

SPECTRUM APPLICATION NOTE

Application Note Number : SANE-01-005

Topic : Single Fixture holding Different Boards

Subject:

How to create fixture files for a fixture holding several different boards

1. Problem description

In order to minimize fixture cost it could be interesting to place several boards onto the same physical fixture. There are several ways to do this:

1. Treat all boards as a single entity
2. Treat each board as a single entity but merge them on a single fixture.

This note will concentrate on the second way with the following assumption or rule:
Number of tester channel should be minimized.

This implies that, in terms of wiring, a single channel will have to access all boards in the fixture (parallel wiring) and boards will have to be tested separately.

A single Drilling and wiring file should be generated in order to ease the fixture manufacturer work and minimize the errors, which will help keeping the cost down.

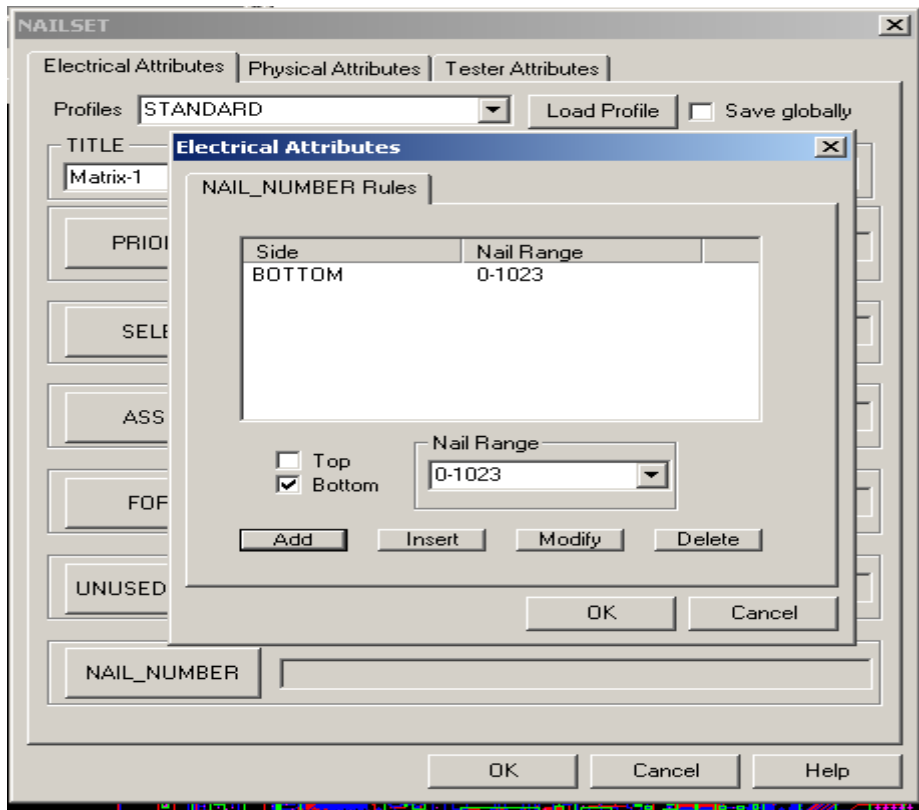
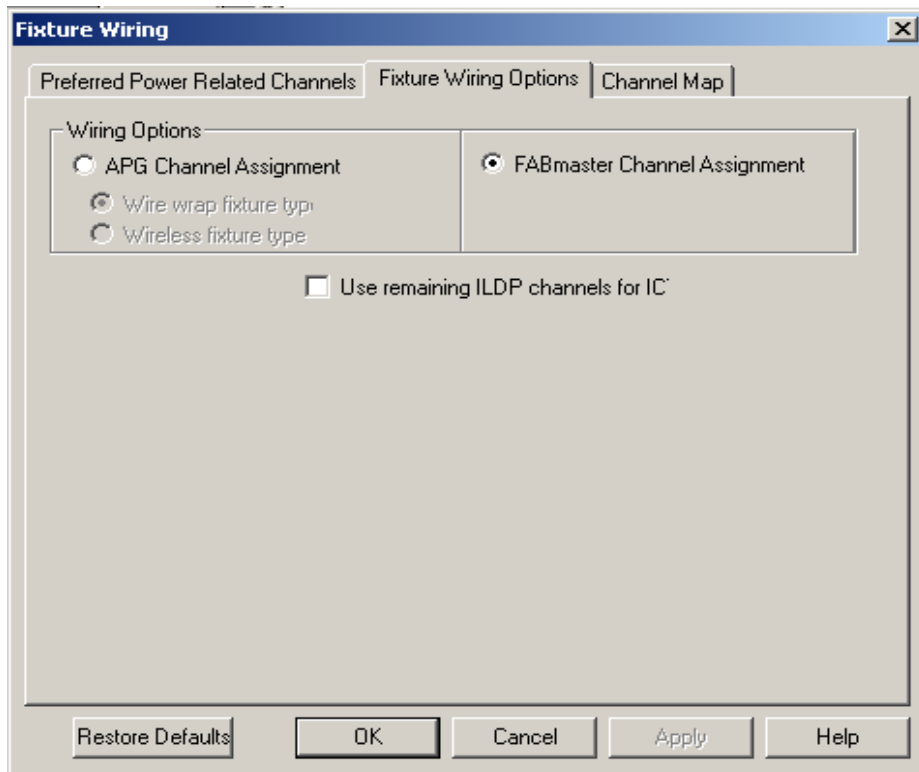
2. Solution

