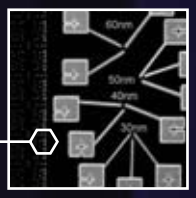
ANY WAY YOU LOOK AT IT,
FEI PROVIDES THE WORLD'S BEST VIEW.

FEI COMPANY™



Circuit Edit Family

Industry-Leading Semiconductor Lab Tools for a Full Range of IC Device Modification and Analysis

The fastest track from design to market

In today's competitive environment, new integrated-circuit (IC) designs must hit their product market windows to maximize impact. The pressure to reduce cycle times is compounded by delays facing the design and test process, such as skyrocketing costs of changing masks, the complexity and expense of chip fabrication and the possibility of design flaws delaying downstream engineering in the cycle. Clearly, the demand to develop more new products with the least amount of time and money calls for design modification tools optimized for productivity. You need to perform circuit modifications in a matter of hours, rather than days or weeks. FEI's Circuit Edit family of focused ion beam (FIB) products offers the highest-performance platforms that ensure you will efficiently meet your circuit-edit product requirements today and into future technology nodes.

Enjoy these key benefits:

- *Versatile, high-throughput FIB workstation for device modification and debug*
- *Complements your existing toolset by extending your range of applications*
- *Precise, high-resolution milling enables quick access to subsurface features on a broad range of materials*
- *Sidewinder ion column has improved high-current performance, improved beam quality and mid-column steering for low-voltage operation*
- *Highly stable stage for exact, site-specific cross-sectioning*
- *Versatile gas chemistries provide speed, precision and control for selective etch and metallic-, insulator- and organic-material deposition*
- *Rapid, artifact-free TEM preparation accelerates time to information*

RIGHT FIRST FAST

Right the first time

First to market

Fast to volume

Applications:

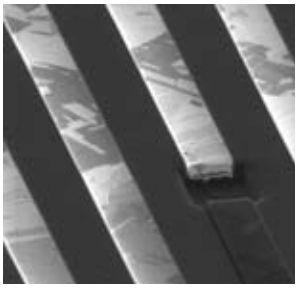
Failure Analysis

- Cross section (Standard)
- Ultra hi-res FIB milling and imaging (Standard)
- CAD navigation (Optional)
- Probe compatible/option (Optional)
- Metal deposition (Optional)
- Metal etch (Optional)
- Dielectric etch (Optional)
- Dielectric deposition (Optional)
- Ultra-low damage TEM sample preparation (Optional)

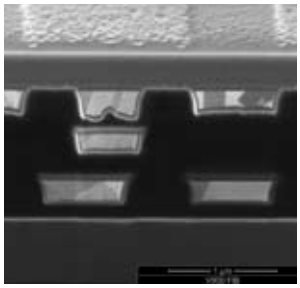
Circuit Edit

- Front-side edits (Standard)
- Back-side edits (Standard)
- Low resistance metal deposition and etch (Optional)
- Infrared optics for navigation (Optional)

Standard
Optional



Perform voltage contrast cuts on copper and aluminum interconnects easily and quickly



Cross section and analyze buried interconnects and structures

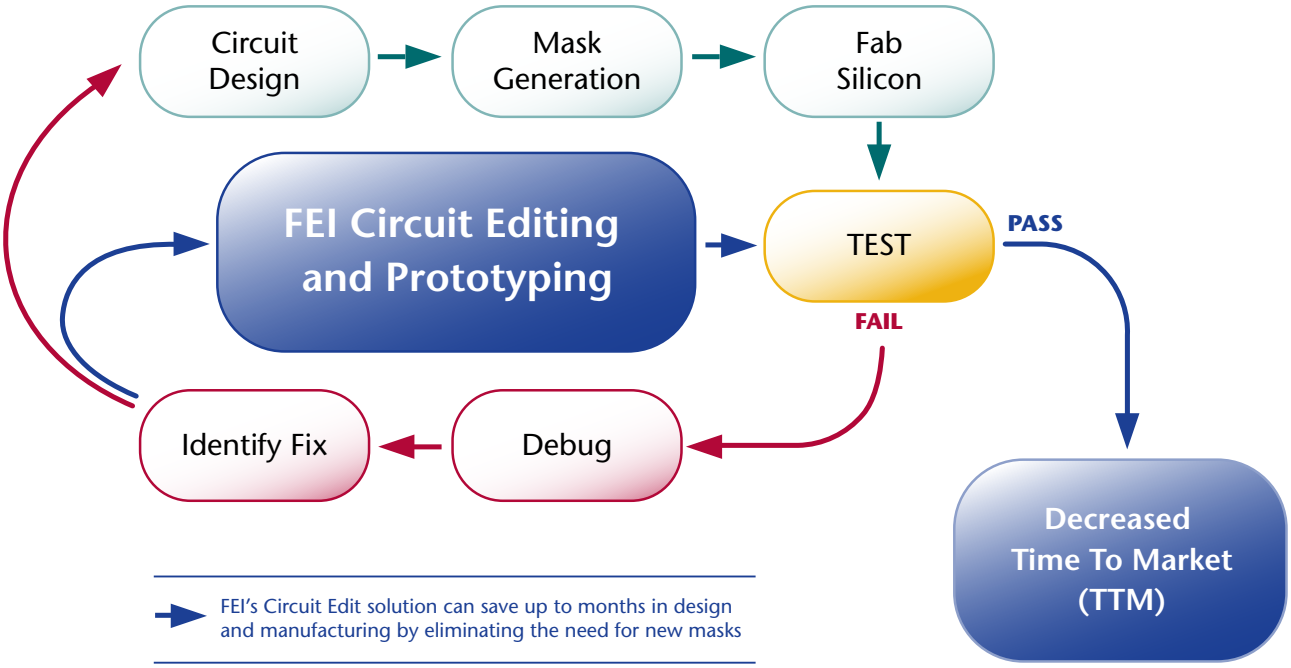
Benefit from FEI's industry-leading core technologies

