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# STDF Statistical Analyzer

## User Manual

**TrueWalkers**  
Test Data Matters

# STDF Statistical Analyzer (SSA) User Manual

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Doc#: TW-005-01 Rev. F

<http://www.truewalkers.com>

# Contents

## 1. Introduction

What is STDF Statistical Analyzer .....	1-1
User Interface.....	1-2

## 2. Extraction

Load STDF files.....	2-1
Add STDF files .....	2-2
View Menu.....	2-3
<b>Test key types *</b> .....	2-4
Record types .....	2-5

## 3. Test Statistical & Bin Summary

Test info & Groups .....	3-1
Statistical parameters.....	3-2
Select test to display charts .....	3-3
Search test .....	3-4
Bin Summary.....	3-5

## 4. Charts

Enable chart view and select chart types.....	4-1
Interactive operation.....	4-2
Histogram .....	4-3
Box plot .....	4-4
Scatter plot .....	4-5
Cumulative frequency .....	4-6
Combined Histo-Box plot .....	4-7

## 5. Wafer Map

Wafer map tool overview.....	5-1
Lot selector & wafer selector .....	5-2
Rotate& Zoom.....	5-3
Bin Group & Info field List .....	5-4
Merge Wafer maps.....	5-5
Parametric map .....	5-6
Stacked map .....	5-7

## 6. Grouping

Group menu .....	6-1
MIR items .....	6-2
SDR items .....	6-3
Wafer ID and SITE_NUM .....	6-4

## 7. Exportation

Export data to Excel .....	7-1
Export charts to Word .....	7-2
Export wafer map .....	7-3
Avoid file corruption .....	7-4

# 1

# Introduction

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- What is STDF Statistical Analyzer (SSA).
- User interface.

# What is STDF Statistical Analyzer?

STDF Statistical Analyzer (SSA) is an instant STDF statistical analysis tool on Windows platform; you can easily get SSA from Microsoft Store.

STDF (Standard test data format) is a binary data format frequently used in semiconductor industry.

SSA can open STDF files directly with a fast-extracting speed, and it can calculate statistical parameters (like mean, StDev, CPK etc.) by different groups for each test. SSA has statistical charts built in; it has Histogram, Box plot, Scatter plot and Cumulative Frequency chart to display your test parameters' distribution in different dimension.

SSA could also extract Bin Summary from STDF files including Hardware Bin Summary and Software Bin Summary and all these bin data is collected from each die's result. It could be available even STDF files don't have HBR & SBR. Bin Summary could be used as major failure pareto when you sort by fail quantity or percentage. You can also use it together with grouping feature.

SSA provided interactive map tools which could create wafer-map, parametric-map and stacked-map, you could zoom and rotate maps as you wish. It integrates map merging function and map conversion function to allow user to merge retest map or partial maps, and it could convert wafer-maps to stacked-maps, parametric-map to parametric-pass-fail map.

SSA has a flexible grouping feature; you could create statistical summary report and charts by different group factors and compare between them.

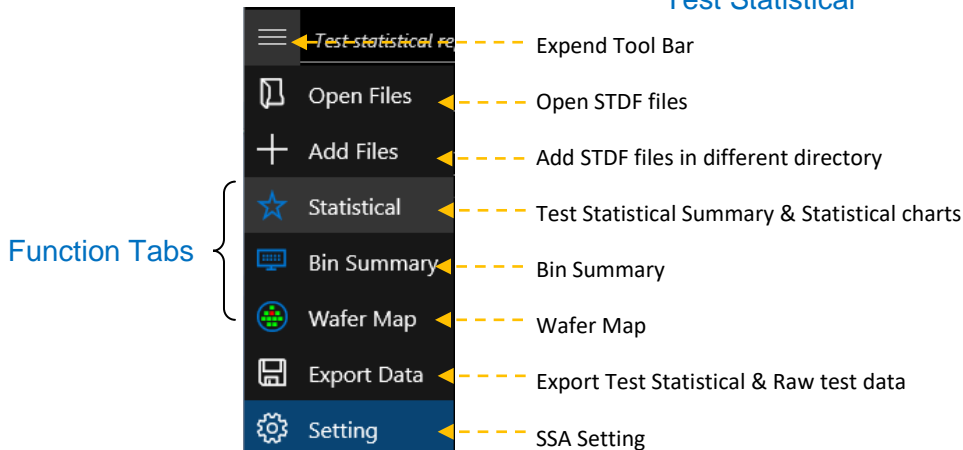
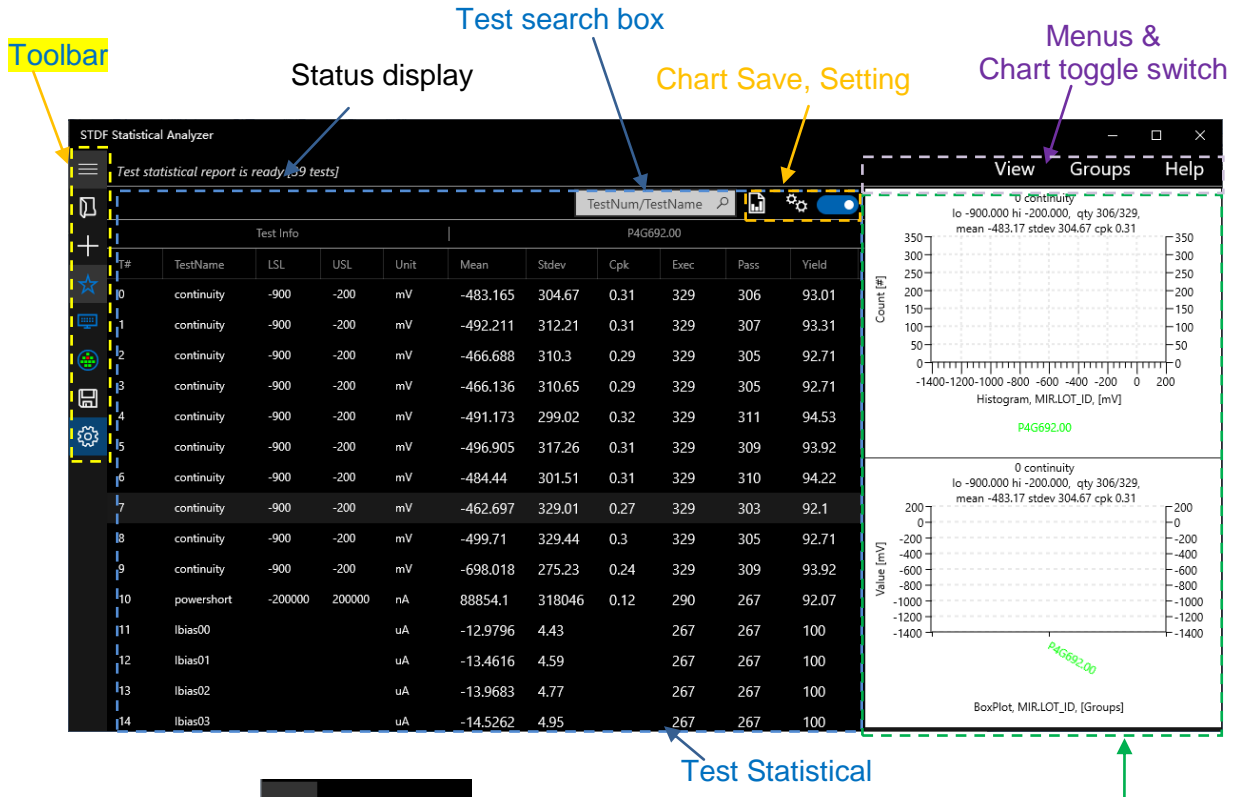
Also, you can export statistical data, raw data, bin summary and wafer map to Excel file, and export charts to Word file.

Notes: statistical charts and wafer map tool are only enabled with yearly subscription license. You can get STDF Statistical Analyzer and subscribe for yearly license in Microsoft Store. Get your receipt from your Microsoft account after purchasing if you need it.

If you have any question or suggestion, please contact us by [support@truewalkers.com](mailto:support@truewalkers.com).

# User Interface

SSA UI color style follows your Windows theme. SSA Window is divided into 2 major views: statistical summary view in the center and chart view on the right. Of course, we have tool bar on the left and menu bar and search box on the top.