A. Create each board job

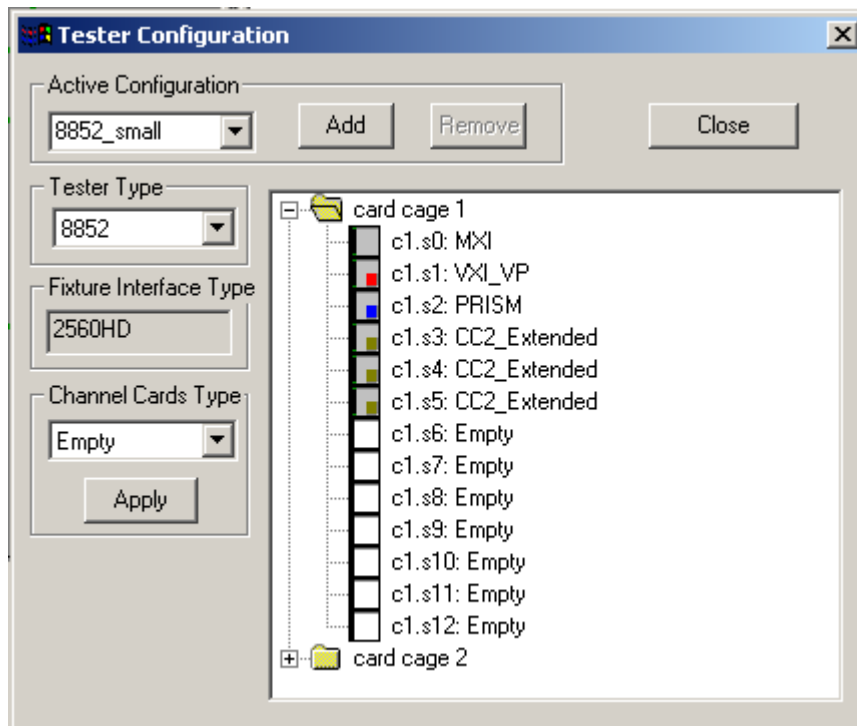
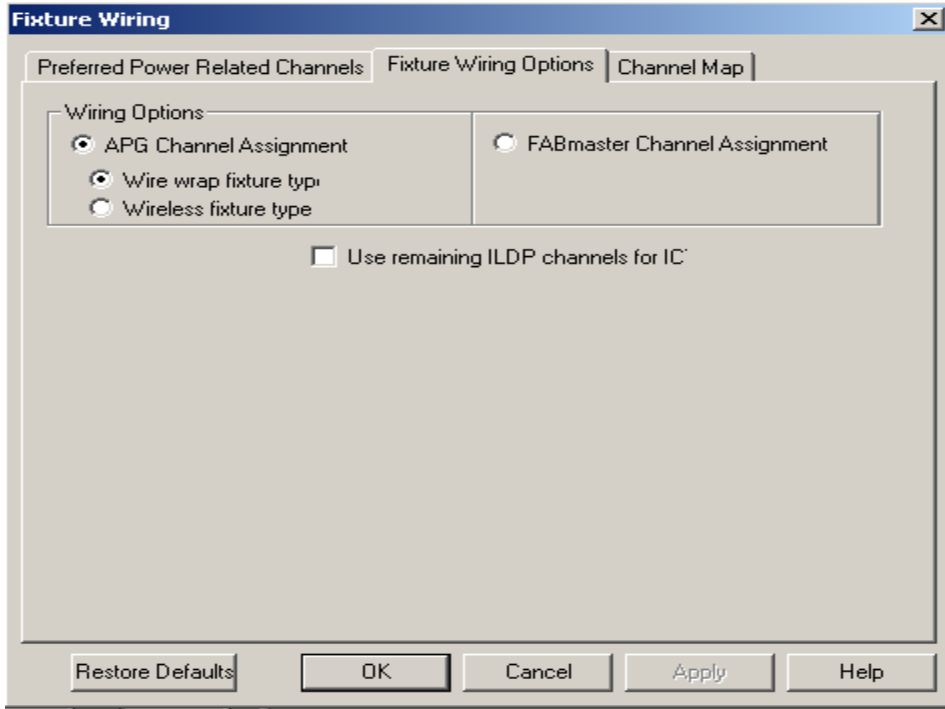
After having decided which boards will go onto the same fixture, use the normal AFPG process to create each job separately. Our recommendation is to start with the job that has the highest number of channels.

The APG setup is critical, so care should be taken when doing the setup. There are two ways to do the wiring: Using Fabmaster algorithm or using Spectrum algorithm.

If you choose Fabmaster, then you will have to make sure that the NAIL_NUMBER statement in Nailset.asc is correctly entered. (See below)



If you choose Spectrum, then as the NAIL_NUMBER statement is ignored, you will have to make sure that the tester configuration is setup correctly in order to minimize channel usage. (Remember that Spectrum Algorithms minimize wire length based on board and fixture pins coordinates)



When the setup is completed, then create the job using standard processes within APG. Remember to check and modify setup for each board that will be on the same fixture.

NOTE: As the board will always be tested separately, there should be no problem about wiring. But we recommend taking special care on the power supply wiring and using the same setup for all boards, same thing for DeltaScan reference and Framescan/Capscan measure channel. For example 5V should use the same Power supply and the same measurement channel should be allocated for Framescan/Capscan test. That means that channel allocation for these 'functions' should be checked and modified if needed.

B. Merge jobs

No that all jobs are done, we need to merge them. This will be done in Fabmaster.

