

ENABLING OPEN HARDWARE THROUGH FREE AND OPEN SOURCE TOOLS

TOMASZ WŁOSTOWSKI

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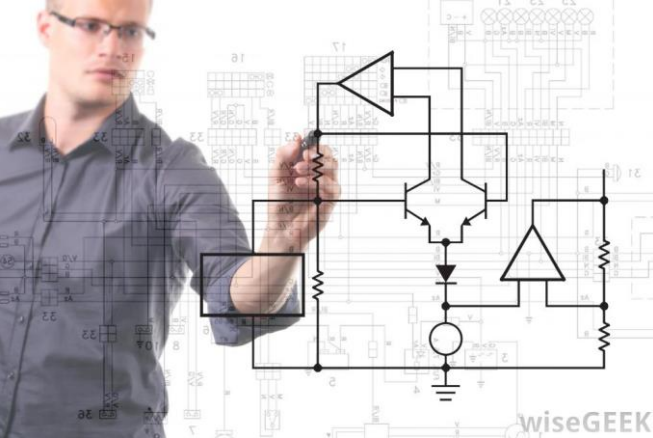
JAVIER SERRANO

IT LIGHTNING TALKS

16 SEPTEMBER 2016

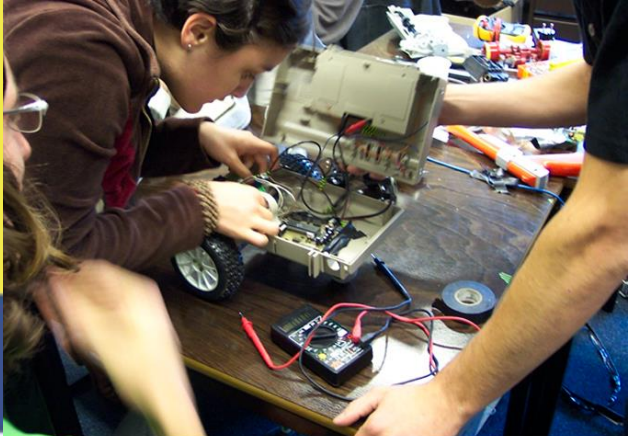
OPEN HARDWARE PHILOSOPHY

DESIGN



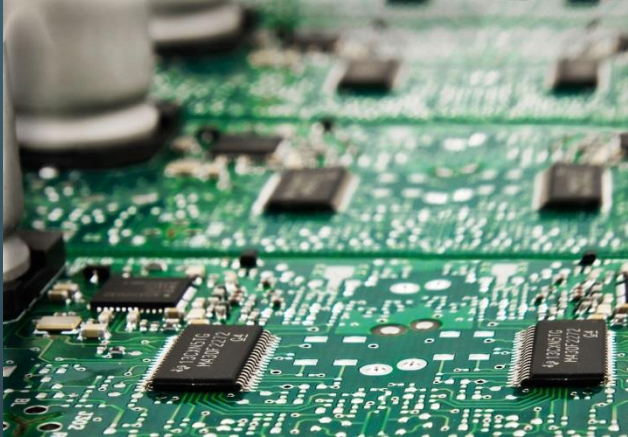
WiseGEEK

MODIFY



Benjamin Gaulon, E-Waste Workshop

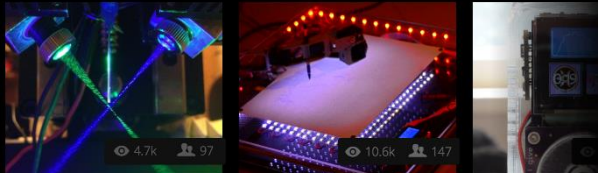
MANUFACTURE



SHARE

1121 Projects tagged with "hardware"

BROWSE BY TAG: hardware



CNC Add-on: Rot. Laser Solder...
by AllMarcos 4.7k 97

Roboartist
by nlezangels 10.6k 147

Open Source So...
by peter jensen

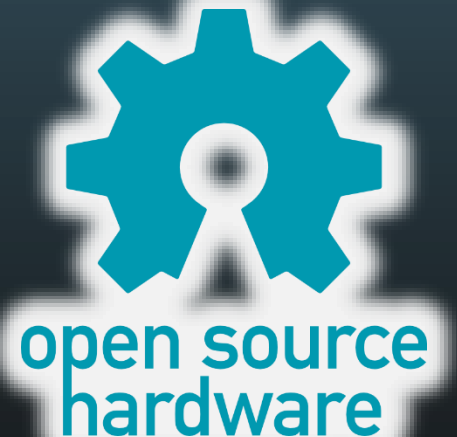
WHY CERN?