# 2


## Extraction

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- Load STDF files
- Add STDF files
- View menu
- Test key types \*
- Record types



## Load STDF files

Click  button on toolbar to open file browser, you can select multiple STDF files by pressing Ctrl key. The STDF files will be automatically extracted after you select them, then all data will be retained in memory for analysis in particular data structure. If there is data loaded already in SSA, it will be abandoned after you load new STDF files.

## Add STDF files

Button  on toolbar is used to load new STDF files into SSA while keep previous loaded data, and they could be analyzed together. This feature is designed to load data files from different folder.

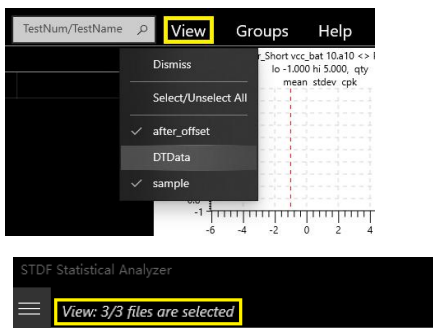
Note: after you loaded or added new STDF files, all data in memory (statistical summary, bin summary and wafer maps) will be cleared.

## View Menu to select active files

“View” menu is used to check what files are extracted in memory and you can select different files for analysis. That means you can select subset of files in memory for analysis. You can take below snapshot as a example, there are 3 files extracted in memory (*after\_offset.stdf*, *DTData.stdf* and *sample.stdf*), while we only make 2 files active and left “DTData.stdf” aside.

Every time after you changed active files selection, please click “Dismiss” to close the menu. After you changes active files selection via “view” menu, the Test Statistical and Bin Summary will be automatically re-calculated.

It will display how may files are active now once you move your mouse on “View” menu.




# Test key type


This section is very important. Please go through it carefully before you start with SSA. SSA extracts and analyzes STDF data by TEST; each TEST has TEST\_NUM, TEST\_NAME, LO\_LIMIT, HI\_LIMIT and UNIT. How to distinguish different TESTs? Test Key is a keyword that we distinguish tests by? We can use TEST\_NUM, TEST\_NAME or TEST\_NUM + TEST NAME as test key.

According to STDF V4 spec, different test should have different TEST\_NUM, so normally we could distinguish tests from their TEST\_NUM. But sometimes STDF data has duplicated TEST\_NUM (but different TEST\_NAME), this will cause test data overwritten, in this case we must use TEST\_NAME as Test Key.

But we cannot use TEST\_NAME as Test Key all the time, some test data follows unique TEST\_NUM strictly, but some tests may have different TEST\_NAME, we should use TEST\_NUM as Test Key.

You can click  icon on toolbar and change Test Key Type at “Extraction” section on popped up screen. It will only take effect on next extraction.

Test Info				
T#	TestName	LSL	USL	Unit
1000	Power_Short vcc_bat 10.a10 <> Power_Short	-1	5	mA
1020	Power_Short coreldo_in 10.a18 <> Power_Short	-1	5	mA
1030	Power_Short vdd_core 35.a10 <> Power_Short	-1	5	mA



1040
Power\_Short rfid\_in 10.a18 <> Power\_Short
-1

Extraction:

Key:
☒ Test Num
☐ Test Name
☐ Test Num+Name

Records:
☒ PTR
☒ MPR
☐ FTR

Statistical Values:

☒ Mean
☒ Stddev
☒ CPK

☐ Min
☐ Median
☐ Max

☐ ExecQty
☐ PassQty
☐ Yield

Export:

Data:
☒ Statistical Summary
☐ Raw data

Below snapshot shows test data only have 1 test which we are using TEST\_NUM as Test Key during extraction, this is caused by duplicated TEST\_NUM.

Test Info					1		
T#	TestName	LSL	USL	Unit	Mean	Stdev	Cpk
0	LB_DIAG:LBID[1]	1	10		2.84183e+007	2.86058e+008	-0.03

After we change to TEST\_NAM or TEST\_NUM + TEST\_NAM as Test Key, test data will not be overwritten anymore.

Test Info					1		
T#	TestName	LSL	USL	Unit	Mean	Stdev	Cpk
0	LB_DIAG:LBID[1]	1	10		4	0	
0	OS_AIO_VSS:PADA_WAKEUP1[1]	-0.9	-0.2	V	-0.352	0	
0	OS_AIO_VSS:PADA_WAKEUP2[1]	-0.9	-0.2	V	-0.3521	0	

Below is another case, you can see that the tests with same TEST\_NUM have different TEST\_NAM, if we use TEST\_NAM as Test Key, the data will be split unexpected.

Test Info					TPPF577.00		
T#	TestName	LSL	USL	Unit	Mean	Stdev	Cpk
0	O_S_N_3001 EXT_CLK_EN_IO 339	-900	-200	mV	-457.585	11.63	7.38
0	O_S_N_3001 EXT_CLK_EN_IO 158				-0.4646	0.01	
1	O_S_N_3001 HIF_DATA7_IO 351	-900	-200	mV	-456.155	16.24	5.26
1	O_S_N_3001 HIF_DATA7_IO 1				-0.456	0.02	

After we switch Test Key to TEST\_NUM, data are merged by TEST\_NUM.

Test Info					TPPF577.00		
T#	TestName	LSL	USL	Unit	Mean	Stdev	Cpk
0	O_S_N_3001 EXT_CLK_EN_IO 339	-900	-200	mV	-461.096	13.59	6.4
1	O_S_N_3001 HIF_DATA7_IO 351	-900	-200	mV	-456.061	17.65	4.84

As a user, you should always know how to distinguish TESTs in your test data. Please switch to proper Test Key and extract again if you found data looks abnormal.

## Record types

There are 3 types of data record that related to test data, you can choose what record you want to extract and analyze. Normally we only focus on PTR and MPR, FTR only contains pass/fail flag.

PTR: Most frequently used parametric test record with limits and test result.

FTR: Functional test result which represent pattern execution result, it has only Pass/Fail flag, test name and pattern info. Normally we don't exact this report unless we want to calculate function tests' yield.

MPR: Multi-Pin record, one record could have more than 1 test results, it is normally used on testers with high density pin electronic card. Typical use case: leakage tests with same test

Test Info				
T#	TestName	LSL	USL	Unit
10	continuity:passVolt_mV[1] <u>@XO_POR_N</u>	-800	-200	mV
10	continuity:passVolt_mV[1] <u>@XO_SPI1_CLK</u>	-800	-200	mV
10	continuity:passVolt_mV[1] <u>@XP_EFUSE_AVDD</u>	-800	-200	mV
1	continuity_2:continuity_2@XI_VR1250_OUT_TRIM[1]	0.2	0.9	V

function and implemented on many pins at the same time. SSA will expend results in one MPR to different tests. You could see tests with same test number even when you selected TEST\_NUM

as Test Key, and there will be "@Pin\_Name" at end of TEST\_NAM.


Note: More MPR in test data will cause high memory consumption during extraction.

# Test Statistical & Bin summary

- Test Info & Groups
- Statistical parameters
- Select test to display chart
- Search test

# Test Statistical

Statistical summary is the default data view of SSA, after any STDF file loaded, it will automatically calculate statistical summary based on Group factor you selected.

Test Statistical is the default view when you start SSA, and you could invoke it by clicking Icon  if you are not in Test Statistical View.

## Test Info & Groups

Statistical summary contains 2 sections: Test Info & Group data (statistical parameters), Group data is calculated based on what group factors and active files you selected.

Group: MIR.LOT_ID [Correlation_20pcs_10x Q007F022.001_RT]										TestNum/TestName	View
Test Info					Correlation_20pcs_10x			HQQ007F022.001_RT			
T#	TestName	LSL	USL	Unit	Mean	Stdev	Cpk	Mean	Stdev	Cpk	
101	VDD_Con/VDD	-650	-250	mV	-438.62	36.8165	1.70775	-438.728	49.9132	1.26037	
102	VIO_Con/VIO	-600	-200	mV	-407.471	37.6728	1.70352	-412.447	8.30878	7.52429	
103	SDATA_Con/SDATA	-650	-350	mV	-514.148	6.07472	7.45452	-510.057	5.49628	8.48713	

Test info

Group 1 Data

Group2 Data

## Statistical parameters

You can pick up statistical parameters at Statistical Values section on setting screen. There are 9 statistical parameters built in: Mean, Stdev, CPK, Min, Median, Max, ExecQty, PassQty, FailQty and Yield.

