boostbe+

Manufacturing Operations Analysis Solution

BoostBe+ is an advanced factory solution that produces products tailored to customer needs.
It integrates IoT, AI, and big data to enable automation and digitization, going beyond traditional factory automation.
BoostBe+ features objects related to manufacturing, such as procurement, logistics, and consumers.
These objects are equipped with intelligence and linked via IoT to power seamless data connection, collection, and analysis for autonomous operations.

YMS

Yield Management System

Field-oriented Optimized service

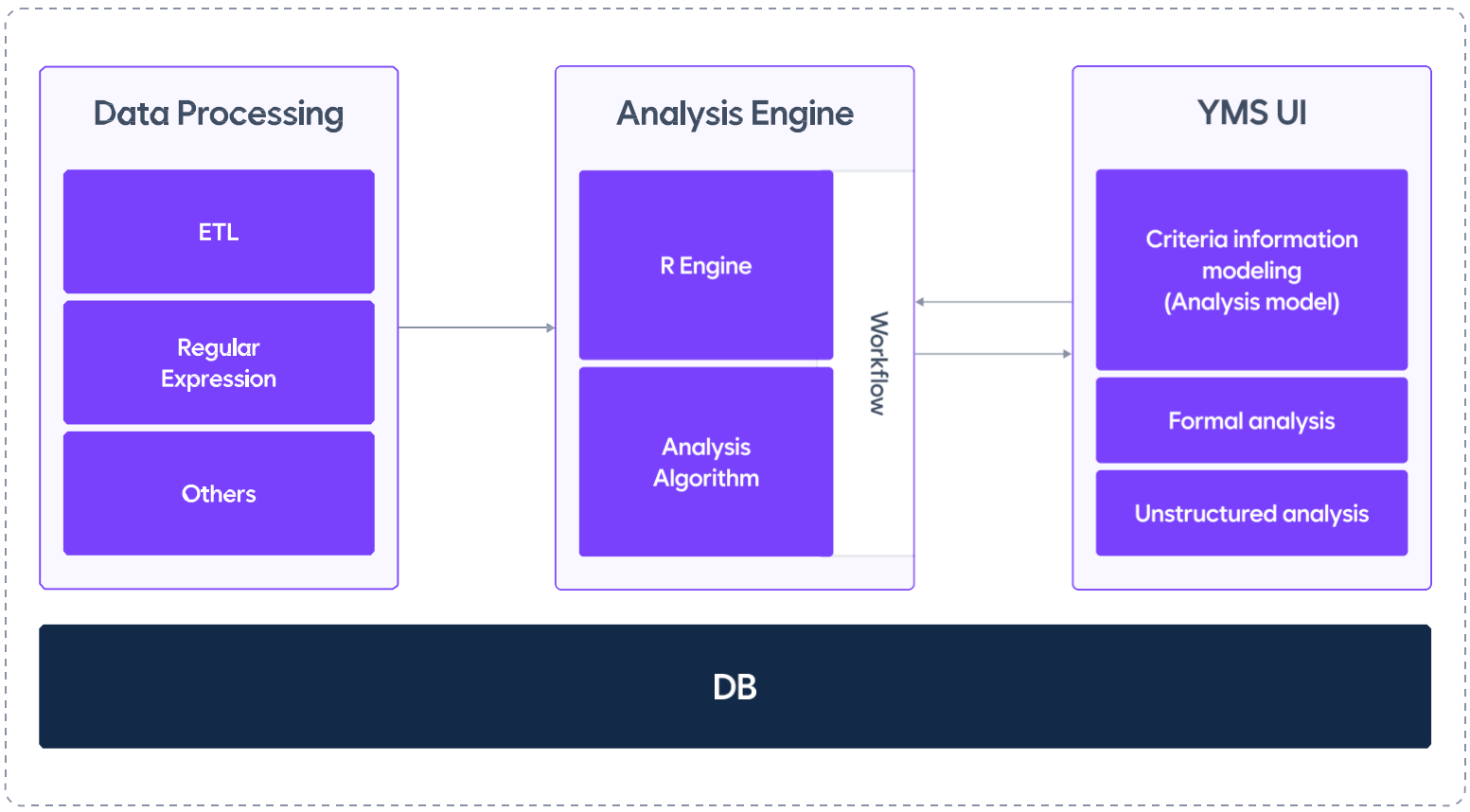
What does it do?

Yield Management System (YMS) leverages all data generated from the manufacturing process to identify potential root causes of issues, such as equipment or process inefficiencies, through structured and unstructured analysis.

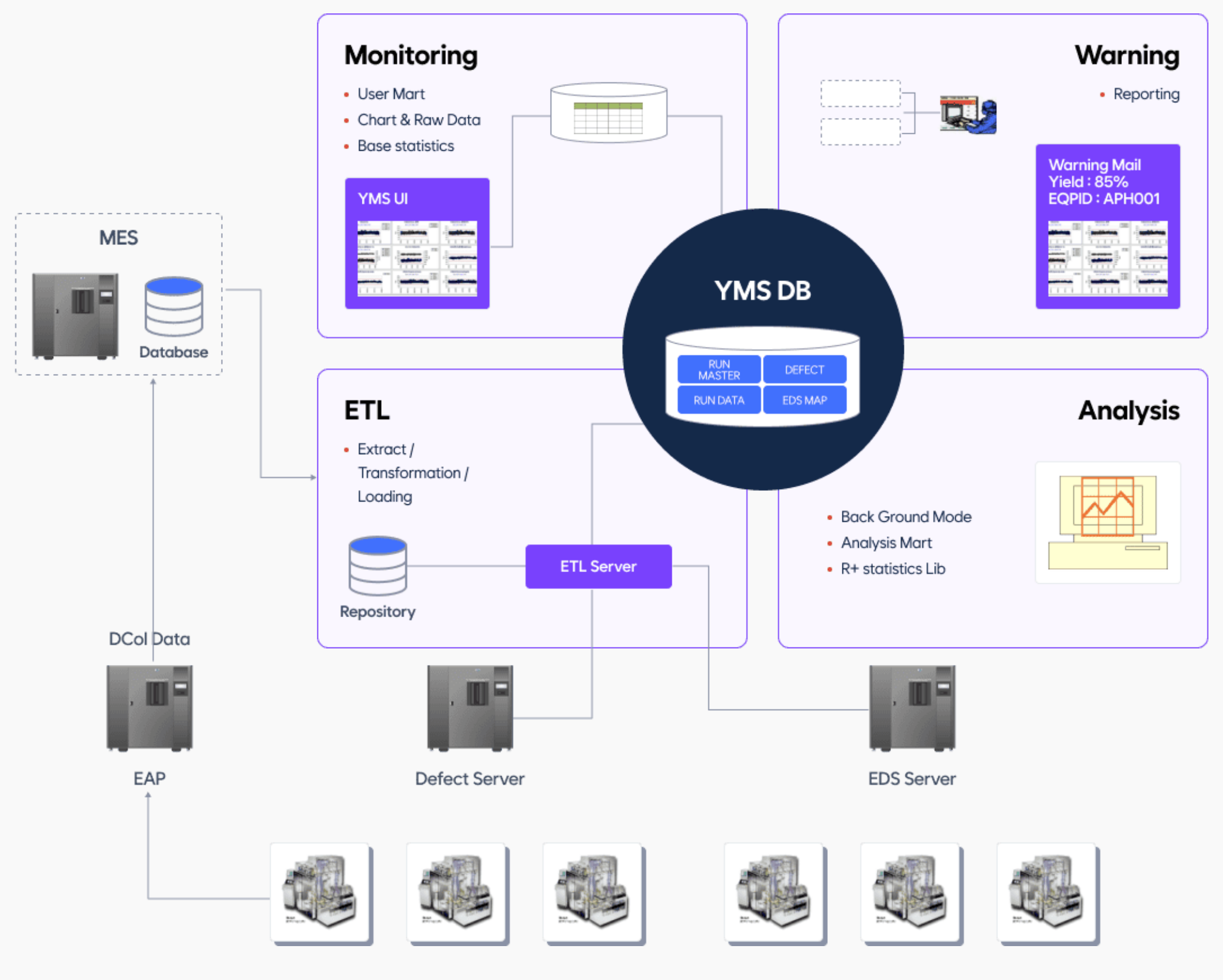
1. **Data analysis:** Analyzes data collected during production to detect anomalies and apply statistical methods to improve quality.
2. **Real-time monitoring:** Monitors changes in process workflows in real-time, offering early warnings to address problems swiftly.
3. **Process improvement:** Identifies optimal operating conditions by analyzing correlations between operational parameters and equipment, enhancing process efficiency.
4. **Data integration:** Consolidates data from various sources to provide a comprehensive view of the environment.

