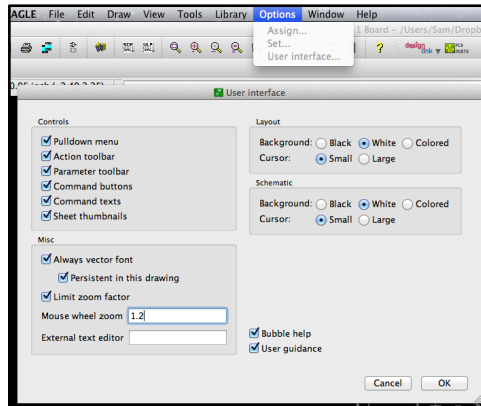


Preparing Custom Solder Paste Stencils for a Laser Cutter Using Cadsoft Eagle and Autodesk AutoCAD

Sam DeBruin • November 16th, 2011

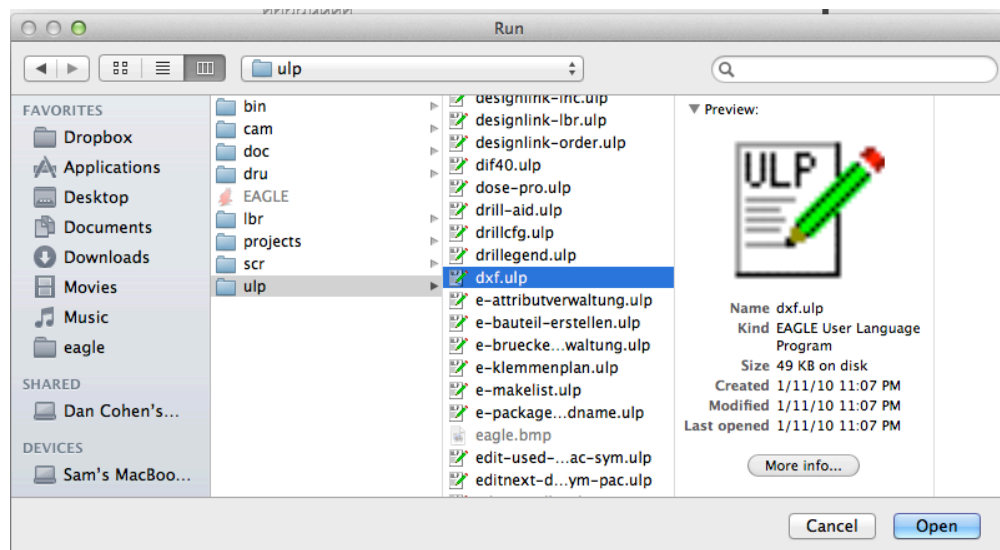
1. In the Eagle board editor, go to Options -> User Interface and set the layout background to white



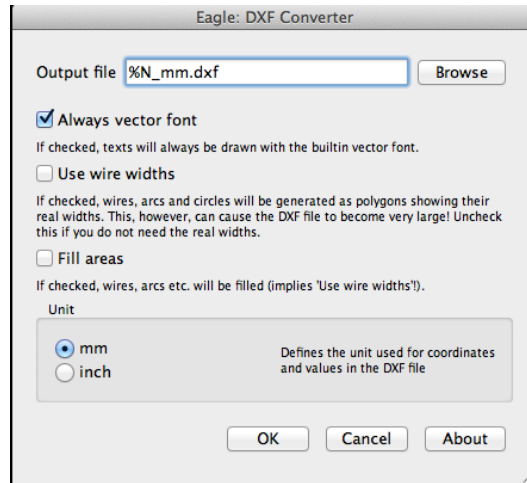
2. Go to View -> Display/hide layers and disable all layers except for Dimension and tCream

3. In the command line, type 'run' and press enter

4. Navigate to the EAGLE directory (if not there already) and select ulp -> dxf.ulp



5. Use whatever units were predominately used to create the board but include the unit system in the dxf file's title for reference