Statistical summary will be re-calculated if any of below operation happened. 1) Selecting different parameters. 2) Changing selected active files by “View” menu. 3) Changing Group factor

Extraction:

Key: ☒ Test Num ☐ Test Name ☐ Test Num+Name

Records: ☒ PTR ☒ MPR ☐ FTR

Statistical Values:

☒ Mean ☒ Stdev ☒ CPK  
☐ Min ☐ Median ☐ Max  
☐ ExecQty ☐ PassQty ☐ Yield

Export:

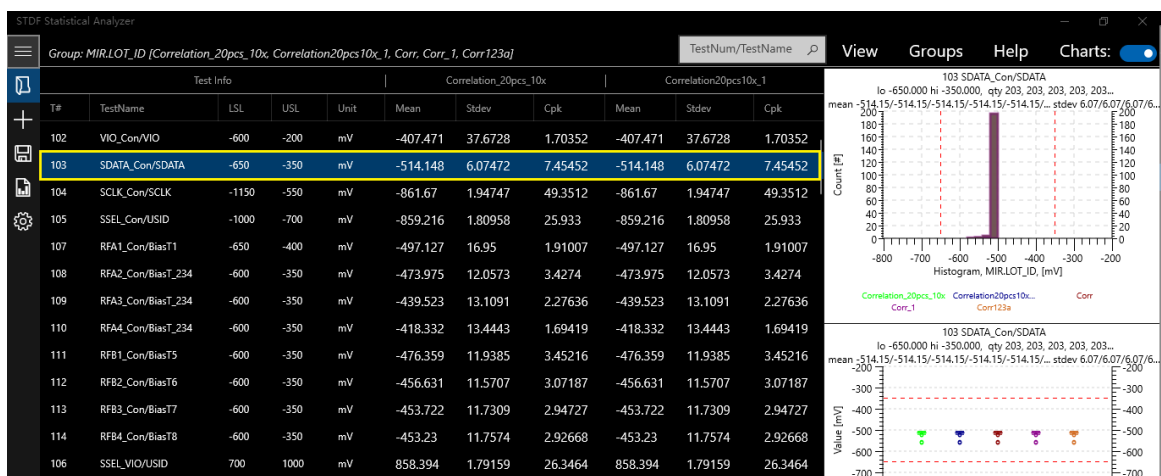
Data: ☒ Statistical Summary ☐ Raw data

## Highlight test to display chart

You can click on any test item in statistical summary table to display its charts; you also could use “Up” and “Down” key to highlight different test and charts will also be updated.

## Search test

If there are many TESTs in statistical summary table, it will be difficult to find your interested test by scroll bar. Now you need the search box, you can type TEST\_NUM or TEST\_NAME in search box, it will automatically highlight on 1<sup>st</sup> test that matches your keyword while you are typing, and it could move to next matched test if you continue hit “Enter” key.




## Sorting

You can click on the column header to sort data, there will be a small icon on the column header to show whether it is ascending or descending sorting. When you sort Test Statistical by “Fail” Qty, you will know what’s the major failure (tests with most failures).

Test Info							TPPF577.00			
T#	TestName	LSL	USL	Unit	Mean	Stdev	Cpk	Exec	Fail	↓
75	power_short VDD_CORE 0	-100	100	uA	13.183	76.82	0.38	8281	76	
74	O_S_N_3001 AVDD28_LDO 371	-900	-200	mV	-557.001	34.38	3.33	8321	32	
73	O_S_N_3001 AVDD25_LDO 255	-900	-200	mV	-480.865	27.11	3.45	8321	26	

## Bin Summary

You could switch to Bin Summary View by clicking  Icon on toolbar. Bin Summary could give you brief test result info of the data files you extracted and could compare between different Groups. You could switch between Hardware Bin Summary and Software Bin Summary on top of the view. By sorting on “Qty” or “Percent”, you could know the major failure (Bin Pareto).

Note: Bin data are collected from each die test result rather than HBR & SBR, only **BinName** and **BinPF** comes from HBR & SBR. So, you still could get Bin Summary even when STDF files don't have HBR & SBR.

<input type="radio"/> Hardware Bin <input checked="" type="radio"/> Software Bin 						
Bin Info			SITE0		SITE1	
BinNum	BinName	BinPF	Qty	Percent	Qty	Percent ↓
1		P	4005	96.55	3969	95.11
8		F	58	1.4	92	2.2
5		F	28	0.68	50	1.2
4		F	22	0.53	18	0.43



# 4

## Charts

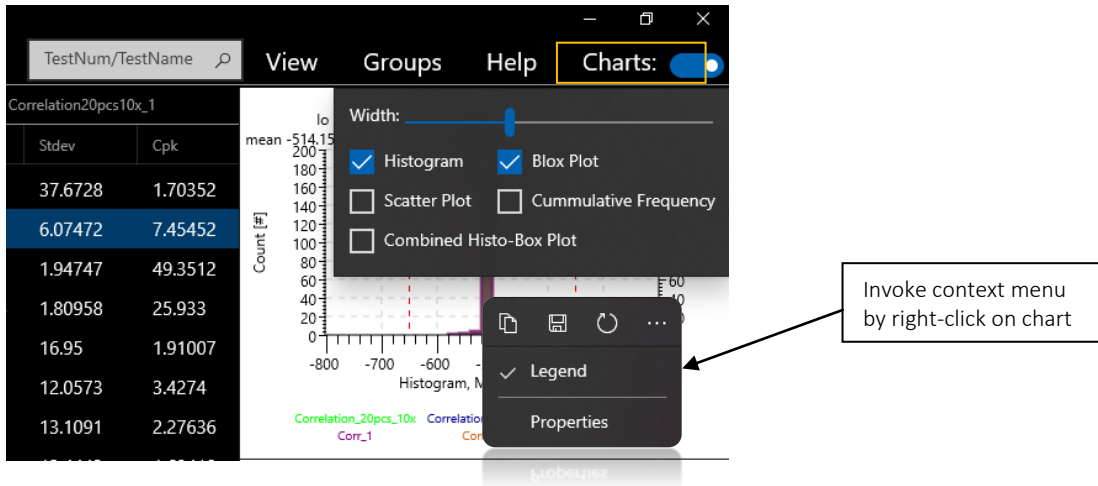
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- Enable chart view and select charts
- Interactive operation
- Cached chart view
- Histogram
- Box plot
- Scatter plot
- Cumulative Frequency
- Combined Histo-Box plot

## Enable chart view and select charts

You can enable/disable chart view by click toggle switch at right of menu bar. Click “Chart” menu to pop up chart setting screen, check/uncheck the chart types as you wish, adjust chart view width by moving Slider bar.

Note: Chart will not load data to make it smoother when you adjust chart view with.

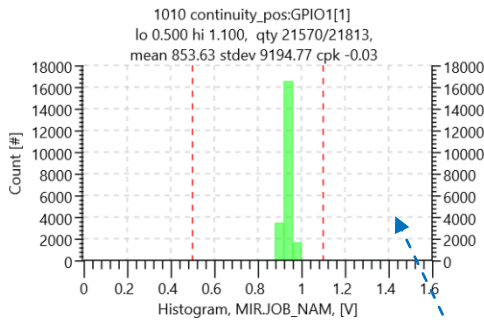


## Interactive operation

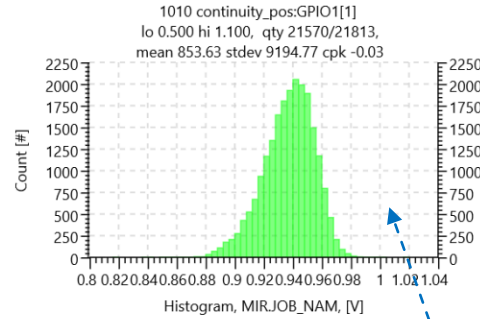
1. **Zoom:** you can zoom in & zoom out chart by mouse wheel with Ctrl key pressed. The zoom feature is to change view range on data result dimension (X axis of histogram and cumulative frequency, Y axis of scatter plot and box plot). Your current mouse position on chart will be next view range center.
2. **Highlight Group:** you can click legend item to highlight corresponding GROUP data on the chart. This will help you to have clear view when different group data overlapped on each other, especially on histogram.
3. **Show full text:** if any content is too long to display, it will be trimmed and display "...". You can move your mouse over it to show full text.
4. **Context menu:** right click on chart to display context menu, and there are several useful tools on it. "Copy", "Save", "Refresh" buttons and **Show/Hide legend** button.