FEI's high-throughput, versatile Circuit Edit products allow you to implement circuit modifications with maximum success. The proven strength of the Circuit Edit products is fortified by the key technologies at the heart of their subsystems – a robust ion column, gas delivery system, broadband infrared (IR) microscope and proprietary software. These FEI core technologies ensure product development without both the high costs and cycle-time delays that keep you from maximizing yields. Faster circuit-modification turnaround times enable you to perform multiple edits and generate a variety of prototypes, dramatically accelerating designer learning curves and product ramp.

The solution for high-throughput device modification and analysis

The V600 system provides a complete solution for general-purpose edit and debug. Based on the field-proven success of FEI's FIB 200, the V600 surpasses past performance with the flexibility and technology required for the most effective cross-sectioning, imaging and transmission electron microscopy (TEM) sample preparation. The most efficient, flexible and cost-effective device tool available, the V600 is designed for multiple uses with subsequent releases to extend Circuit Edit capabilities. Superior performance, ease of use and reliability make the V600 a very cost-effective, high-throughput circuit-edit and debug solution for modification of prototype integrated circuits.

Value of Circuit Edit – Design and Test Cycle



Advantages of the V600 system:

- *Versatile, high-throughput FIB workstation for device modification and debug*
- *Sidewinder ion column has improved performance over competing columns with its:*
  - *Vertically positioned and optimized working distance for high resolution imaging*
  - *High current operation for rapid material removal and increased sample throughput*
  - *Improved beam profile and quality for precise, high-resolution milling and quick access to subsurface features on a broad range of materials*
  - *Mid-column steering for low-voltage operation that minimizes damage in TEM sample lamellas*
- *Choice of gas chemistries and delivery systems provide speed, precision and control for:*
  - *Selective etch of dielectrics (including low-K)*
  - *Multiple metal depositions*
  - *Multiple metal etchants*
  - *Improved IDEP insulator performance*
- *Highly stable five-axis tilt stage for exact, site-specific cross-sectioning navigation*
  - *Accommodates a wide range of samples from packaged parts to full 200 mm wafers*
- *Industry recognized Windows®-based operating system*
  - *Field proven xT-application specific software*
  - *Seamless integration with Knights™ Camelot CAD software*

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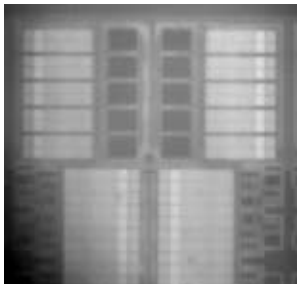
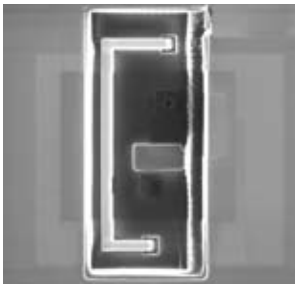


View circuitry though silicon side of the device with high resolution infrared (IR) subsystem



Implement design modifications from the silicon back side to optimize product performance

The pioneer in 65 nm Circuit Edit

VectraVision™ offers a custom system that gives you the advanced editing features you need to produce complex circuit prototypes quickly and keep product schedules on track. The most advanced circuit edit solution, VectraVision is designed to enable circuit modification capability for sub-90 nm or flip-chip devices.

Features of VectraVision include:

- *50 kV Vision column offers the best performance for high aspect ratio milling*
- *Laser interferometer stage for highly accurate sample navigation*
- *The most versatile gas delivery system on the market*

  Dual nozzle based gas delivery system for uniform milling

  Patented coaxial nozzle for fastest silicon removal
- *High-resolution IR Microscope for imaging through silicon navigation*

Superior solutions from a superior supplier

As technology continues to advance and geometries continue to shrink, FEI maintains its position as the industry leader in advanced FIB solutions. It's a legacy that enables FEI to provide you with the highest-quality defect modification throughput and analysis in the shortest amount of time. FEI remains the only company offering the complete suite of lab tools necessary to address all of the integrated-circuit needs linking fabs to the semiconductor lab. Now and in the future, you can count on FEI to provide the most innovative solutions available to ensure fast and effective circuit modifications with maximum yield. The performance advantages you receive from products such as the Circuit Edit family secure long-life solutions that are extensible through the next several technology nodes, ensuring your technology investment is safe and secure. 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**.

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