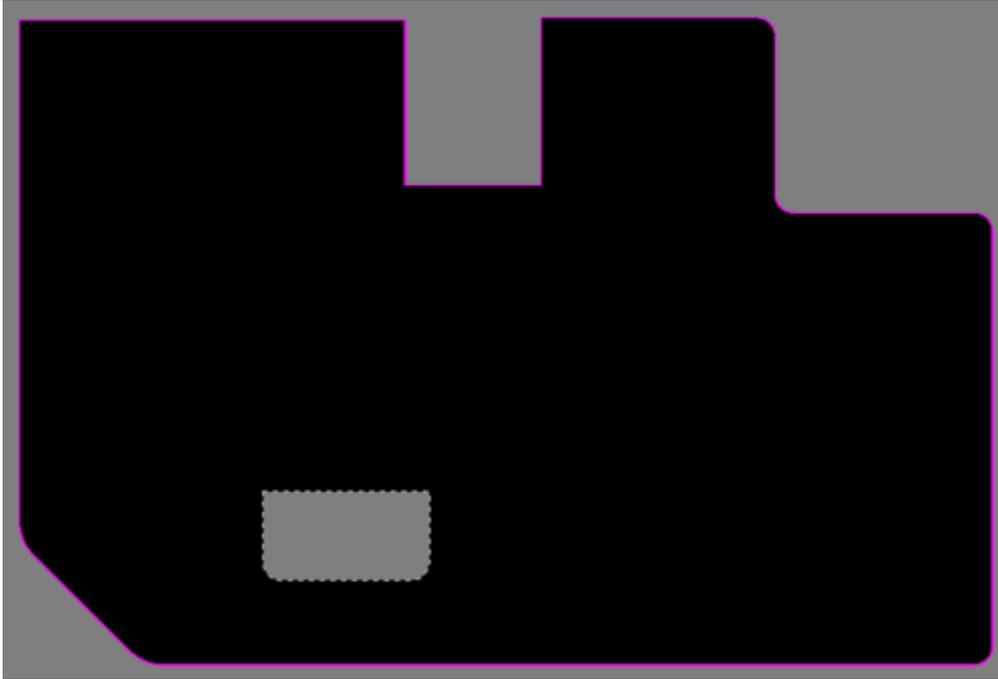


## Board Shape

Modified by Jason Howie on Aug 21, 2014

Parent page: [Objects](#)



The Board Shape defines the shape of the finished board.

### Summary

The board shape, also referred to as the board outline, is a closed polygon that defines the boundary, or extents, of the board. As well as providing a visual guideline of the extents of the space available for the placement and routing of the design, the board shape is also used by the internal power planes as the reference for the power plane edge pullback and the edge for splitting power planes.

### Availability

The board shape is available only in the PCB editor. When a new PCB file is created it opens with a default 6 inch by 4 inch board shape. There are a number of ways this shape can be replaced or altered.

Commands for redefining the Board Shape are accessed by clicking the  button, found on the Ribbon at **Home | Board | Board Shape**. The commands include:

- **Redefine Board Shape** - select this command to interactively draw a new shape.
- **Move Board Vertices** - select this command to interactively modify the shape of the board by

moving vertices or sliding the edges of the shape.

## Redefining the Board Shape

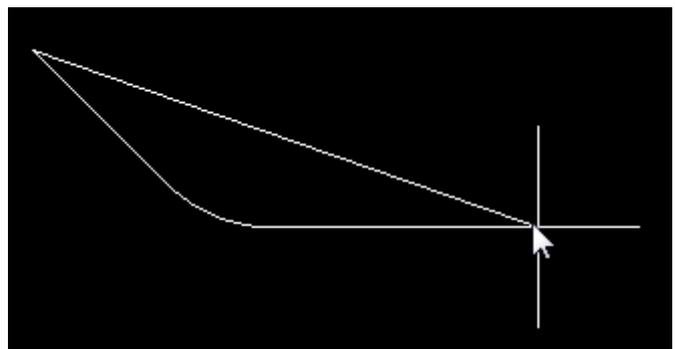
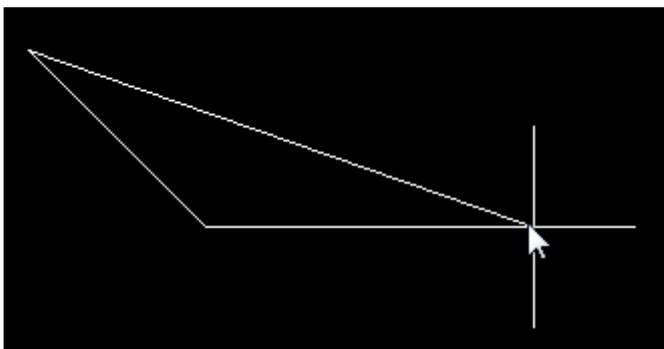
After launching the **Redefine Board Shape** command, the cursor will change to a crosshair and you will enter the standard polygonal object placement mode. Board shape definition is made by performing the following sequence of actions:

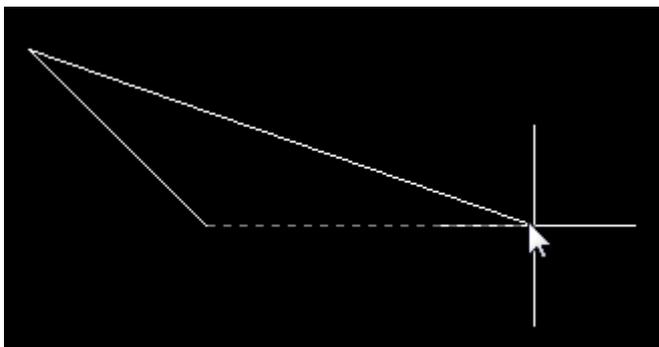
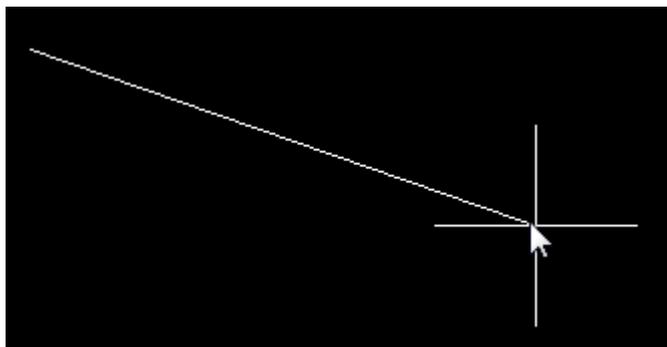
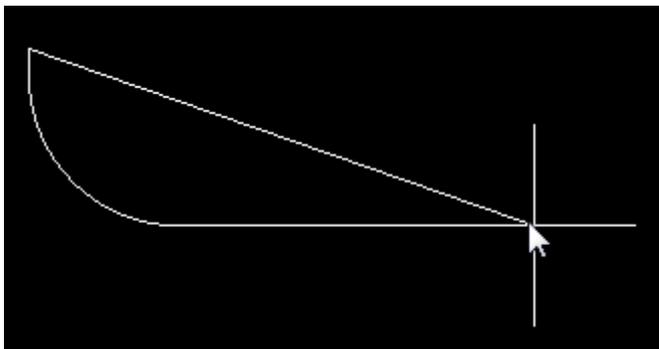
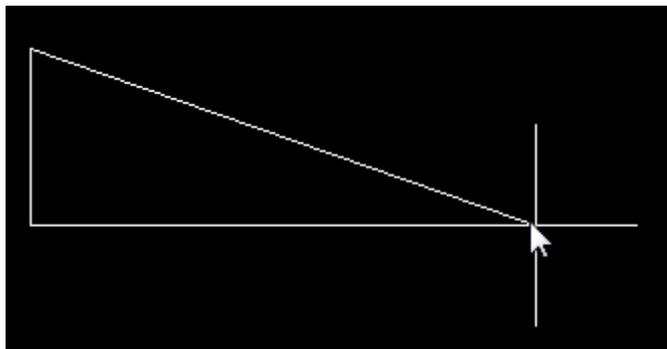
1. Position the cursor and click to anchor the starting vertex for the board shape.
2. Move the cursor ready to place the second vertex. The default behavior is to place 2 edges with each click (as shown in the first 5 images in the set below), with a user-defined corner shape between them. Refer to the **Placement Modes** topic below for more details on changing corner modes.
3. Continue to move the mouse and click to place further vertices.
4. After placing the final vertex, right-click or press **Esc** to close and complete the definition of the board shape. There is no need to manually close the board shape as the software will automatically complete the shape by connecting the start point to the final point placed.

## Placement Modes

When redefining the board shape there are 5 available corner modes, 4 of which also have corner direction sub-modes. During redefinition:

- Press **Shift+Spacebar** to cycle through the 5 available corner modes: 45 degree, 45 degree with arc, 90 degree, 90 degree with arc, and Any Angle.
- Press **Spacebar** to toggle between the two corner direction sub-modes.
- When in either of the arc corner modes, hold the  or  keys to shrink or grow the arc. Hold the **Shift** key as you press to accelerate arc resizing.
- Press the **1** shortcut key to toggle between placing 2 edges per click, or one edge per click. In this second mode the dashed edge is referred to as the look-ahead segment (as shown in the last image in the set below).
- Press the **Backspace** key to remove the last vertex.

