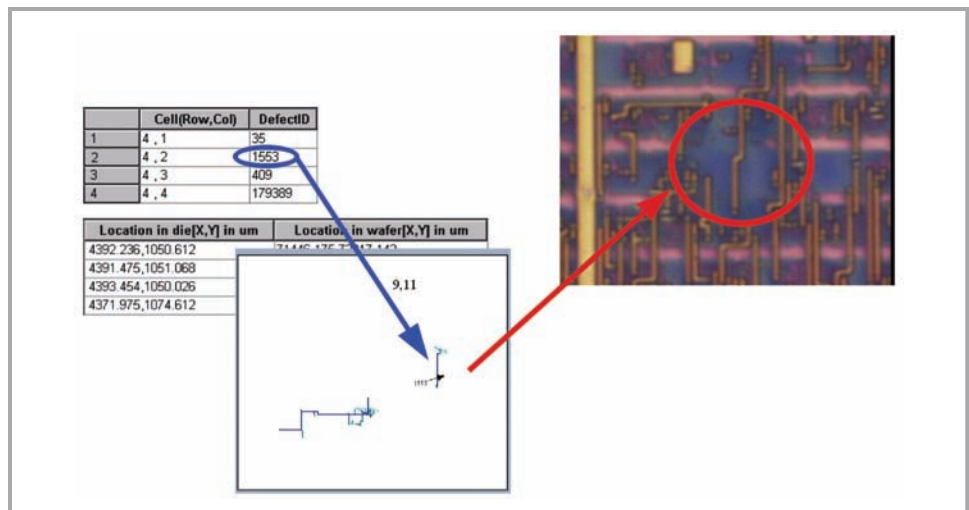


# Knights LogicMap<sup>®</sup>

- Promotes true design for manufacturability.
- Identifies the suspect process step with a high level of confidence using inline defect data.
- Drastically lowers the need for physical failure analysis.
- Helps optimize inline inspection recipes.
- Provides defect pareto and kill ratio charts with meaningful amounts of data.
- Maximizes the efficient use of expensive tool and engineering resources.

Knights LogicMap is the industry's first commercially available software solution for correlating inline defects with failed nets in a logic device. LogicMap performs similar to memory bitmapping, but is tailored for logic devices. Electrical failures are localized into a relatively small physical trace on the die. Due to the complex nature of logic devices and available data streams, no external solution has been available, only homegrown customer solutions requiring a great deal of software development, infrastructure and support.

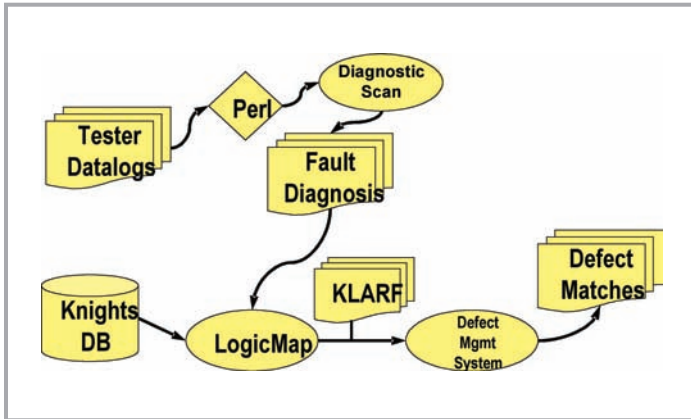


Defects with product-correlated hits can be exported back to the Knights Camelot<sup>™</sup> software for FIB navigation and de-processing.

Failure analysis (FA) engineers using homegrown solutions also find it very difficult to convert logical failed nets to physical failed nets in a format where inline physical defect data with physical XY coordinates will accurately correlate. In addition, it is very difficult to tie the correlation of automated drivers to FA tools for validation and analysis and then output results in industry standard KLARF format for additional analysis.

LogicMap data offers tremendous improvement for yield enhancement and FA lab engineering analysis, drastically lowering the need for physical failure analysis. LogicMap integrates inline defect inspection data with a set of suspected signals and gates generated by the scan diagnostics flow. This new yield analysis data type allows functional test data, such as hard bin fails, to be represented as specific defects with x, y coordinates and mask layer specific information. Having real time functional sub-die level fail data available can help FA engineers immediately differentiate systematic and random yield loss.

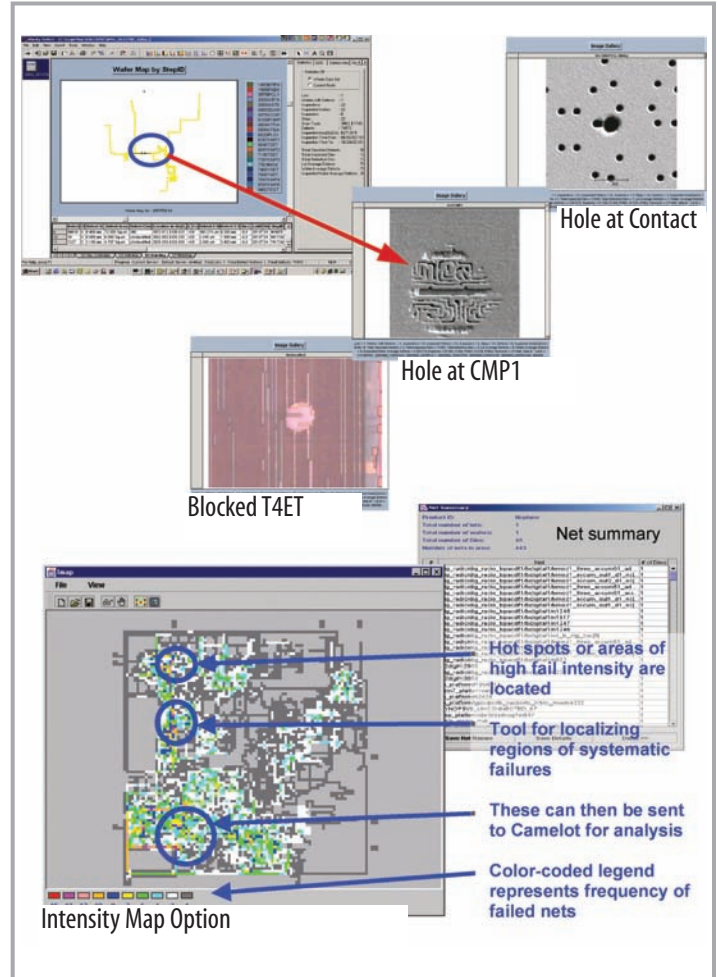
# Knights LogicMap



*Inline data flow using LogicMap.*

## Intensity Map

Intensity Map (IMAP) is a LogicMap application that overlays the results of many failed nets on top of each other from many dies and color-codes the failure mechanism based upon frequency. IMAP intuitively draws the yield engineer to specific regions of high fall-outs for further root cause analysis.



*LogicMap accelerates root cause analysis.*

## TECHNOLOGY FEATURES:

### LogicMap Data Inputs Include:

- Design Netlist, Layout and LVS DB
- Inline Defect Inspection data
- Diagnosis files

### LogicMap Data Outputs Include:

- KLARF file representing physical location of logical fails
- Killer defects
- Recurring fail locales in the design



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