Detects anomalies and analyzes statistical data to improve the quality of manufacturing processes.
Features early warning tools that monitor abnormal signs in real-time process flows.
Provides analytical functions that incorporate variability control and predictive process characteristics.

- Process conditions data
- Measurement/Monitoring data
- Test/Inspection data
- Equipment status data
- Lot progression data
- Using materials data
- Cassette conveying data



Product Configuration



Field-oriented Optimized service

Detects anomalies and analyzes statistical data to improve the quality of manufacturing processes.
Features early warning tools that monitor abnormal signs in real-time process flows.
Provides analytical functions that incorporate variability control and predictive process characteristics.

User-friendly

- Open user interface
- Field-oriented system that incorporates engineers' expertise

Data integration

- Comprehensive data integration system for manufacturing processes
- Optimized data network

Standardized analysis process

- Consistent analysis quality without reliance on individual experience
- Eliminates simple and repetitive tasks
- Analytical capabilities enhanced using statistical techniques

Knowledge-based workflows

- Workflows that incorporate engineers' expertise

Monitoring

FAB Data Monitoring
- Operation Monitoring
- Equipment Monitoring
- Non-Lot Monitoring (NPW)
- Defect Monitoring
- FAB/Defect Warning

Sort Data Monitoring
- DC/Yield Monitoring
- EDS/PKG Monitoring
- Outsourcing Monitoring
- DC/EDS Warning

X-Y Monitoring
- Suspected cause factor vs result Monitoring
  - Choose X-Variables, Y-Variables
  - Displaying Trend Chart with Correlation coefficient

Analysis

Yield Analysis
- Bin Map
- Bin Map Gallery
- Cumulative Map
- Compare Map (Before/After Repair)
- Overlay Map (Bin Map vs Defect Map)
- PCM(DC) Shot Map

Defect Analysis
- Defect Map
- Defect Map Gallery
- Defect Image Analysis
- Repeated Defect Analysis
- Defect Pattern Search

Raw Material Analysis
- Ingot/Bare Wafer vs Process / Measurement / Inspection / Test Data Analysis

TOOL

Traceability
- Lot Trace (Event, Tracking, DC, Material, etc)

Commonality
- Equipment Parameter Search (Progress , Significant , EQP path)

Statistical Analysis
- Data Query (Process, Measurement, PCM, Probe Test Data Query)
- Descriptive Statistics
- Hypothesis Test
- Correlation Analysis
- Regression Analysis
- ANOVA (Analysis of Variance)
- Process Capability Analysis (CP/CPK)
- SPC (Out of Spec, Out of Control Chart & History Data)

01 Search / Output/ Chart / Batch Chart (Line / Data /Pie / Bar / Histogram / Pareto / Box / Correlation Matrix) Lot Link (Trace , Defect Map ,EDS Map)

Output

Raw Data Display

: Line, Eqpid, Time, Item , Subitem, value

- Excel save
- Lot Trace / Wafer Map link
- Field / Raw / Column modify

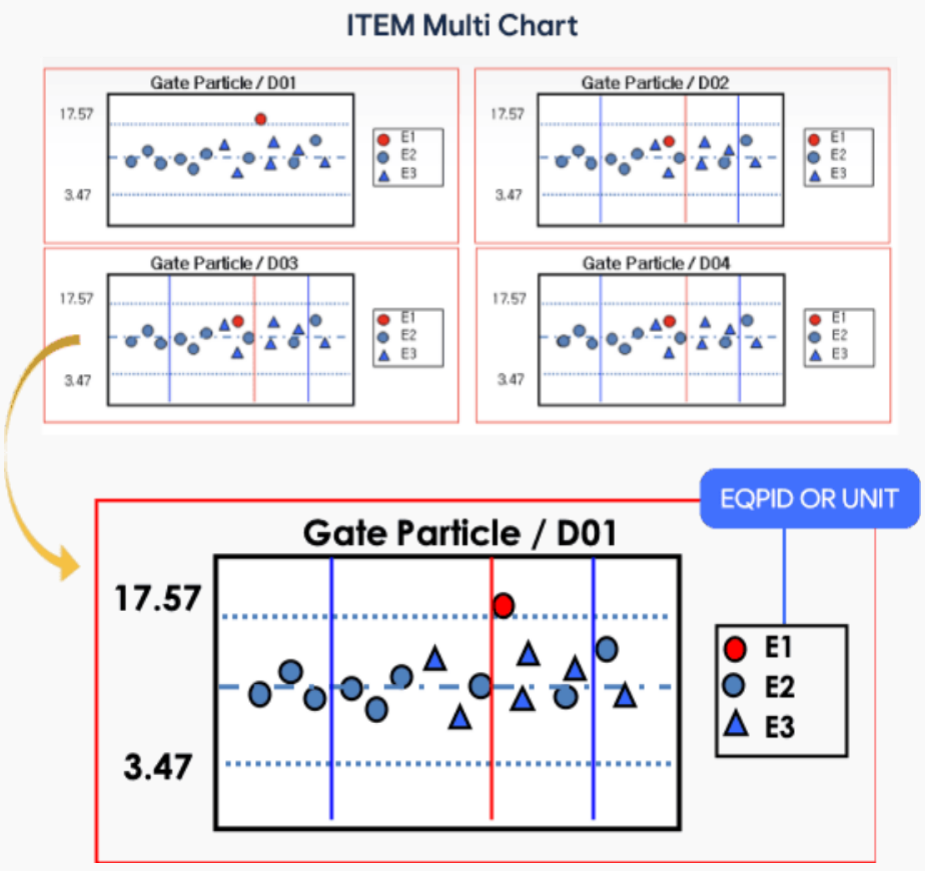
Chart

02 FAB Operation Monitoring
Step1 Measure Operation , Step 2 Main Operation

M-P Operation

Inspection Step	Item	Value
Gate Particle	CD01	12
	CD02	10
Gate-DEV AOI	Item1	10
	Item2	20
Gate-DEV MAR	Item2	20

