Translating process images into significant tool-defect reduction

Real-time, tool-specific defectivity data

Now there is a way to monitor defectivity on individual processing tools – automatically – in real-time. Microtronic's new *Trans-Imager* software module is able to take high-resolution images directly from your processing equipment and immediately detect and display macro wafer defects – transferring all of that information into our powerful and long-proven ProcessGuard software which provides a wealth of defect management and analysis. This new capability is called *ProcessGuard Xtensis* (PGX) because it extends the power of ProcessGuard software to fab tools that previously had no way to detect defects. This provides an important new stream of defect data.

Now, monitor specific tools in your fab

Perhaps you have a process of particular interest. The Trans-Imager can be linked to a number of different types of processing equipment, such as bonders, etchers, metal deposition, CMP, and more. Some of these tools may already have internal process cameras; but if yours does not, Microtronic can install a high-resolution camera and link it to the Trans-Imager.

In addition to processing equipment, the Trans-Imager can also receive images from SEMs and optical microscopes, making it easy to organize, file, store, and retrieve microscope images (which has not been possible before).
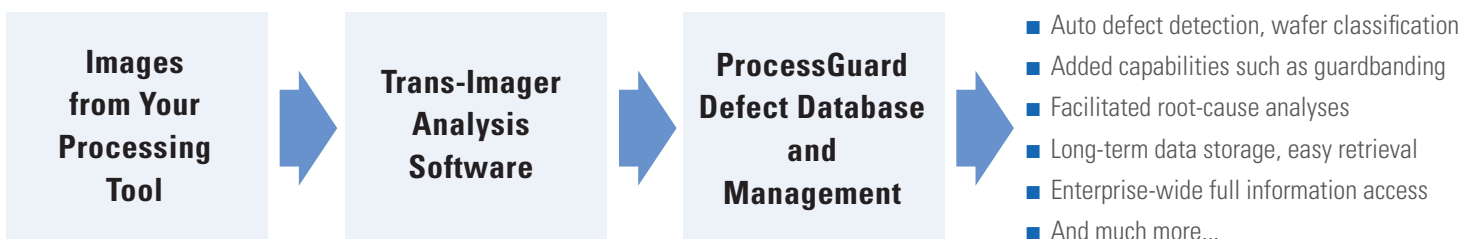
Correct problems quickly

With real-time defect detection, you can spot excursions immediately and take corrective actions more quickly, which will minimize scrap and maximize yield. Getting defect information earlier in the processing steps can also allow you to enhance device reliability by applying "guardbanding" around selected defect areas, to make sure that potentially marginal die do not reach the customer.
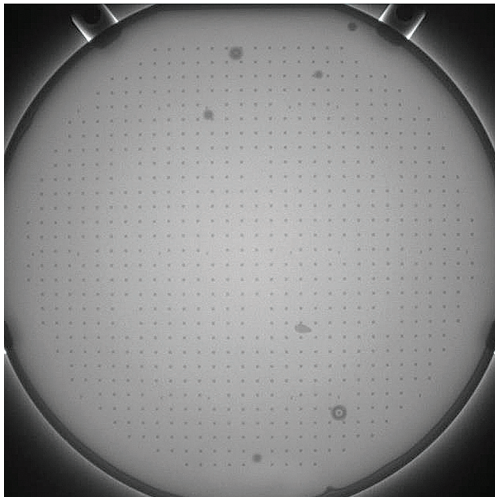
A powerful defect management system

Trans-Imager puts all of your information into the macro-image database, and ProcessGuard software makes it immediately accessible across the entire fab. Tool defect data is searchable by date, time, lot, wafer, and more. So, even months later, specific process issues can be quickly and easily reviewed.

