navigation and pick-list display provide all the information you need on one screen*
- *Imaging parameters can be customized to provide the optimal image for your analysis*
- *The defined process sequence is displayed for easy visualization and modification*
- *Create a job sequence using the large library of automated tool operations*
- *Automated wafer alignment, cross-sectioning and imaging provide answers quickly and reliably*
- *Defect classification can be updated and transferred to your yield management software*



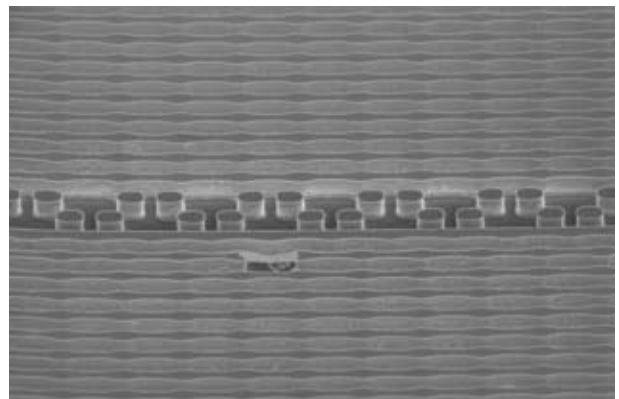
Cross-sectional image shows a buried defect after Copper CMP



A cross-sectional image showing a sidewall defect



A TEM prepared sample is lifted out of a semiconductor wafer allowing the wafer to return to the manufacturing line for further processing



High-resolution tilted SEM image showing a defect after metal etch

### Industry-leading technologies ensure high performance

Bolstered by FEI DualBeam (FIB/SEM) technology, the Defect Analyzer 300HP empowers you to enjoy better control over advanced processes for enhanced yields, reduced time to market and drastically reduced process-development costs. The DualBeam's SEM and focused ion beam (FIB) deliver site-specific cross-sectioning of defects, keeping full lots of wafers intact and eliminating costly time delays. To enhance performance in all phases of cross-sectioning and imaging, the Defect Analyzer 300HP offers fully integrated beam-gas delivery. A wide range of gases optimized for your process protect the face from artifacts, remove material and allow selective surface etching to produce quality cross-sections and reveal significant detail. In addition, three-dimensional capabilities allow you to quickly identify the need to modify process parameters. A task that once required external lab analysis can now be accomplished in-fab, saving you the time previously lost to manual cleaving and polishing procedures. With the Defect Analyzer 300HP, you can evaluate and optimize significantly more process parameters in-fab in a single pass – delivering silicon savings in the millions of dollars during a typical ramp period.

### Increased productivity through automation

The Defect Analyzer 300HP accommodates automation software to deliver root-cause analysis in a fraction of the time required by other techniques. Using programmed recipes for consistent automation of repetitive tasks, Automated Defect Redetection (ADR) and Automated Defect Cross-Sectioning (ADX) ensure maximum tool use with minimal operator intervention. Preprogrammed sequences for milling and imaging processes mean an operator can spend just minutes to set up a job instead of an entire shift. Furthermore, the flexible software allows for easy user customization – recipes can be configured to be process-layer-specific. Automating the collection of critical defect information guarantees consistent data so you can develop yield strategies that work.



### Superior products from a superior supplier

You can invest in your Defect Analyzer 300HP DualBeam system with confidence. FEI technology is based on decades of advanced engineering for pioneering FIB, SEM and DualBeam solutions. FEI is recognized worldwide as the leading innovator in developing three-dimensional metrology and analysis solutions for semiconductor manufacturers. In fact, as the industry's technology leader, we are uniquely positioned to provide you with the highest-quality characterization and analytic data in the shortest time. This leads to faster productivity and higher yields – giving you competitive advantages through reduced cost and shortened time to market. Wherever you are on your technology roadmap, FEI remains committed to helping you get designs right the first time, get to market first and arrive at full production fast.

See more at [www.fei.com](http://www.fei.com).

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