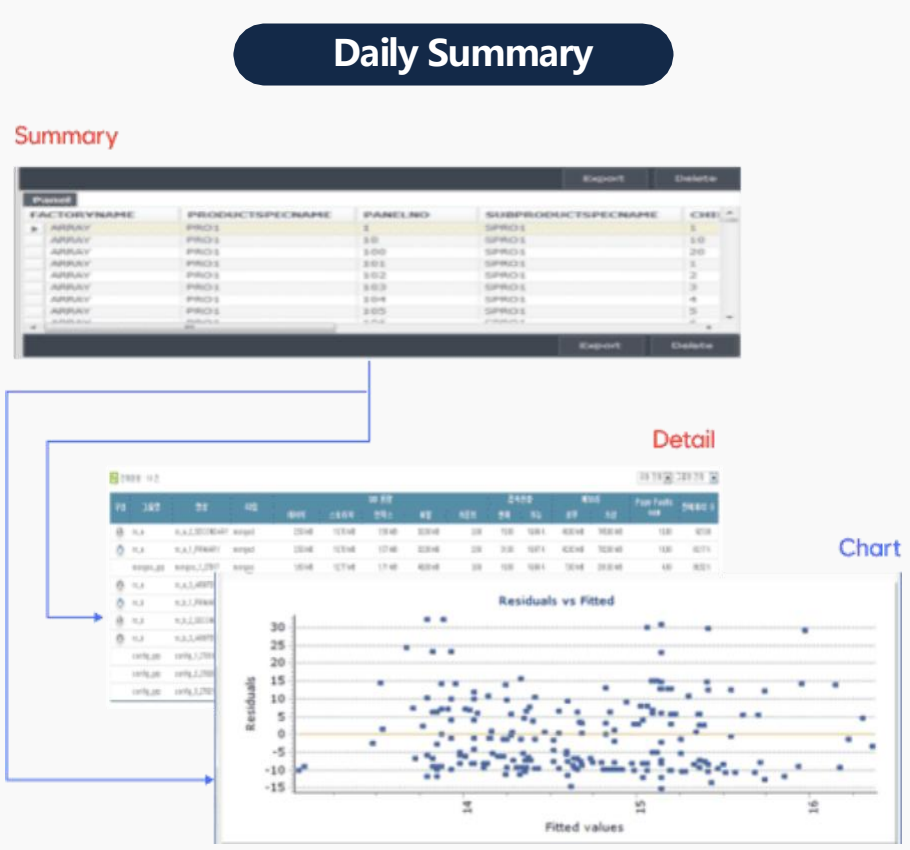
Chart



03 Real Time Warning : Error detection (FAB measurement, DC , EDS data) Daily Summary : Summary of the results of the previous generation

Real Time Warning

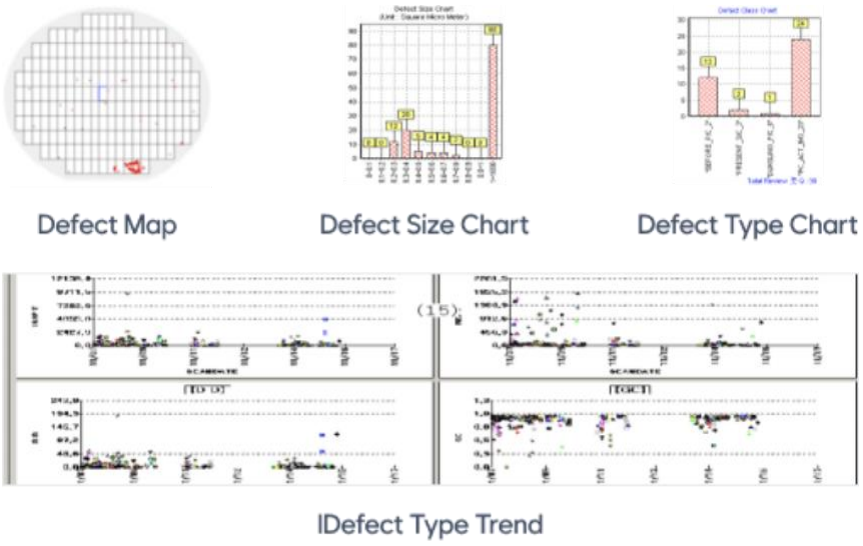
Daily Summary



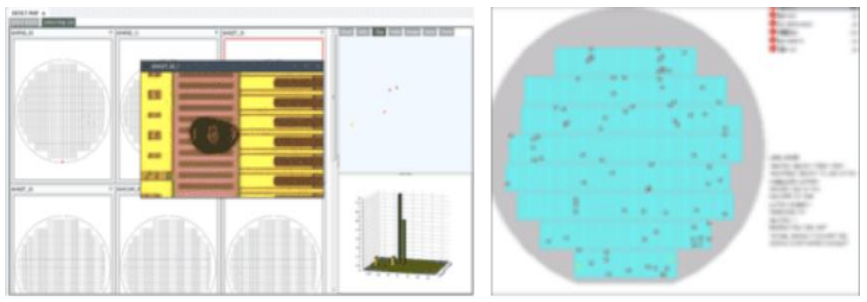
- Summary of product generated
- results Detail alarm data
- Item , Step chart

04 Defect Monitoring (defect size , defect type Chart / total defect Trend), Map , Image DSA (Defect Source Analysis)

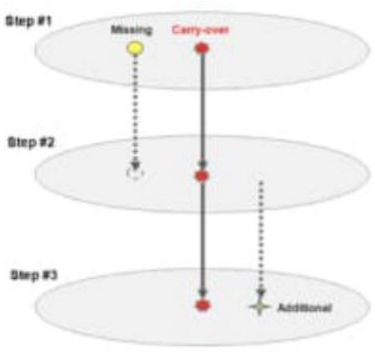
Monitoring



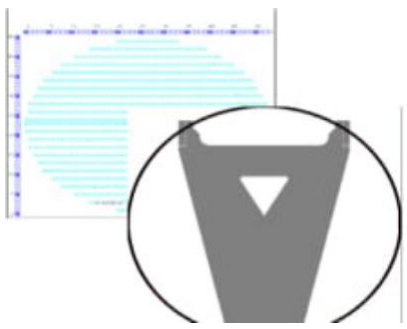
MAP & Image


Composite Map (EQPID)

MAP & Image



EQP Contact

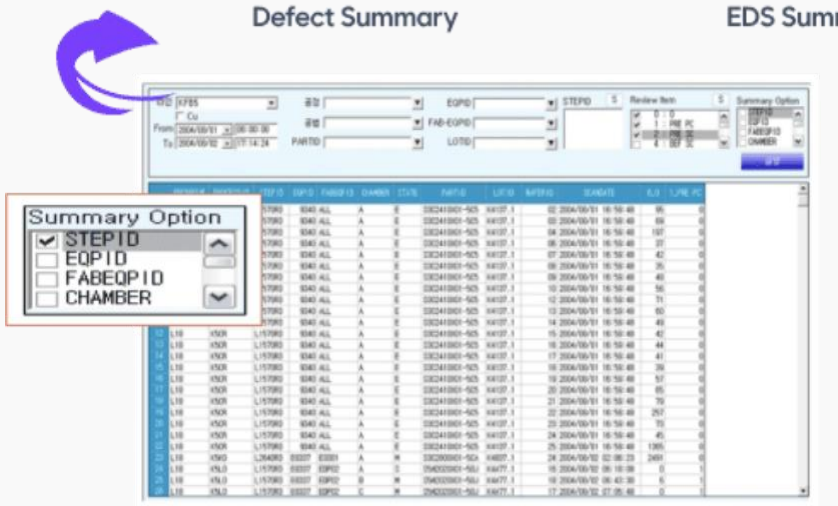


05 Data Summary : Error detection (FAB measurement, DC , EDS data)
Raw data File : Summary of the results of the previous generation

