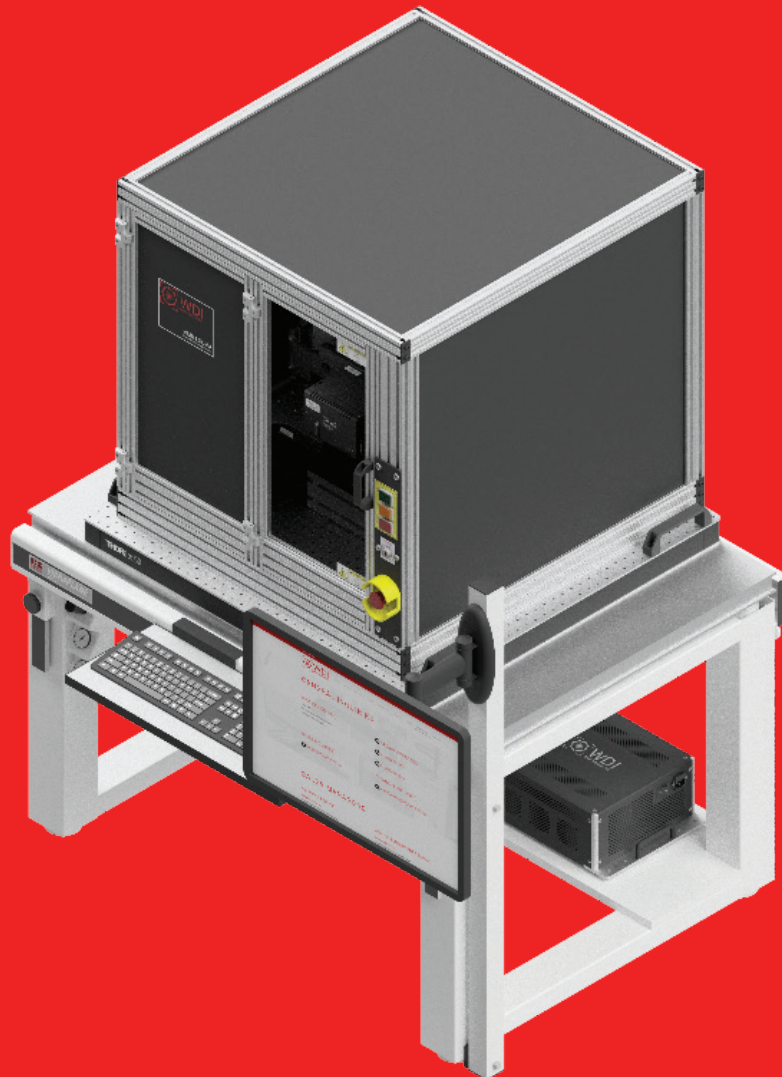


LSCM

Laser Scanning Confocal Microscope System

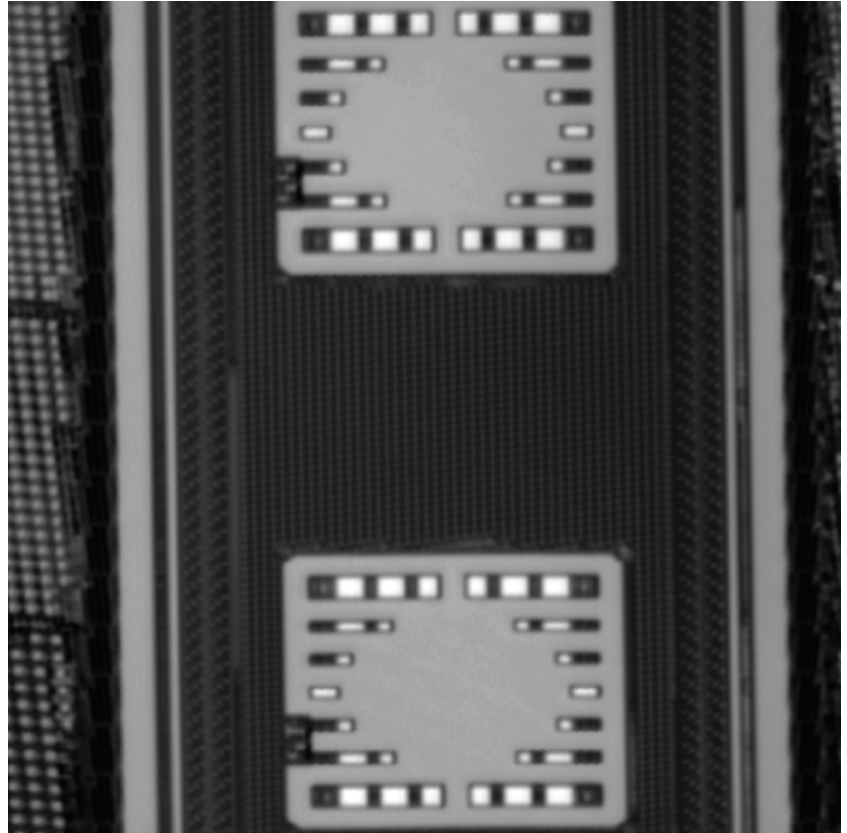


is a world leader in the design, manufacture and integration of OEM and complete microscopy automation solutions for the biomedical, metrology, electronics, semiconductor, and flat panel display markets.

IR CONFOCAL MICROSCOPY

WDI's Laser Scanning Confocal Microscope Systems (LSCM) employ a near-infrared (NIR) laser, specialized infrared optics, and confocal imaging technology