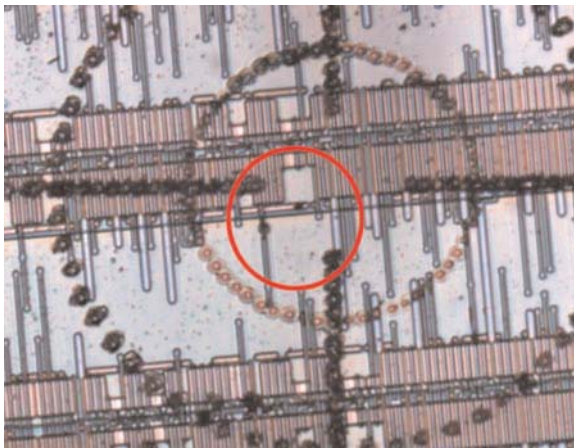
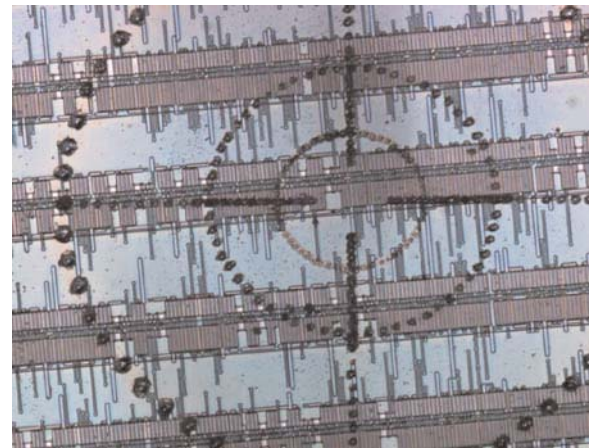




Integrated Circuits



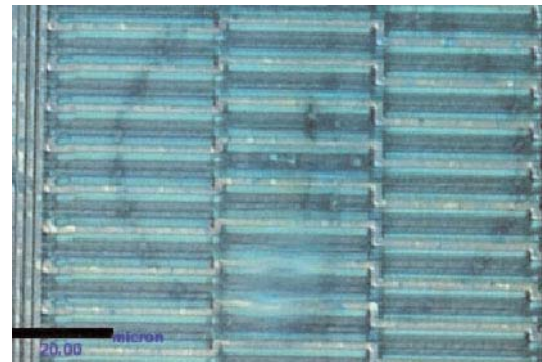
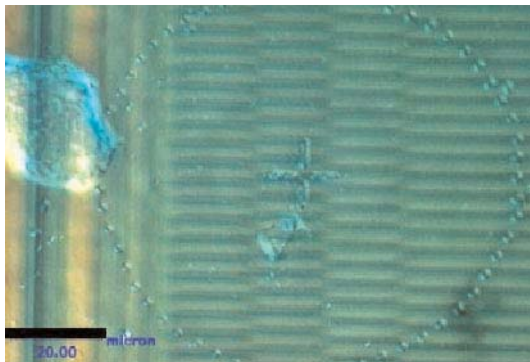
The MicroPoint laser was used to cut and isolate two lines within the red circle



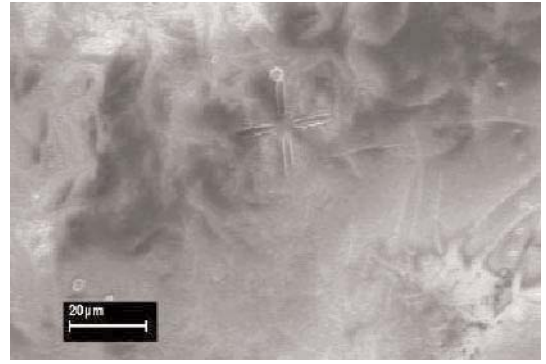
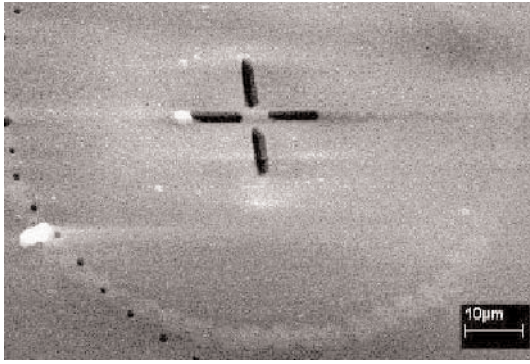
The isolated lines are then marked to facilitate easy navigation on E-beams and FIB's, etc.

Navigation marks and or patterns can be made on top or intermediate levels or on the substrate. This important feature adds another dimension to navigation. It is also a benefit when polishing cross-sections.

Imaging of Laser Navigation Marks In E-Beam Devices



A major difficulty of E-beam device imaging is locating structures hidden beneath surface layers. Using the Micropoint diffraction limited laser system combined with an optical microscope, permits marking of both surface and subsurface features. Using the optical microscope, it is possible to select the focus plane and place a mark on the level containing the structures of interest, then focus on the top surface and placing marks without changing the lateral (X,Y) position of the sample. This process was performed on a memory device with a 1.5um thick passivation layer, using a Zeiss Axiotech microscope, with 100x/0.75 objective. The image on the left shows the marks on the passivation top surface, and the right image shows the marks on the bottom surface, both images in DIC mode.



The same device was placed into a LEO Gemini scanning electron microscope. The corresponding surface position was then located within 1 minute of vacuum pump-down, and imaged as shown in the two pictures above. The image to the left shows the surface marks which allowed the quick feature positioning. The image to the right shows the lower surface of the passivation layer, with many artifacts caused by electron scattering within the passivation. Without the use of Micropoint laser marking system, it would have been much more time consuming to locate the corresponding surface position of the memory cells and almost impossible to locate subsurface positions. This optical marking technique allows for greatly improved E-beam system throughput and efficiency, and can be installed on almost any optical microscope. Our thanks to the LEO electron microscope company for their kind assistance .

All information herein contained is for general technical reference only. The manufacturer and resellers accept no liability for information content and welcome comments regarding any technical details.