Data Summary

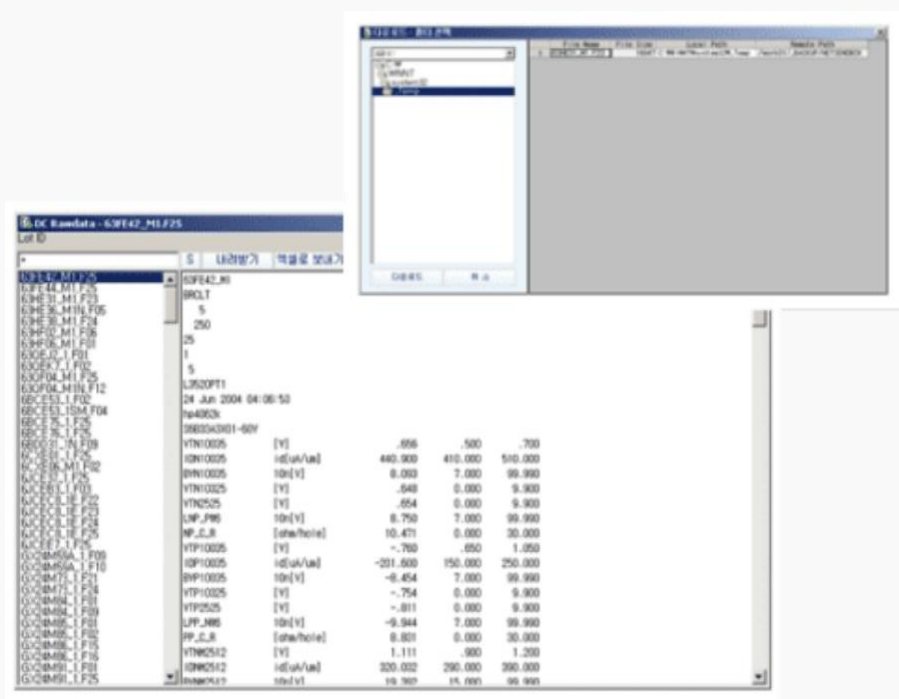

Defect Summary

EDS Summary



DC Summary

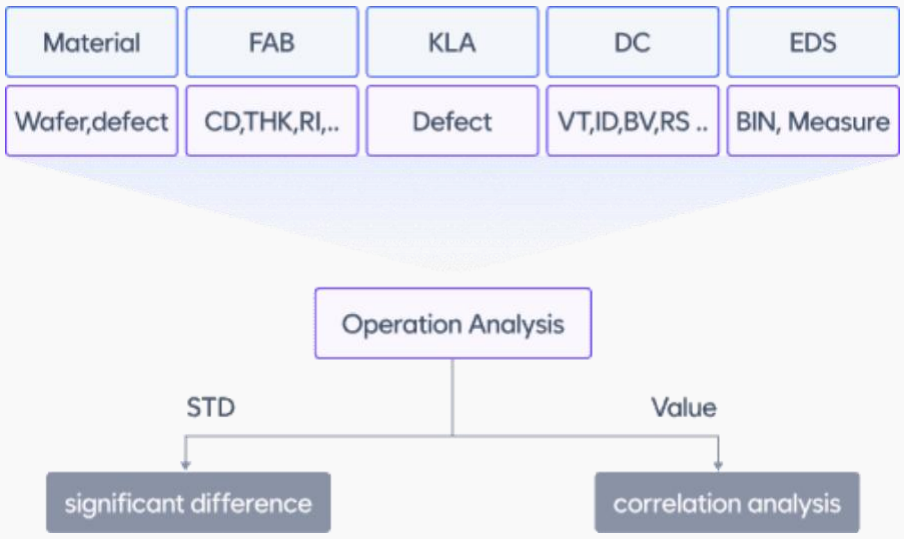
Raw data file



- DC /EDS Raw data file
  - Search : LOTIDLike
  - Output view & download

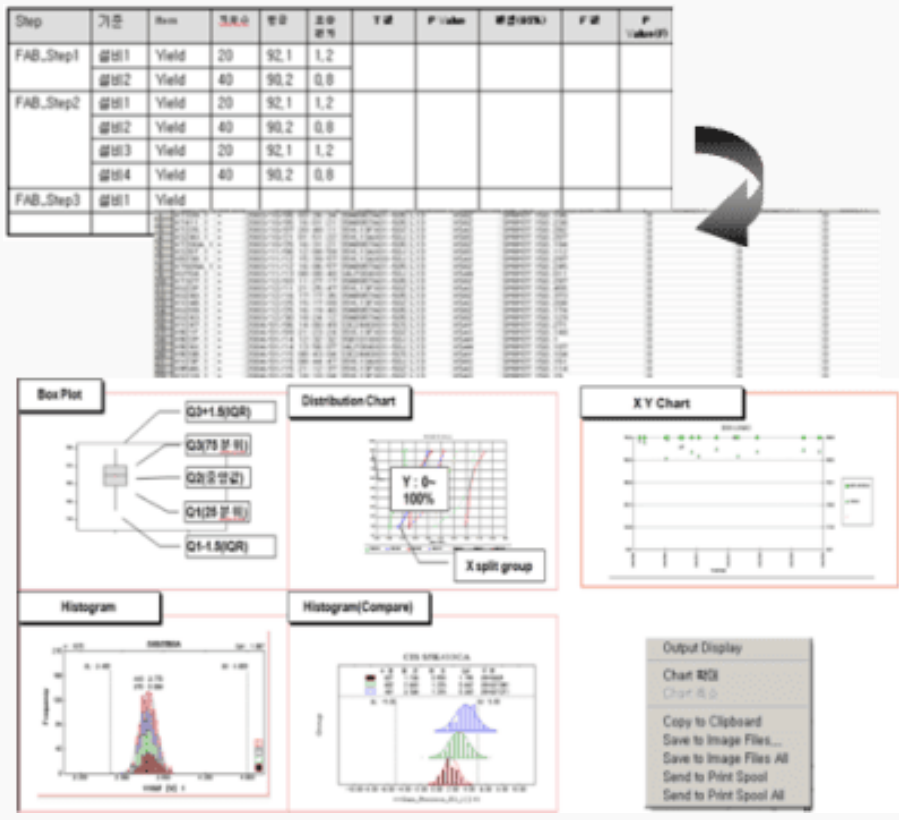
06 Analysis of significant differences in operational data (EQPID/PPID/Reticle/Probe Card/PartID/Foup)Correlation analysis of operational parameters (CD, THK, VT, BIN, etc.) value Result & Chart (Summary & raw data, Trend,X,Y Chart, Bar Chart, Histogram, Box Plot,Pie Chart)

Search & Batch



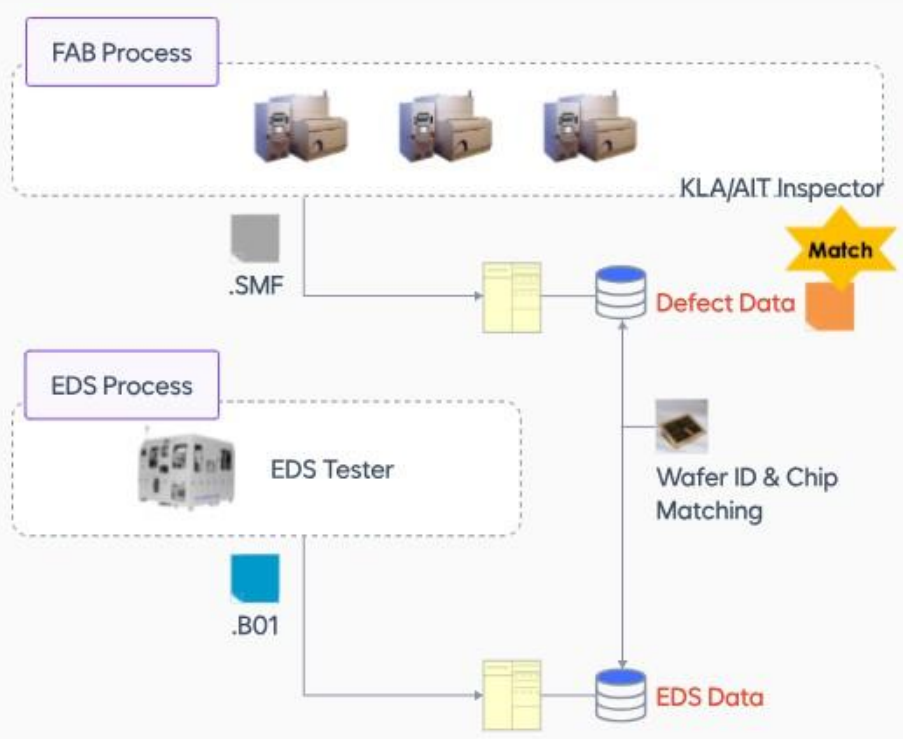
- Search : Line / term / Process / Partid
- Data Area (FAB(P)/FAB(M)/DC(In-Line)/DC(Final) /EDS(BIN)/EDS(Measure)

