

# Elektronika v linuxu

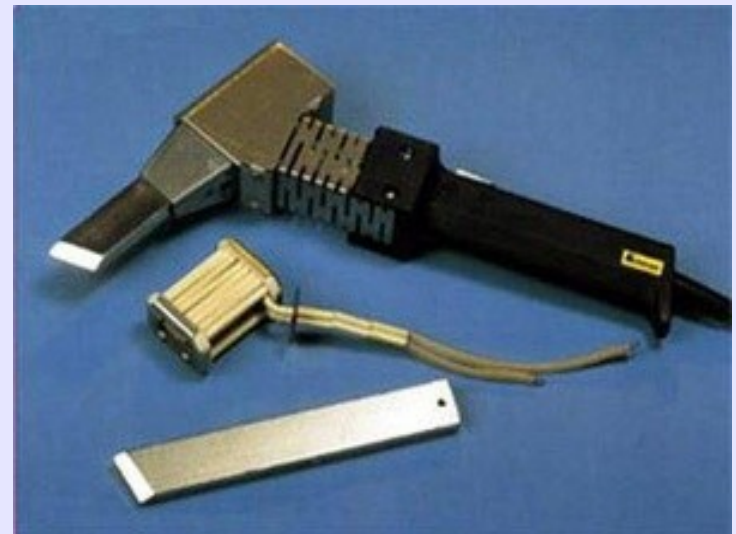
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SUT SH

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# Bastlení

- bastlení s paralelním/sériovým portem
- <http://www.root.cz/serialy/linux-s-pajeckou-v-ruce/>
- převodník usb <-> par. port?



# Free? Ano či ne? Ano

- placené programy
- neplacené programy
  - closed source (profesionální řešení)
  - open source – jakoby v plenkách

# simulace (SPICE)

- ngspice (BSD licence)
- Gnucap (gpl)
  - oboje command line
- GUI nad timto - oregano - last release 2006  
homepage down

# VHDL

- GHDL
  - complete VHDL simulator, using the GCC technology.
- Icarus Verilog
- FreeHDL
  - free, open source, GPL'ed VHDL simulator

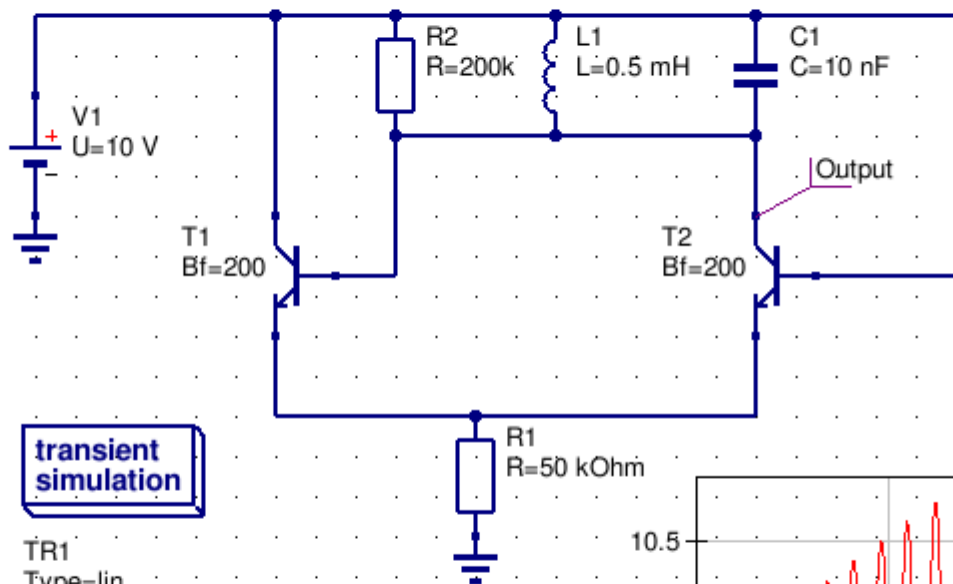
# Quite Universal Circuit Simulator

- = QUCS - Qt
- spice funkce + verilog a vhdl (simulace)
- 
- s parametry, 2D, 3D grafy
- mikropáskové vedení
- v na vrcholu roadmap layout pcb, monte carlo, automatický sběr dat
- „bazar“ styl



