

Submitting Board Files to FreeDFM

Or

How to improve the quality of life for YHI

Always run your entire suites of board verify tools. Get all of the UltiBoard detectable errors fixed first. (Use the DRC tab to check this)

Load your board file, making sure the entire board is visible. Make sure that that you relocate the origin to the lower left if it is not already there. (Design->Set Reference Point) Get it within 100 mils of the board outline as shown in Figure 1. Also, make note of your overall board dimensions. You will need them below.

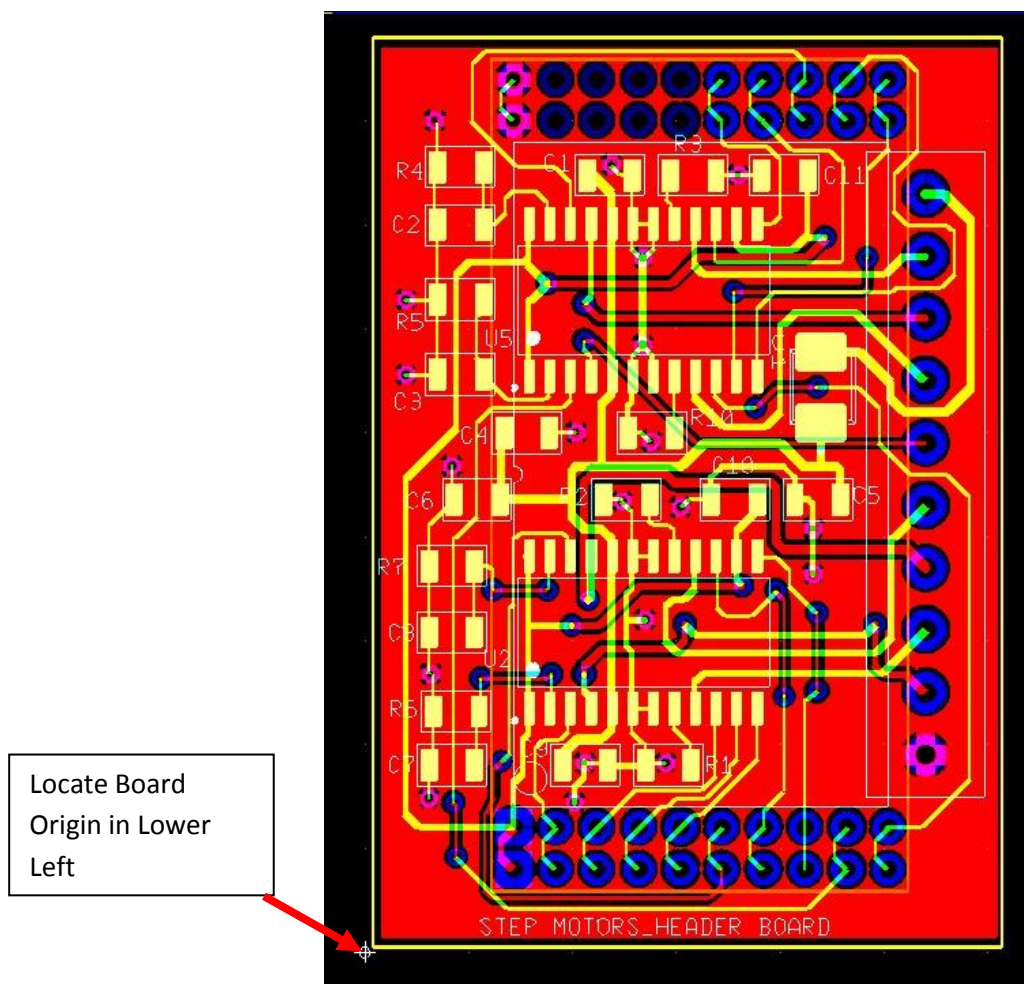


Figure 1

Go to the Global options tab and make sure that the fiducial option is **unchecked** as shown below:

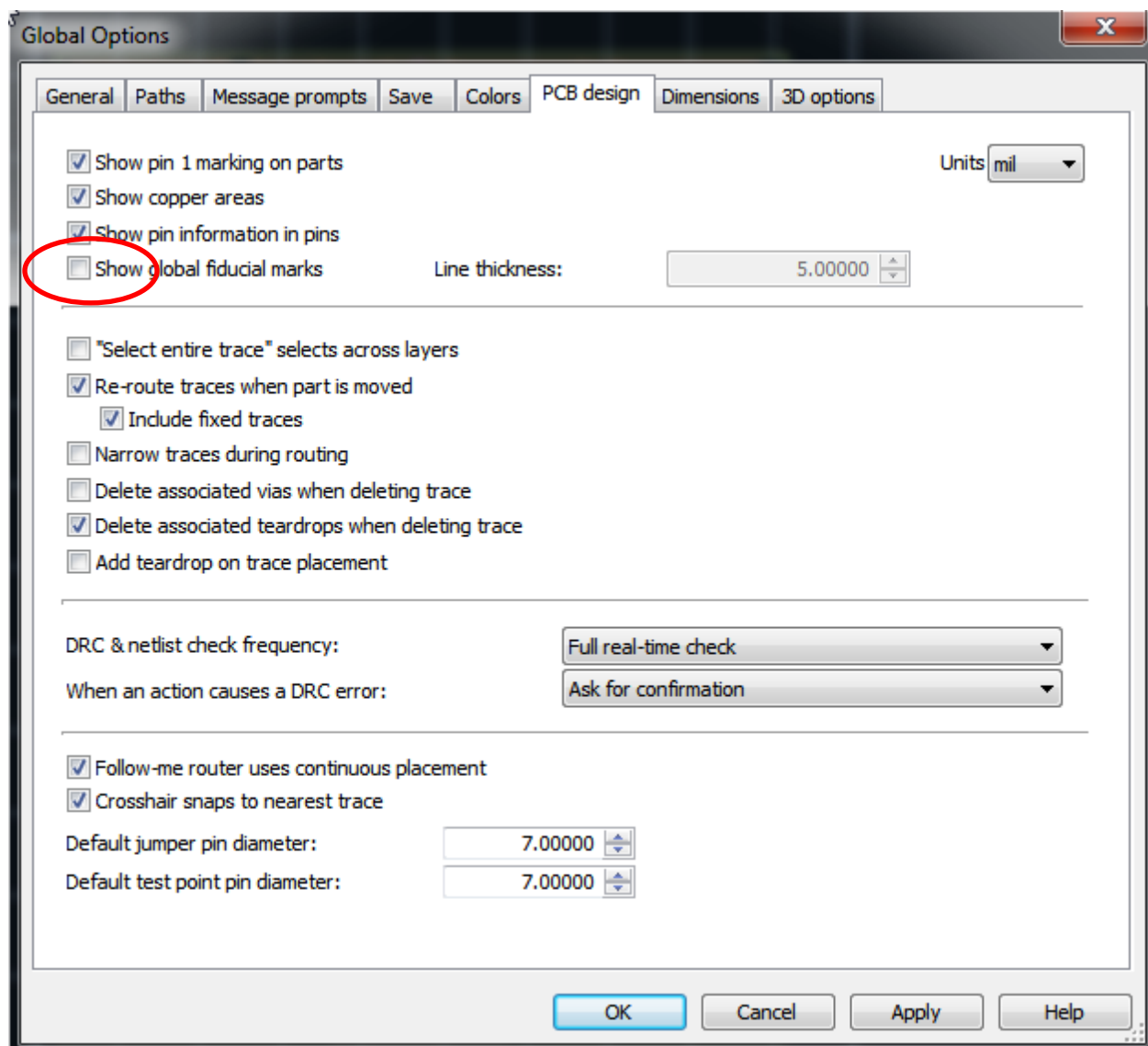


Figure 2

Select the File->Export menu as shown in Figure 3.