The Organization shall have no concern with work for military requirements and the results of its experimental and theoretical work shall be published or otherwise made generally available.

ARTICLE II OF CERN CONVENTION



opendata
CERN



OUR INVOLVEMENT

- Open Hardware Repository with hundreds of projects available.
- CERN Open Hardware License
- Development of Open Source EDA tools
- Endorsed by Knowledge Transfer and higher CERN management.

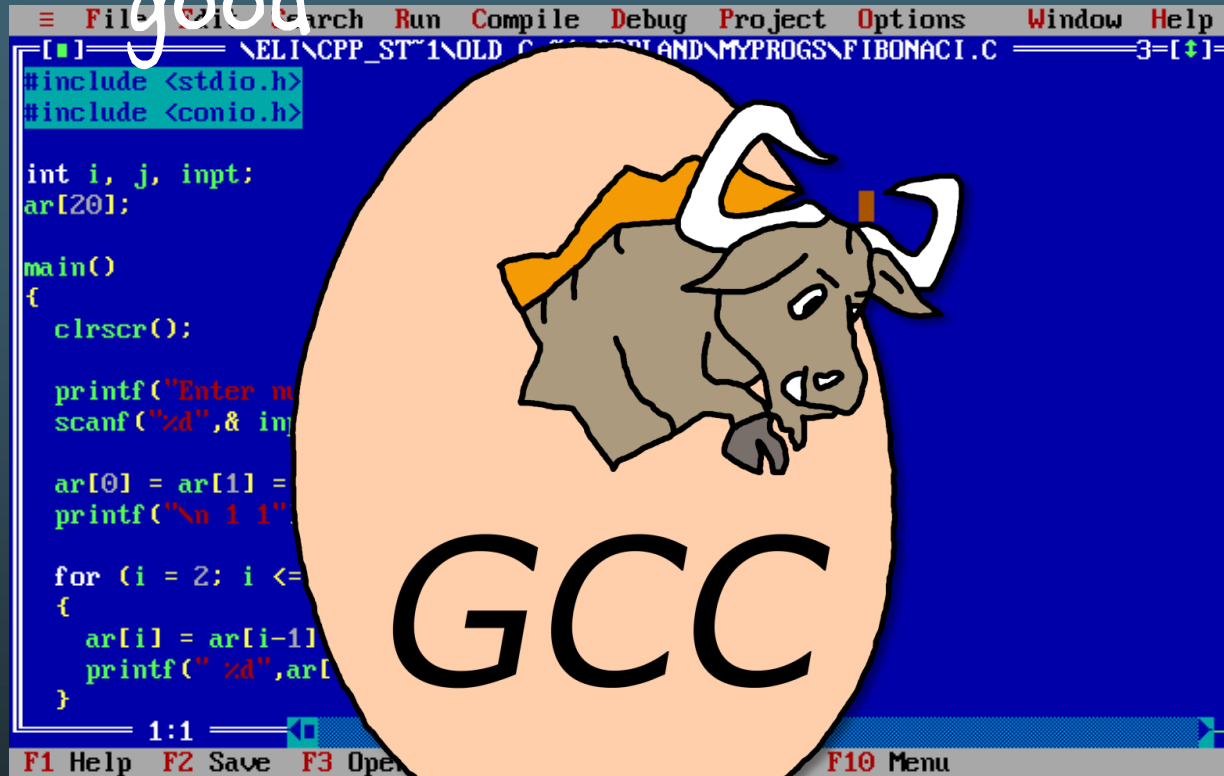
Knowledge Transfer **2015**

KiCad: a tool for designing open-source hardware

2015 has been a pivotal year for the **KiCad** project in many ways. Perhaps the most important one is the shift in perception from professional users who gradually start to adopt it as their production tool: this is confirmed by the wealth of recent development efforts and the buzz around the software itself. The global development community worked hard to polish the software, fix bugs, and improve the documentation and software distribution; all this with a strong contribution from CERN, supported via the KT Fund. The result is the 4.0.1 Stable Release available for download from the project website, for Windows (32&64 bit), OS-X, Ubuntu, Debian and other Linux flavours.

