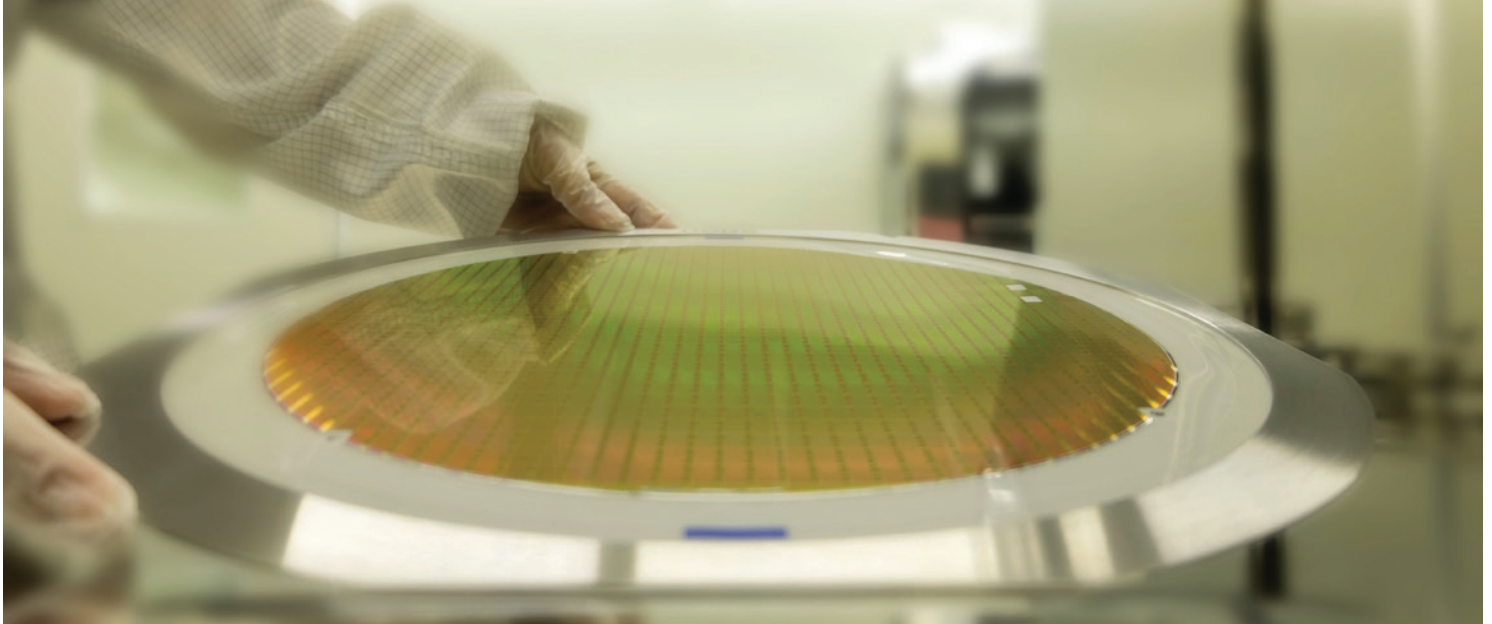


High speed SEM-based defect review systems



The need for reliable data links

SEM based semiconductor defect review system integrators are faced with the challenge of integrating sensors that have high resolution and high frame rates. Moreover, new intelligent machines with real-time adaptive process that enable more accurate defect classification also rely on faster and better data transfer.

This means that these advanced systems have to transfer more data from the sensor to their computer. They also need a really reliable data link that will not introduce noise. For data integrity, link reliability, and error-free data transfer at rates superior to 10 Gbps, optical link becomes the only viable solution.



Description of the application

The chipmakers defect review challenges are growing as processes move to smaller and smaller node technology like 10 nm and 7 nm.

The ability to discriminate killer defect from viable defect rely more and more on high-end imaging techniques. The sensor resolution and capture speed must increase at the same time to improve the machine throughput and keep capturing the smallest defect efficiently.

Why choose Reflex Photonics optical transceivers

Reflex Photonics transceivers enable large amount of critical data to be moved from point A to point B in any industrial data intensive process. Our *LightVISION VM* embedded parallel optics can be operated at up to 120 Gbps and are tested to give BER under E^{-12} over the commercial grade temperature range (0 °C to 85 °C). These components ensure that data transfer will never be the bottle neck for complex real-time defect classification procedures.

The *LightVISION VM* embedded transceivers are used to transfer up to 120 Gbps from SEM defect review system sensor to the system microcontroller or computer. In addition, these embedded transceivers offer maximum flexibility in terms of board mounting options and facilitate board design.

Reflex Photonics embedded transceivers have a strong track record with SEM-based wafer defect review system OEM.

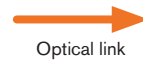
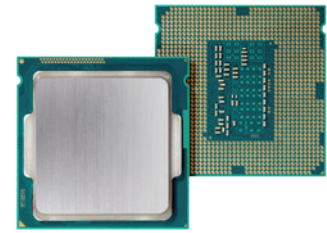
High-speed camera



LightVISION



Multicore processor



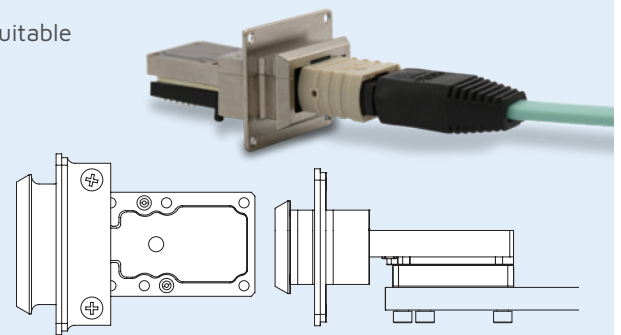
Closing the loop

A lot of reliable data is good, but more significant data is better. Intelligent machine in the industry 4.0 era also tend to introduce feedback loop to integrate adaptive process to increase the quality of the defect capture in real time.

Our optical transceivers can also be used on the control path where they can enable sending tons of control data to help complex process being adapted in real time.

Benefits of using the industrial *LightVISION VM*

- Robust screw-in board-mounted optical module with reduced footprint suitable for harsh environment
- Bandwidth from 20G (2 TX or 2 RX lane) to 120G (12 TX or 12 RX lane)
- Performance of up to 10.3125 Gbps/channel
- Lightweight and easy to integrate optical cable
- Standard MPO parallel fiber connector
- Multimode 850 nm wavelength laser
- Flexible height adjustable with LGA interposer
- Rugged RoHS electrical interface
- Low power consumption: <100 mW per channel



Real size for *LightVISION VM* with *LightSNAP* interface.