to create the perfect nondestructive, easy to use semiconductor subsurface imaging tool. The technique has several advantages over conventional widefield infrared microscopy systems including:

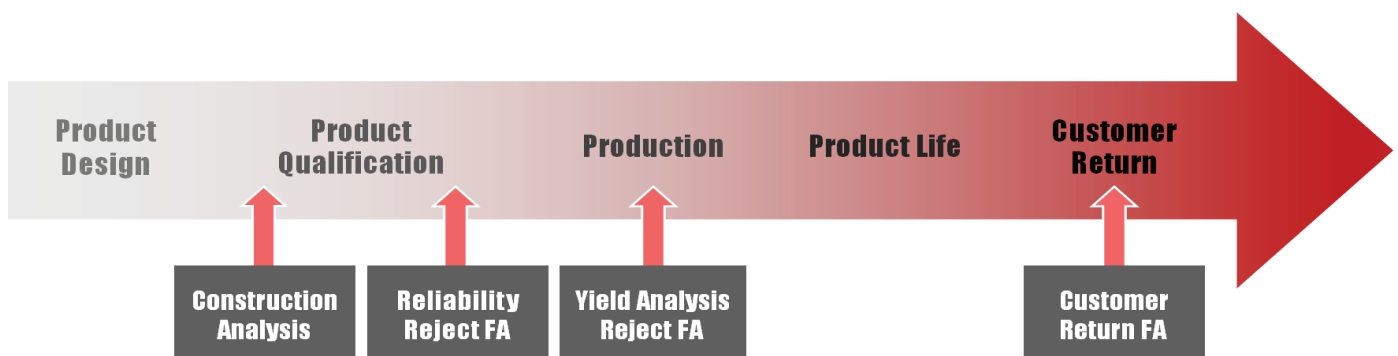
- The ability to acquire clear, high-resolution images from deep within Si and similar materials
- Deeper and clearer imaging through both n-doped and p-doped substrates
- Improved XY spatial resolution and near diffraction limited performance
- Faster image acquisition



