

# LibrePCB

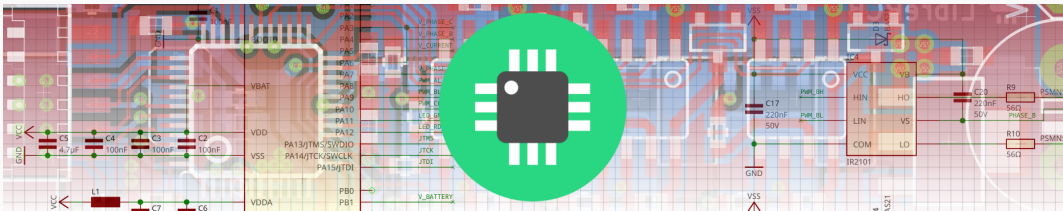
FOSDEM'22 Status Update

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Urban Bruhin

February 5, 2022

# About LibrePCB



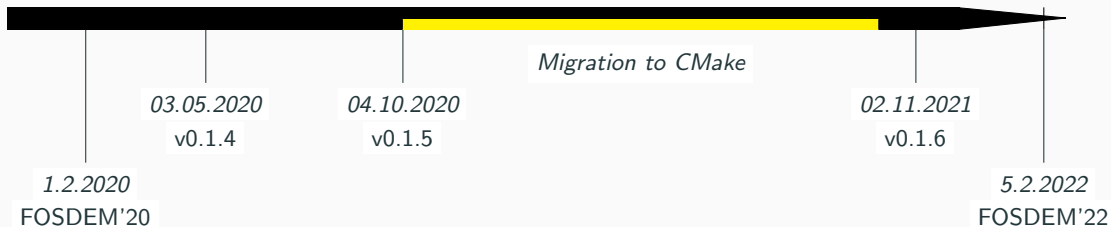
## Free (GPLv3) EDA suite, started in 2013

- Cross-platform:     | x86/ARM
- Intuitive & easy-to-use UI, for beginners, hobbyists & professionals
- Powerful library concept, to save time and maximize reusability
- Human readable file format, optimized for version control
- Focus on usability and stability rather than bleeding-edge features

# Timeline

2020

2022



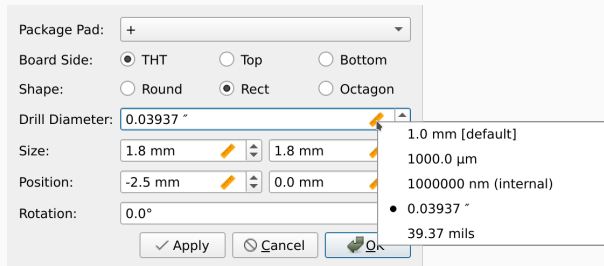
Beside implementing new features & bugfixes, in 2021 we migrated from qmake to CMake and refactored the software architecture to make it future-proof.

# Unified, Enhanced Number Input Fields

Evaluating mathematical expressions:

0.68+2\*0.33" → 1.34"

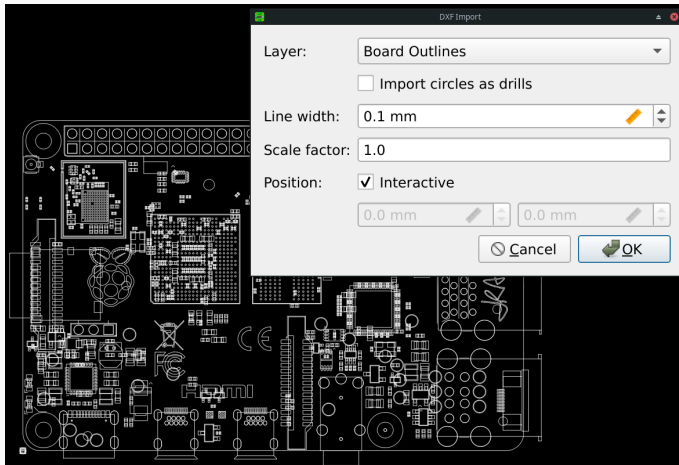
Unit selection by context menu:



Unit of each input field is memorized in user settings

# DXF Import

Import DXF (2D drawings) into symbol-, footprint- or board editor:



# Pick&Place Export

Pick&place CSV export for automated assembly:

Board: default

☒ Top Devices: ./output/{{VERSION}}/assembly/{{PROJECT}}\_PnP-TOP.csv

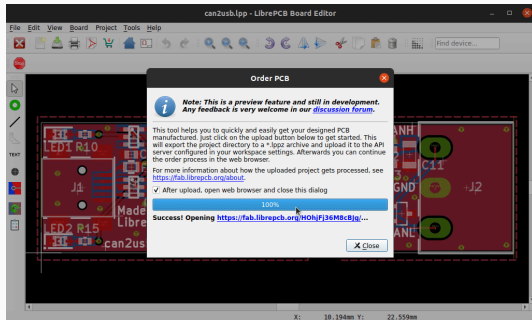
☒ Bottom Devices: ./output/{{VERSION}}/assembly/{{PROJECT}}\_PnP-BOT.csv

☒ Include comment with some metadata (provides additional information, but might cause issues with some CSV readers)

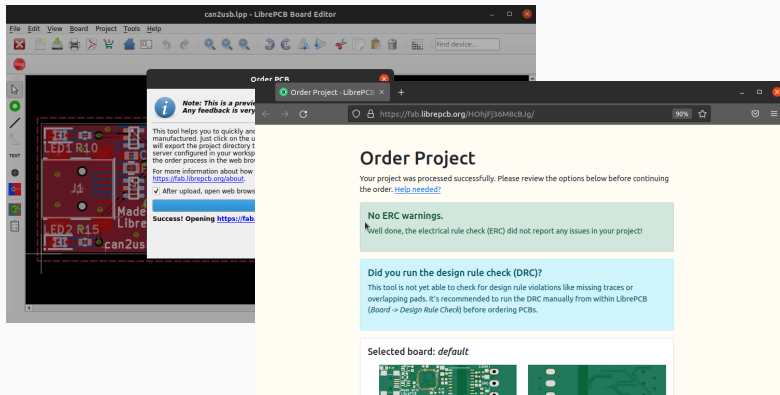
	Designator	Value	Device	Package	Position X	Position Y	Rotation	Side
1	C1	1μF	C-0603	C-0603	11.43	12.4195	180.0	Top
2	C2	1μF	C-0603	C-0603	14.605	14.642	270.0	Top
3	C3	100nF	C-0603	C-0603	25.599	14.628	90.0	Top
4	C4	100nF	C-0603	C-0603	23.65375	4.165	180.0	Top
5	C5	100nF	C-0603	C-0603	15.39875	7.658	90.0	Top
6	C6	100nF	C-0603	C-0603	20.16125	15.595	0.0	Top
7	C7	10μF	C-1206	C-1206	27.54875	13.64025	90.0	Top
8	C8	100nF	C-0603	C-0603	29.415	13.356	90.0	Top
9	C9	100nF	C-0603	C-0603	27.666	9.222	90.0	Top
10	C10	10nF	C-0603	C-0603	29.256	9.222	90.0	Top

[Generate](#) [Close](#)

The easiest and fastest way to order a PCB!



The easiest and fastest way to order a PCB!





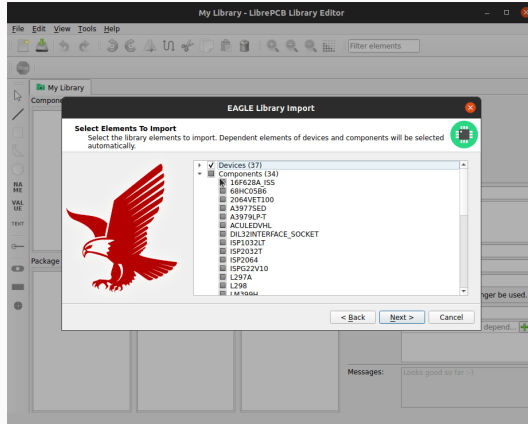
## The easiest and fastest way to order a PCB!

