

# Non-Contact Nano-depth 3D Surface Profiler

CARMAR TECHNOLOGY CO., LTD.

## ■ Scanning White-light Interferometric Microscope SWIM Series

### ■ Applications

The SUPRA Optix is the latest development in the field of Scanning White-light Interferometry. With the features of compact, flexible design, high speed, user-friendly, 3D measurement and up to 400 $\mu$ m vertical scanning range with nanometer resolution, the SUPRA Optix supports new applications in quantitative surface analysis:

- Wafer
- MEMS Structures
- LCD/CF Micro-structures
- High Density Connected PCB
- IC Package

and many other applications in materials and surface research.



SWIM 1510MS

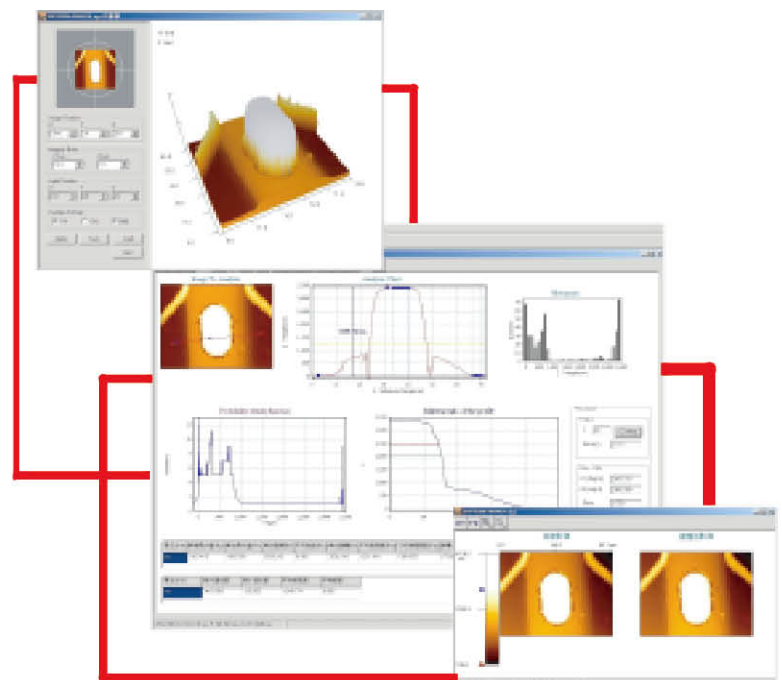
## ■ High-speed Scanning and Processing Software ( ImgScan )

- ImgScan integrated with scanning hardware interpret the interference fringes.
- Innovative patented analysis software with vertical resolution up to 0.1nm.
- High-speed scanning design and algorithm.
- Easily selecting vertical scanning range.
- Optional 10X, 20X and 50X interferometric objective lense.
- Easy sample positioning by on-screen digital XYZ coordinates display.
- Manual/Automatic light intensity adjustment for optimal interfering fringe contrast.
- High precision PVSI mode and high speed VXI mode are selectable.
- Patented algorithm are developed to analyze half-transparent sample.
- Automatic patching.
- User selectable scanning directions.

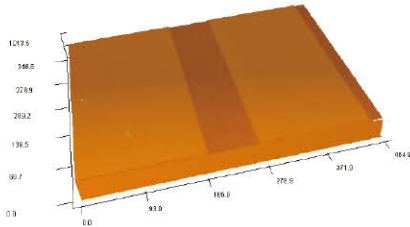


## ■ Professional 3D Graphic Analysis Software ( PostTopo )

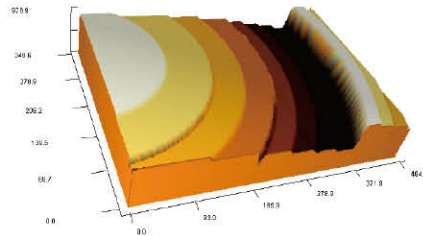
- Powerful and user-friendly 3D graphic analysis software
- Automatic surface leveling.
- Self-calibration function by step-height standards.
- Supporting depth/height analysis by line or local area.
- Line analysis results on surface roughness, waviness and step height are traced to ISO definition. The 17 ISO-defined parameters and 4 extra parameters are supported.
- Local area analysis supports graphic, statistics, and 2D-FFT analysis tool boxes. The 2D-FFT analysis includes smoothing, sharpening and many kinds of digital filtering.
- Measurement results can be files with different graphic formats or Excel files.



