

WAFERLINE TEST

WLT1200 PIC / WLT2000 PIC



Flexible mixed-signal electro-optical wafer-level test systems for integrated photonic devices (PICs) and other components. Fully automated DC, RF and optical probing measurements for on-wafer devices, and also at die-level for devices on Gel-Pak and similar carrier formats.



Key features

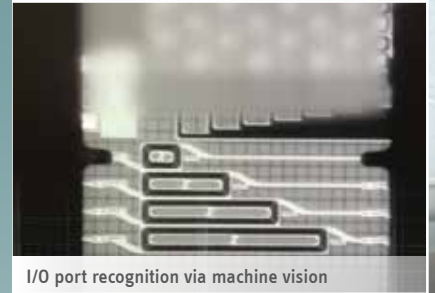
- ✓ State-of-the-art combined, mixed-signal electro-optical probing
- ✓ Fast, high-precision alignment of single/multiple optical I/O ports
- ✓ Flexible e/o probe configuration for R&D through to volume testing
- ✓ Tried-&-tested on diverse material systems, compatible with SiPh, InP, etc.

Fully automated wafer-level device test

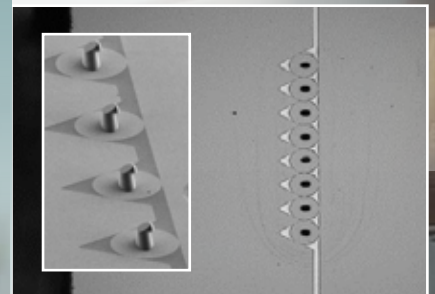
ficonteC's new WAFERLINE TEST for PICs product line is specially designed as a versatile, fully automatic test-&-measurement system platform for wafer-level device test. These systems provide fully automated test and cataloging capability for all devices on a wafer.

R&D proof-of-concept device test: State-of-the-art, low-volume multi-channel electro-optical I/O test of on-wafer waveguides and PICs. Custom 3D-printed fiber tips support all optical coupling mechanisms and ensure low-loss performance. Flexible electrical and optical probe configuration even caters to all PICs on an MPW (multi-project wafer).

Volume-capable wafer-level and device-level test: Complete, fully automated test for identical devices on a wafer, or on any standard carrier format such as Gel-Pak. Built-in device cataloging and traceability routines enable yield and performance data across entire wafers, resulting in extremely valuable and previously unattainable feedback for the wafer fabs.



I/O port recognition via machine vision



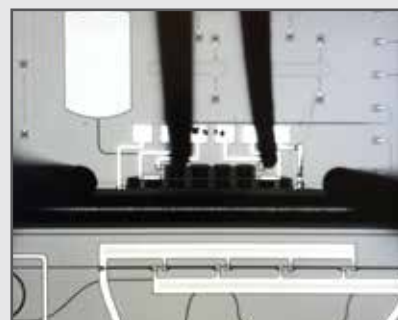
3D-printed fiber probe tips for edge-coupling

Multi-channel optical I/O coupling to on-wafer devices

Software Control

PROCESS CONTROL MASTER (PCM) is our process-oriented software control interface that is shipped with all turn-key stand-alone systems and multiple machine configurations. PCM features an intuitive UI that includes all machine vision, positioning and system management routines required to reliably drive test process hardware.

PCM comes fully enabled for automated mixed-signal electro-optical test-&-qualify tasks, including machine vision I/O port recognition and probe alignment. ML-based monitoring of single cell or production line performance data provides a path to reducing unscheduled downtime.



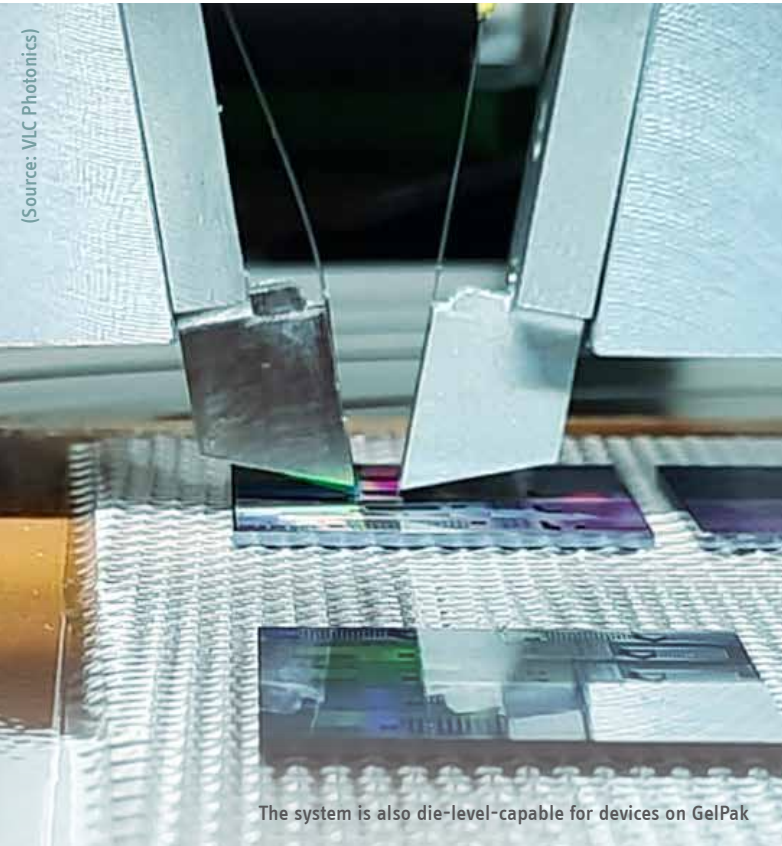
Machine vision referencing for electrical and optical probes

