Subject: Point to Point vs PCB
Posted by smartt on Fri, 16 Apr 2021 22:46:39 GMT
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Which do you prefer?

Subject: Re: Point to Point vs PCB
Posted by gofar99 on Sat, 17 Apr 2021 01:52:53 GMT
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Hi, both. Plus add in perf boards. The ones with traces already in a pattern particularly. I use all three in my builds. I also tend to make things modular. Power supply on one board, active signal stuff on another (or point to point) and controls and control circuitry on another. Often with tube gear I put some of the components on the socket pins. Especially if they go from one to another on the same socket.

Subject: Re: Point to Point vs PCB
Posted by smartt on Sat, 17 Apr 2021 02:28:10 GMT
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PTP requires more labor but I read on internet that some do a poor job of the PCB. Quality not good to lower the cost, making PCB single sided, with flimsy pads, solder joints braking loose and etc. A quality PCB should be double sided with plated thru holes, no skimping on soldermask, have silkscreen. So will it be too expensive to have a quality PCB?

Subject: Re: Point to Point vs PCB
Posted by Wayne Parham on Sat, 17 Apr 2021 15:04:17 GMT
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The benefits of the solder mask, silkscreen and plate-through holes are not qualitative, not at least as far as the electrical signals go or even in terms of mechanical strength or anything like that. A single sided, one-layer board without solder mask or silkscreen is fine in many cases.

The solder mask is there for one purpose: To prevent solder from adhering to places where it isn't wanted, and its primary benefit is when using automated soldering systems like wave machines.

Silkscreens are just to add labeling.

Multiple layers allow the use of more complex boards without using jumpers. It allows signal traces to cross one another by going over another land on the opposite layer. There are even multi-layer boards that have several layers laminated together for extremely complex boards. The connection between layers is done with plate-through holes.

There are things that none of these features address that are more important qualitatively. All involve layout. The thickness of the lands sets the current capacity. Inter-conductor impedance and signal coupling are determined by proximity and orientation of the lands with respect to one another. So noise can be reduced or even eliminated by proper layout, and the converse is also true. A poor layout can create a noisy system design. Electrical noise presents itself as hum or buzz, or as artifacts in a video signal. While this is annoying in an audio or video circuit, it can cause a digital circuit to malfunction, sometimes intermittently where it is hard to track down.

Subject: Re: Point to Point vs PCB
Posted by gofar99 on Sat, 17 Apr 2021 16:43:49 GMT
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Hi, I agree completely. I reminded me of a recent issue that sort of relates. A diy builder of a pair of mid size Oddblocks had one that would not start up properly. It would go through the warm up phase, turn on the B+ relay and then immediately shut the relay off. After a lot of checking...it was the routing of a single wire that caused the problem. The B+ wire that was turned on ran parallel to the wires going to the 555 IC. It was spiking the reset and turning it off. Moving the wire fixed the problem. This can happen easily in PCBs. Not nearly so extreme, but problematic. I spent a lot of time assisting an individual with a complicated guitar build that was destined to be a commercial product. The ground traces on the PCB were causing serious hum and noise. Lots of small fixes and the S/N ended up being over 30db quieter. For those of you that might be new to the diy scene, grounding is anything but simple. It is as important as anything else in your project/build.

Subject: Re: Point to Point vs PCB
Posted by smartt on Sat, 17 Apr 2021 18:43:33 GMT
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Here is what I am getting at. What good choices should you make regarding PCB? Should I do single side or double side? Is there a building code or SOP to follow? What standards should apply? For example in building a house you must follow or exceed the building codes or you get a substandard house.Don't build it right and the house will be a disaster.

Subject: Re: Point to Point vs PCB
Posted by Wayne Parham on Sat, 17 Apr 2021 19:46:47 GMT
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The things I said in my earlier post above are good suggestions for PCB design. Not sure I can add to that; Specifics vary, of course, but as general rules, they post above should guide you pretty well.

What exactly are you hoping to build?

Subject: Re: Point to Point vs PCB
Posted by smartt on Sat, 17 Apr 2021 23:33:42 GMT
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I am a non diy person. Don't count on me to build anything. Having said that I ask a lot of questions to make sure I get a quality product.

Subject: Re: Point to Point vs PCB
Posted by positron on Tue, 18 May 2021 01:35:09 GMT
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After decades of research, I have a few general comments that are overlooked or that I have found through research/measurements.

I prefer pcb from the standpoint of consistency, product to product.

I prefer pcb because I can minimize part to part, part to chassis capacitance.
Pcb from the standpoint that I can design lead to lead, thus minimizing wires.
However, pcb can be detrimental if too small of foil is used or the layout is sub-standard.

Hard wiring tends to lack consistency, between parts and from parts to ground.
Hard wiring in bundles is one of the worse possible configurations. It looks nice while being detrimental to musical integrity.

One tends to have higher capacitance between wires, wires to ground, and musical information being "transmitted" to adjacent wires/parts/ground. It markets nice, looks nice/organized, while being detrimental.

I hand wire large power supplies.

Cheers

pos

Subject: Re: Point to Point vs PCB
Posted by Rusty on Tue, 18 May 2021 12:43:22 GMT
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The last kit build I did was all p to p. Much slower than circuit board. Just from stringing and crimping then soldering and trimming excess leads. I definitely like solid wire hookup to strand wire. Regardless the type. Making that good weld without glomming on too much solder is a skill not to be disregarded.

Subject: Re: Point to Point vs PCB
Posted by positron on Sun, 08 Aug 2021 17:44:04 GMT
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A quick note. PC boards can be used for point to point, or better yet lead to lead connecting to minimize wires and solder connections.

Personally, I feel laying out the board myself, rather than a computer program, yields higher quality, such as filter capacitors as shields for better channel separation, and wider foils for larger wire equivalent.

Any left/right channel coupling causes frequency response deviations when both channels are tested, or played at once, VS when only one channel is tested or played.

cheers

pos