Result & Chart

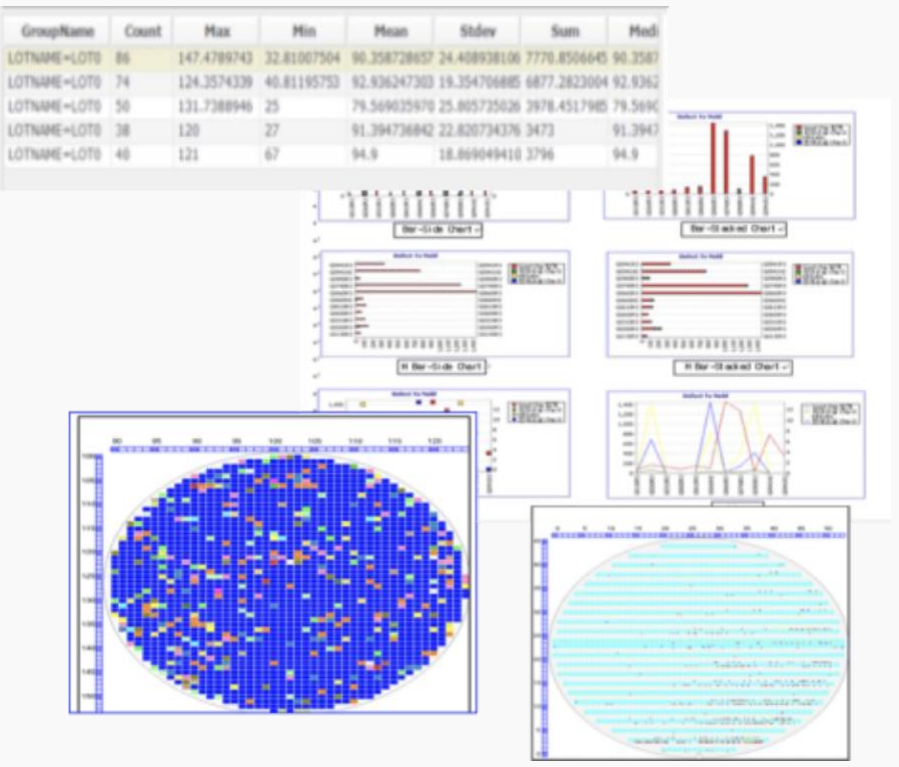


07 Defect & EDS chip level (BIN , Fail Bit) correlation analysis Defect Class Kill Ratio , Chart (Bar –Side / Bar-Stacked / H Bar–Side / H Bar-Stacked / Scatter / Line), Map

