ExpressPCB Classic – PCB Layout Software

Our *ExpressPCB Classic* is our original circuit board layout program is a snap to learn and use. Laying out PCBs is easy, even for the first time user.

Here are the steps:

Step 1:

Select the Components – Begin your layout by adding the components. Select the parts from the Component Manager dialog box. Many components (such as connectors) include Digi-key part numbers to make ordering easy.

Step 2:

__Position the Components –__ Drag each component to the desired location on your board. The Snap to grid feature makes it easy to neatly align the parts.

Step3:

__Add the Traces –__ Now add each trace by clicking on the pin of a component and dragging the trace to another pin. If you link your schematic file to the PCB, then the ExpressPCB program highlights the pins that should be wired together in blue.

See Tips for designing PC boards for more help on board layout.

Release Notes

ExpressPCB Version 7.8.0 – November 2018

- Changed from a soap api to a restfull api to provide future flexibility for future state website.

- All pricing and services come from the plus model.

- Electrical test is now available.

- Coupons are now available for classic.

- Selecting the get price button will now save shipping details. Previously shipping and billing details were only stored if you select the order button.

- If solder mask or silk screen is not selected the value for the feature on the right of the screen is bold and highlighted.
- Added check box "Include Gerbers". Check this box and we will send you the gerbers for your order along with your shipping confirmation email

ExpressPCB Version 7.6.0 – February 2018

- New Order Boards process
  - o Includes/maintains 5 day option for Production build time
  - o Added CVC code for increased security
- Quoting can be done through same process using "Get Price"
  - o Easier process to review cost for service, lead time, and shipping
- Removes the need to update Pricing.dat file!
- Changes incoming order processing to ExpressPCB, removing delays to order confirmations.

ExpressPCB Version 7.5.0 – December 2016

- Production 10 day build option is now 5 day build.
- Promotion Code option is now available in the order process.

ExpressPCB Version 7.4.1 – July 2016

- Updated Order Process back end systems.
- Added example images to Service Selection to distinguish services with or without solder mask.

ExpressPCB Version 7.4 – June 2016

- Added new technology for placing orders to ExpressPCB Servers.

- o Extra security over internet. Not only is the file encrypted by ExpressPCB as it always has been but the transmission is encrypted again via SSL.
- o Removes Firewall/Network Security barrier with FTP Port 21
- o Compatible with Windows XP, Vista, 7, 8 and 10.

ExpressPCB Version 7.3.6 – June 2016

- Added new Pricing Update Option on Update Pricing File screen. The new method is more flexible for accessing ExpressPCB servers and should fix errors updating the Pricing File.

ExpressPCB Version 7.3.5 – February 2016

- Added Ground Shipping as a shipping option
- ProtoPro no longer requires .010 inch clearance from edge of board
- Added Link to Online Community Library in the Component Menu

ExpressPCB Version 7.3.4 – October 2015

- Fixed Semiconductor-LED shematic component – pin numbers were reversed
- Added pricing file and order error help link to Help menu
- ExpressSCH- Added customer support link to ExpressSCH Help Menu

ExpressPCB Version 7.3.3 – September 2015

- Added option to re-enable "Filled Plane Info" dialog box
- Updated "Filled Plane Info" dialog box content
- Right Click Menu on Filled Plane Identifies Object as Filled Plane
- Fixed board quantity resetting to 2 when clicking "back" during quote or order process

ExpressPCB Version 7.3.2 – September 2015

- Added option to disable Splash Screen

- Renable Splash Screen in View~Options~Misc

ExpressPCB Version 7.3.1 – September 2015

- New Splash Screen for release updates and important information

- Fixed Component Footprints. Power and ground pads were inverted.

  - Diode – Zener 1 watt (lead spacing 0.4 inch, hole 0.040)

  - Diode – Zener 0.5 watt (lead spacing 0.3 inch, hole 0.029)

  - Diode – DO-201 (lead spacing 0.65 inch, hole 0.079)

  - Diode – DO-41 (lead spacing 0.4 inch, hole 0.040)

  - Diode – DO-35 (lead spacing 0.3 inch, hole 0.029)

  - Diode – DO-27 (lead spacing 0.65 inch, hole 0.079)

  - Diode – 1N5407 (DigiKey 1N5407CT-ND)

  - Diode – 1N4007 (DigiKey 1N4007CT-ND)

  - Diode – 1N4148 (DigiKey 1N4148CT-ND)

ExpressPCB Version 7.3 – August 2015

- Order quantity functionality

  - No longer restricted to even quantities.

  - Removed scroll for quantity increase and decrease.

- Rectangle and Filled Plane Dialog Box

  - Dialog Box explaining difference between Rectangle and Filled Plane appears when selecting either tool.

- Section 1 of EULA updated.

- Added ExpressPCB and Support website links to Help Menu.