## Zoomed view is automatically cached

When you zoom in/out charts, the chart view will be automatically recorded, and it will be restored when you switch back to the test again, and it will be applied to all chart types you enabled. Each test has its own view cache to save chart view.

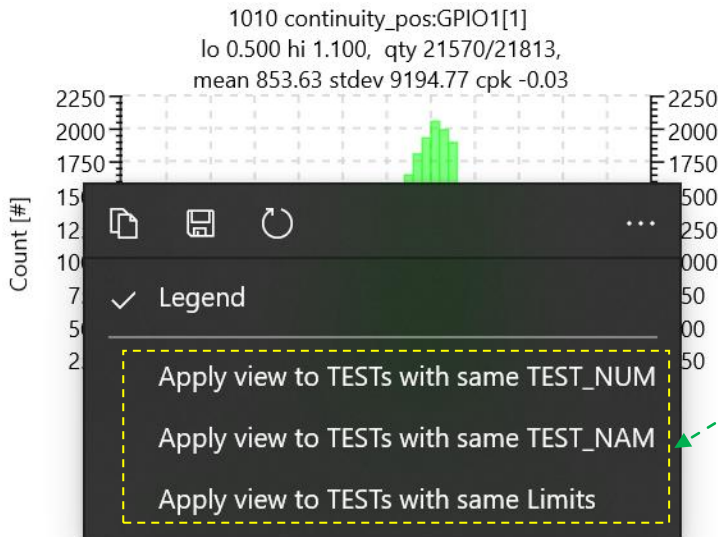


Default View



Zoomed View

You could apply current chart view to other TESTs by right click on the chart. It could be applied to TESTs with same TEST\_NUM, TEST\_NAME or TEST LIMITS.

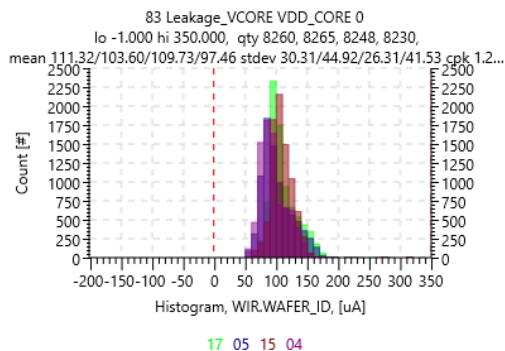


Apply View Menu

# Histogram

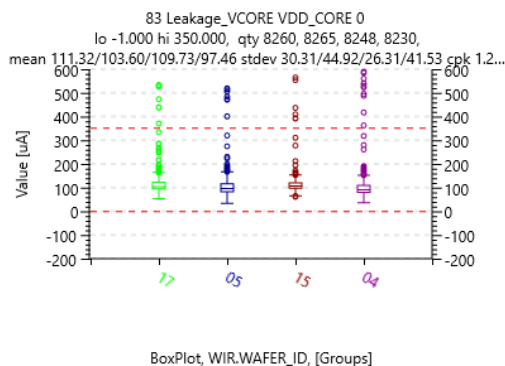
Histogram is a widely used statistical chart, it is easily to interpret, and it is also the fastest chart to render when there are huge data samples.

But different group data will easily overlap on each other; in this case you can click different legend items to view different group data.



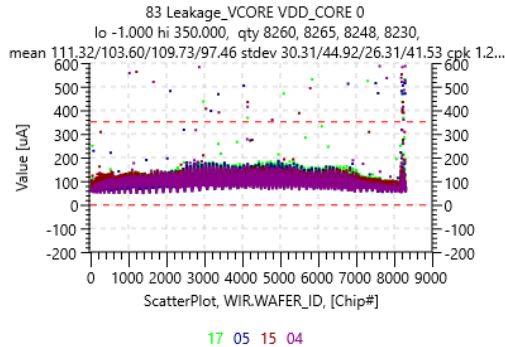
# Box plot

Box plot can display distribution in different dimension. When you have many groups of data, box plot could display them clearly on one chart (without overlap), and easily compare between groups. Box plot is also very fast to render, but a little slower than histogram.



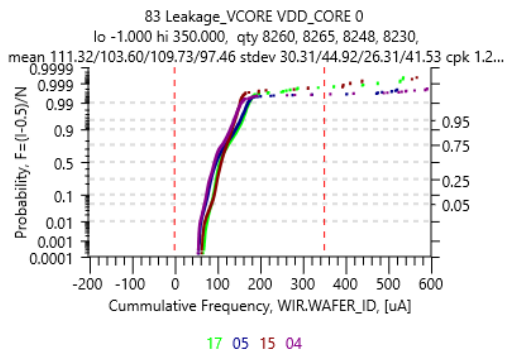
## Scatter plot

Scatter plot is also called Trend chart, it displays each data point on chart by time, so we could know whether TEST result is drifting during testing. But when you have huge data, it will easily overlap between different groups. Because scatter plot displays each data point on chart, it takes longest time to render.



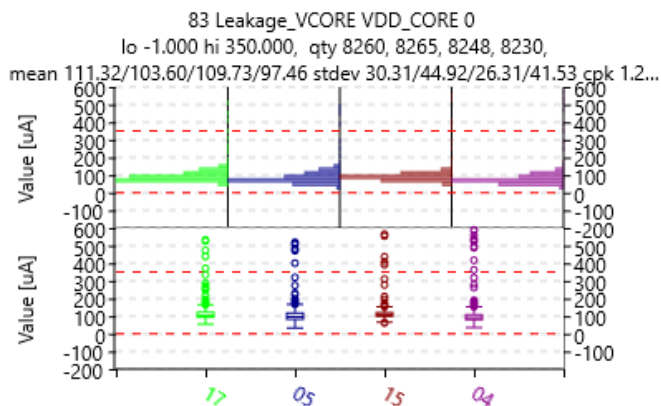
## Cumulative frequency

Cumulative frequency is also very good chart, it could display different groups of data on one chart clearly and it is easily to know distribution percentage according to Y axis. It is slower to render than histogram & box plot, but faster than scatter plot.



## Combined Histo-Box plot

This is a hybrid chart combined histogram together with box plot. It is useful when you want to compare distribution with many groups of data on one chart.



Histo-Box Plot, WIR.WAFER\_ID, [Groups]


# 5

## Wafer map

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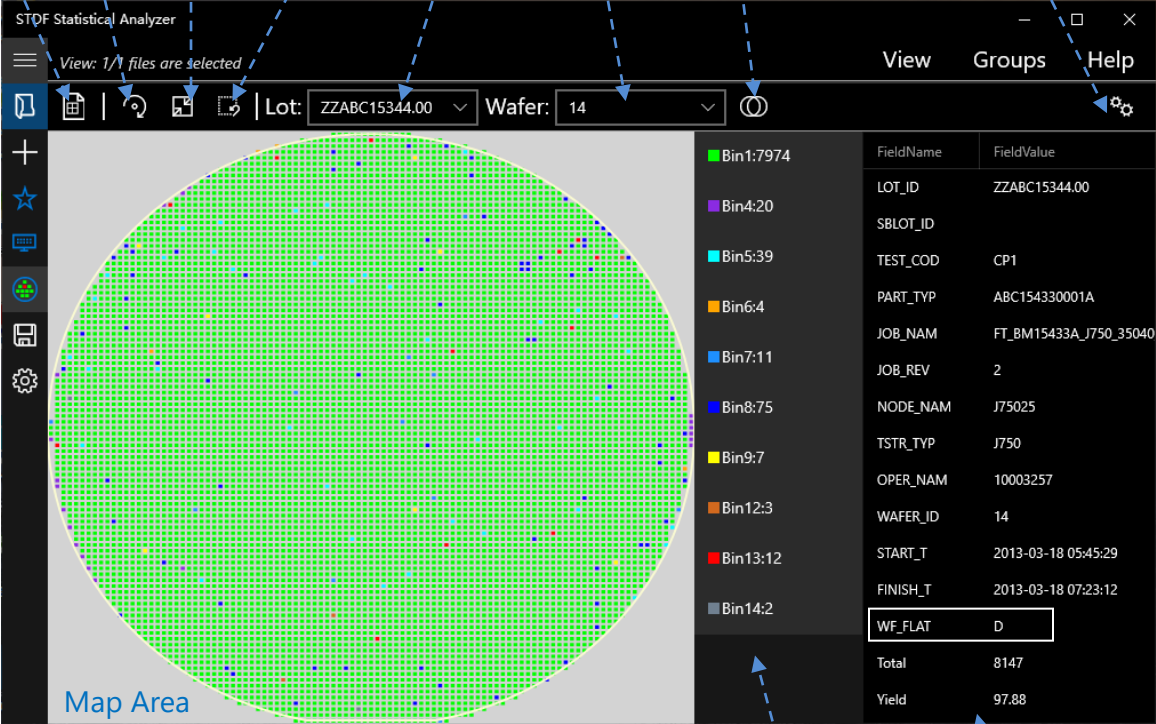
- Wafer map tool overview
- Lot & Wafer selector
- Rotate & zoom
- Bin Group & Info field list
- Merge wafer maps
- Parametric map
- Stacked map
- Map conversion

## Wafer map tool overview

You could go to wafer map view by click  icon on toolbar. It will automatically generate wafer maps for extracted STDF files if there is no wafer map generated after STDF extraction, and then load them to wafer map view. Below is snapshot of wafer map view and explanations.