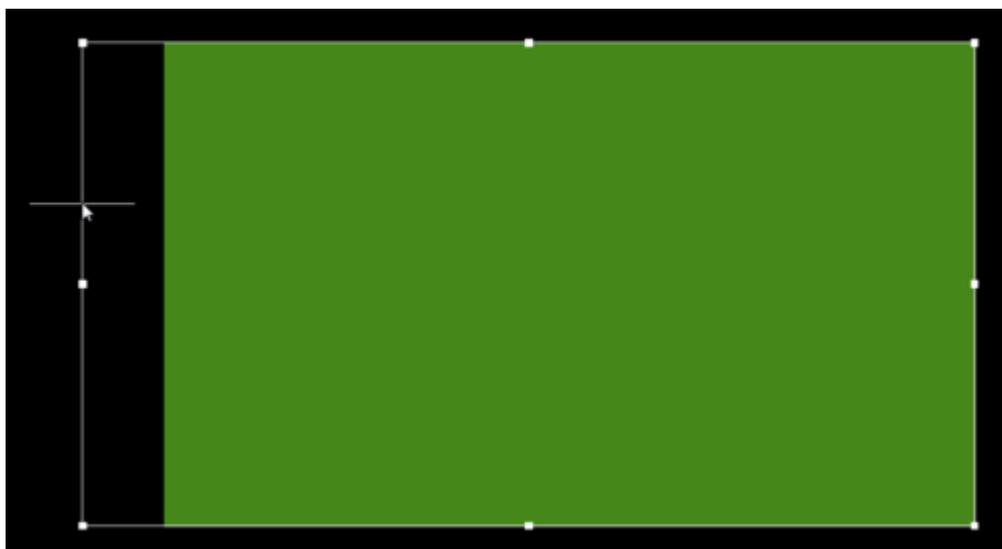




Press **Shift+Spacebar** to cycle through the 5 available corner modes, press the 1 shortcut to toggle placement between 2 edges or 1 edge.

## Graphically Editing the Board Shape

After launching the **Move Board Vertices** command the existing board shape will go green, the polygonal outline of the existing shape will be displayed with a vertex at each corner and the center of each edge, and the cursor will change to a crosshair.



Sliding the edge of the Board Shape to enlarge it.

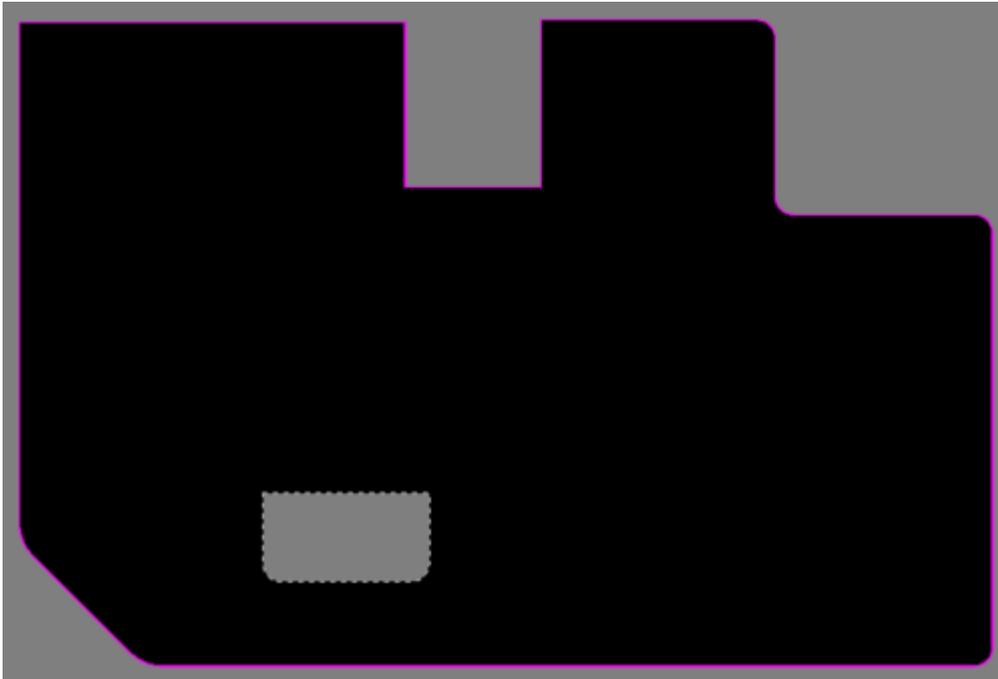
- Click and drag on a vertex to move that vertex. Note that doing this on a vertex that is in the middle of an edge will turn that single edge into 2 edges.
- Click and hold on a vertex, then press **Delete** to remove that vertex.
- Click and drag on an edge (away from a vertex) to move that edge of the board shape.
- Right-click or **Esc** to exit this editing mode.

# Cutting a Hole in the Board Shape

A board cutout can be placed anywhere in the board shape. To place a cutout:



1. Click the  available on the Ribbon at **Home | Board | Board Cutout**. Note that the cutout is actually a Solid Region object configured to be a negative object, to learn more about placing this type of object, refer to the [Solid Region](#) object.



A Board Cutout has been placed on the Board Shape.

## Notes

1. The board shape is not used for output generation, it is only the placed objects that are used.

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**Source URL:** [http://documentation.circuitmaker.com/display/CMAK/PCB\\_Obj-BoardShape\(\(Board+Shape\)\)\\_CM](http://documentation.circuitmaker.com/display/CMAK/PCB_Obj-BoardShape((Board+Shape))_CM)