1. Select jobs.

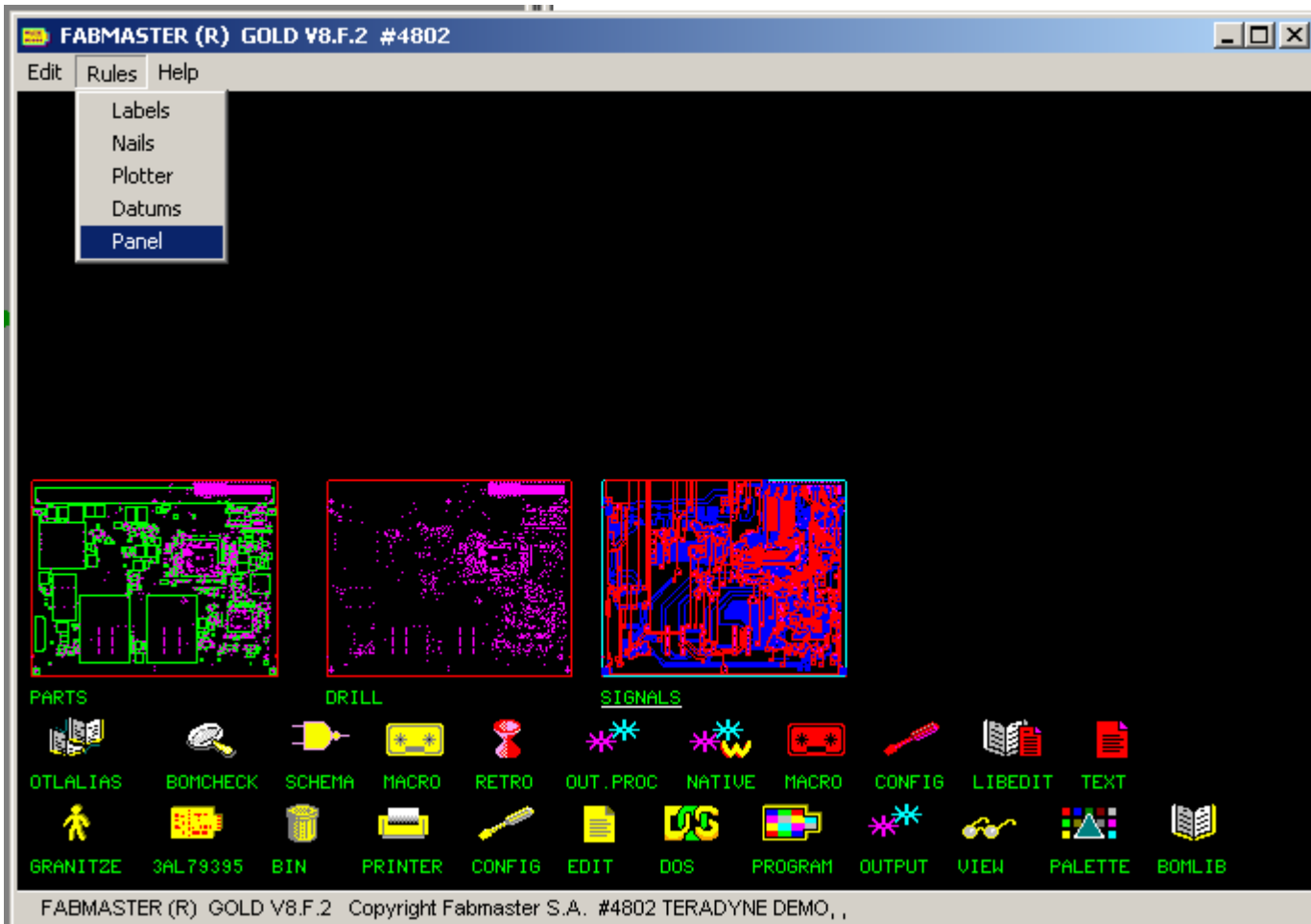
Nails should be selected upfront in order to get a single drill file.

Select each job in turn , then select one of the view (preferably the drill view), and then select all nails.