ProcessGuard is a high-speed, high-volume solution that delivers an easy-to-use and extendable means of integrating and managing all of your fab's inspection processes. It provides the flexibility to customize the user interface and application features to your needs. It includes a user-definable defect library, a slot-positional analysis tool, the ability to guardband wafers at probe, and a great deal more.
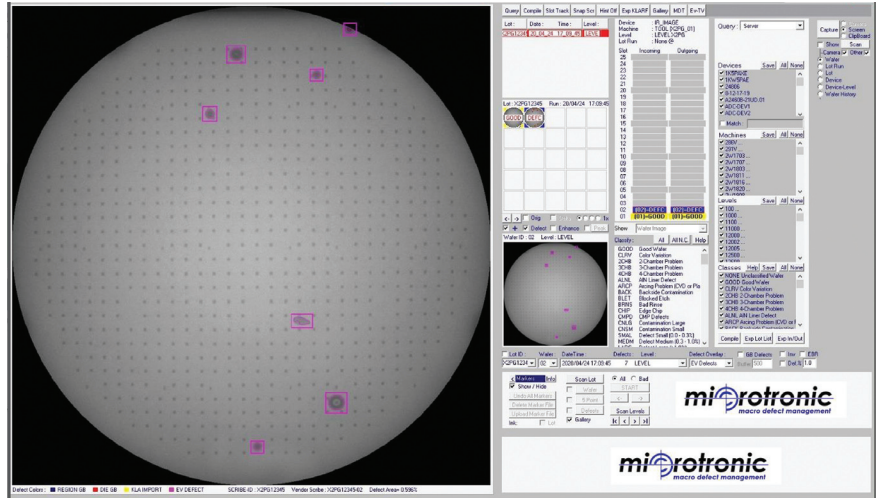
Now, all the capability and intelligence of ProcessGuard can be applied directly to specific processes in your fab.

| Images from Your Processing Tool | → | Trans-Imager Analysis Software | → | ProcessGuard Defect Database and Management | → | ■ Auto defect detection, wafer classification
■ Added capabilities such as guardbanding
■ Facilitated root-cause analyses
■ Long-term data storage, easy retrieval
■ Enterprise-wide full information access
■ And much more… |

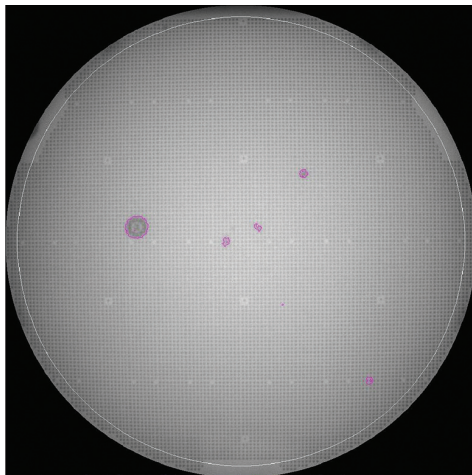**microtronic**
macro defect management
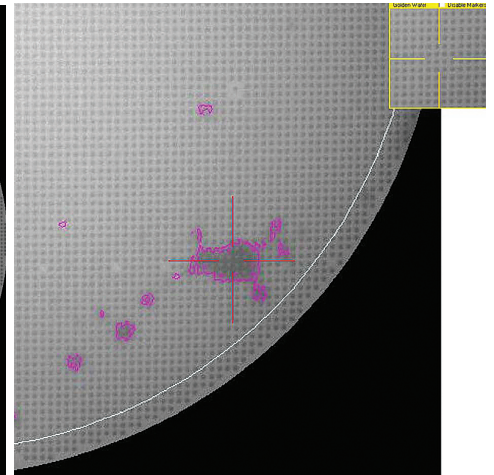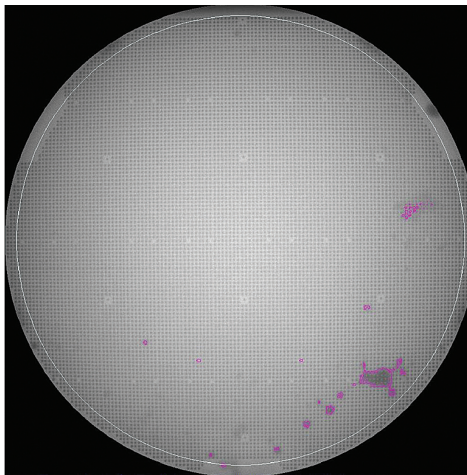
Wafer Bonder examples

Raw IR image from a wafer bonder

Defects automatically detected by Trans-Imager and automatically loaded into ProcessGuard. The ProcessGuard operator interface is shown above.

Automatically-detected defects on two wafers from a bonder process.

Zoomed-in view of defects

Start monitoring <u>your</u> fab tools

Microtronic is installing Trans-Imager automatic real-time defect detection capabilities on processing equipment currently residing in fabs, and we are also working directly with equipment manufacturers who wish to offer these capabilities as an option on their new systems. If you are interested, please contact us for further details.

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macro defect management