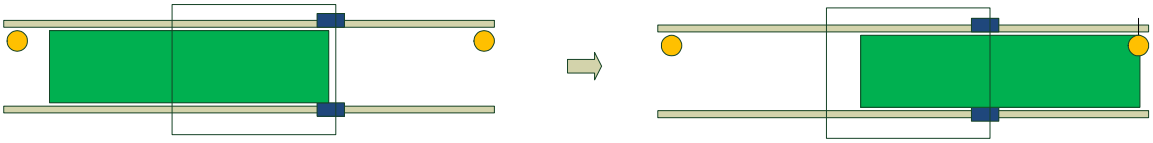
Large Size PCB Programming

Contents

1. OUTLINES

This document describes how to create inspection programs for large PCB which is longer than 510mm.
In case of 510mm or longer PCB, the scanning to capture PCB image is performed twice.
(After loading PCB, BF-3Di-Z scans 510mm image first and moves the PCB, and scan the rest area of the PCB secondary)



1st Scan / Inspection

2nd Scan / Inspection

2. OPERATING ENVIRONMENT

This function is available with BF2 software for BF-3Di-Z.

3.TEMPLATE IMAGE REGIATRATION

Image-matching of PCB edge is performed between the registered template image and a captured image when clamping PCB.
Based on the result of this image-matching, the offset amount between actual PCB stop position and originally defined PCB stop position is calculated, and this offset will be compensated.
If no template image is registered, the following dialog is shown before scanning.
Adjust the cursor on the edge of the PCB and click **Template Registration.**

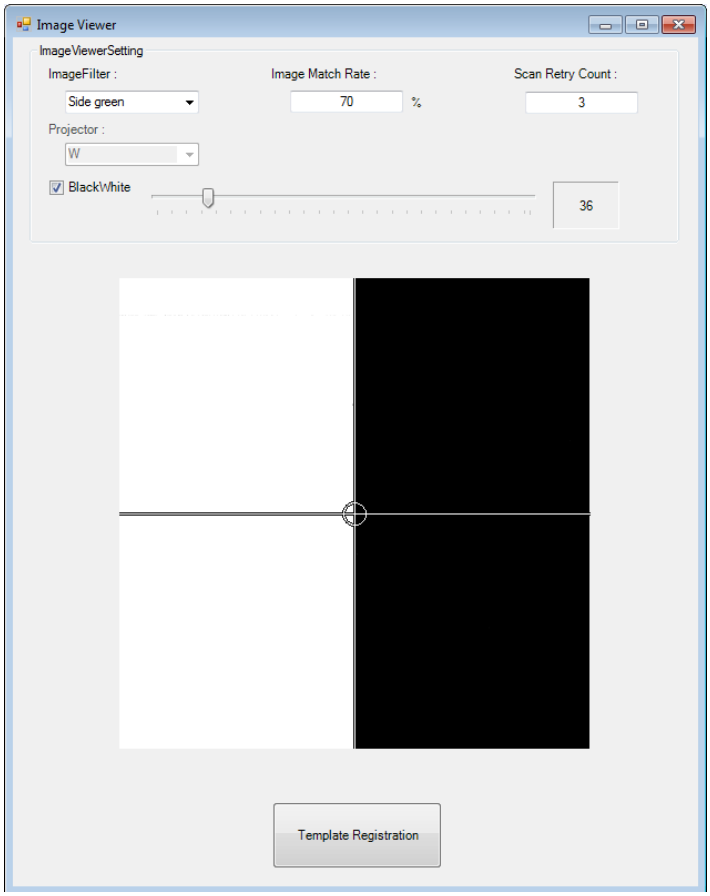


Fig1 Template Registration

Items	Contents
Image filter	Select one from Top/Red/Green/Blue/Low/Height Image that has large color difference compared to the color of background is preferable
ImageMatchRate	OK rate of PCB edge image matching
ScanRetryCount	When any value is set here, camera head moves to right by 10mm and retry the image matching in setting numbers if failing the PCB edge image matching. (this function works only for image-matching of PCN end-edge)
BlackWhite	Change a Image to BlackWhite. can adjust a threshold using slider bar.
Projector	it's can select a projector setting when it's selected a Height at Image filter. In case of occurs a image noise by around influenced, its might improvement by changing projector.

Right click on FOV tab and the following menu is shown.
Perform "Clear AnchorImageTemplate" to clear information such as template image, Image filter, ImageMatch Rate, and Scanretry count.