2. Select and open one job.



3. Select Rules/Panel from the Menu Bar



4. Panel Set

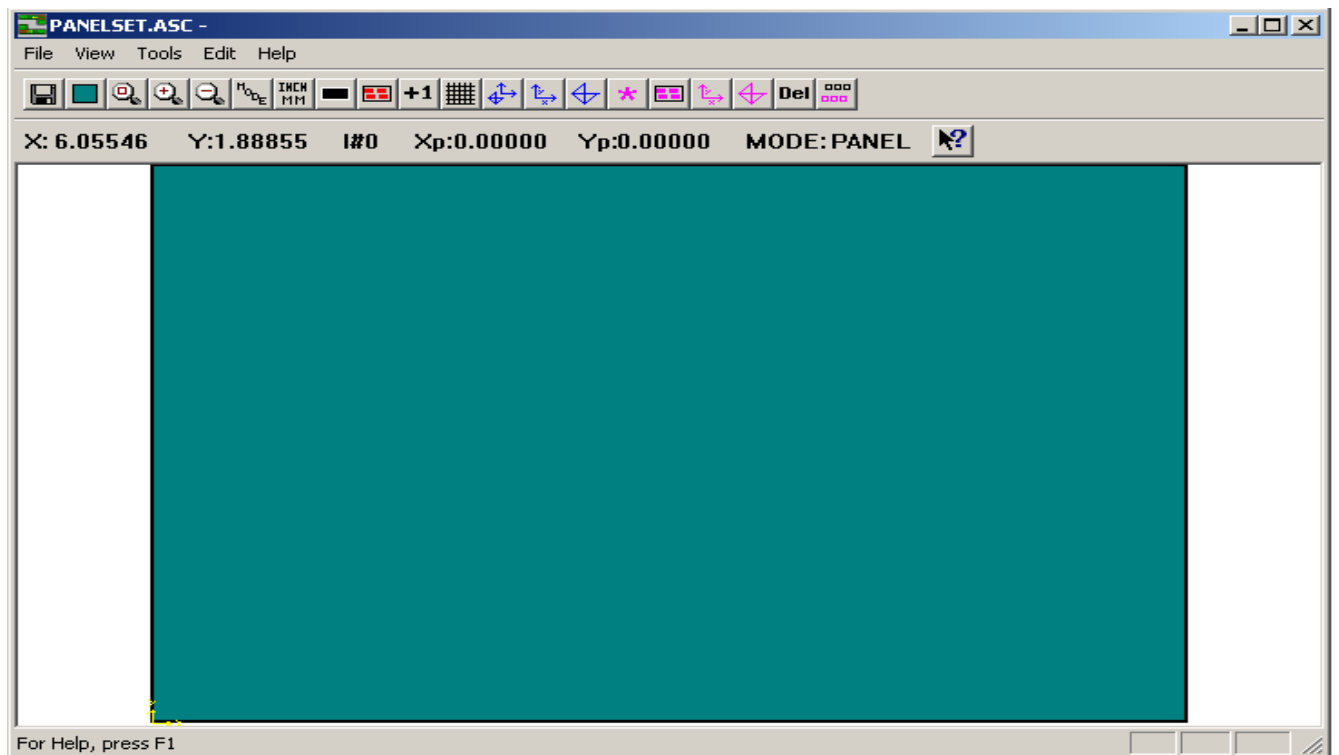
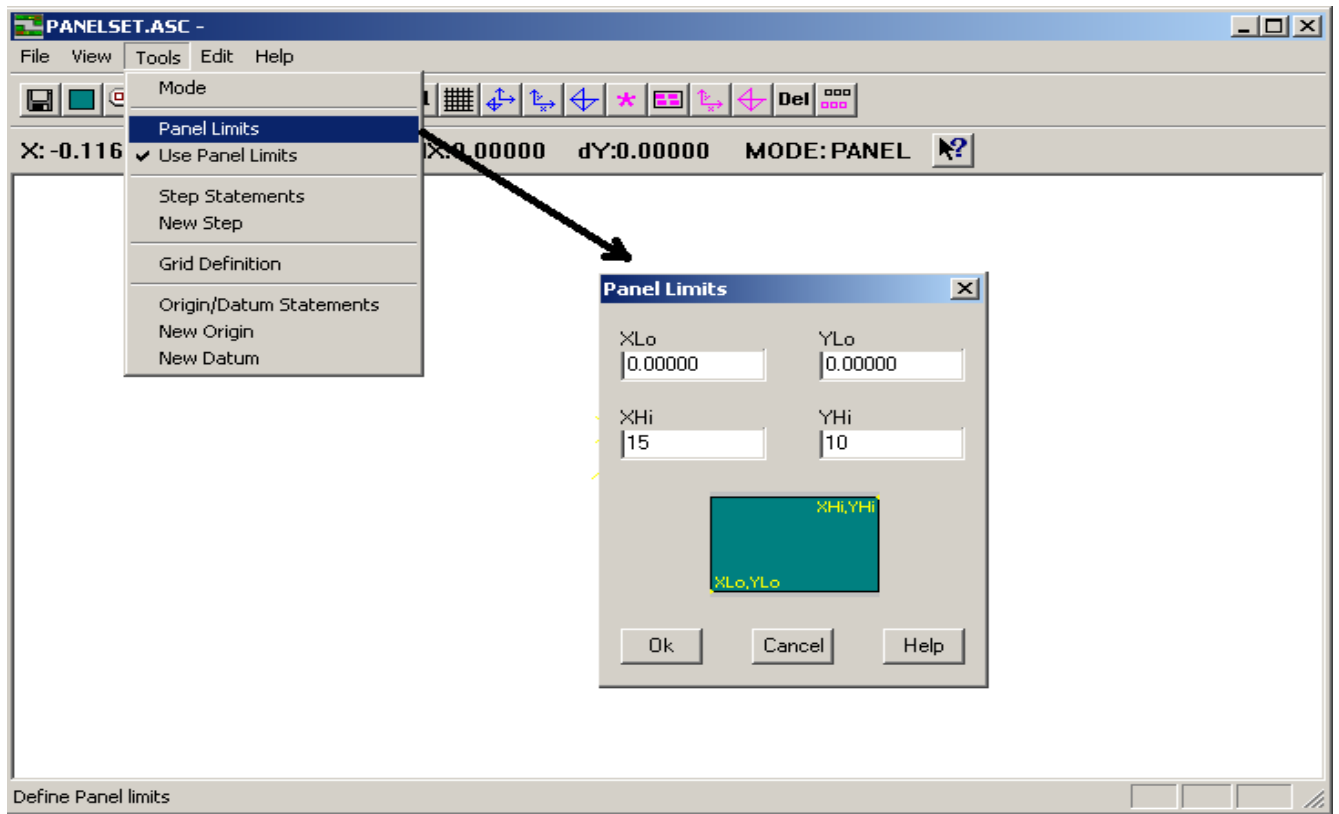
You will be presented the Panel Set window.

The first thing is to make sure that the correct Mode is selected. In our case Mode should be set to: PANEL.

The Mode setup is displayed on the right of the Status line (just below the task bar).

Then you will have to define what is called the 'Panel Limits'. This represents the fixture top dimensions. What needs to be defined here is the available area of the fixture, not the overall dimensions. Available area is where a nail can safely be placed that will not interact with any of the mechanical or sealing elements of the fixture. If the available area numbers are not available, diminish the overall dimensions by about 2-3 inches.