SSA wafer map view has below feature and they will be introduced in detail below.

- Save map to Excel
- Rotate map
- Switch between lots and wafers
- Merge maps
- Zoom in / out
- Lot info and wafer info display
- Bin color & Qty display
- Show bin # and coordinate of the die by clicking



Auto Size

Rotate

Cancel Selection

Wafer Selector

Lot Selector

Merge Maps

Setting

Save Map

STDF Statistical Analyzer

View: 1/1 files are selected

Lot: ZZABC15344.00

Wafer: 14

Map Area

Wafer Notch

Bin Group

Info Field List

Field Name	Field Value
LOT_ID	ZZABC15344.00
SBLOT_ID	
TEST_COD	CP1
PART_TYP	ABC154330001A
JOB_NAM	FT_BM15433A_J750_35040
JOB_REV	2
NODE_NAM	J75025
TSTR_TYP	J750
OPER_NAM	10003257
WAFER_ID	14
START_T	2013-03-18 05:45:29
FINISH_T	2013-03-18 07:23:12
WF_FLAT	D
Total	8147
Yield	97.88




# Lot & wafer selector

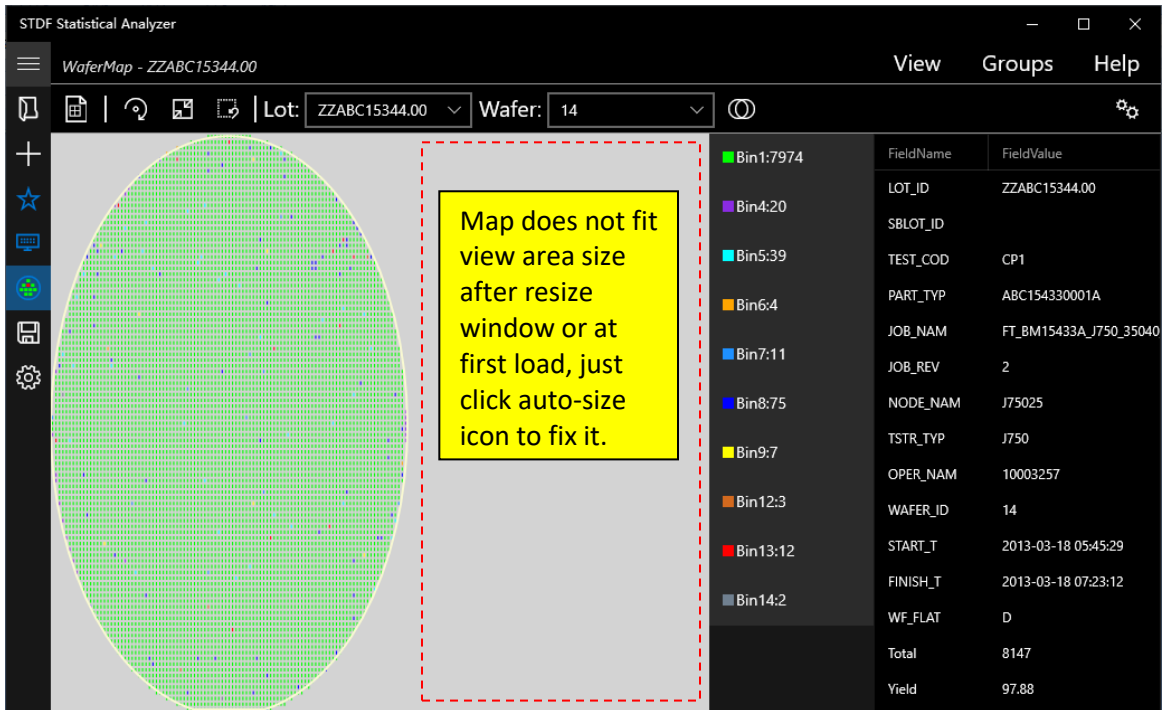
Wafer maps in SSA are organized by LOT, each lot may have more than 1 wafer. You could switch LOT & WAFER from top tool bar in wafer map view. When you switch LOT, wafer list will be automatically updated, and map view will be automatically loaded to 1<sup>st</sup> wafer of the lot.

When you click “export” button on top tool bar, all wafers’ map of “Current Lot” will be written to Excel file. If you have more than one lot, you should switch to specific LOT and then export it.

# Auto Size

This button  will reset map view to its original view to fit the map area size from any zoomed in/out view. Sometimes the map could fit the full map area after you resized SSA window, you could also click this button to reset map view.

Why won't we let SSA to reset map view in real time while you are resizing SSA window? Because some wafer maps may contain large quantity of dies, it will take hundreds of milliseconds to a few seconds to reset map view, this will cause SSA window resize not smoothly.



Bin	Field Name	Field Value
Bin1:7974	LOT_ID	ZZABC15344.00
Bin4:20	SBLLOT_ID	
Bin5:39	TEST_COD	CP1
Bin6:4	PART_TYP	ABC154330001A
Bin7:11	JOB_NAM	FT_BM15433A_J750_35040
Bin8:75	JOB_REV	2
Bin9:7	NODE_NAM	J75025
Bin12:3	TSTR_TYP	J750
Bin13:12	OPER_NAM	10003257
Bin14:2	WAFAER_ID	14
	START_T	2013-03-18 05:45:29
	FINISH_T	2013-03-18 07:23:12
	WF_FLAT	D
	Total	8147
	Yield	97.88


# Cancel selection

You could click any item from Bin Group to select all dies on the map with same bin#, and when you click on any die on the map, all dies with same bin# will be highlighted also. If you want to cancel this highlighted view, you can just click  button.


# Rotate map

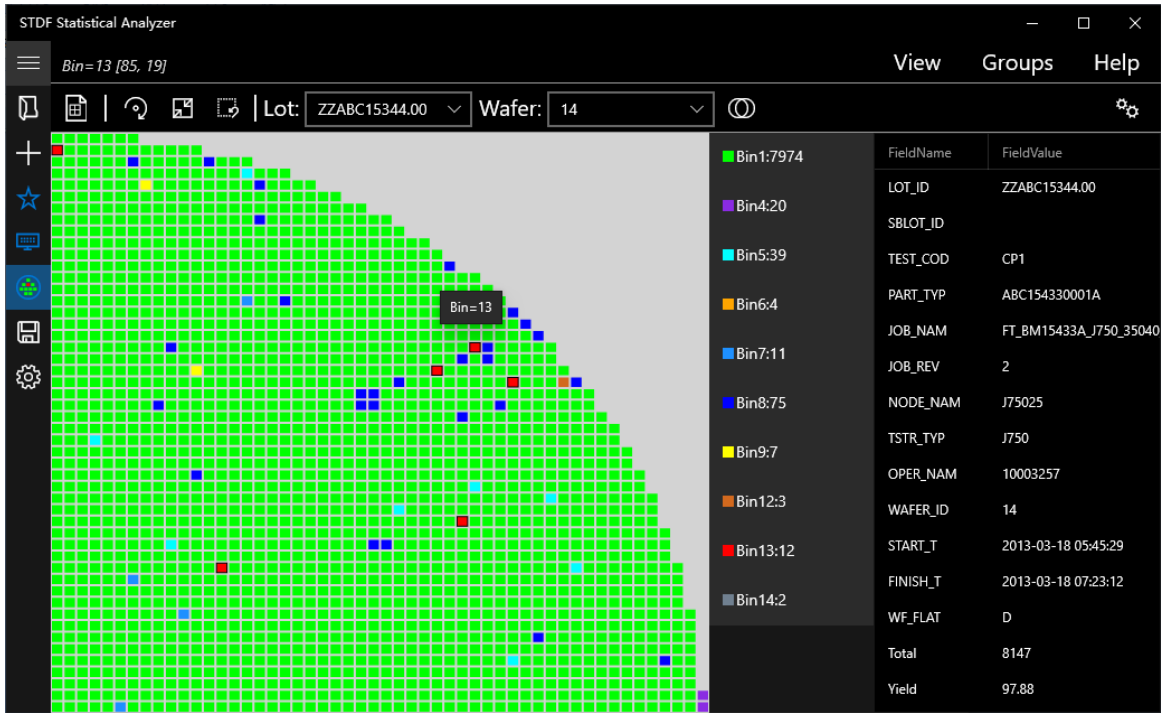
Wafer notch indicates the wafer map orientation, you could find out wafer notch from wafer map itself or check “WF\_FLAT” field in “Info field list”, the possible WF\_FLAT values are shown as below.