ExpressPCB Version 7.2 – July 2015

- Updated Components in Layout Component Library. Power and ground pads were inverted.

  - Semiconductor – TO-92.

  - LED – T 1

    LED – T 1.75

  - Diode – Zener 1 watt (lead spacing 0.4 inch, hole 0.040)

  - Diode – Zener 0.5 watt (lead spacing 0.3 inch, hole 0.029)

  - Diode – DO-201 (lead spacing 0.65 inch, hole 0.079)

  - Diode – DO-41 (lead spacing 0.4 inch, hole 0.040)

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  - Diode – 1N4148 (DigiKey 1N4148CT-ND)

ExpressPCB Version 7.1 – May 2015

- Removed requirement for California sales tax during order process.

Changes between version 7.0.0 and 7.0.1 – Released : 6/16/09

- ExpressPCB: Changed the error message displayed when the pricing file is missing a value. New message suggests downloading the pricing file.

Changes between version 6.1.4 and 7.0.0 – Released : 6/6/09

- ExpressPCB: Added MiniBoardPro, MiniBoardPro-4Layer, and ProtoPro-4Layer manufacturing options

- ExpressPCB: Allowed shipping MiniBoards by Next Day Air

- ExpressPCB: Stopped supporting the Standard-4Layer manufacturing option after 9/1/09

- ExpressPCB: Decreased the solder mask expansion from 0.004" to 0.003" (diameters are now expanded by 0.006")

- ExpressSCH: Added call to DrawTheSheetTabs after saving the schematic file because otherwise sheet tables incorrectly drawn.

Changes made to between version 6.1.2 and 6.1.4 – Released : 2/28/08

- ExpressPCB: Changed copyright dates to 2008

- ExpressPCB: Fixed bug if clicked right while panning using middle mouse button

- ExpressSCH: Changed copyright dates to 2008

- ExpressSCH: Fixed bug if clicked right while panning using middle mouse button

- ExpressSCH: Changed tab order in Rectangle and Arc dialog boxes

Changes between version 6.1.1 and 6.1.2 – Released : 10/1/07

- ExpressPCB: Replaced the WinSock OCX with code

Changes between version 6.1.0 and 6.1.1 – Released : 5/20/07

- ExpressPCB: Changed location for custom components, favorite files, and pricing file to the directory:

  C:\Documents and Settings\<user>\My Documents\ExpressPCB

- ExpressPCB: Made directory where Custom Components are saved configurable in the Options dialog box.

  ExpressSCH: Changed location for custom components, favorite files, and pricing file to the directory:

  C:\Documents and Settings\<user>\My Documents\ExpressPCB

- ExpressSCH: Made directory where Custom Components are saved configurable in the Options dialog box.

Changes between version 5.6.0 and 6.1.0 – Released : 5/10/07

- Updated the manufacturing specs to change the min slot width to 0.1″

- ExpressPCB: The file format number has been changed from 12 to 14 (for both layout files and components.

- ExpressPCB: Changed location for custom components, favorite files, and pricing file to the directory:

- C:\Documents and Settings\All Users\Documents\ExpressPCB

- ExpressPCB: Added code to automatically copy custom component files from legacy directory to new "All Users" directory when new version is first run.

- ExpressPCB: Corrected spelling of compliant on order forms

- ExpressPCB: Changed manufacturing specification from 0.007″ lines and spacing to 0.006″.

- ExpressPCB: Added 0.006″ traces and silkscreen lines

- ExpressPCB: Added smaller fonts: 0.045″, 0.040″, and 0.038″

- ExpressPCB: Removed Turkey from the PricingFile

- ExpressPCB: Added panning using center mouse button

- ExpressPCB: The rectangle displayed in place of text is now done at a smaller font size (MIN_TEXT_HEIGHT_FOR_DISPLAY changed from 8 to 6)

- ExpressPCB: Portrait / Landscape image in printer dialog box now correctly displays the background color

- ExpressPCB: Added Split planes and "Keepout" areas on inner layers

- ExpressPCB: Added inner layer checkboxes on the side toolbar

- ExpressPCB: Now can show netlist blue dots on the inner layer pads

- ExpressPCB: The "N" shortcut key now selects the Net tools

- ExpressPCB: Fixed a bug that failed to preserve the "filled plane clearance" when a trace is moved using the "disconnect" tool.

- ExpressPCB: Added support for Metafiles images. The Edit / Copy silkscreen layer to clipboard command now copies both a bitmap and a metafile to the clipboard. The File / Export image of mechanical drawing command as the option of generating a bitmap or metafile.

- ExpressPCB: Added Windows OS number to PLT file

- ExpressPCB: Added the command Component information under the Component menu to show the path where custom components are saved.

- ExpressPCB: Updated the Print Dialog box to support printers with 0 paper trays (large format plotters). Note This change was made after beta testing complete.