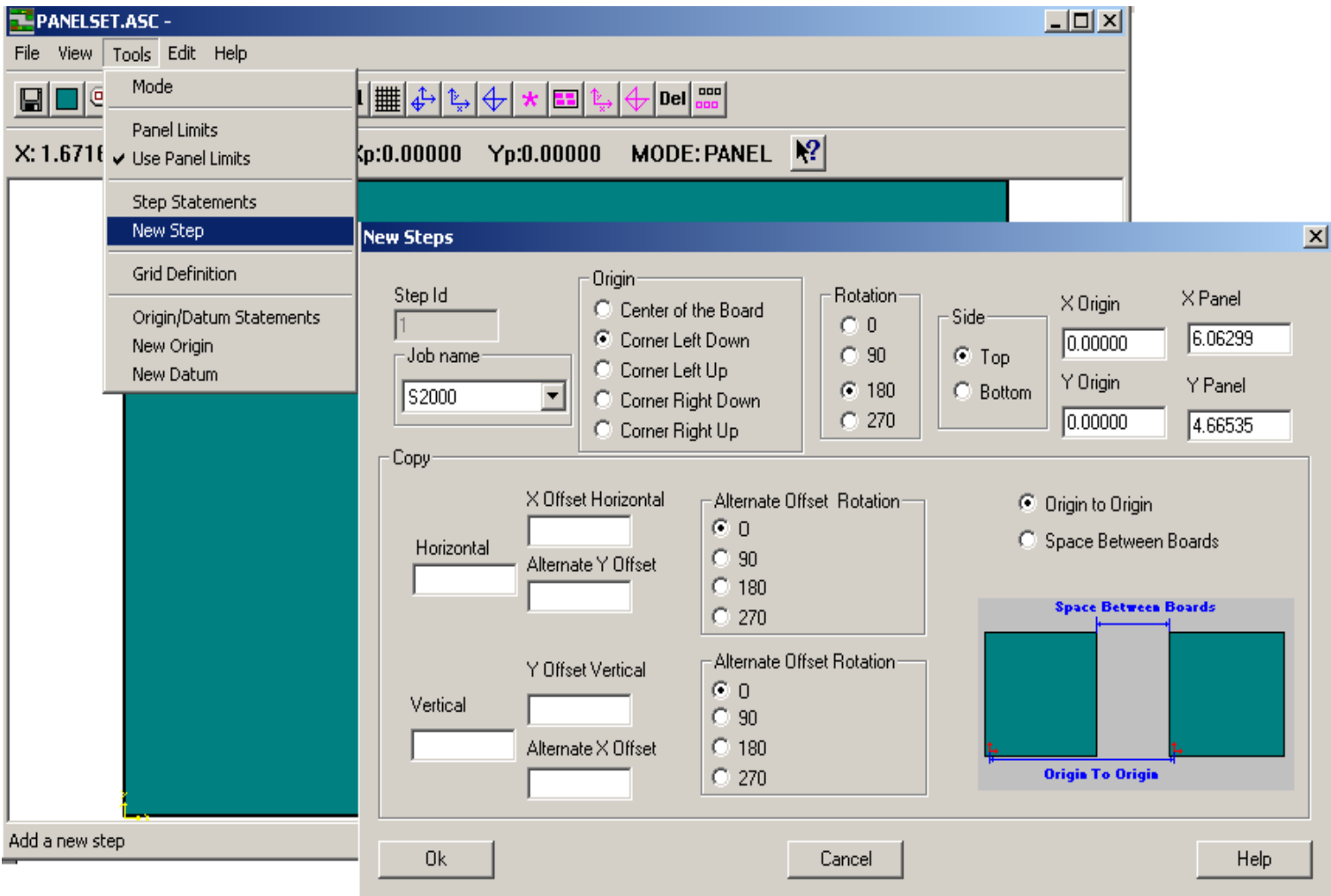
The first view below show the access to the 'Panel Limits' setup windows and the following view is the result. It shows the 'Fixture' area where you will have to place your boards.



5. First Board

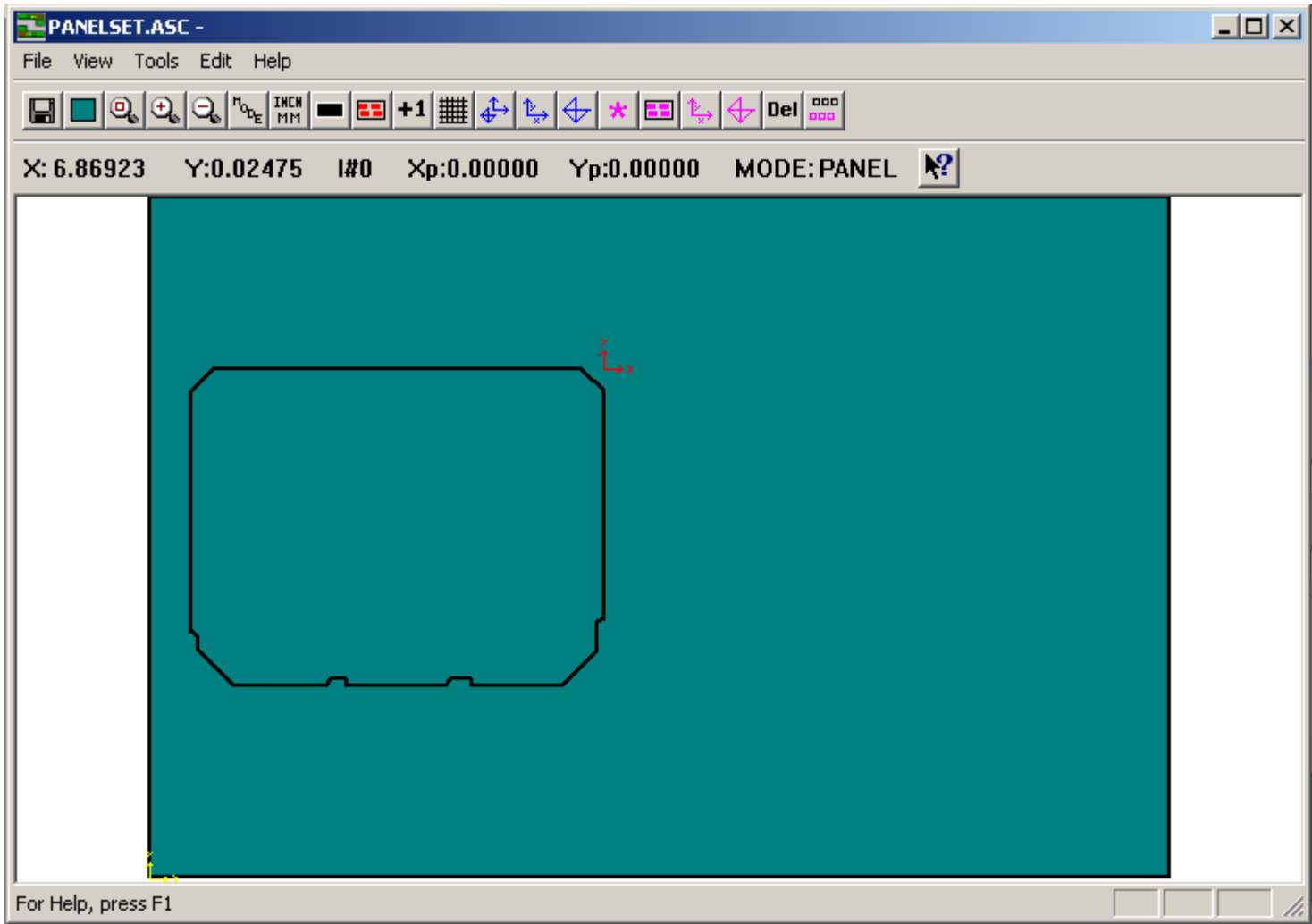
The boards' job you are in will become the first 'Step' or occurrence of a board in a panel. To setup that step goes to Tool/New step.