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(Source: VLC Photonics)



The system is also die-level-capable for devices on GelPak

Performance capabilities

- Automated chip and I/O port referencing (sub- μm accuracy)
- Fiber alignment to vertical/edge-coupled I/O ports (max. 4s)
- Low-loss I/O port coupling (0.1 - 0.4 dB repeatability)
- Superior test data acquisition vs. manual alignment
- Unsurpassed PIC test data as feedback to wafer fabs

PXI-capable

Compatible with PXI-based e/o instrumentation modules and leveraging NI's LabVIEW™. Integration with PCM is seamless, enabling sophisticated e/o test solutions to match individual requirements. Non-LabVIEW and alternative instrumentation environments are also compatible.

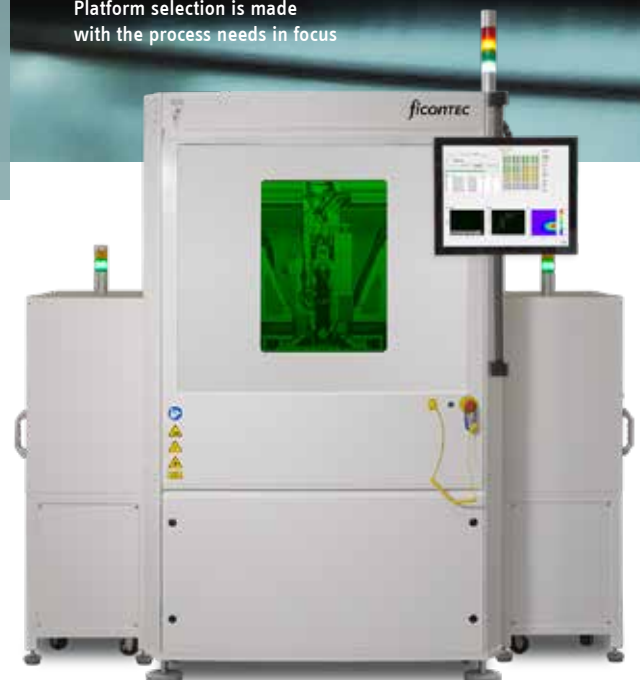
General tasks & applications

- Rapid automated test-&-qualify for passive/active devices
- R&D proof-of-concept and low-complexity volume e/o test
- MPW-capable through flexible probe configuration
- Extendable to high-complexity co-packaged optics applications
- Applications for telecom/datacom, lidar, IoT and consumer

Platform: Flexible, modular & (re-)configurable

- Platform choice adaptable to future needs
- State-of-the-art wafer and carrier handling options
- Performance Services options for ML-based operation
- Operate, monitor and sync parallel lines remotely
- Add and/or swap modules to re-configure & re-purpose

Platform selection is made with the process needs in focus



MANUFACTURING MADE LIGHT

Solutions for integrated photonics. Built to scale.

ficonteC is the global market leader for automated assembly and test systems for modern opto-electronics and integrated photonic devices. Considerable process capability has been developed in serving the needs of a broad selection of applications, including telecom/datacom and 5G, sensor and lidar, healthcare, IoT and mobility, high-power laser diodes, and many more.

A unique and modular approach to production equipment design means that each system delivered is the automated and optimized embodiment of a customer-defined process.

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Core system specifications	 WLT1200 PIC	 WLT2000 PIC
Motion system	gantry system with minimum 6-axis high-precision alignment* or cantilever system w/o multi-axis system	cantilever system with minimum 6-axis high-precision alignment*
Handling options	single or dual conveyor	
Wafer capable	up to 12" temperature-controlled chuck	
Feed options	compatible with flexible wafer-feed systems	
Machine Vision	standard/dual positioning and observation camera options integrated device and I/O port referencing	
Software features	eflexible and powerful process programming extended operator-less control Windows 10 based	
Physical features	rugged steel-base production cell	
Minimum connections	120 VAC (or country specific) air/vacuum 100 Mbit/s network	
Cleanroom compliance	ISO 6**	
Dimensions (w x b x h, mm)	1200 x 1200 x 1600/2000	1800 x 1200 x 1600/2000
Weight (typ., kg)	1800	2500

* alternative multi-axis configurations optional ** others available on request

WAFERLINE TEST mixed-signal electro-optical test systems are suitable for volume testing of on-wafer or on-carrier photonic-enabled devices. Multiple systems can be remotely controlled and operated in parallel and in sync. Custom systems, special purpose cells and robotic systems can be flexibly incorporated to suit customer requirements.