- ExpressSCH: Added panning using center mouse button

- ExpressSCH: Changed the color of the sheet tabs to match the System Button color

- ExpressSCH: Portrait / Landscape image in printer dialog box now correctly displays the background color

- ExpressSCH: Added support for Metafiles images. The Edit / Copy schematic image to clipboard command now copies both a bitmap and a metafile to the clipboard. The File / Export schematic image command as the option of generating a bitmap or metafile.

- ExpressSCH: Changed location for custom components, symbols and favorite files to the directory:C:\Documents and Settings\All Users\Documents\ExpressPCB

- ExpressSCH: Added code to automatically copy custom component files from legacy directory to new "All Users" directory when new version is first run.

- ExpressSCH: Added the command Component information under the Component menu to show the path where custom components are saved.

- ExpressSCH: Updated the Print Dialog box to support printers with 0 paper trays (large format plotters). Note This change was made after beta testing complete.

- Manufacturing: MiniBoards are back to Tin/Lead

- Prevent deleting of the board outline

- Added ability to route with 5 mil trace/space

- Added ability to use 6 mil vias with 23 mil pads

- Allow users to change some design rules such as minimum trace, minimum space, smallest hole, and thermal relief width.

- Added the ability to create a 6 layer board

- Miniboard service is no longer limited to a rectangular board. Any shape less than or equal to 10 sq. inches is now a valid miniboard.

- Provided a website based option to submit an order.

ExpressPCB Plus Version 1.1.6 – November 12, 2018

- Changed from a soap api to a restfull api to provide future flexibility for future state website.

- Electrical test is now available.

- Selecting the get price button will now save shipping details. Previously shipping and billing details were only stored if you select the order button.

- If solder mask or silk screen is not selected the value for the feature on the right of the screen is bold and highlighted.

- The customer is no longer limited in plus to the features available in their design. No mask can be selected even if the design has mask.

- Added check box "Include Gerbers". Check this box and we will send you the gerbers for your order along with your shipping confirmation email

ExpressPCB Plus Version 1.1.4 – November 21, 2017

- Fixed issue displaying order amount on the order form for customers with specific Region specific Formats set in operating system. Express order form will always show charges in US dollars.

- Fixed bug that prevented a customer from ordering a service that does not have silkscreen if the design contains silkscreen. The DRC will only validate that silkscreen is required if silkscreen is a selected option in the board properties.

- Fixed gerber extraction issue that would incorrectly assign a coordinate value to a object that is within .01 inches of the origin and is a negative value.

ExpressPCB Plus Version 1.1.3 – November 2, 2017

- Fixed build error that prevent a portion of the new import ExpressPCB Classic parts functionality from working when published.

ExpressPCB Plus Version 1.1.2 – October 30, 2017

- Fixed missing start menu and desktop links.

- Fixed broken links to help menu links and help files.

- Fixed option to launch application on last step of installer.

ExpressPCB Plus Version 1.1.1 – October 27, 2017

- Fixed ExpressPCB Classic import tool to use file name as part name if a part name does not exist.

- Updated the classic import tool file already exists form to include a checkbox to overwrite all selected files. Once selected this form will not popup and all selected files, if found to already exist, will be overwritten.

- Updated the classic import tool file already exists form to include a renamed button labeled "Cancel This Part". This was previously just Cancel. This button will only cancel the current part.

- Updated the classic import tool file already exists form to include a new button labeled "Cancel Import". This will cancel the entire import process.

ExpressPCB Plus Version 1.1.0 – October 20, 2017

- Added ExpressPCB Classic parts import.

- Updated Manual With ExpressPCB Classic parts import Wizard.

- Added File Description section to main tool ribbon. Section includes fields for Part Number, Revision, and Category.

ExpressPCB Plus Version 1.0.12 – October 12, 2017

- Improved Order API Performance

- Added Installation Directory option to installer

ExpressPCB Plus Version 1.0.11 – October 10, 2017

- Fixed Error with Digital Code Signing during install trigger false positive on Antivirus Software

- Relabeled "Data" menu to "Design Info" menu

- Moved Board Properties from File Menu to Design Info Menu

- Moved Compare from File Menu to Design Info Menu

- Moved Order Boards from File Menu to Top Menu

ExpressPCB Plus Version 1.0.10 – October 9, 2017

- Fixed Error with registering comctl32.ocx during install for ExpressSCH Classic

- Fixed Saved Address in Order Form getting overwritten during upgrade

- Fixed showing partial version number in Splash Screen and About Screen. Full version is shown now.