The image is a collage of four screenshots illustrating the LibrePCB workflow for ordering a PCB:

- LibrePCB Board Editor:** The top-left screenshot shows the LibrePCB Board Editor interface. The title bar reads "can2usb.lpp - LibrePCB Board Editor". The menu bar includes File, Edit, View, Board, Project, Tools, and Help. The main workspace displays a PCB layout with components like LEDs (LED1 R10, LED2 R15), resistors (J1), and a USB port (can2usb). A sidebar on the left contains various tool icons.
- Order Project Dialog:** The top-right screenshot shows the "Order Project" dialog box. It contains a note: "Note: This is a preview. Any feedback is very appreciated." Below the note, it says: "This tool helps you to quickly and easily manufacture your PCB. Just click on the button and the project directory will be exported to the server configured in your workspace. For more information about how to use the order process in the web browser, see: <https://fab.librepcb.org/about>." At the bottom, it says: "Success! Opening <https://fab.librepcb.org/about>."
- Order Project Web Page:** The middle screenshot shows the "Order Project" web page. The title is "Order Project". The text says: "Your project was processed successfully. Please check the order. [Help needed?](#)" Below this, it says: "No ERC warnings. Well done, the electrical rule check (ERC) passed." Further down, it says: "Did you run the design rule check (DRC)? This tool is not yet able to check for design rule violations (e.g. overlapping pads). It's recommended to run the DRC (Board -> Design Rule Check) before ordering." At the bottom, it says: "Selected board: default" and shows a small image of a PCB.
- aisler.net Website:** The bottom-right screenshot shows the "aisler.net" website. The title bar reads "Unnamed project on AISLER". The URL is "https://aisler.net/p/DGNQXKIF/board?timeTravel=574307". The page has tabs for Home, Overview, PCB, Stencil, Parts, Tests, and Sharing. The "PCB" tab is active. The page shows a 3D rendering of the PCB with dimensions (16.44 mm x 60.00 mm). The legend includes: Plated Through Hole (orange), Non-Plated Through Hole (blue), Primary Milling Path (green), Secondary Milling Path (light green), - / Cathode / Pin 1 Indicator (black), and Highlighted Elements (purple). The text "Made With LibrePCB" and "can2usb v1" are visible on the PCB rendering.

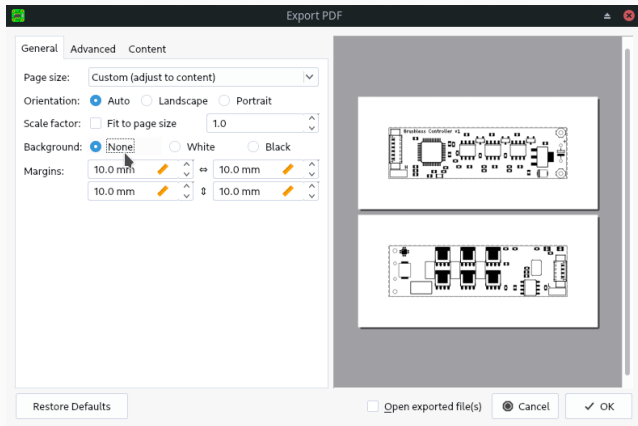
# Next Release

EAGLE library (\*.lbr) import:



# Next Release


Feature-rich print & PDF/SVG/Pixmap export:




# Installation Packages

Official:


 Installer/Updater

 Portable \*.zip

 Installer/Updater

 Portable \*.dmg

 Installer/Updater

 Portable \*.tar.gz

 Portable Appliance Image

 **Flatpak on Flathub**

 **Snap on Snapcraft**

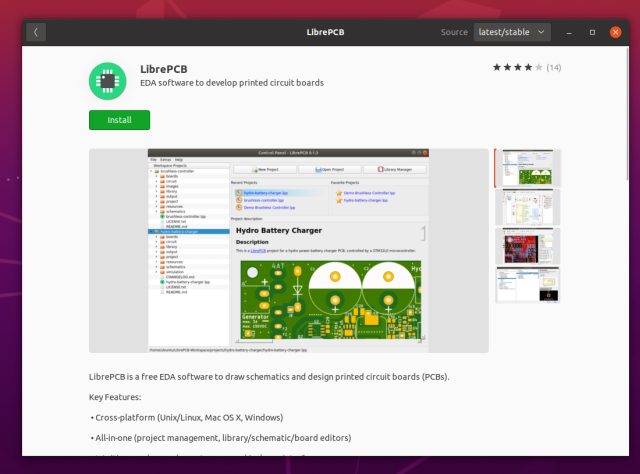
 Community maintained:

Packaging status	
AUR	0.1.6
DPorts	0.1.5
FreeBSD Ports	0.1.6
freshcode.club	0.1.5
Funtoo 1.4	0.1.0
Gentoo	0.1.5
GNU Guix	0.1.5
HaikuPorts master	0.1.6
Homebrew Casks	0.1.6
LiGurOS stable	0.1.5
LiGurOS develop	0.1.5
Mageia 8	0.1.4
Mageia Cauldron	0.1.4
nixpkgs stable 21.05	0.1.5
nixpkgs stable 21.11	0.1.6
nixpkgs unstable	0.1.6
RPM Sphere	0.1.5
Void Linux x86_64	0.1.5

... and even more!