You will be presented with a new window that allow you to setup different parameters. StepId is setup and incremented automatically. You will have to select the jobname of the first board you want to be in the panel.



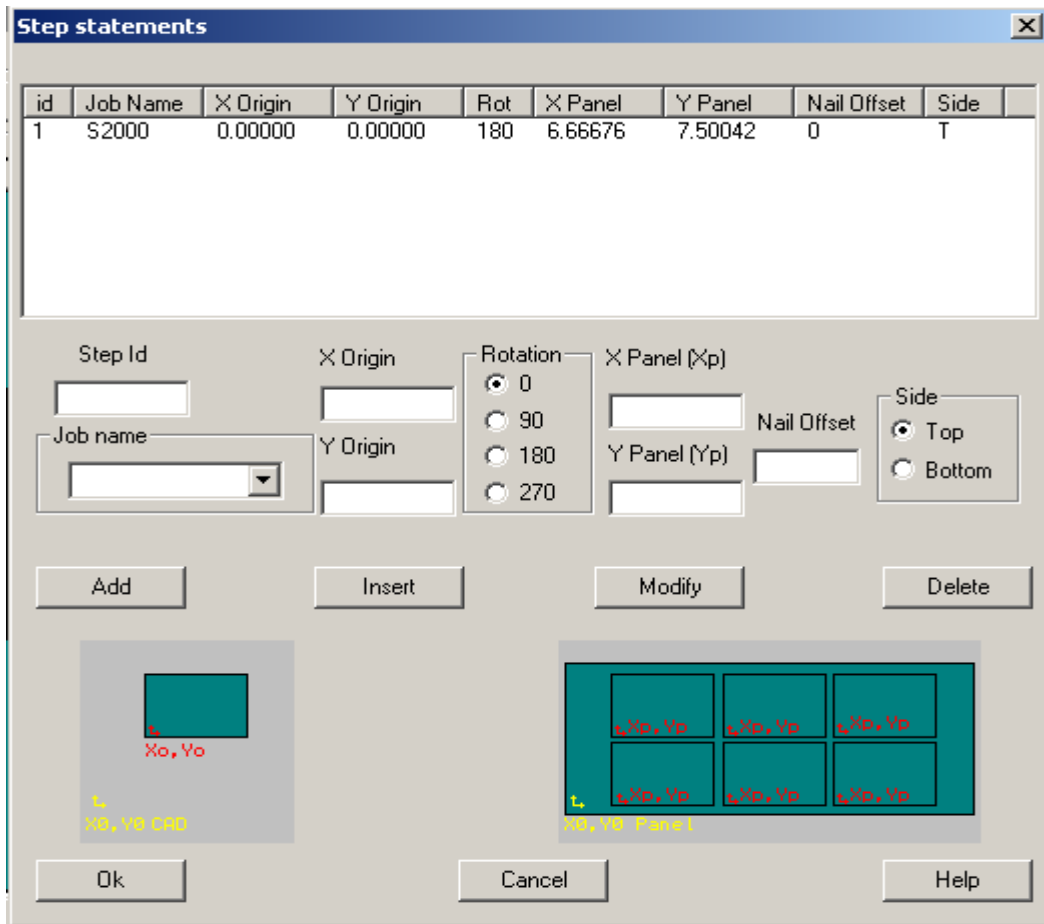
Below is the result of the above setup.

Note : board position could be defined graphically using the Mouse, or more accurately by filling up the appropriate field in the above window setup or when checking the overall setup. (see Check Step)



