

Create a Bed-of-Nails Test Jig for the CC264BPA

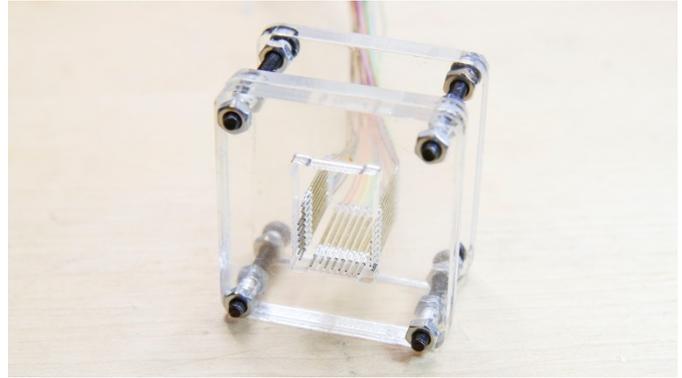
Contents

Project Options	2
Option 1: Minimal Fixture	2
Option 2: Fixture with Clamp and Wire-Wrap Termination	2
Option 3: Fixture with Clamp, Stand, and Wire-Wrap Termination	2
Assembly Instructions	3
Description	3
Assembly Steps	3
Parts Required (all prices are retail, U.S. denomination):	4
Pogo-Pin Receptacle R50	4
Pogo-Pin Spring Test Probe P50-Q1	4
Horizontal Toggle Clamp	4
Acrylic Sheet 1/4"-3/16"	5
Miscellaneous Hardware (M3)	5

Project Options

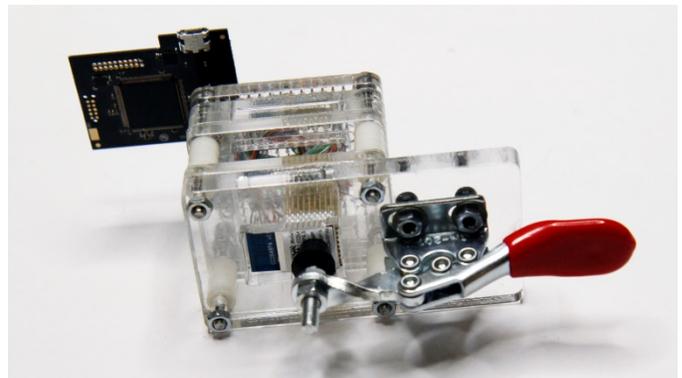
Option 1: Minimal Fixture

This version of the project uses three acrylic laser cut parts. The user would hold a test module in place. This is the most economical, quickest, and easiest fixture to build.



Option 2: Fixture with Clamp and Wire-Wrap Termination

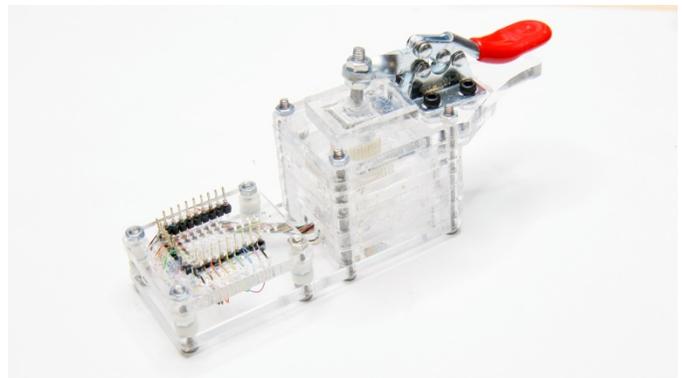
This version of the test fixture uses additional parts and offers additional functionality. The module is held in place with a toggle clamp, with wires terminated with wire wrapping on the bottom of the jig on 0.1" pitch male headers.



Option 3: Fixture with Clamp, Stand, and Wire-Wrap Termination

This version of the test fixture uses the most number of parts and includes a base. The module is held in place with a toggle clamp, with wires terminated with wire wrapping on the bottom of the jig on 0.1" pitch male headers.

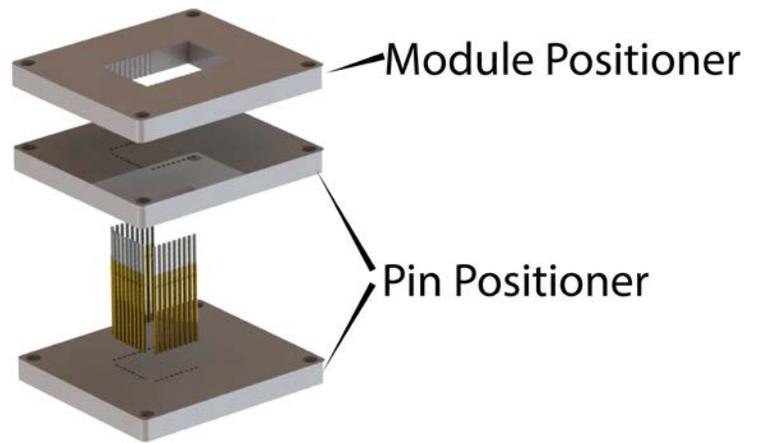
The test-pins and wire-wrap pins have similar physical layout, minimizing the chance that a user would incorrectly connect the module during testing.