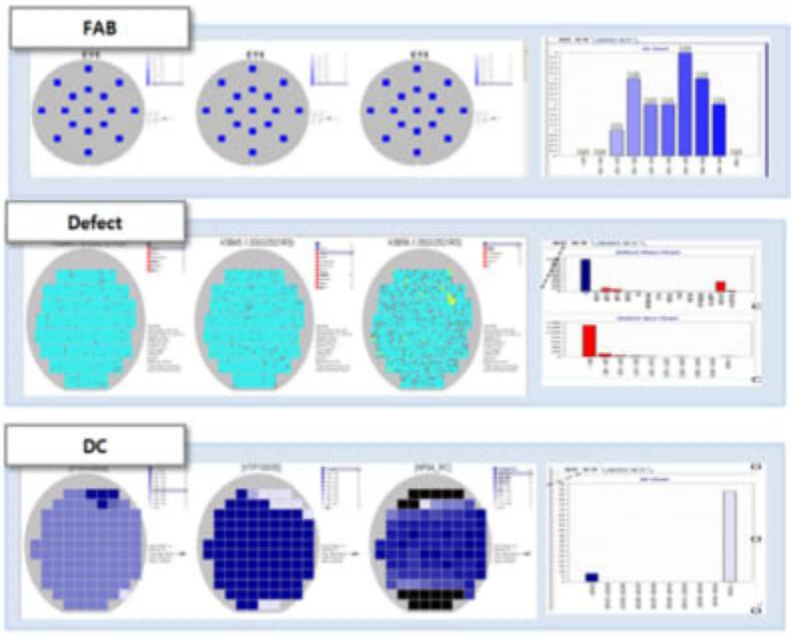
Search & Batch

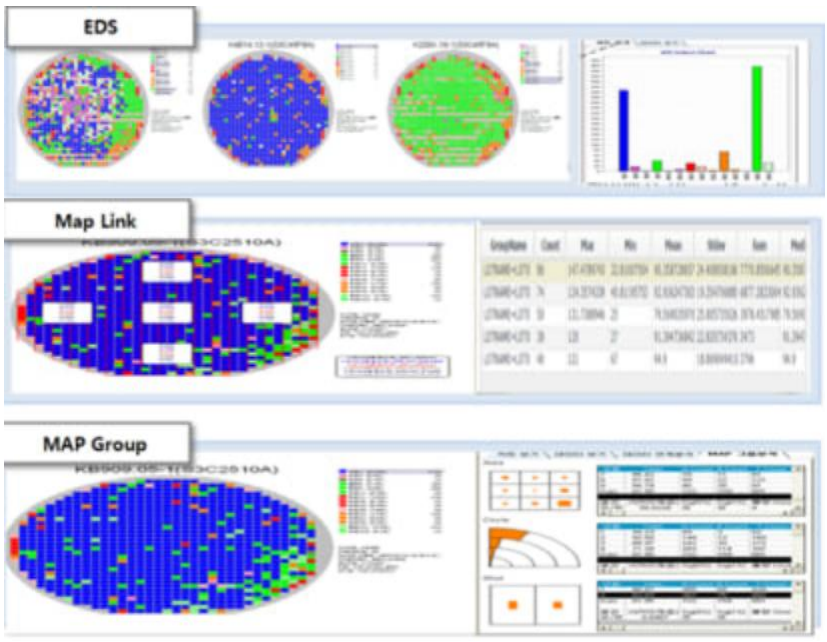


Result & Chart



08 FAB / Defect / DC / EDS (bin) / EDS (Measure) Map & Chart

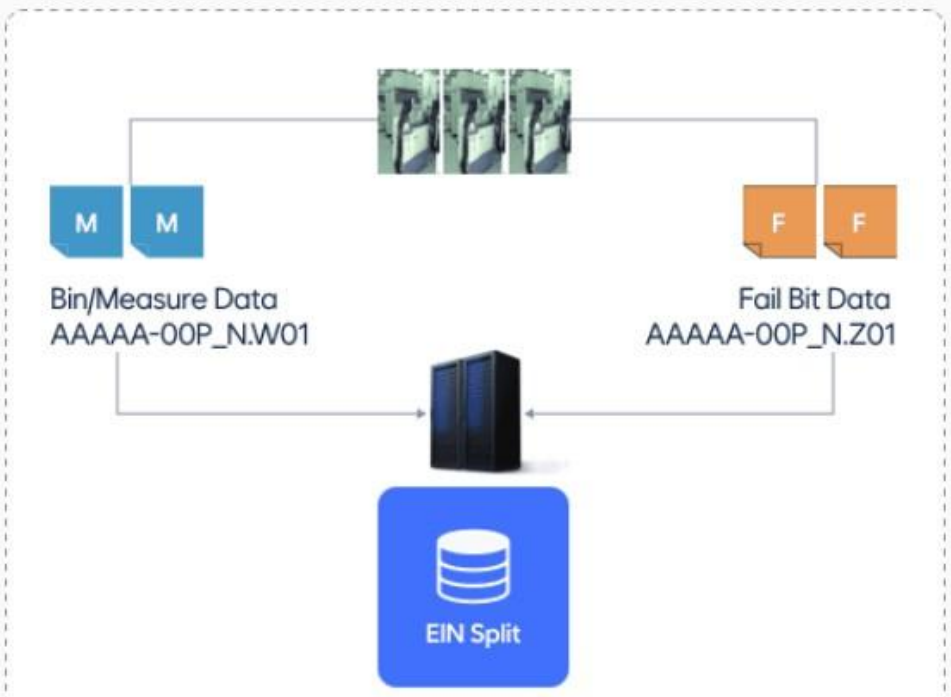




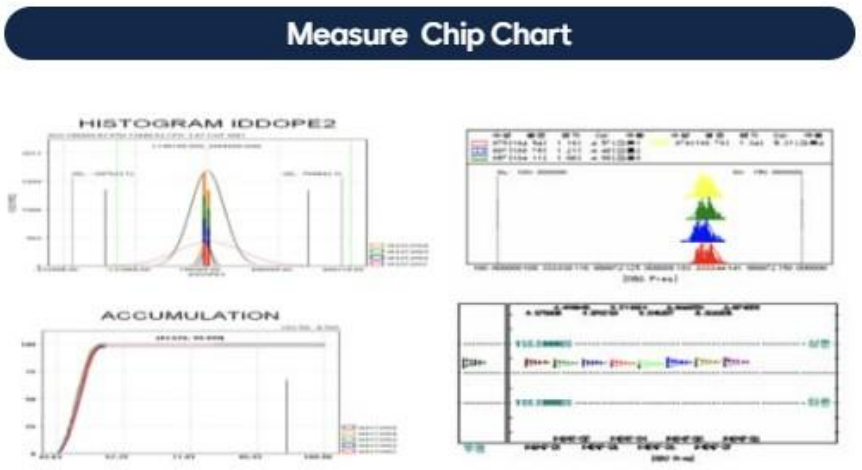
- **FAB** : Site map , Item Range Bar Chart
- **Defect** : Defect Class , Size Chart , Defect Image
- **DC** : Item Range Bar Chart

- **EDS** : BIN, Measure map , BIN , Item Bar Chart
- **EDS Map Link** : DC . FAB data
- **EDS Map Group analysis (AREA, Circle , Shot)**

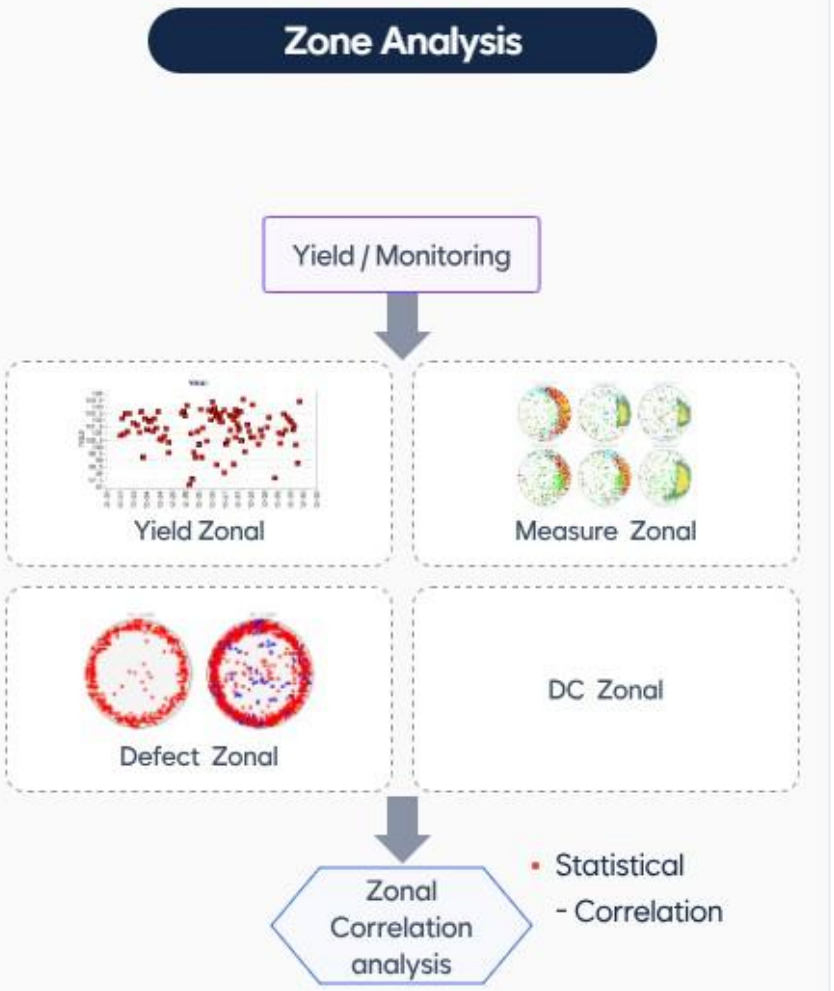
09 EDA Map Data File (Bin/Measure , Fail Bit) interface Map (Single, Gallery, Composite (Lot, Product , FAB_EQPID, FAP_EQPID_LOT)