D – Down, U – Up, L – Left, R – right

SSA wafer map view could rotate wafer map as you wish, please click  Icon to rotate map clockwise. WF\_FLAT field will be updated when you rotate the map.

# Zoom map

It is very convenient to zoom in and zoom out the map; you can just roll the mouse wheel. It can only be zoom in 4x from its original size, you will get a note at status bar when it reaches lower or upper zoom limit. Please take note that when you zoom in/out map, your mouse position will be next view centre, so please move your mouse pointer to proper location before you move your mouse wheel. You can click  Icon to back to original view.

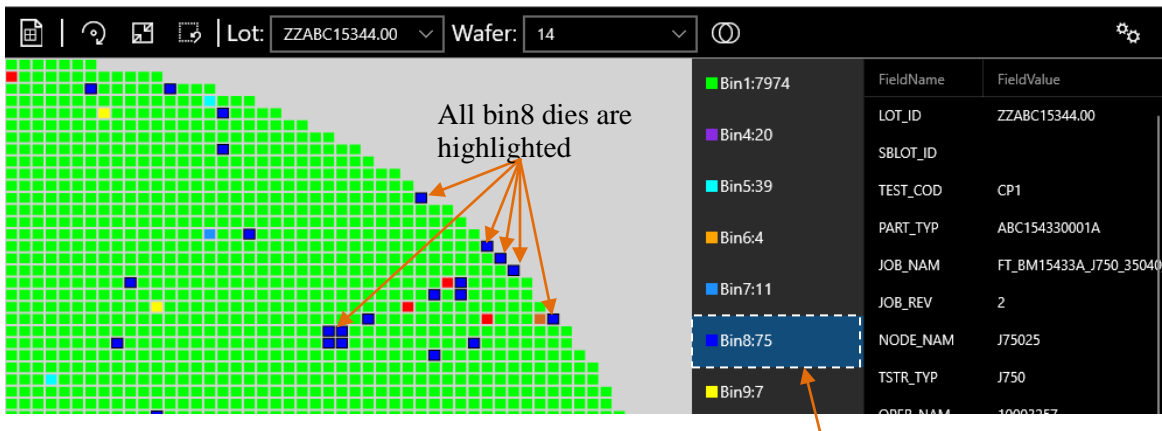


# Bin Group & Info Field List

Info Field list displays LOT information like LOT\_ID, JOB\_NAM, PART\_TYP, NODE\_NAM and so on, also contains WAFER related information like WAFER\_ID, WAFER\_FLAT, START\_T and FINISH\_T, and some Qty information (Total, Good, Fail, Retest, Yield). Info Field List will be updated when you switch between different LOT or WAFER.


Bin Group is bin color legend, displays color and Qty of each bin. When you click any “bin” in Bin Group, it will highlight all dies on the map that has same bin#.

When you click any die on the map, it will highlight all dies with same bin# too. And it shows XCOORD and YCOORD of the die you clicked on status bar.

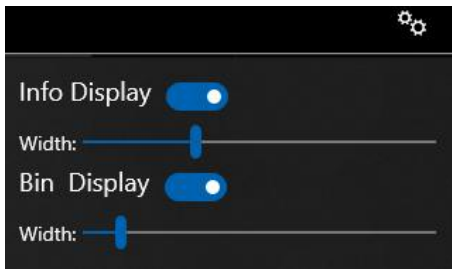


## Settings


Clicked and highlighted all Bin8 dies

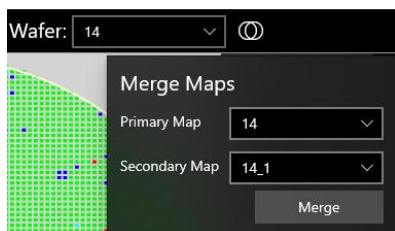
You could click  Icon to open setting panel, you can enable and disable “Info field display” and “Bin Group display” or change display width. Your setting will be saved and load as default view when you start SSA next time.

After you updated settings, map area will be updated to fit the new view size.



## Merge wafer maps

In some case, wafer map will be split into different STDF files (Ex: first pass in 1 STDF and retest in another STDF). They will be loaded as different wafers in SSA, and 2<sup>nd</sup> Wafer\_ID will have “\_1” postfix. If you want to merge them, you could click  Icon.

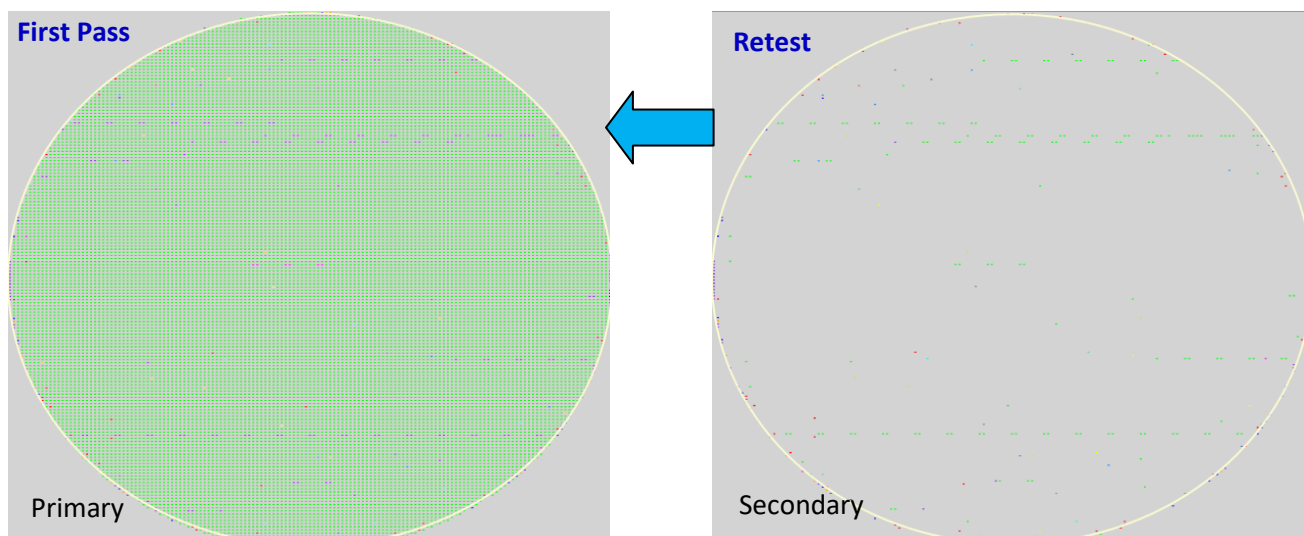


When you are merging wafer maps, you need to identify “Primary Map” and “Secondary Map”, please always choose wafer map with more dies as Primary Map. If your Secondary Map has more rows or columns than your Primary Map, it will give you warning and abort merge operation. After merging complete, Secondary Map data will be added to Primary Map and Secondary map will be removed from WAFER\_LIST.

You can only merge wafer maps under same LOT. Actually, you can only merge wafer maps under same LOT and with same WAFER\_ID (exclude “\_n” postfix). If the current LOT you selected only has 1 wafer map, the “Merge” button will be disabled.


When SSA merging wafer maps, Total, Good, Fail, Retest Qty will be recalculated and updated on Info Field List.


After you merged maps, it will remain there if you switch between different function tabs (Test Statistical, Bin Summary and Wafer map). But after you add/load new STDF files, wafer maps will be cleared from memory and regenerated again from all loaded STDF files.