Assembly Instructions

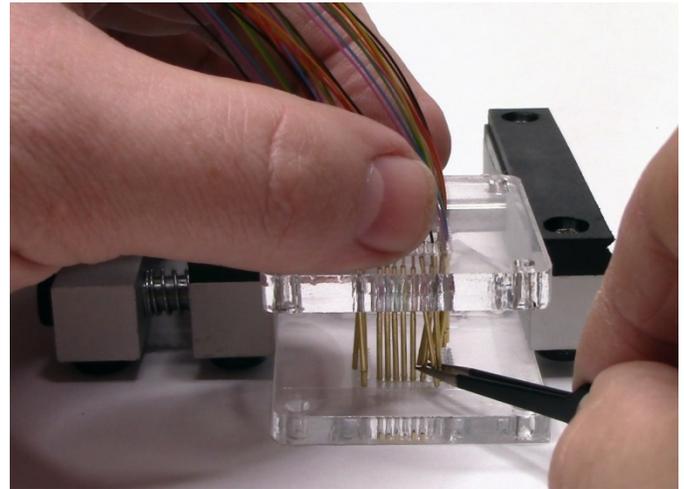
Description

The basic jig consists of an indexed rectangular cutout designed to constrain the lateral motion of a CC264BPA module (Module Positioner.) Two additional acrylic pieces with three linear series of 0.05" pitch holes that hold R50 pin receptacles with crimped wires. P50 spring test pins are press fitted into the receptacles to allow removal for replacement of damaged or worn pins.



Assembly Steps

Thread the wires from the pogo-pin receptacles through the lower pin positioner. Invert and suspend the lower positioner above the upper positioner (so the wires are on top and the receptacles are hanging between the upper and lower receptacle). Use tweezers to position the receptacles in the upper pin positioner. Once all receptacles are in place, move the positioner plates together (maintain 12mm or 1/2" separation). Glue receptacles to positioner plates, and use spacers (nylon or acrylic) to separate positioner plates.

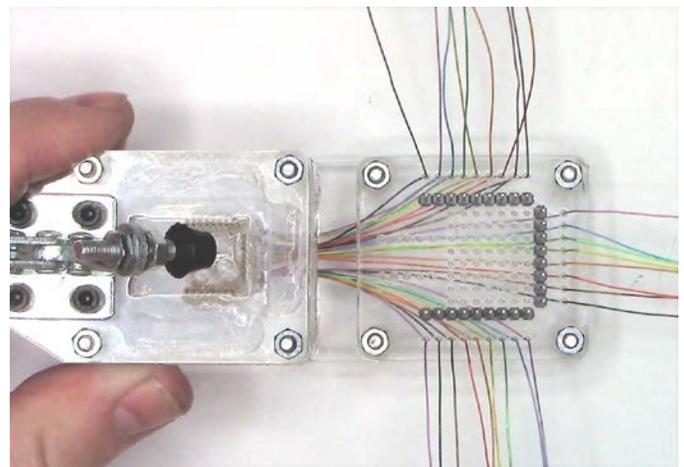


The suggested color-pattern for threading is shown below.



Lead wires to the desired termination point and terminate to your preference. The suggested technique is wire wrapping with a 32-gauge tool. Soldering is discouraged, as heat will transfer from the iron to the pin to the acrylic below.

Complete installation with optional toggle clamp. Since there are more pins on one side of the module than the other, the clamp should be positioned to apply pressure in the pin-dense section of the module. Alternatively, use a piece of sturdy material (metal, acrylic) to distribute pressure evenly across the entire module.