ExpressPCB Plus Version 1.0.9 – October 6, 2017

- Fixed Error with order limit of 350 holes on MiniBoard Plus

- Fixed bug where 4 Layer ExpressPCB Classic designs with .oo8 holes imported as .007 in ExpressPCB Plus

ExpressPCB Plus Version 1.0.8.4 – October 5, 2017

- Fixed Install Folder Permission Error

- Fixed Order API Error

ExpressPCB Plus Version 1.0.8 – October 3, 2017

- Public Release

Stevens Products Inc.provides edge protectors, Gold Finger Gloves, PCB Stiffeners, PCB Carriers, etc. Check out their products!

Submitted by our cool customer: Peter Capobianco "…audiophile and tube hi-fi DIYer extraordinaire…"

//stevensproducts.net/products.htm

PCB Trace Width Calculator

This Javascript web calculator calculates the trace width for printed circuit boards based on a curve fit to IPC-2221 (formerly IPC-D-275).

//circuitcalculator.com/wordpress/2006/01/31/pcb-trace-width-calculator/

PCB Via Calculator

This Javascript web calculator calculates the resistance, voltage drop, and power loss of printed circuit board vias. Note that vias are made out of plated copper which typically has a resistivity of 1.7E-6 to 2.2E-6 Ohm-cm. The calculator has an input box for the resistivity which defaults to 1.9E-6 Ohm-cm.

//circuitcalculator.com/wordpress/2006/03/12/pcb-via-calculator/

Tektronix TDS-1000

The Tektronix TDS-1000 is a great low-cost digital storage oscilloscope for the microprocessor developer. We have the old model TDS-220 and love it. The ability that storage scopes have to capture and display a single event make them extremely handy for micro controller development. This model's very compact size also makes it great in the field. We do however consider that an analog scope may still be a better choice for doing sensitive analog work. These scopes are somewhat noisy at low voltages.

www.tek.com

Mitutoyo Calipers

When laying out PC boards, it is very useful to measure small distances accurately. Selecting hole sizes for components requires measuring pin diameters in thousandths of inches. When placing pads for components or connectors with unusual lead spacing, it is necessary to carefully measure the pin layout. We have always been happy with Mitutoyo calipers for this job. We use both their dial and digital display models. A good selection of Mitutoyo calipers are available at McMaster-Carr. For the casual user, a no-name brand dial caliper is likely to be fine and cost under $50.

www.mitutoyo.com

Digi-Key

Digi-Key is a great resource for electronics components, such as semiconductors, resistors, capacitors, and connectors. They have a large inventory and ship very quickly. Their catalog often shows physical dimensions of parts, which is a big help when laying out PC boards. Many parts found in the ExpressPCB component library include Digi-Key part numbers. products!

www.digikey.com

Mouser Electronics

Mouser Electronics is very useful source for electronic components, particularly when prototyping. Their website and online catalog is an important source of technical information such as component data sheets.

www.mouser.com

Pic-Servo Motion Control

We find that motion control projects are made easy using the PIC-SERVO. The PIC-SERVO is available either in a two chip set, or as a single board controller that includes the motor amplifier. It has a serial interface so it is easy to connect with a computer. The PIC-SERVO is probably the fastest and least expensive way to get a DC servo motor up and running. They also offer a stepper motor controller.

www.jrkerr.com

GetThePatent.com

If you are considering patenting a new invention or product, a great place to start your research is GetThePatent.com. They offer a fast online tool for patent searches. Their database not only includes US patents, but also the patents registered in most European countries and Japan.

www.getthepatent.com

Envision Plastics

Envision Plastics and Design offers an interesting enclosure solution for products to be manufactured in quantities from 50, up to a few thousand. Their plastic enclosures have a "consumer product" feel, but do not require expensive tooling or setup costs. This makes them a practical solution for small production runs.

www.envplastics.com

Alta Via Technologies

Alta Via Technologies is a high-end PCB design service. They specialize in laying out complex circuit boards for commercial, military, and medical applications. They offer significant expertise when working with PCB design issues such as high speed circuits (10Ghz +), high density SMT packages, and controlled differential impedance.

www.altaviatech.com

McMaster-Carr Supply

McMaster-Carr Supply Company is a good source for mechanical parts. They have a complete selection of screws, nuts, washers and other fasteners. McMaster's offers raw materials such as aluminum and plastics. They are also a good source for tools and machine shop supplies. They almost always have what you need in stock and ship very quickly.

www.mcmaster.com

Online Metals

Online Metals is a very convenient source for purchasing small amounts of machinable metals and plastic. They have a good selection of aluminum in both sheet and plate, as-well-as delrin, nylon and acrylic. They will also cut to size.

www.onlinemetals.com

AppCAD

AppCAD is a free RF design tool for Windows that can be downloaded at no cost from HP / Agilent. It is useful to help with the calculations for many RF, microwave, and wireless applications. PC board designers of RF circuitry will find the transmission line calculator handy. It also includes many computerized application notes relating to RF topics.

AppCAD