# Installation Packages

## LibrePCB in Ubuntu Software:



The screenshot shows the Ubuntu Software Center interface for the LibrePCB application. At the top, the application name "LibrePCB" is displayed with a green circular icon containing a white circuit board pattern. Below the name is the description "EDA software to develop printed circuit boards" and a green "Install" button. To the right of the description is a star rating of four stars and a count of 14 reviews. The main preview area shows a screenshot of the LibrePCB software interface, which includes a project tree on the left, a central workspace displaying a schematic diagram of a "Hydro Battery Charger" circuit, and a right-hand panel with various toolbars and project settings. Below the preview, a brief description of the software is provided, followed by a list of key features.

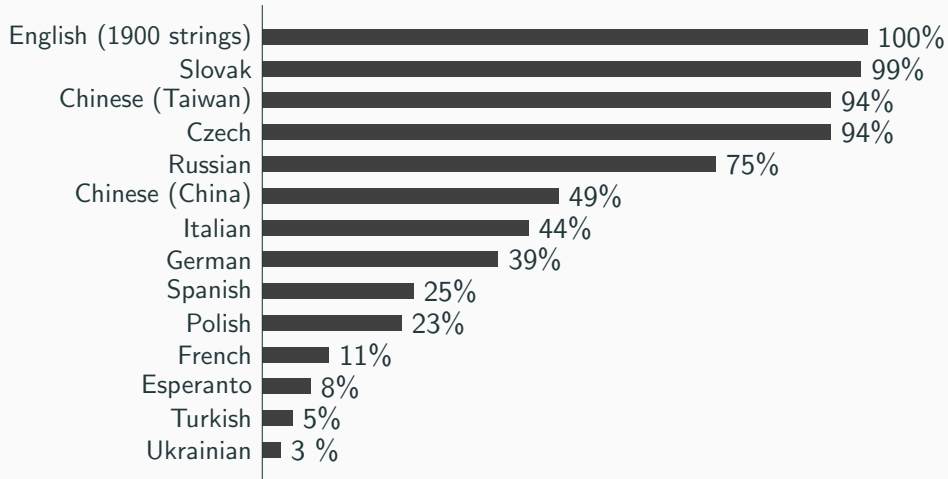
LibrePCB is a free EDA software to draw schematics and design printed circuit boards (PCBs).

Key Features:


- Cross-platform (Unix/Linux, Mac OS X, Windows)
- All-in-one (project management, library/schematic/board editors)

# UI Translations

13 (partial) translations contributed by 42 translators ❤️



# Project Status

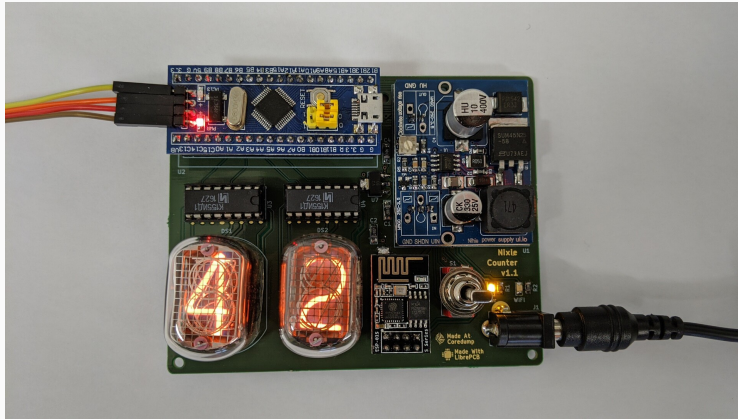
<b>Library Management</b>		
<b>Library Editor</b>		
<b>Schematic Editor</b>		
<b>Board Editor</b>		(only basic features)
<b>Export (e.g. Gerber)</b>		
<b>Available Libraries</b>		

Not supported yet:

Hierarchical schematics, buses, 3D view, MPN in part libraries,  
slotted holes/pads, blind/buried vias, arbitrary pad shapes, ...