## Parametric map

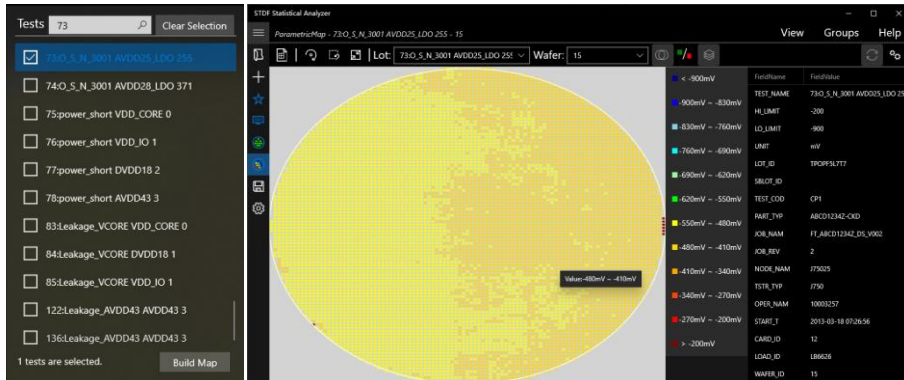
We could pick up some tests to plot test result on map and display different range of value in different color, this map is called parametric map. It could help to see whether there is any pattern on the map which could indicates some process correlation.


When you click  icon on left toolbar, it will prompt a test-selection window, select tests on the window and click “Build Map” button. You can search by TEST\_NUM or TEST\_NAME. In parametric-map view, “TEST” will be treated as “LOT”, each lot could have more than 1 wafers.

You could save parametric map to Excel file by clicking  icon on top toolbar. And rotate function is also applicable for parametric map.


Test Select Window

Parametric Map View



There is new feature that only applicable on parametric map which is convert to “parametric pass/fail map”. In parametric map, SSA stores reading for each die and keeps test limits too, so it could get each die pass/fail result for current test. You can just click  icon to convert “parametric map” to “parametric pass/fail map”.


In “parametric pass/fail map” it will only shows Bin1 (pass) & Bin0 (fail) with limited lot & wafer information on the right.

After you convert parametric map to “parametric pass-fail map”, it will be saved in memory. It will display saved “parametric pass-fail map” rather than parametric map when you click  icon again. If you want to switch to parametric map, just click “Build map” button again on test selection window with desired tests are checked.

## Stacked map



Stacked map is a tool that could stack many maps and count fail count for each die, from which you could know that whether there is any region on the map that always fails (stuck fail). You can stack maps from different wafer and different lot, but they must be tested with same program name (JOB\_NAM).

On Stacked map, count can vary from 0 to wafer Qty that you totally stacked, Count=0 means there is wafer fail at current location; it will be display in green color.

Stacked map is a converted map; there is no dedicated button on left toolbar for Stacked Map. When you are viewing wafer maps or “parametric pass/fail maps”, you could just click  icon to stack maps you are viewing.

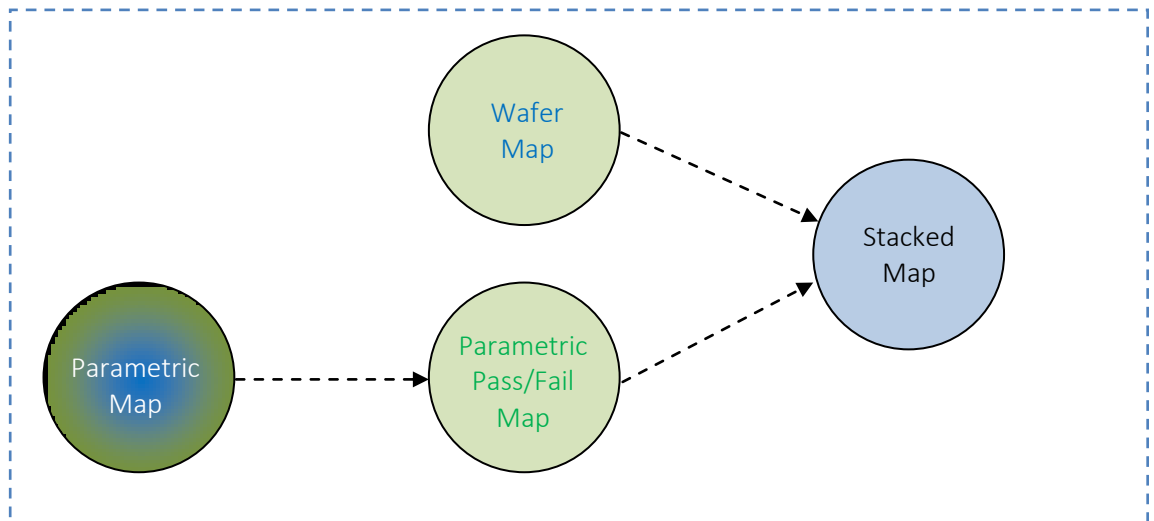
Note: Parametric maps could not be stacked, you can convert them to “parametric pass/fail maps” first, and then you can stack them by click “stack icon”.

It could be rotated, zoomed and saved to Excel by clicking corresponding icon on top tool bar like you are operating wafer maps.

If wafer maps are converted to stacked map, it will be saved in memory automatically. It will be loaded and displayed automatically when you click  Icon again. If you want to get wafer map again, just click  icon on top toolbar, SSA will rebuild wafer maps and load them into map view.

## Map Conversion Chain

In above sections, we talked about convert parametric map to “parametric pass/fail map” and convert wafer maps to stacked map. Here we give an illustration to show map conversion chain.



# 6

## Grouping

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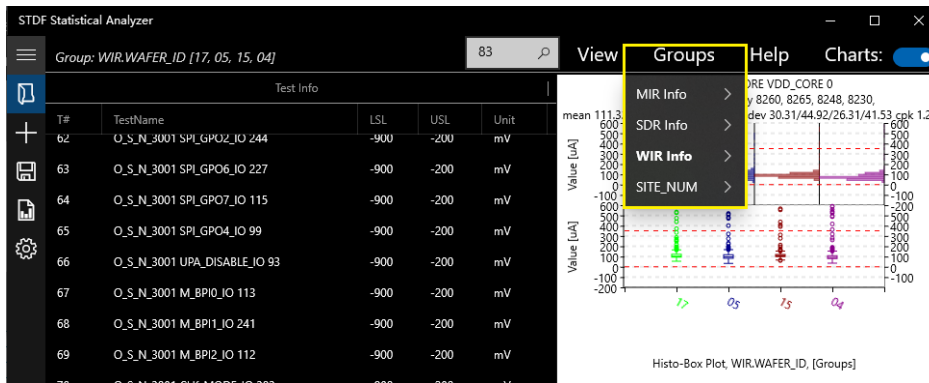
- Group menu
- MIR items
- SDR items
- Wafer ID and SITE\_NUM

## Group menu

Grouping feature is very useful. It could separate data and calculate by different factors you selected and compare between each other. In semiconductor industry, we will always compare data by different factors to find out the cause of the issue that you are looking at like LOT\_ID, Tester ID, Load board ID, Handler ID, Wafer ID, SITE\_NUM and so on.

You could change Group factor by “Group” menu, and when you move your mouse over “Group” menu, it will display current selected group factor and group values of current extracted data files.

When you changed group factor, statistical summary will be re-calculated automatically.



## MIR items

MIR items are LOT level items, it includes factors like: LOT\_ID, NODE\_NAME, JOB\_NAME, OPERATOR NAME and so on. We list some frequently used items of MIR. Your data may use different items to store the information you are interested in, like Fab name, test house name, Test Insertion name, test flow, retest flow and so on.

1. LOT\_ID: lot number of the data
2. JOB\_NAM: test program name
3. NODE\_NAM: tester id
4. OPER\_NAM: operator name
5. TST\_TEMP: temperature



## SDR items

SDR items are mostly related to HW like Handler ID, Load board ID, Prober card ID, Cable ID etc.

## WIR items

Most useful WIR item is Wafer\_ID, if you are analyzing wafer test data, you could also select it to compare between different wafers.

## SITE\_NUM

Sometimes we want to check site to site distribution difference; you could select SITE\_NUM as group factor.

### **\*Note:**

If your data have duplicated test (Same test number and same test name), this will cause exception when we group by SITE\_NUM (will not affect other group factors).