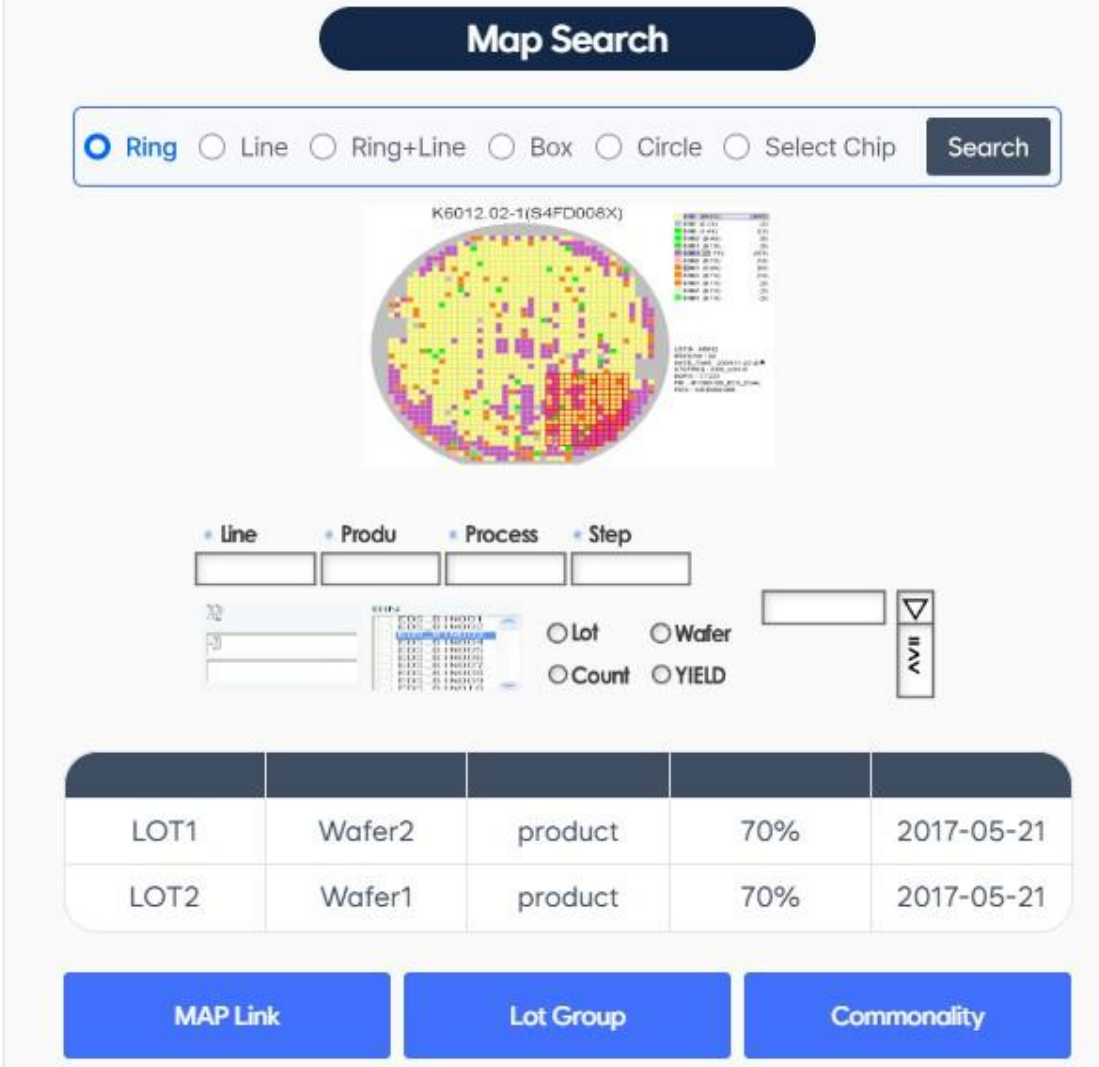


Bin/Measure Data Wafer/ Lot Trend

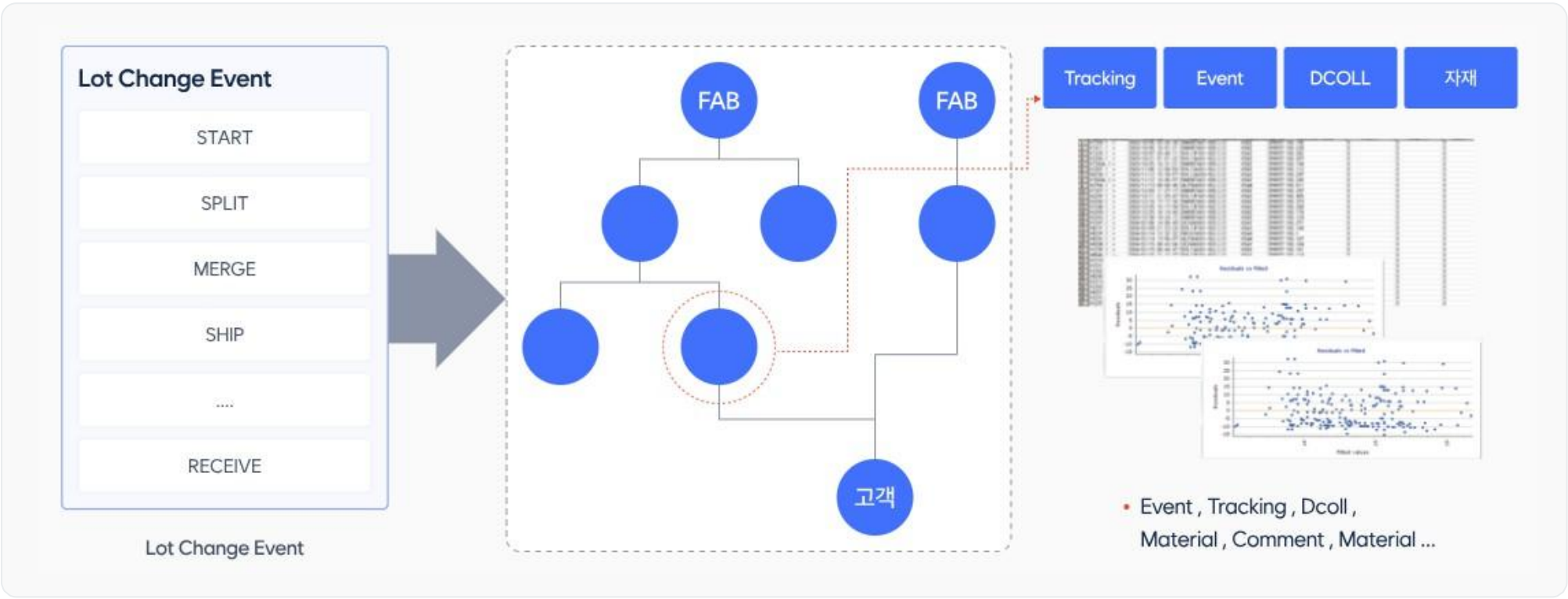


10 User Define Zone (Ring, Line, RingLine, Box, Circle, Select Chip) analysis EDS BIN,MSR (AVG, std, median, sum, Min , Max , FAB Defect Code Defect Density)

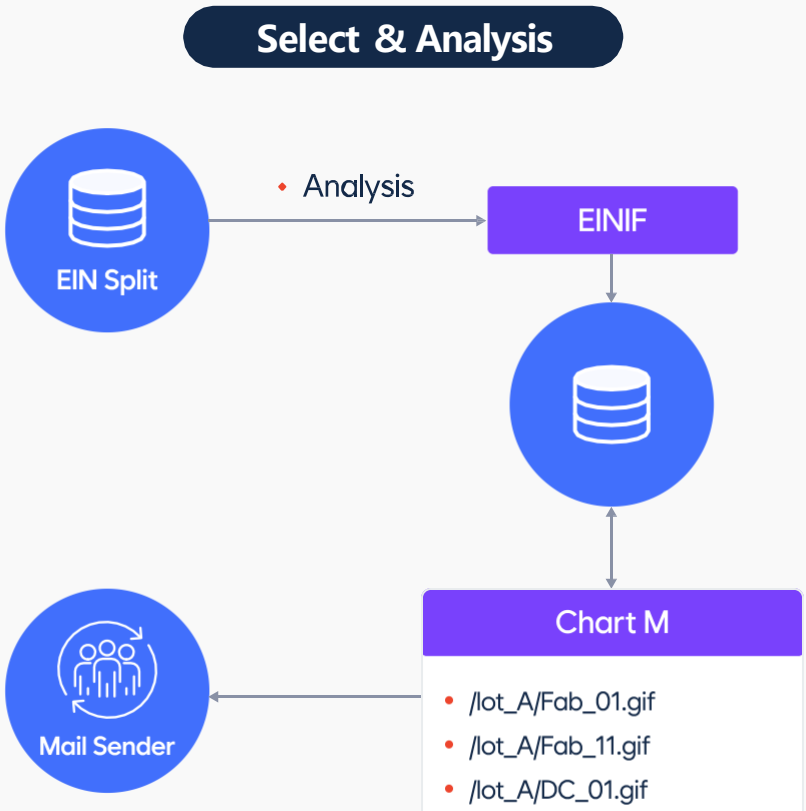




11 Bi-directional batch tracking and tracingProvides comprehensive information about batches (Events, tracking, FAB (measurements), DC, EDS, material, comments)