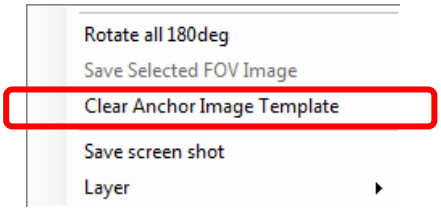
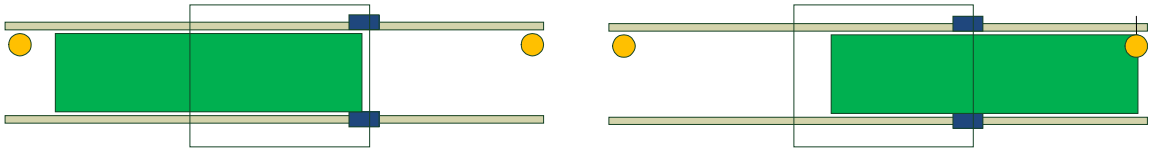


Fig 2 Clear AnchorImageTemplate

4. COMPONENTS LAYER SETTING

Set layer1 ID in components which are in the first scan area and set layer2 ID in components which are in second scanning area.



1st Scan / Inspection (Layer1)

2nd Scan / Inspection (Layer2)

The appropriate layer numbers are assigned to all components by selecting Allocate Layer

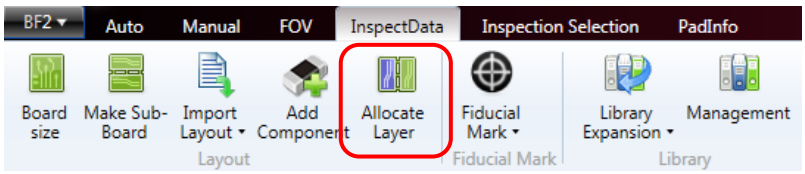


Fig 3 Allocate Layer

Components having layer1 ID are shown in green and components having layer2 ID are shown in purple.

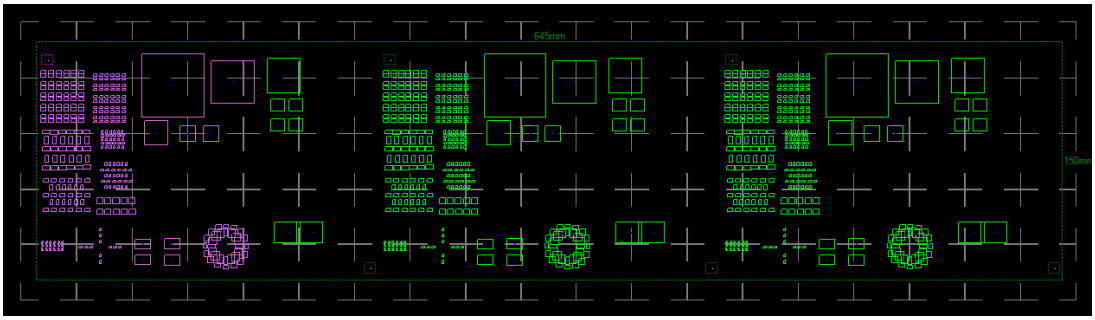


Fig 4 Image of components layerID

Layer number can be changed manually. Go to edit panel→Set Layer ID

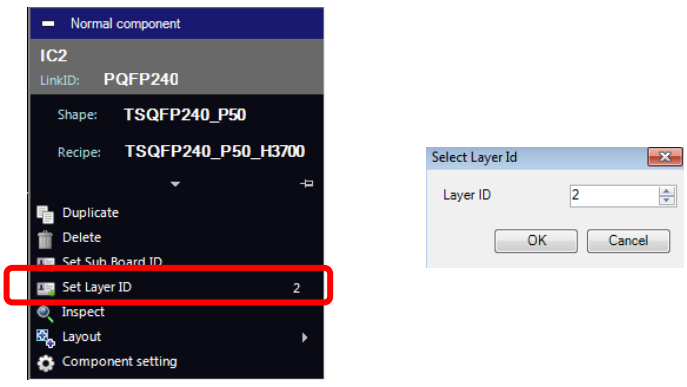


Fig 5 Set Layer ID

5. FOV LAYER SETTING

Set layer1 ID in FOVs which are in the first scanning area and set layer2 ID in fovs which are in the second scanning area.
When selecting FOV allocation in Inspection tab, appropriate FOVs are assigned (layer ID of components are considered automatically to allocate FOVs)

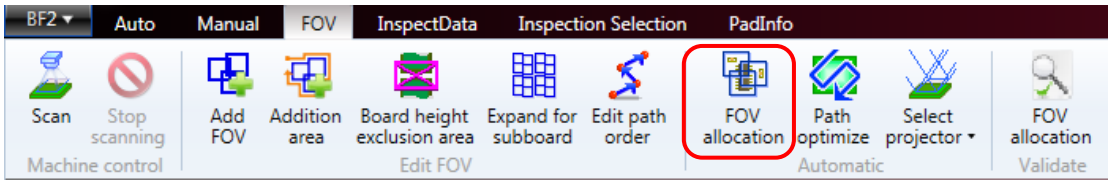


Fig 6 FOV allocation

FOVs in layer1 are shown in green and FOVs in layer2 are shown in purple.