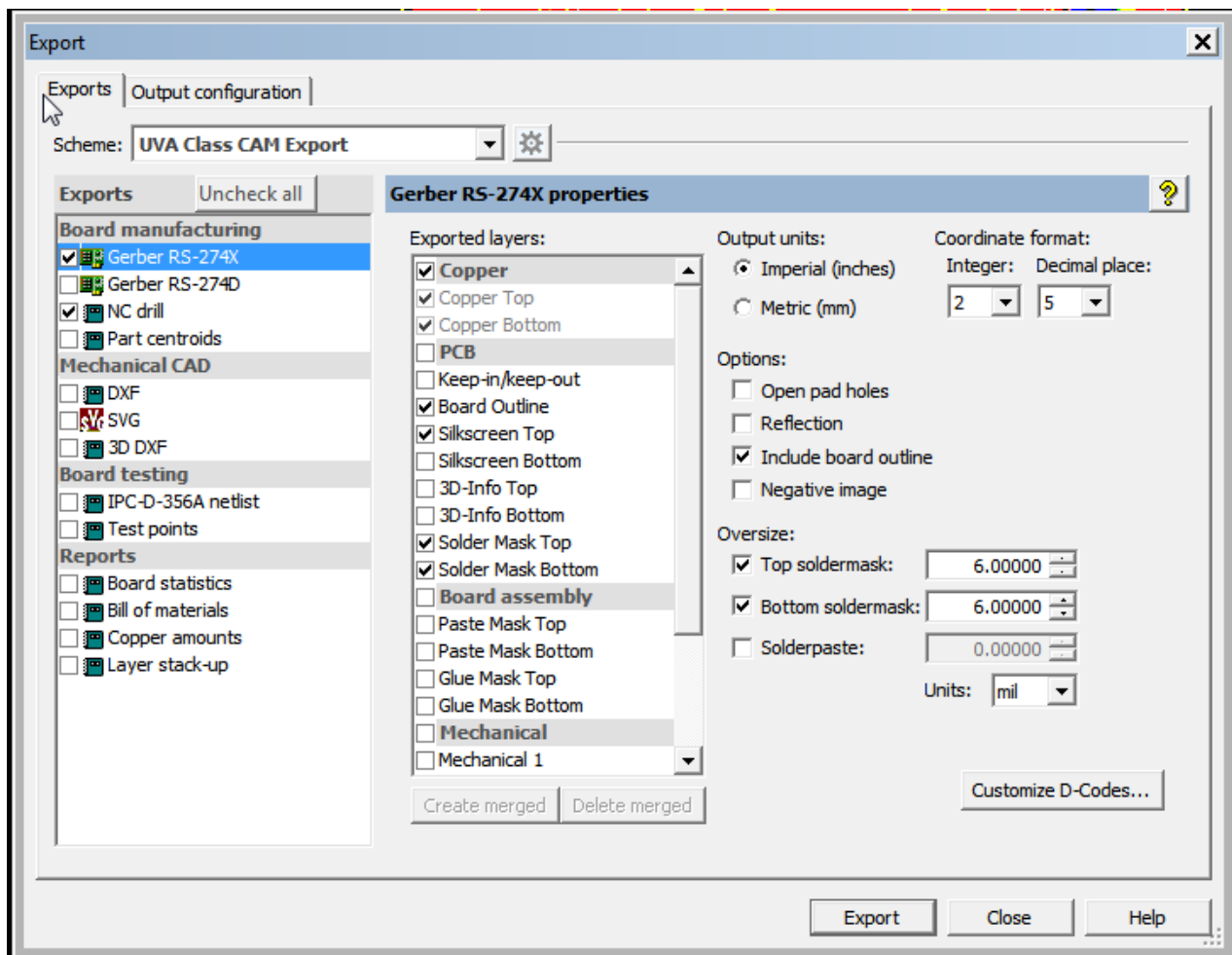


Figure 3

Click in the "Scheme" toolbar and navigate to the location of the "UVA Class CAM Export" file, provided by your instructor. Select it.