12 EIN (Engineer Inform Notification) Lot/Wafer Data I/F FAB / DC / EDS Evaluation Chart & Report, Mail



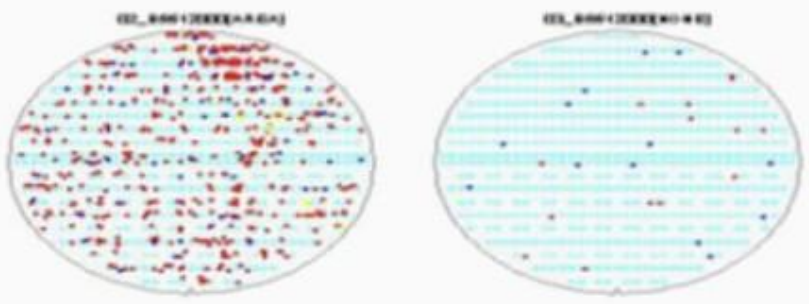
Result & Chart

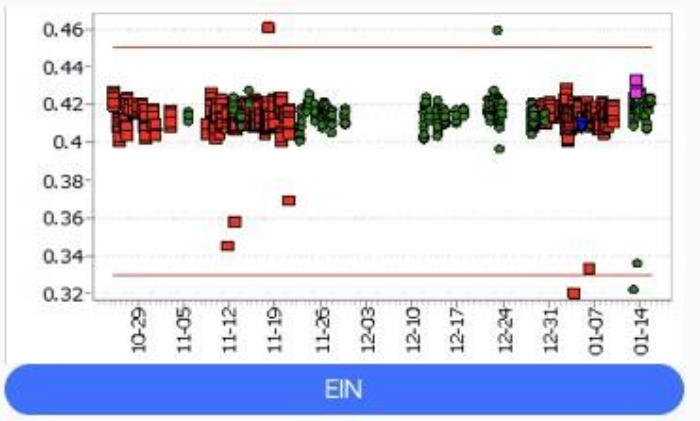
Split Summary | FAB | DC | EDS

PARTID	LOTID	STEP	Wafer ID	DESC	YIELD
S3PART	KOLT.1	150000	#12,1,3,4,6,7,8	NORMAL	91.2
			#2,5,8, 11, 14, 17,20,23	EIN (CP01 CH_B, P-chuck)	90.2

LOTID	STEP	ITEMID	Normal			EIN			P. value	LSL	TARGET	USL
			CntWF	AVG	STD	CntWF	AVG	STD				
0853.1	6150000	CD1	2	2	0.2	2	2	0.2	0.1	1	2	3

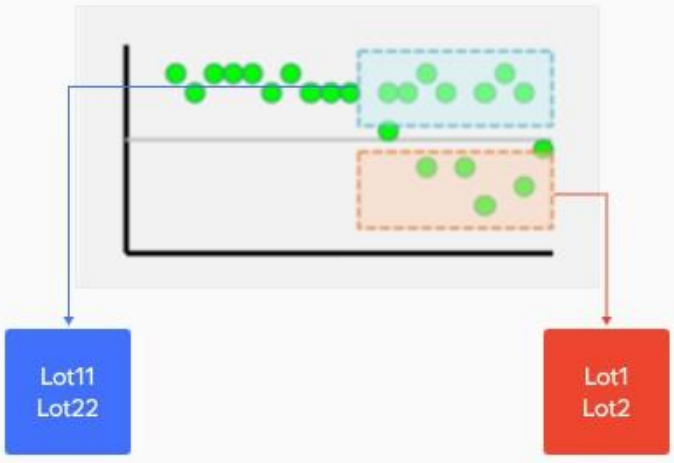
LOTID	STEP	SPLIT Group	0_0	1_PC	2_BG	53_Malbalgub
K0853	2A0076R6	NORMAL	2	11	3	1
		EIN (CP801 CH_B, P-chuck)	1	2	4	





13 EQP commonality: Searches for common equipment within defective batch groups.Significant parameter differences: Searches for items (Fab, DC) between two groups (BAD Lot and GOOD Lot)

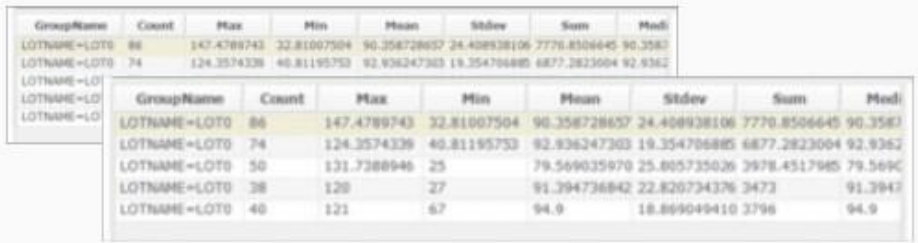
Search & Batch



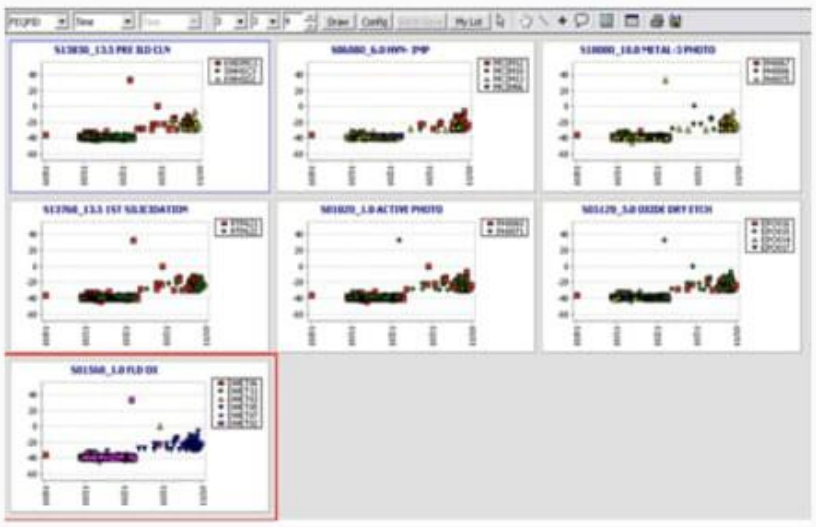
EQP Commonality
- EQP Progress
- Time difference
- EQP Path

Significant difference
- FAB (measure)
- DC

Result & Chart



GroupName	Count	Max	Min	Mean	Stdev	Sum	Medi
LOTNAME=LOT0	86	147.4789743	32.81007504	90.35872865	24.40893811	7770.850664	90.3583
LOTNAME=LOT0	74	124.3574339	40.81195753	92.93624736	19.35470688	6877.282304	92.9362
LOTNAME=LOT0	50	131.7388946	25	79.56903597	25.80573502	3978.451798	79.569
LOTNAME=LOT0	38	120	27	91.39473684	22.82073437	3473	91.3947
LOTNAME=LOT0	40	121	67	94.9	18.86904941	3796	94.9



14 Search Engine: Enables flexible data access for environmental exploration and unstructured searches.Data Type : FAB (M), FAB(P), EDS Bin, DC, NonLOT, Comment, Material ...

Search

Chart & Output

- Abnormal
- Alarm
- AVI
- BIN
- CommentLog
- DC
- DEFECT
- EinEcn
- FAB
- Lot
- LotCurState
- ModeChange
- NonLot
- PACKAGE