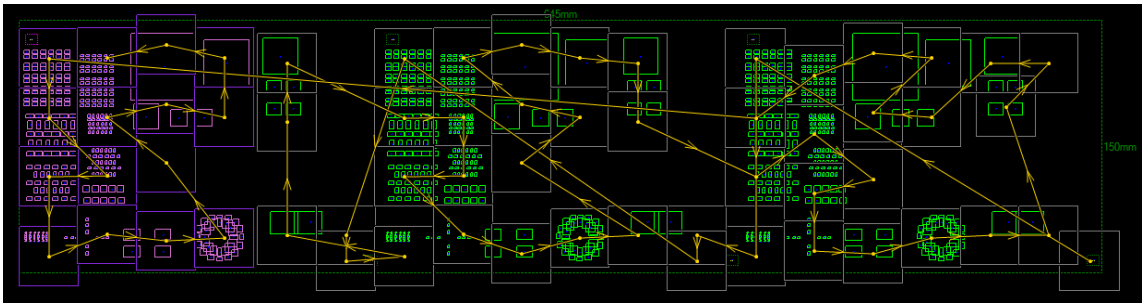


Fig 7 Image of FOV Layer ID

Layer number can be changed manually. Select a FOV and go to edit panel→Set Layer ID

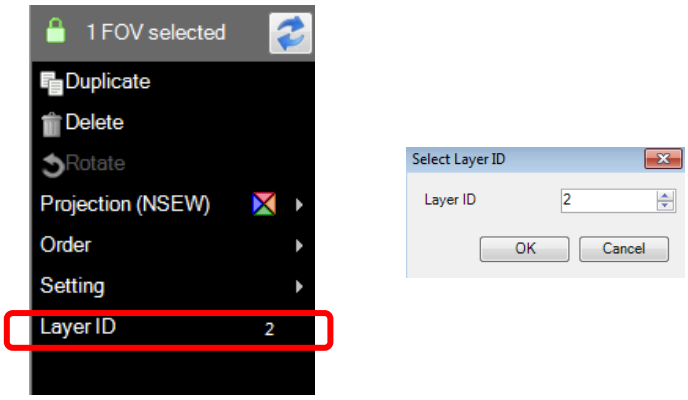


Fig 8 Change Layer ID

6. Board Viewer Image of each Layer

Right click on the following menu is shown.
It is possible to be displayed a layer Image at the BoardViewer by The FOV Layer number is checked on the "Imagelayers".

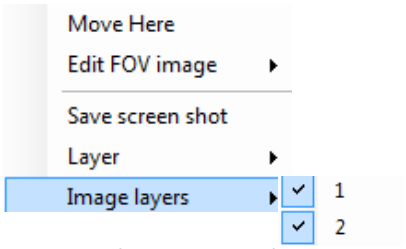


Fig 9 Display Layer ID selection

In overlaps area with Layer 1 and Layer 2, FOV image of layer 2 is displayed.
There is a case where the image at that of Layer 1 and Layer 2 is shifted.
But Inspection is no problem. because FOV only images of the same layer as components layer is used.