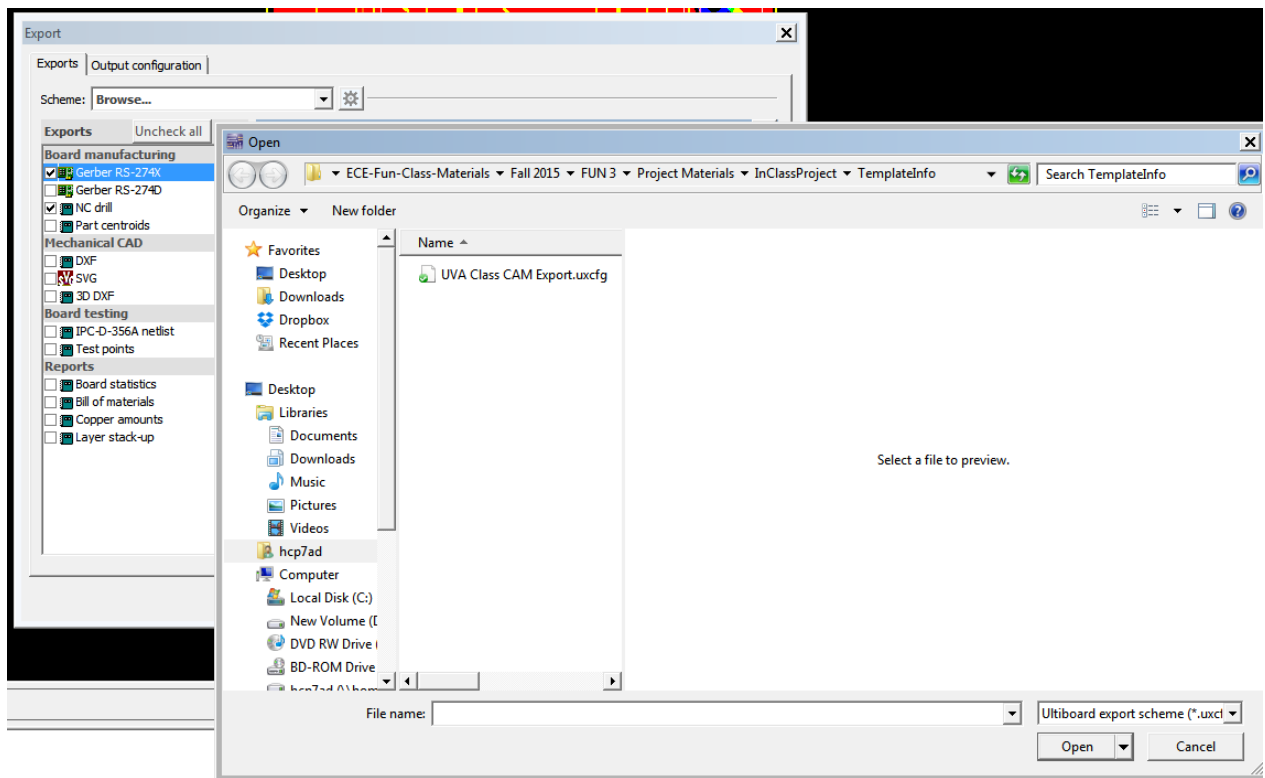


Figure 4

Click export and in a few seconds the Gerber files will be generated.

You may now save your work and exit Ultiboard.