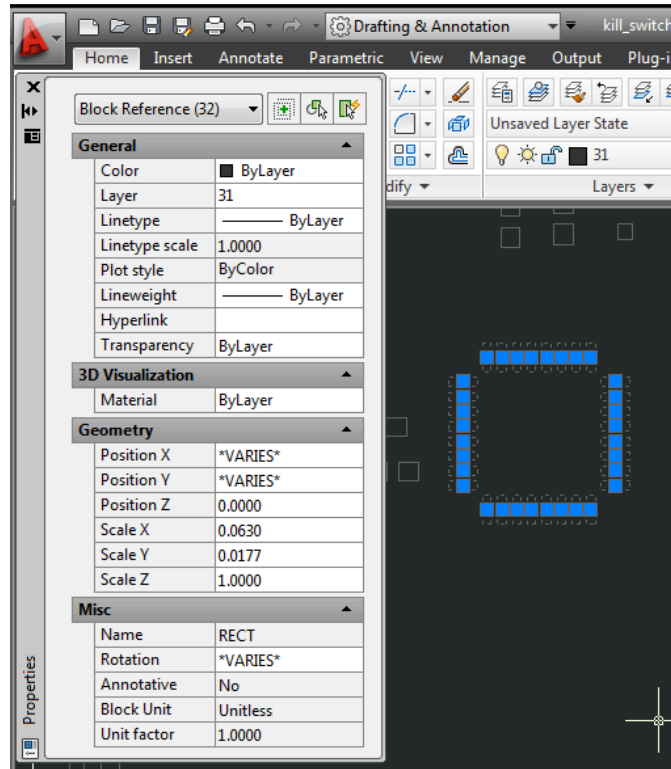


6. Uncheck 'Use Wire Widths' and 'Fill Areas' and click ok

7. Open AutoCAD (available on the CAEN computers or CAEN remote desktop) and open your dxf file

For more information on AutoCAD, visit <http://usa.autodesk.com/autocad/training/>

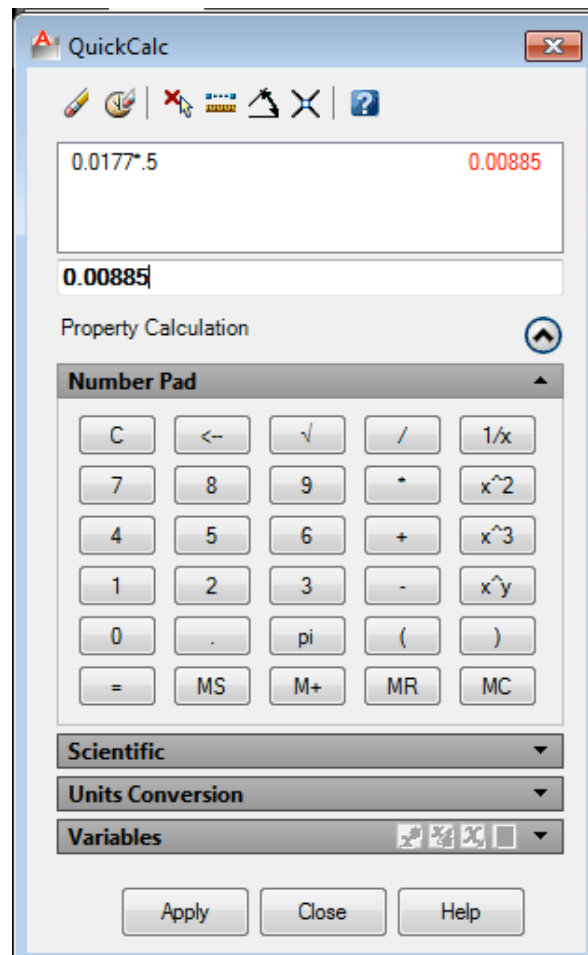
8. Pads with fine pitch (> 1 mm) need to be made smaller to accommodate for the non-zero width of the laser cutter. Select pads with fine pitch, right click, and select 'Properties'



9. In the Properties menu, find the values 'Scale X' and 'Scale Y' under 'Geometry'. Whichever of these values is smaller corresponds to the smaller pad dimension.

POSITION Z	0.0000
Scale X	0.0630
Scale Y	0.0177
Scale Z	1.0000

10. Using the calculator icon on the left, multiply this value by 0.5 (50%) and click apply



11. Do this for all fine pitch parts. Be mindful of any area that may be affected by a non-zero cutting width.

12. The Dimension layer is important because it allows the stencil edges to line up with the board, but it also prints all non-plated drills in the board. This causes these holes to fill up with solder during the assembly process, potentially closing those holes.

To eliminate this, if applicable, manually delete all non-plated drills in AutoCAD. This is typically all round shapes in this dxf representation

13. Save this file as a dxf. Final formatting will occur at the laser cutter. Place your dxf on a flash drive