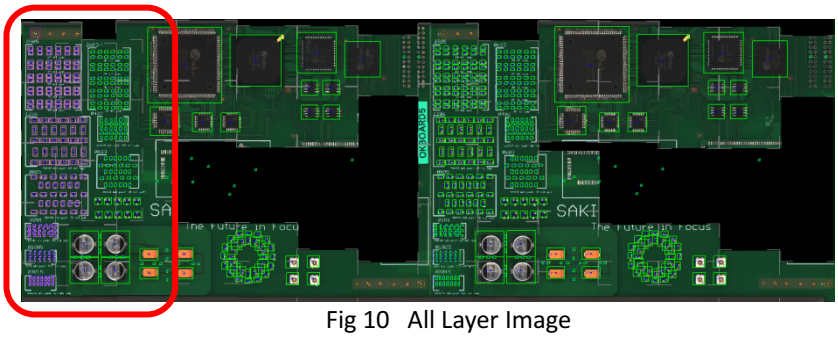


Fig 10 All Layer Image

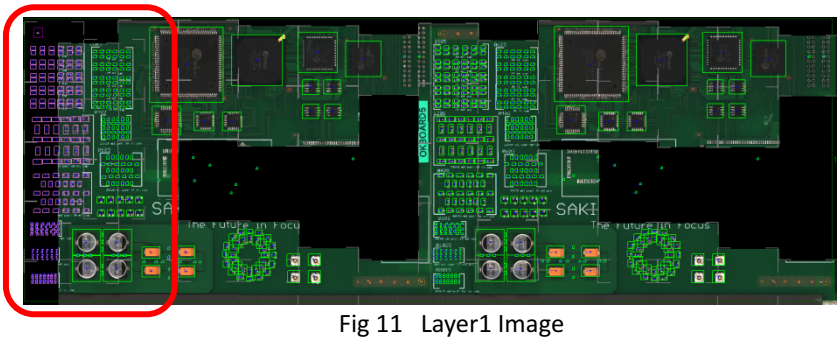


Fig 11 Layer1 Image

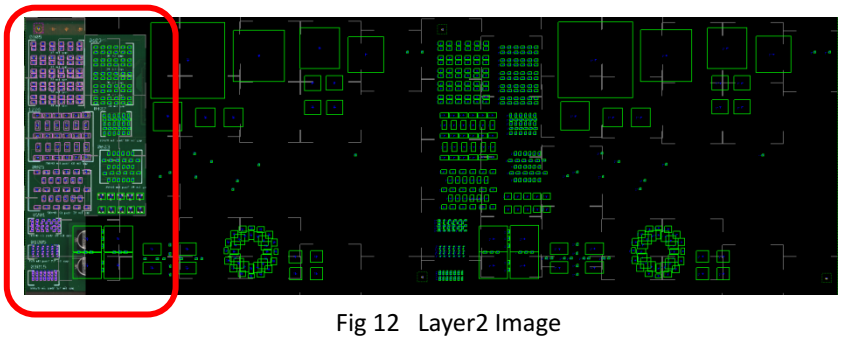
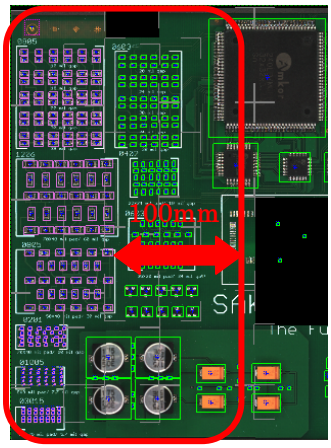


Fig 12 Layer2 Image

7. Mark assignment

Assign the fiducial mark for be used in the inspection of layer 1 and layer 2 components.
If there is no mark in layer 2 FOV, can use a mark of less than 100mm area from components of layer 2.



Depending on board size can allocate to more wide range.

Fig 13 Mark assignment area for Layer 2

Set a Layer ID of Mark.

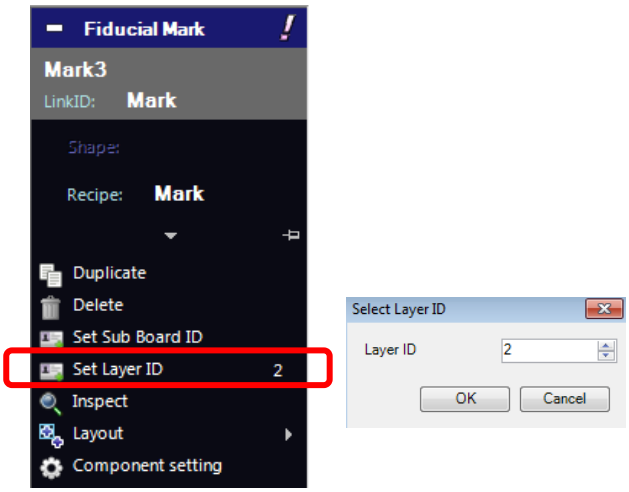


Fig 14 Change Layer ID

Assign the fiducial mark. Select a Layer ID at "target Components" item.

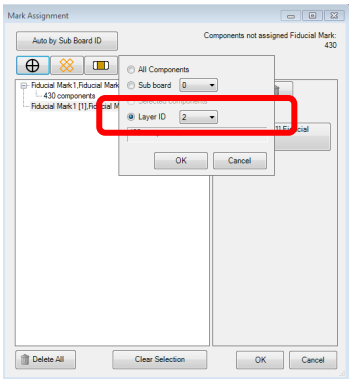


Fig 15 Mark assignment

8. OPERATION

Step 1: Register a template image to search PCB edge.
Step 2: Create inspection program with wizard.
Step 3: After creating shapes and recipes, set layer IDs on components.
Step 4: allocate a FOV. Automatically Set layer ID of FOVs.
Step 5: Scan the PCB image again.
Step 6: Assign the fiducial mark for Layer1 and Layer2.
Step 7: If added a fiducial mark for Layer 2, allocate a FOV again.
Step 8: After performing inspection, adjust parameters for inspection.

9. Revision History

Revision	Date	Description	Written by
01	2016/2/8	First	A.Iwase
02	2016/7/28	Add a "Board Viewer Image of each Layer", "Mark assignment"	A.Iwase
03	2016/11/28	Modufy "Template Image regestration"	A.Iwase
04	2017/4/13	Add a "Height" to Image filter setting	A.Iwase