Next you need to convert the filenames for the generated Gerber files. Run the “Cam File Renamer” program supplied by your instructor (Be sure to use the F16 version). Type in your team name and revision number for your design. The can have no periods. If you put in a name that is incorrectly formatted, i.e. with periods, the dialog box will flash red. If it turns green, you have a valid team name and revision number. Navigate to the folder named “Ultiboard Exports” which will be in the same folder as your base folder for your design files. Once you select that folder press the “Run Conversion” button. This will create a new folder at the same level as as your “Ultiboard Exports” folder with the folder name “OrcadFilename”. It will also create a zip file with all of your formatted gerbers and the filename for this zip will include your team name, rev number and a date code. This is the file for your submission! Press the “Stop” button and exit the program.

These MUST be filled out

Project / Team Name: TaterSalad

Revision Number (no periods): 1

Select Operation Folder: This is where the cam files from Ultiboard are located

C:\Users\hpc7ad\Dropbox\ECE-Fun-Class-Materials\Spring 2015\Fun2\Board Submissions\dle4qw\Ultiboard Exports

Run Conversion

Output Folder Exists:

selected Input path: C:\Users\hpc7ad\Dropbox\ECE-Fun-Class-Materials\Spring 2015\Fun2\Board Submissions\dle4qw\Ultiboard Exports

selected Output Path (Where your Gerbers went): C:\Users\hpc7ad\Dropbox\ECE-Fun-Class-Materials\Spring 2015\Fun2\Board Submissions\dle4qw\TaterSalad-1-161018-093948-OrcadFilename

Full Zip File Name (What you send out): C:\Users\hpc7ad\Dropbox\ECE-Fun-Class-Materials\Spring 2015\Fun2\Board Submissions\dle4qw\TaterSalad-1-161018-093948-ZippedGerbers.zip

Date-Time String Added to File Name: 161018-093948

Stop Button: Stop

Figure 5

Next, open a web browser and navigate to “Freedfm.com” You will get the following sign on screen (Figure 6). (You may have to register with Advanced, If so, don’t worry – they don’t spam etc.) Fill in your email and upload the zip file you just created.

ADVANCED CIRCUITS
Join over 12,000 Engineering Customers and 1,100 Contract Assemblers
1-800-979-4PCB
www.4PCB.com

FreeDFM

Our exclusive FreeDFM file check service at www.FreeDFM.com not only sends you a FREE report on your files within minutes, but now...WE'LL EVEN PAY YOU TO USE IT! Get up to \$100 OFF when you place your order using a FreeDFM quote.

What FreeDFM Checks
"FreeDFM worked great!"
-Stanley Mann, Mann Electronic Solutions
[Click here](#) for details on how to upload files for Free DFM Report.

Upload PCB Design Files Now - And Get Your Free DFM Report!

Your Email
 Confirm Email
 Browse...

(For your results) (Zipped, Up to **10** -Layer, 274×)

Naming Conventions
Display a table of software package extensions and naming conventions.

Why Upload?

- Get Free PCB design file check for manufacturability.
- We check to make sure we have the files and data necessary to build your job
- Results mailed to you in minutes
- You get a graphical report, delivered in minutes, showing any potential issues with detail as to their nature and location
- Reduces possibility of CAM Hold issues after order placement
- Enables **48%** faster total thru-put from order placement to shipment
- Also provides a price quote with your choice of turntimes

Figure 6

Verify your information as shown below.

FreeDFM Quote Specifications

File Identification And General Information

It is very important that you identify your files accurately. The primary reason for delayed or undelivered results would be that our automated systems can not readily identify the contents of your zip file or that a key piece of fabrication or design information is missing.

Click Here **to see a table of package extensions and file naming conventions.**

Design File Information

*** Please take a few moments to help us identify your files.**

File Name:	File Content:
225118.smb	<input type="text" value="Bottom Soldermask"/>
25118.bot	<input type="text" value="Bottom Copper"/>
25118.smt	<input type="text" value="Top Soldermask"/>
25118.sst	<input type="text" value="Top Silkscreen"/>
25118.tap	<input type="text" value="NC Drill"/>
25118.top	<input type="text" value="Top Copper"/>

In an effort to streamline the submission process for our FreeDFM service we have attempted to pre-identify the

Figure 7

Next, you will need to fill out some basic information to tell Advanced how to check the board. See below.