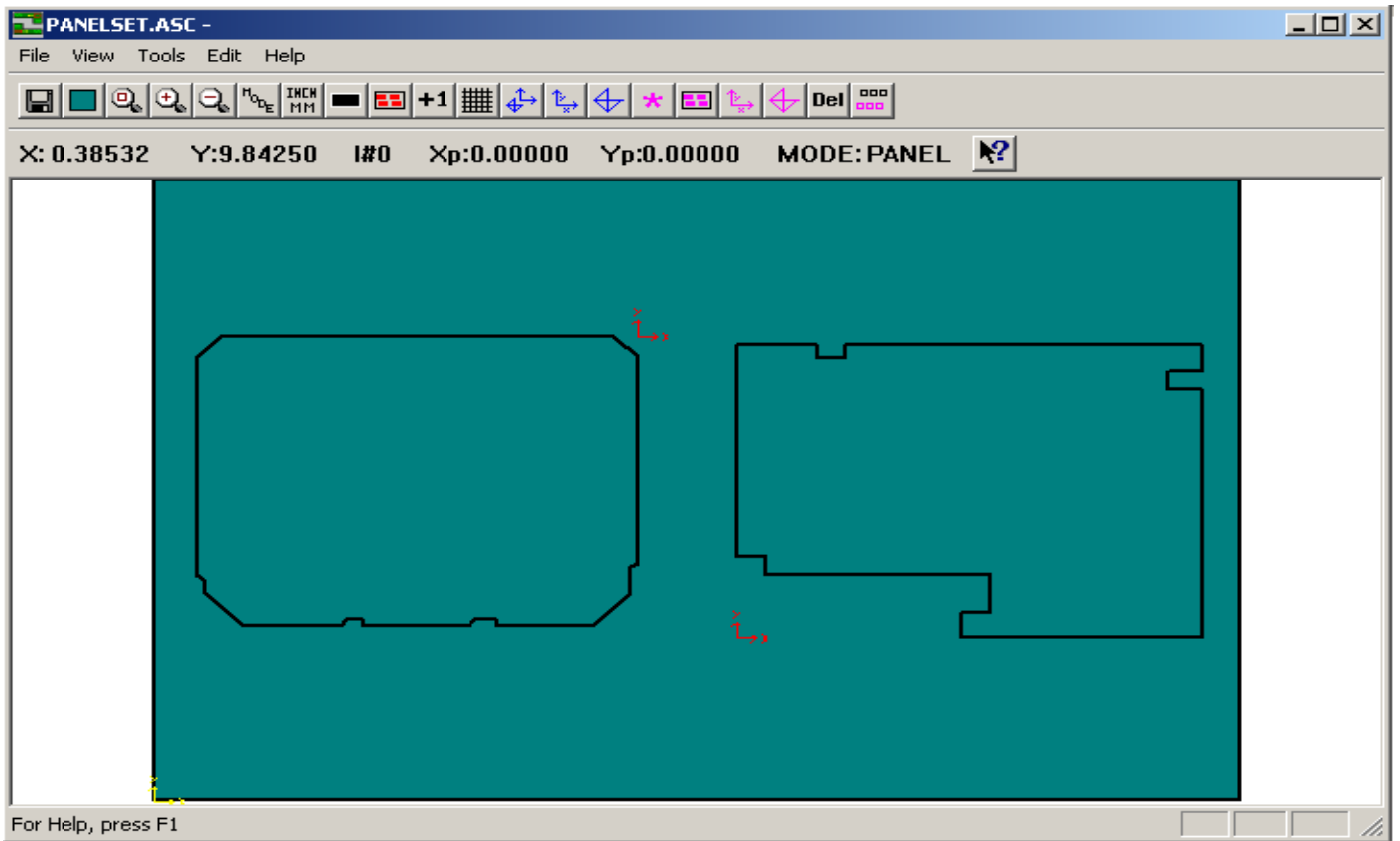
Check Step. Using tools/Step Statements the following window will be displayed. It is used to verify that the main parameters (XY coordinates, rotation, nail offset, etc) are correct. It reflect what you have just done graphically. If you like to have the board positioned at a predefined location, or change its orientation, there is no need to go back in the process, you can use that check step to modify entries.

You have simply to select the step Id, then you will be able to edit any entries. When you are satisfy with the new data , then click on the Modify button and the step data will be updated.



6. Next Board(s)

Repeat the above process for each new board that needs to be on the fixture.



For Help, press F1

Step statements

| id | Job Name | X Origin | Y Origin | Rot | X Panel | Y Panel | Nail Offset | Side |
|----|----------|----------|----------|-----|---------|---------|-------------|------|
| 1 | S2000 | 0.00000 | 0.00000 | 180 | 6.66676 | 7.50042 | 0 | T |
| 2 | FABDEM55 | 12.90000 | 18.50000 | 0 | 8.03270 | 2.65132 | 0 | T |

Step Id:

Job name:

X Origin:

Y Origin:

Rotation: 0, 90, 180, 270

X Panel (Xp):

Y Panel (Yp):

Nail Offset:

Side: Top, Bottom

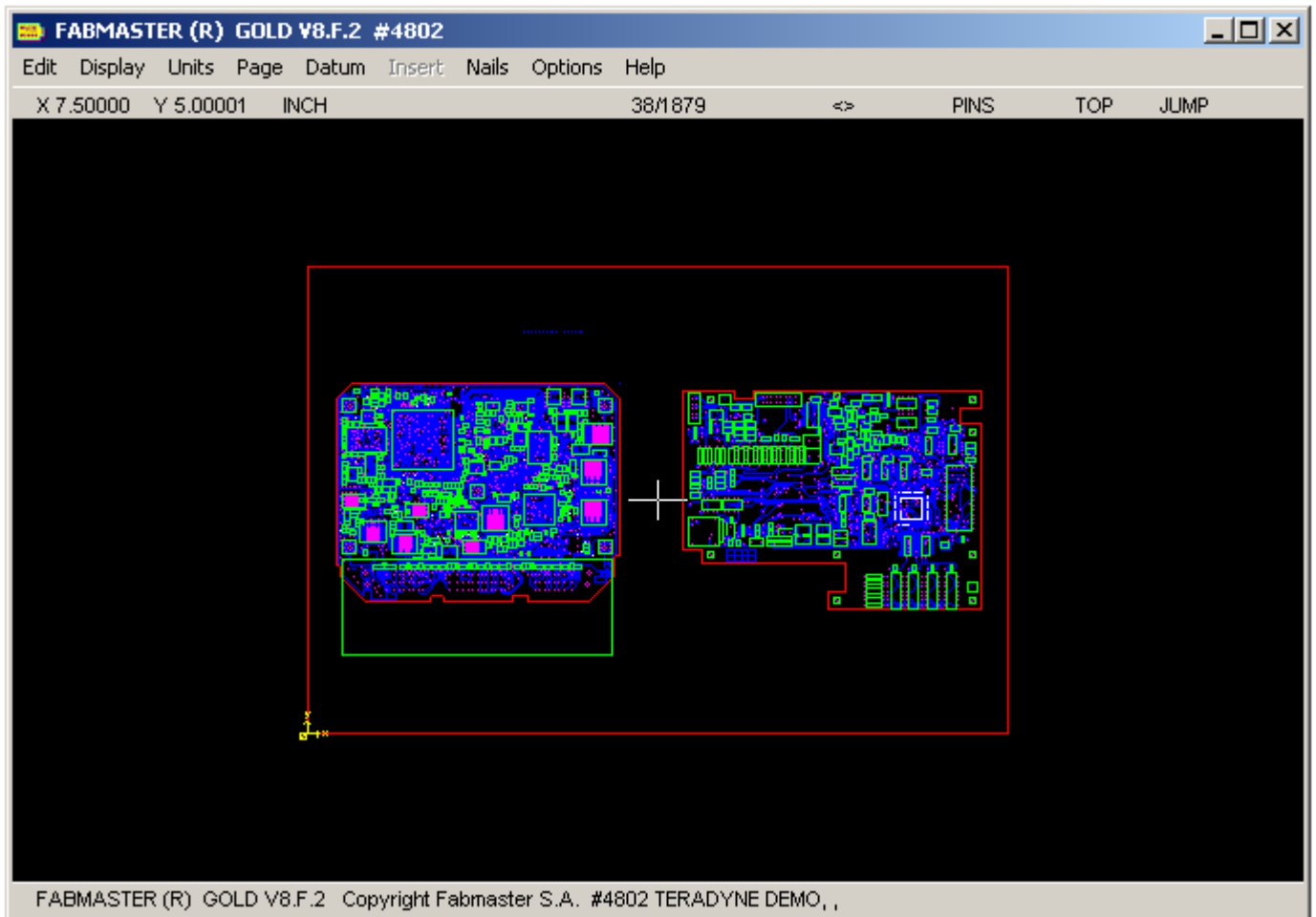
Buttons: Add, Insert, Modify, Delete

Visual aids: A small teal rectangle with origin X_o, Y_o and a larger teal rectangle with origin X_p, Y_p and a 2x3 grid of smaller teal rectangles with origin X_p, Y_p .

Buttons: Ok, Cancel, Help

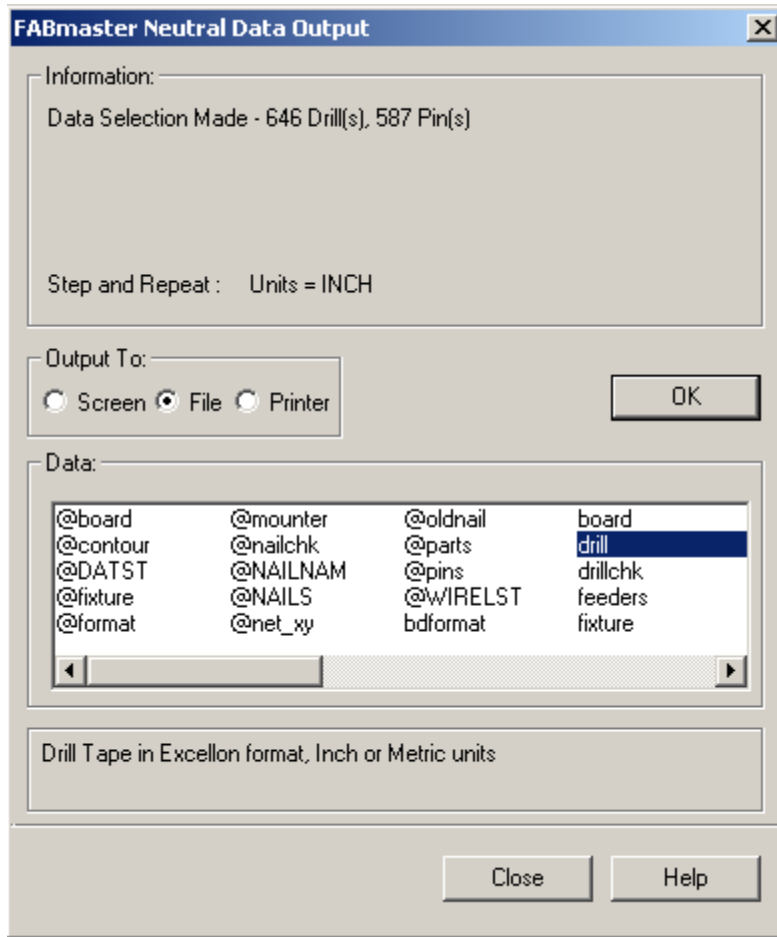
7. Panel Completed

When all the boards have been added to form the 'panel' of boards to be tested on a single fixture, double clicking on one of the view of the original job you are in, will display the fixture as it will look. Changes are always possible by going back to the previous step (tools/Step Statement).



8. Common Drill file

In order to get a single drill file for the 'FIXTURE' that include all the displayed boards, you will have select : Options/Output. You will be presented the following Selection windows. Select to generate a 'Drill' file.



Note: we recommend to give that drill file a specific name such as 'drill_panel'. If you use the default file name , you will overwrite the existing file, which is specific to the board you are in. It is safer to keep the integrity of the job and NOT use the default file name for anything that is not job specific.

The 'Panel' drill file will have to be added to the other files of the jobs for sending to the fixture manufacturer.

3. References

For more information refer to the Fabmaster 'Panelset' doc or the on-line help by looking at the 'panel' keyword.