Doped silicon device image at 50X magnification 400 μm depth

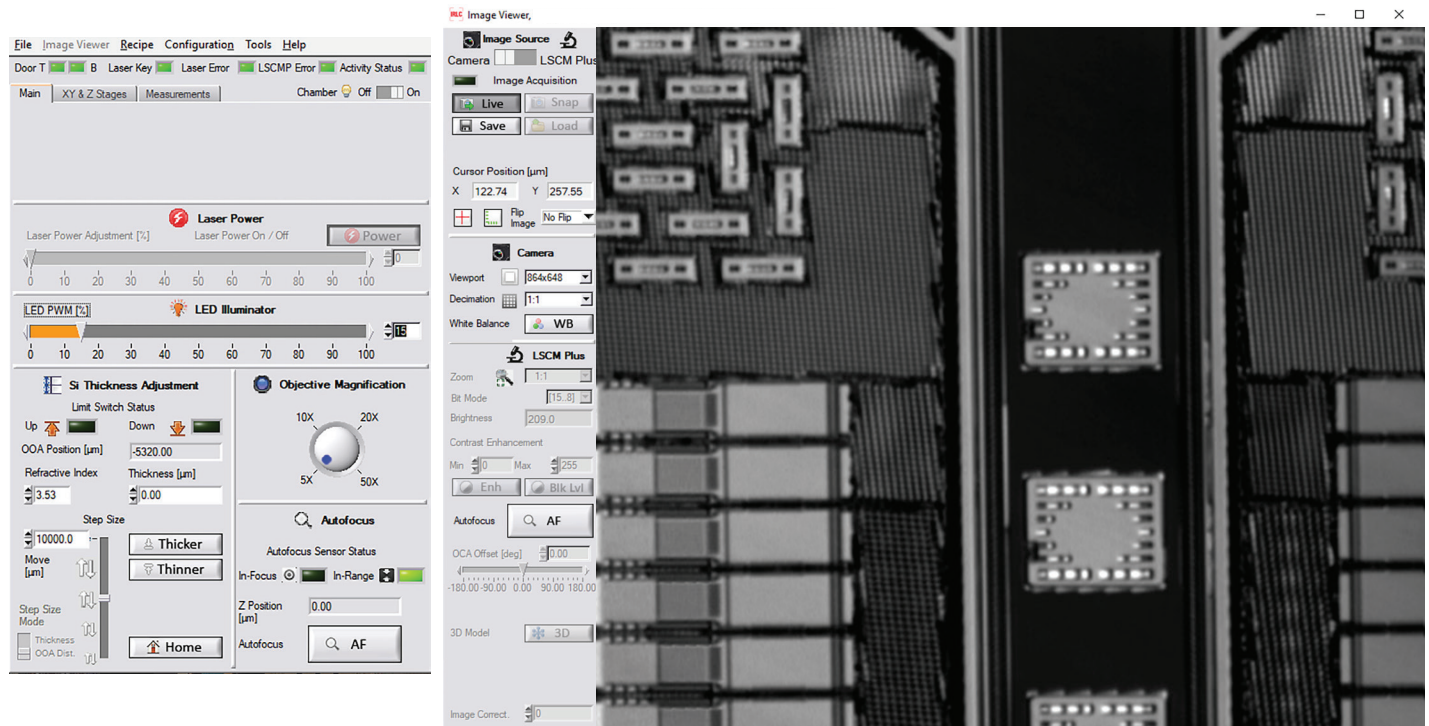
NIR INSPECTION FOR FAILURE ANALYSIS

NIR confocal microscopy is ideally suited for use at various points within the failure analysis (FA) workflow because it is non-destructive and allows inspection of both Silicon bulk integrity and active level/layer areas. The imaging technique has been applied to Flip Chip, Wafer Level Chip Scale Packaging, and doped devices and wafers. Other applications include integrity inspection after bonding, sacrificial oxide layer inspection after etching, inspection for chipping and cracks after grinding or dicing, and inspecting System in Package, 3D mounting, or Chip Scale Packages.

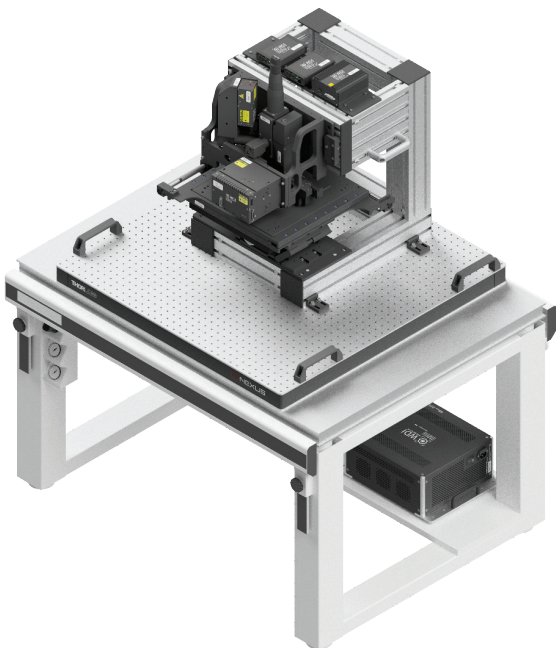


INTUITIVE SOFTWARE

All systems feature powerful yet intuitive software permitting efficient image collection. Operation of the system, including system adjustments for illumination, magnification, XYZ stage position, and focus offset, are straight forward. The software also features advanced image acquisition options, such as maximum Z projection, image stacking and image sequences. Data can be easily exported to popular imaging processing software such as ImageJ and Matlab.