# PCBs Made With LibrePCB

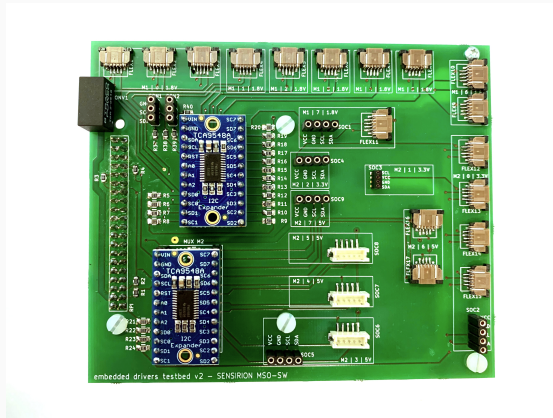
Some PCBs made by the LibrePCB community 🧑🧑🧑





# PCBs Made With LibrePCB

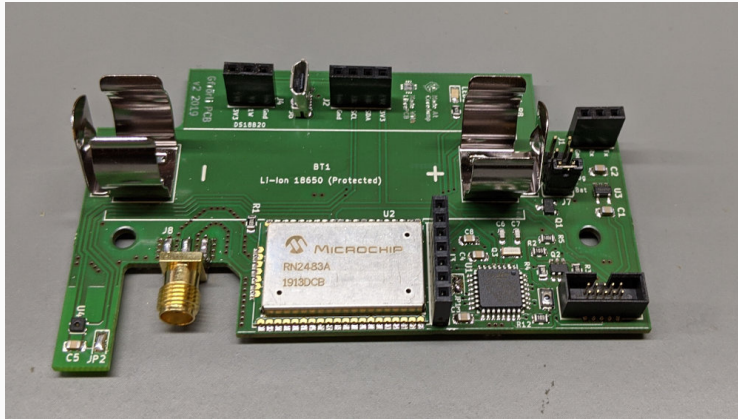
Some PCBs made by the LibrePCB community 🧑🧑🧑



Source: <https://librepcb.discourse.group/t/projects-madewithlibrepcb/99>

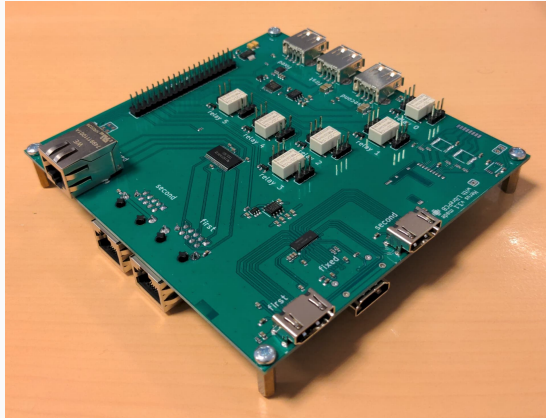
# PCBs Made With LibrePCB

Some PCBs made by the LibrePCB community 



# PCBs Made With LibrePCB

Some PCBs made by the LibrePCB community 🧑🧑🧑



Source: <https://librepcb.discourse.group/t/projects-madewithlibrepcb/99>

# PCBs Made With LibrePCB

Some PCBs made by the LibrePCB community 🧑🧑🧑



Source: <https://librepcb.discourse.group/t/projects-madewithlibrepcb/99>

## Next Steps

Things to be improved (in arbitrary order):

- Part management (MPN, assembly variants, ...)
- Advanced PCB features (arbitrary pad shapes, blind/buried vias, slotted holes/pads, push&shove router, ...)
- 3D models in library / 3D board viewer / MCAD export
- Hierarchical schematics / buses
- UI improvements
- Extend part libraries
- ...

**It's a huge, very time consuming task to develop an EDA software. . .**

If LibrePCB is useful for you, a donation would be greatly appreciated.  
It helps to spend more time on this project, making it more and more powerful.

Or check out other ways to contribute:

<https://github.com/LibrePCB/LibrePCB/blob/master/CONTRIBUTING.md>

# Thank you!

<https://librepcb.org>