Parts Required (all prices are retail, U.S. denomination):

Pogo-Pin Receptacle R50

- \$14.5 / 200 pieces (uxcell)
- 26 pieces required
- Cost Per Project: **\$1.89**
- Pin length: 10mm
- Sleeve Length: 17mm
- Wire Diameter 0.4mm
- <http://www.ebay.com/itm/-/322047801785?roken=cUgayN&soutkn=GIcLpt>
- http://www.uxcell.com/search.php?x=0&y=0&categories_id=&keywords=a14091900ux0029&selectSearch=1

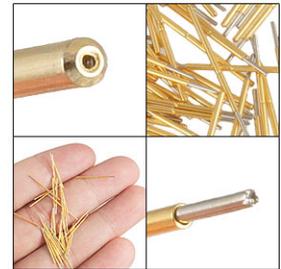
**200 Pcs
500mm**



Pogo-Pin Spring Test Probe P50-Q1

- \$7.8 / 100 pieces (ebay)
- 26 required
- Cost Per Project: **\$2.03**
- Tip Diameter: 0.4mm
- Length: 16mm
- Barrel Size: 0.6 x 13mm
- <http://www.ebay.com/itm/-/401303914771?roken=cUgayN&soutkn=LS>
- <http://www.uxcell.com/spring-load-04mm-dia-crosscut-tip-test-probe-pin-gold-tone-p-137795.html>

100 Pcs



Horizontal Toggle Clamp

- \$14.5 / 9 pieces
- 1 Optional
- Cost Per Project: **\$1.61**
- Part Number: 201-A (M4 Thread)
- <http://www.uxcell.com/27kg-holding-capacity-spiral-bar-flange-base-horizontal-toggle-clamps-brh201a-9pcs-p-1074047.html>

9 Pcs

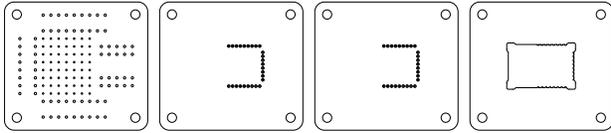


BRH-201-A



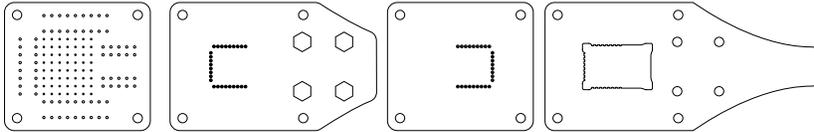
Acrylic Sheet 1/4"-3/16"

- \$32 / 1152 sq. in. (3/16")
- 12.8 sq. in. required (small no clamp design): $\$0.36 + \text{laser cutting cost } (52 \text{ in.} * 0.10 / \text{in}) = \5.30



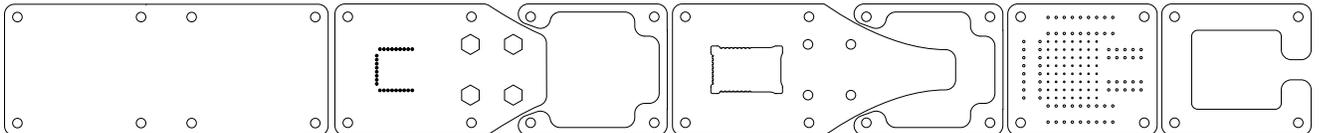
LOC: 18.411 in LOC: 10.998 in LOC: 10.998 in LOC: 11.549 in

- 17.0 sq. in. required (small with clamp design): $\$0.47 + \text{laser cutting cost } (61.6 \text{ in.} * 0.10 / \text{in}) = \6.63



LOC: 18.411 in LOC: 16.760 in LOC: 10.998 in LOC: 15.442 in

- 26.5 sq. in. required (full clamp with base): $\$0.74 + \text{laser cutting cost } (100.5 \text{ in.} * 0.10 / \text{in}) = \10.79



LOC: 14.031 in LOC: 16.760 in LOC: 11.796 in LOC: 15.442 in LOC: 11.796 in LOC: 18.411 in LOC: 12.305 in

- Note: Due to the way a laser focuses its energy, it produces a conical cut, and a wedge shaped kerf. This produces holes that have different radii at the top and bottom of the cut. Additionally, waste acrylic can melt back into location. The size of the small holes for the pogo-pin receptacle might need to be modified by the machining service – provide them with go/no go gauge or sample products for testing.

Miscellaneous Hardware (M3)

- All large holes are designed for M3 hardware. Length of hardware depends on acrylic thickness used.
- M3 x 10mm (12mm with washer): $\$10.13 / 100 * 4$ required for clamp option = **\$0.40**
<http://www.ebay.com/itm/3mm-M3-Phillips-Pan-Head-Machine-Screws-DIN-7985-A-Black-Oxide-Oil-/111839544046?var=&hash=item1a0a2802ee:mVqfLFJn9yrhDKm8M5aUwjg>
- M3 x 45mm: $\$8.27 / 50 * 4$ required for each project = **\$0.66**
- M3 Lock Nuts: $\$3.80 / 50 * 4$ required (+4 for clamp option) = **\$0.61**
<http://www.ebay.com/itm/M3x0-5mm-Zinc-Plated-Nylock-Self-Locking-Nylon-Insert-Hex-Lock-Nuts-Black-50pcs-/391234374840?epid=1241410238&hash=item5b1762ccb8:g:oGMAAOSwRUhZAK3U>