# 7

## Exportation

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- Test Statistical & data exportation
- Bin Summary exportation
- Charts exportation
- Export wafer maps
- Preventing file corruption

## Export data to Excel/CSV

You could export statistical summary and test result data to file by clicking  icon on toolbar. Please check “Export” section on Setting screen and check “Raw data” if you need to export test result to Excel too.

**Excel format:** Statistical summary will be in 1<sup>st</sup> sheet in saved Excel file, and test result data will be saved in following sheet by STDF files.

if you loaded huge size STDF files, it would take a few minutes to export test result data and it will consume a lot of memory while writing data to Excel.

When exporting huge data into Excel file, you will notice that it looks like been stuck at 99% for a few seconds, which indicates SSA is flushing memory data to file, please wait until it complete. If you try to open the target file before it complete, it will show “invalid format” and cause writing failed.

**CSV format:** Statistical summary and raw data will be separated into different CSV files. CSV format exportation will be much faster.

Extraction:

Key: ☒ Test Num ☐ Test Name ☐ Test Num+Name

Records: ☒ PTR ☒ MPR ☐ FTR

Statistical Values:

☒ Mean ☒ Stdev ☒ CPK

☐ Min ☐ Median ☐ Max


☐ ExecQty ☐ PassQty ☐ Yield

Export:


Data: ☒ Statistical Summary ☐ Raw data

A	B	C	D	E	F	G	H	I	J	K
Test Info				QKAQQ-1_FTRT4			Datalet xLot			
Test Num	Test Name	Lo Limit	Hi Limit	Unit	Mean	Stdev	Cpk	Mean	Stdev	Cpk
1000	c_bat 10.a10	-1.00	5.00	mA	0.04	0.01	38.19			
1020	eldo_in 10.a18	-1.00	5.00	mA	-0.02	0.07	4.68			
1030	d_core 35.a10	-1.00	5.00	mA	1.05	0.13	5.06			
1040	do_in 10.a18	-1.00	5.00	mA	0.04	0.01	47.21			
1050	ec_sx 10.a14	-1.00	5.00	mA	-0.11	0.02	16.75			
1060	d_igl 10.a18	-1.00	5.00	mA	0.91	0.24	2.71			
1080	edup 11.d2	-1.00	5.00	mA	0.03	0.18	1.87			
3900	Dut -1 <> XT	-20.00	0.00	ppm	-73.63	236.18	-0.08			
4000	ent -1 <> VC	0.00	18.74	mA	15.96	0.41	2.28			
4010	ent -1 <> VC	11.54	18.74	mA	15.96	0.41	2.28			
4020	MX -1 <> VC	4.70	8.00	mA	6.36	0.21	2.59			
4030	NA -1 <> VC	2.00	3.50	mA	2.92	0.12	1.57			
4040	CO -1 <> RF	3.00	6.00	mA	4.72	0.12	3.43			
4050	DIV -1 <> VC	2.04	4.84	mA	3.03	0.12	2.77			
4500	1 <> VC	8.00	23.00	mA	11.49	0.55	2.13			

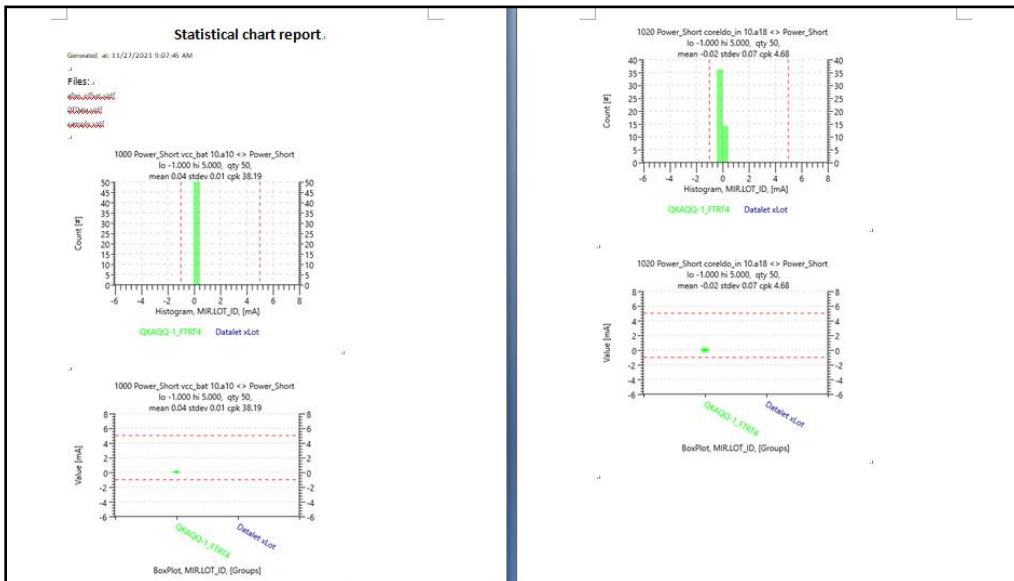
## Export Bin Summary to Excel

Since Bin Summary data is not huge, so only provide Excel format exportation. You can just click  icon to choose a file name and complete Bin Summary exportation. In the Excel file, if any bin Qty does not exist in a Group, it will show "0" as Qty and "0.00" as percent.


## Export Charts to Word

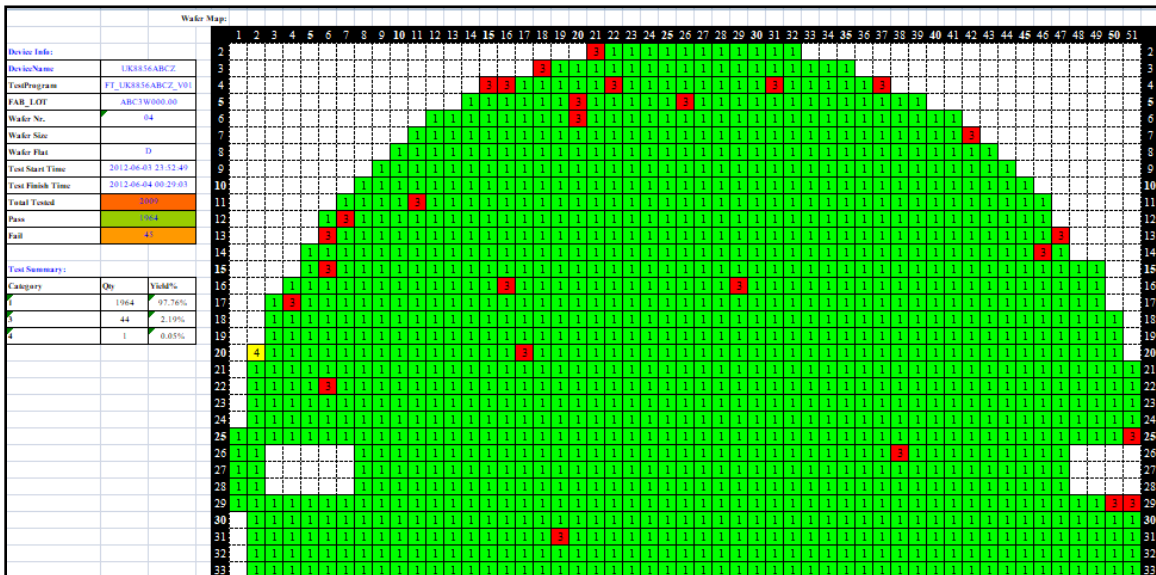
You could export all TESTs' charts Word by clicking  icon on toolbar. When you enabled multiple charts at char view, there will be multiple charts saved in Word for each TEST. While SSA is save charts to Word file, you will notice that charts at chart view are flashing, you'd better wait at this moment, and do NOT open the target Word file until exporting complete.

When you are exporting charts, you will see that chart controls are flashing on screen. Before exportation, do select charts that you only want to export and adjust chart width properly.



## Export Wafer map to Excel

You could export wafer map to Excel file by clicking Icon  in wafer map function tab, it will only export only current lot maps to Excel file. If you have more than one lot, you need to switch to each lot and click export button.



## Preventing file corruption

When you are export data, charts or wafer maps, please monitor status bar. And only try to open files when exportation complete. If you try to open file before writing complete, it will lead to exportation failed and file corrupted.

When you export data, charts or maps to file, please choose a file name that is different from any existing file name in the target folder. If you choose an existing file name, it could cause file corruption during overwritten existing file which will cause the file could not be opened

If you have any question or inquiry, please feel free to contact [support@truwalkers.com](mailto:support@truwalkers.com).