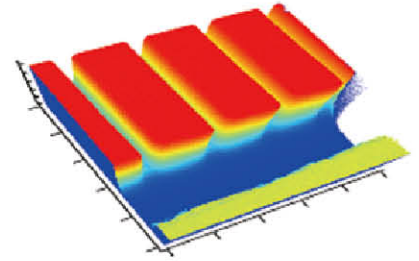
■ Inspection examples



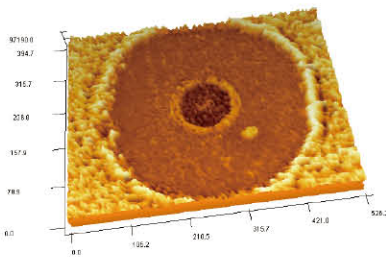
**Step-Height Standards**  
(Depth: 28 nm)



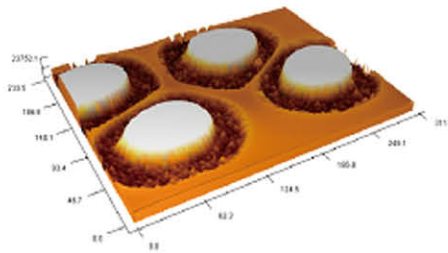
**Fresnel Diffractive Micro-lens**  
(Height: 452 nm)



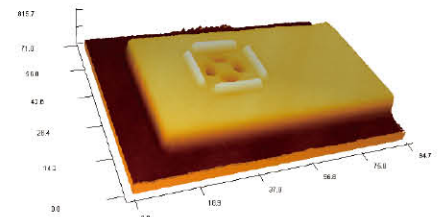
**Optical Wave-guide**  
(Height: 38 μm)



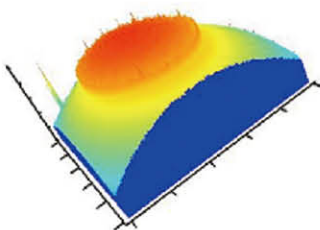
**Laser Drilling on PCB**  
(Depth: 30 μm)



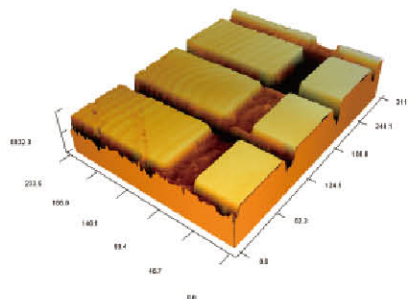
**LCD Back-light Plate**  
(Height: 12 μm)



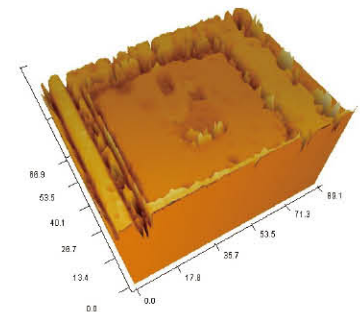
**Overlay Mark on Wafer**  
(Height: 1 μm)



**Optical Fiber in Ceramic Ferrule**



**RGB Layer on LCD Color Filter**



**IC Chip Bumper**

■ **Specifications** ( Motorized stage and Auto-focus module are optional )

Model		SWIM 1510MS		
Objectives Magnification		10X	20X	50X
Field of View (Length X Width) Unit: mm	Standard	0.43 X 0.32	0.21 X 0.16	0.088 X 0.066
	Enhanced	1.67 X 1.33	0.84 X 0.67	0.34 X 0.27
Optical resolution (μm)		1.12	0.84	0.61
Working distance(mm)		7.4	4.7	3.4
Optical system		Scanning White-light Microscope System		
Height measurement	Scanning Range	100 μm ( 400 μm, optional)		
	Resolution	0.1 nm		
	Repeatability (σ)	≤ 0.1 % ( Range : > 10 μm) ≤ 10 nm ( Range : > 1 μm~ 10 μm) ≤ 5 nm ( Range : <1μm)		
	Control mode	Auto		
	Scanning speed( μm/s)	12 (Max.)		
Light source	Type	Halgon		
	Life	1000 hours		
	Light intensity adjustment	Auto / Manual		
Imaging Unit	Image sensor	High speed CCD Camera		
	Resolution	Standard	640 x 480 pixels	
		Enhanced	1280 x 1024 pixels	
Sample stage	Stage	Travel	150 mm x 100 mm, Manual	
		Load	> 10 kg	
	Travel range of Z axis	80 mm , Manual		
	Displacement Display	3-axis linear encoder (resolution 1μm)		
	Tilt adjustment stage	Manual		
	Base	Granite		
Data processing Computer	CPU	Intel CPU		
	Display Unit	17" LCD Monitor		
	Data storage device	160 GB Hard driver		
	Operation system	WindowsXP <sup>(2)</sup>		
Power	AC110V / 220V , 50Hz / 60Hz			
Weight	~150 kg (Including granite base)			
Analysis software	Windows XP Compatible			
Step Height Standard (Optional)	50 nm~ 150 mm			
Dimensions (mm)	570 x 606 x 881			

■ Windows XP is the trademark of microsoft in U.S.A.