

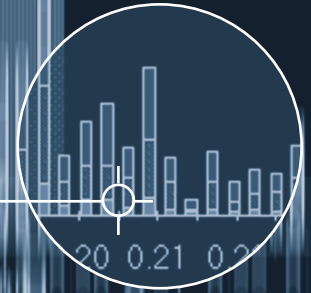


Bitmap Analysis System



Klarity
Bitmap

ANALYSIS



KLARITY® BITMAP IS AN AUTOMATED BITMAP ANALYSIS SOLUTION that collects multi-format bitmap data from testers on the die test floor, classifies failure patterns, and views the bitmap failures. Integrated with the manufacturing process to facilitate yield improvement, Klarity Bitmap exports the data it collects to KLA-Tencor's Klarity ACE and Klarity Defect analysis systems, which perform automated trending and bit-to-defect analysis. Flexible and easy to use, Klarity Bitmap separates killer from nuisance defects and enhances root-cause analysis and yield learning, freeing test and field engineers to focus on improving the yield of memory arrays.

PRODUCT DESCRIPTION

Easy-to-Use Setup Tools As memory arrays become more complex and compact, the volume of data associated with them grows increasingly large. Klarity Bitmap simplifies bitmap data processing with utilities that enable users to easily create die models that perform the mapping between electrical addressing and physical coordinates. The software's innovative pattern generator features intuitive, drag-and-drop simplicity to easily model new devices for bitmap analysis. For example, with WaferEdit, the solution's wafermap setup application, users can set up die placement and indexes within the wafer, linking test die and inspection die indexes. Using the DieEdit application, users can model the memory array(s) within a die.

Automated Bitmap Pattern Classification Even though failing bit patterns vary by product, fabs can use Klarity Bitmap to easily adjust existing pattern-matching templates that have been carefully designed to "fingerprint" common memory failure patterns. Once the bitmap data has been converted into physically correct coordinates, the solution's custom classification module automatically classifies bit failures into user-defined categories such as single-bit, word-line, and bit-line failures, speeding time to results.

Visualization of Bitmap and Bitmap Failure Patterns With the solution's BitPower application, users can open BitPower files and display select patterns of different wafers, die, and bitmap tests. The user-friendly interface enables zooming, scrolling, and changing of colors of the various displays, helping to identify failed bits and solve design errors. The application can also be used to create classifications—or bit pattern definitions—that categorize raw bitmap data to predetermined failure types. Users also have the option of viewing bitmap displays offline using the Bitmap Viewer.

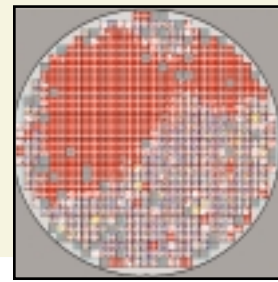
Central File Processor The Bit Image Translator application serves as the central file processor of the Klarity Bitmap system, processing tester-generated bitmap files and converting them into several different output formats. Output formats include BitPower files, Klarity Results File (KLARF), ACE loader files, and text summary files containing summaries of classified bit patterns.

Distributed Processing New distributed processing software integrated into Klarity Bitmap enables use of any number of PCs for bitmap descramble, data compression, bitmap pattern classification, and other processing tasks. For higher throughput, fabs can simply add additional PCs.

YIELD MANAGEMENT SOLUTION

Klarity Bitmap, along with Klarity Defect, Klarity SSA, and Klarity ACE, form a fab-wide yield acceleration solution that delivers seamless defect detection, classification, and analysis. With these capabilities, fabs can quickly and effectively convert defect data into relevant quantitative information, providing a strong yield learning infrastructure for state-of-the-art 300-mm fabs. With these insights, manufacturers can take corrective action sooner and improve yield more quickly at the lowest possible cost of ownership.

Klarity Bitmap



As shown in the images above, Klarity Bitmap provides easy die/wafer setup, flexible classification patterns, and efficient sharing of bitmap data, helping to improve yield learning.

BENEFITS

- Separates killer from nuisance defects to enhance root-cause analysis
- Features easy-to-use, automated capabilities that free engineers from cumbersome manual tasks, enabling them to focus on improving the yield of memory arrays
- Provides fast time to results through automated, flexible classification of bit-failure patterns
- Helps solve design errors with color-coded viewing of failed bits as well as viewing of failed bit patterns
- Improves yield learning by enabling fast organizing, summarizing, and sharing of large volumes of bitmap data

APPLICATIONS

- ▷ Line monitoring
 - Go/no-go decision making
 - Reporting
- ▷ Engineering analysis
 - Root-cause analysis
 - Generation of loader files and basic wafer summaries
 - Classifications
 - Translation of tester files

KLA-TENCOR: ACCELERATING YIELD

KLA-Tencor's portfolio of solutions includes the industry's broadest fleet of advanced inspection and metrology systems, which enables customers to capture yield-critical defect and metrology data. It also includes the sophisticated software to turn that data into quick corrective action. Finally, it includes the expertise to help customers rapidly understand and resolve complex manufacturing problems so they can reap the financial and market rewards associated with faster time to market and increased product yields.

KLA-TENCOR SERVICE/SUPPORT

Customer service and support are an integral part of KLA-Tencor's yield optimization solution. Our vast customer support organization services our worldwide installed base and is responsible for customer support following shipment of equipment and software. Services include system installation, secure online monitoring, on-site repair, telephone support, relocation services, and selected post-sales applications.