IN THE OLD, ~~BAD~~ 90s

good



```
File Edit Search Run Compile Debug Project Options Window Help
\ELINCPP_ST\1\OLD C++\BORLAND\MYPROGS\FIBONACI.C 3=[+]
#include <stdio.h>
#include <conio.h>

int i, j, inpt;
ar[20];

main()
{
  clrscr();

  printf("Enter number: ");
  scanf("%d",& inpt);

  ar[0] = ar[1] = 1;
  printf("\n 1 1\n");

  for (i = 2; i <= inpt; i++)
  {
    ar[i] = ar[i-1] + ar[i-2];
    printf("%d ",ar[i]);
  }
}
```

1:1

F1 Help F2 Save F3 Open F10 Menu

Try to build this using a non-Borland compiler...

SOFTWARE GUYS DID IT!

.cpp

.c

.h

VIM
EMACS
ECLIPSE
NOTEPAD



.exe

.out

.

GCC
ICC
TCC
MSVC
CLANG

FOR HARDWARE IT IS YET TO COME...

Incompatibility Inside®



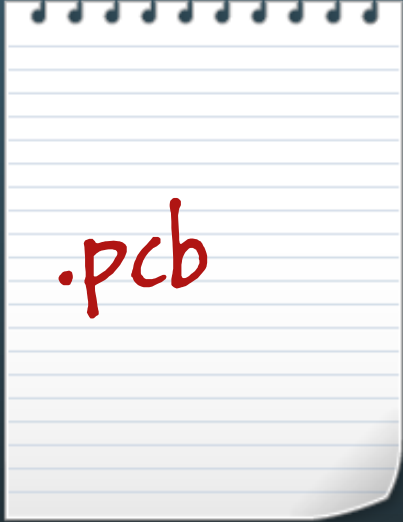
.PcbDoc

ALTIUM
DESIGNER



.brd

CADENCE
ALLEGRO



.pcb

P-CAD

WHY KICAD?