Give your approximate Board Dimensions

2 layers

Choose Both Sides

Choose TOP Side

Definitely NO

The screenshot shows a web form for PCB quoting. It is divided into two main sections: 'Please enter your contact information below:' and 'Please enter your quote specs and attributes below:'. The contact section includes fields for Company Name, First Name, Last Name, Email, and Phone. The quote specs section includes fields for Part #, Revision #, Layer Count, X Dimension, Y Dimension, Array, Array X Dim, Array Y Dim, Array Up, Tab-Rout?, and Scoring?. Below these are fields for Material Type, Finish Thickness, Finish Plating, Soldermask Sides, Soldermask Color, Soldermask Color, Copper Wt. (Outer), Copper Wt. (Inner), Silkscreen Sides, and Silkscreen Color. There is also a section for Certifications & Qualifications, Vias, and Additional Attributes. At the bottom, there is a Quantities section with radio buttons for Yes and No, and a Submit button. Annotations with arrows point to various fields: 'Give your approximate Board Dimensions' points to the X and Y Dimension fields; '2 layers' points to the Layer Count dropdown; 'Choose Both Sides' points to the Soldermask Sides dropdown; 'Choose TOP Side' points to the Silkscreen Sides dropdown; and 'Definitely NO' points to the 'No' radio button in the Quantities section.

Please enter your contact information below:

Company Name: Univ of Virginia, Elect & Computer Phone: 434 924 6107
First Name: Harry Last Name: Powell
Email 1: hcp7ad@virginia.edu

Please enter your quote specs and attributes below:

Part# 25118 Revision# 1 Layer Count 2
X Dimension 3.55 Y Dimension 5.125 Array
Array X Dim Array Y Dim Array Up
Tab-Rout? Scoring?
Material Type FR4 Finish Thickness 0.062" Finish Plating Lead-Free Solder
Soldermask Sides Both Sides Soldermask Color Green Copper Wt. (Outer) 1 oz
Silkscreen Sides Top Side Silkscreen Color White Copper Wt. (Inner) None
Certifications & Qualifications: IPC Class 2-A600 (Pricing Subject To File Review) AS9100?
Vias: Blind/Buried Vias? None Via-In-Pad? None
Microvias? None (Finished hole size <= .006")
Soldermask Plugged Vias?
Additional Attributes:
Controlled Dielectric?
Controlled Impedance? (Pricing Subject To File Review)
Plated Slots?
Plated Edges? (Pricing Subject To File Review)
Counterbores? # Plated # Non-Plated
Countersinks? # Plated # Non-Plated
Castellated Holes? Min. Castellated Hole Size
Quantities: 5 10 50 150 ITAR Yes No
Submit

Figure 8

At the end of this process you will click a "Submit" Button. You will receive a confirmation email, then in about 30 min or so (but up to a few hours!) You will receive a dfm report. Note that this is a free service, and there is no guaranteed delivery time for your report! (In other words, be timely)

After the wait you should get an email with the "Your FreeDFM results" in the subject line. Open the results link. You should see a screen that looks like this:



FreeDFM.com™
Summary for your design.

Congratulations!

No DFM problems were found on your board!

Show Stoppers

We Found None!

Problems Automatically Fixed by FreeDFM

We Found None!

[Click Here for a quick callback from a CAM engineer](#)

As a new service, we need your feedback

[Click Here for a quick survey](#)

Figure 9

If there are show stoppers, you must go back and fix the problems in your files. If not, submit your .zip file and a screenshot of your results as above. Note that a some “Problems Automatically Fixed” is ok, but you should be aware that there may be some cosmetic differences with your actual board. Electrically it should be fine.