LSCM MICROSCOPE SYSTEM



Now in its 3rd generation, WDI's LSCM Laser Scanning Confocal Microscope System features a powerful combination galvo & resonance scanner and automation of key components:

- Galvo/Resonance Laser Confocal Scanner
- 1155nm 500mW Laser
- Manual ND Filter selection
- 1/4 Wave Plate Contrast Adjustment
- Manual Z Jack for course focus
- Motorized ZAA fine focus
- PFA-LN Autofocus + Optical Offset Adjuster
- Motorized Objective Turret
- 5X, 10X, 20X, 50X IR Objectives (100X Optional)
- Motorized XY 200mm Linear Stage
- WLED & CMOS Camera for Brightfield
- Laser Safety Acoustic Enclosure
- Extruded Aluminum Base and Risers
- Active Anti Vibration Isolation Table (Optional)
- Widefield SWIR (Optional)

SYSTEM SPECIFICATIONS

General System	System Laser Class	Class I (Laser Safety Enclosure)	
	Observation Methods	NIR Laser Scanning Confocal & Conventional Bright Field	
	Electrical	3 Separate AC Outlets, 100-240V, 50/60 Hz, Single Phase	
	Current	13.0 A Total System	
	Operating Temperature	10°C to 30°C Ambient	
	Operating Humidity	10% to 70% Non-Condensing	
	Weight	200 kg	
Motorized Objective Turret	Objective Capacity	6 RMS Thread	
	Objective Change Time	1 Second Adjacent Objective	
Structure	Base & Risers	Breadboard & Extruded Aluminum	
	Anti Vibration Table	Welded Steel (Optional)	
Manual Z Jack	Travel	25 mm	
Motorized Z Actuator	Type	Stepper	
	Travel	10 mm	
	Resolution	0.040 μm	
	Maximum Speed	10 mm/sec	
Motorized XY Stage	Type	Linear Encoded	
	Travel	200 mm X 200 mm	
	Repeatability	0.1 μm	
	Accuracy	0.5% Full Travel	
	Resolution	0.1 μm	
Imaging	Type	1/2.5" 5MP CMOS	Confocal Detector
	Illumination	1 Amp White LED	Single Mode 500 mW 1155 nm
	Resolution	2590 X 1942	512 X 512
	Frame Rate	14 FPS	Up to 30 FPS
	Bit Depth	10 Bits	14 Bits
	Pixel Size	2.2 μm X 2.2 μm	9.8 μm X 9.8* μm

*Virtual Pixel size based on 1 mm X 1mm FOV with 5X objective, can be adjusted

OBJECTIVE SPECIFICATIONS

Category	5X	10X	20X	50X	100X (Optional)
Numerical Aperture	0.1	0.3	0.45	0.65	0.85
Working Distance	23 mm	18 mm	8.3 mm	4.5 mm	1.2 mm
Resolution @ 1155 nm	7.05 μm	2.35 μm	1.57 μm	1.08 μm	0.83 μm
Correction Collar	No	No	Yes	Yes	Yes
Thickness Correction			0 to 1.2 mm	0 to 1.2 mm	0 to 0.7 mm



WDI is a world leader in the design, manufacture, and integration of OEM and complete microscopy automation solutions for the biomedical, metrology, electronics, semiconductor, and flat panel display markets. WDI's success lies in an innovative culture and ability to optimize and adapt our technology to customers' specific requirements by listening to their needs and gaining a deep understanding of their processes, applications and goals. WDI employs over 70 optical, electrical, mechanical and software engineers, as well as scientists, who are dedicated to servicing our customers. Contact WDI today to see how we can help solve your microscopy automation needs.



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