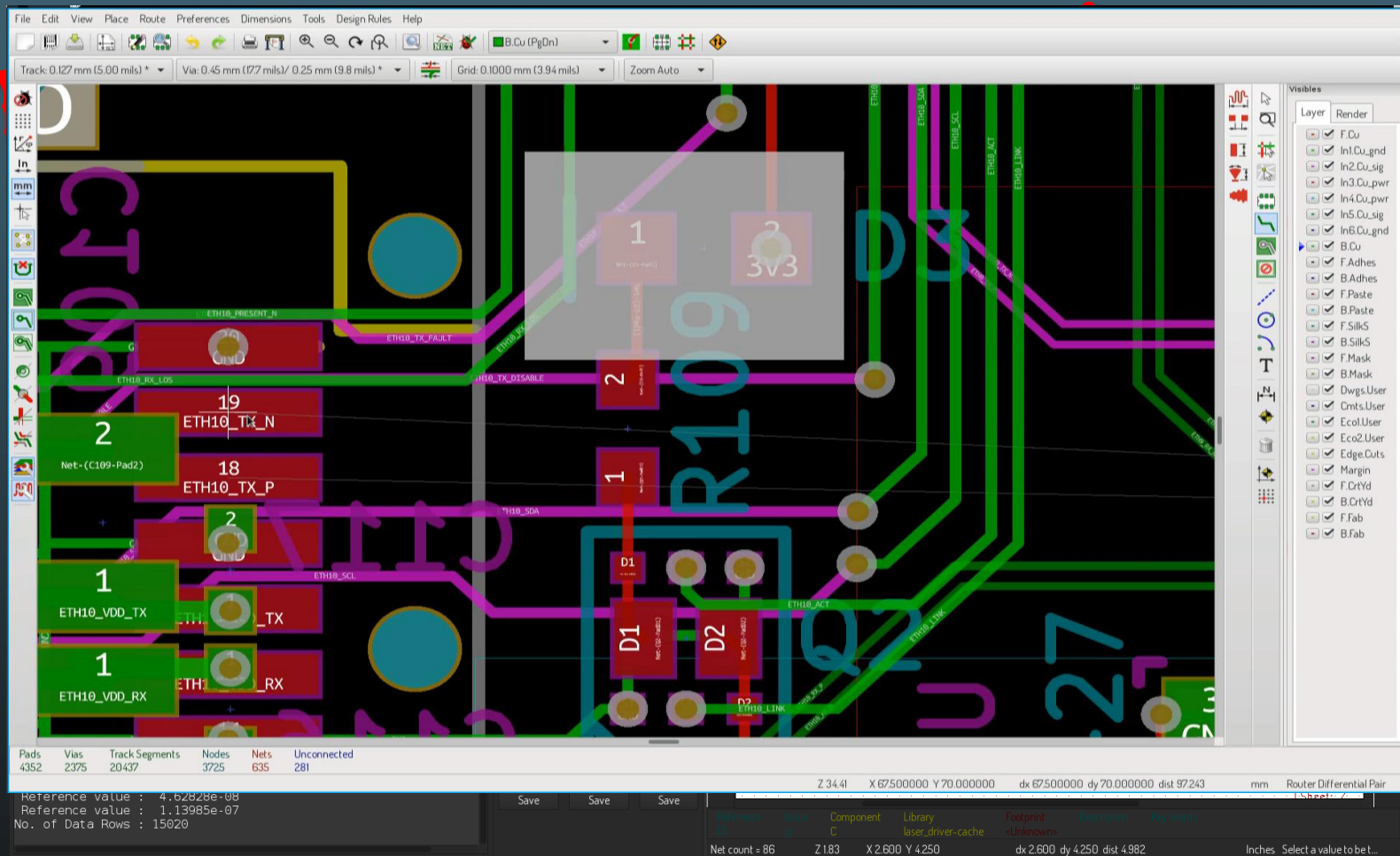
THE GCC OF ELECTRONICS HARDWARE

- SCHEMATIC ENTRY
- PCB LAYOUT
- CIRCUIT SIMULATION
- MULTIPLATFORM
- DOCUMENTED FILE FORMATS

OUR CONTRIBUTION SO FAR...

DESIGNER'S HELL

old, X00



OpenGL

HOW PEOPLE SEE US

COMMENTS UNDER THE P&S ROUTER YOUTUBE VIDEO



Josef Raschen 1 year ago (edited)

Many thanks! This is a big improvement to Kicad.

Reply · 1



Johan Holtby 1 year ago

Wow. I have been looking for this for hours. Thank you very much!

Reply ·



Romain Fontaine 5 months ago

+Rtwo Comm (R2COM) I used it for a couple of boards, the least I can say it that it's a life changer compared to the older versions ;-)



Karl Zeilhofer 1 year ago

you guys did a freaking awesome job!
after 2 minutes of this video i had to call one of my best friends to tell him about your features!
Thank you very, very much!

Reply · 1



robwasab 2 years ago

I think I just came in my pants : O

Reply ·



su pyrow 1 year ago

That is the sexiest thing I have seen in a long time. THANK YOU THANK YOU CERN!!!

Reply · 1



TutoElectro 2 years ago

Awesome! Great work Tom!

Reply ·



fudgesauce 2 years ago

Impressive! Thank you!

Reply · 1



marcin longlastname 2 years ago

This is friggen awesome!!!!!!

Add in length matching and bam, I will never pay 10,000 USD for Altium ever!



Abdullah Kahraman 2 years ago

I cannot say how happy I am! Thank you!

Reply ·



Mtaalas 2 years ago

OMG!

I have waited this for so long! There's just no package with decent price that has these tools! I hope it'll rival even those of Altium designer (bus routing and such).
I have waited that Kicad could be used for serious work and this Cern branch really gives me hope! :)

[Read more](#)

Reply · 2

Want to code cool stuff?

Work with a team of great C++
programmers?

Make an impact on society?



**WE WANT YOU
TO CONTRIBUTE**