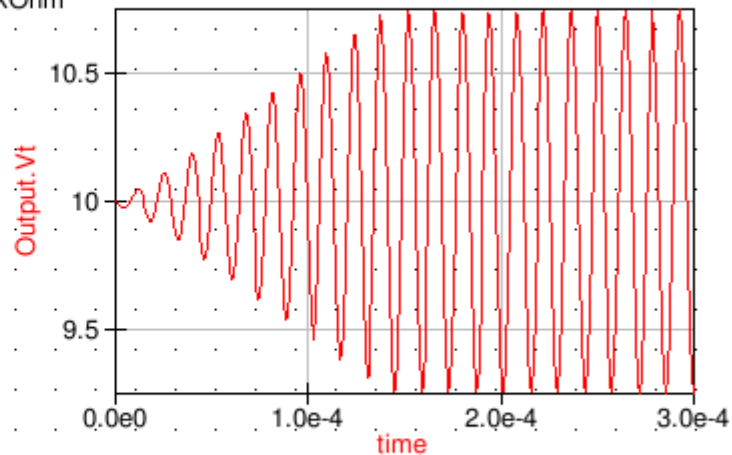
- Content of 'Demo'
- Note
- Schematics
  - stability.sch
  - rf\_osci.sch**
  - fet\_sub.sch 3-port
- Data Displays
- Datasets

### Peltz oscillator



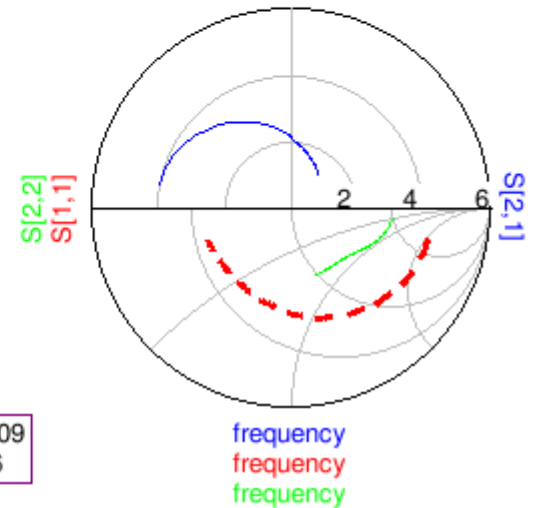
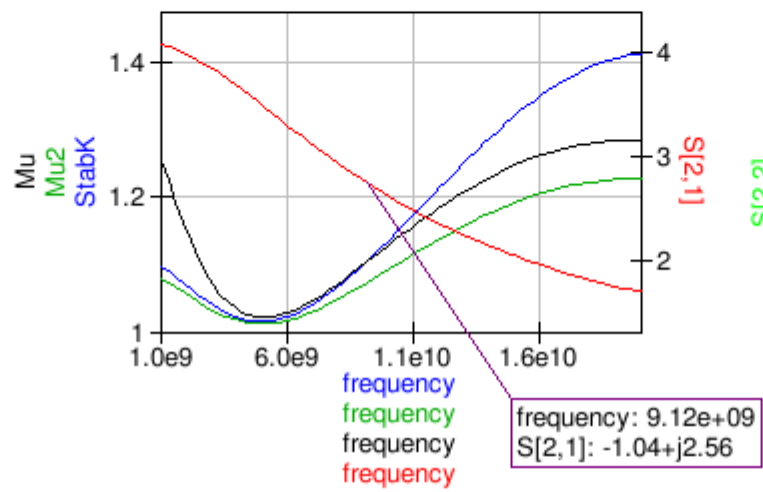
transient simulation

TR1  
Type=lin  
Start=0.  
Stop=0.4 ms

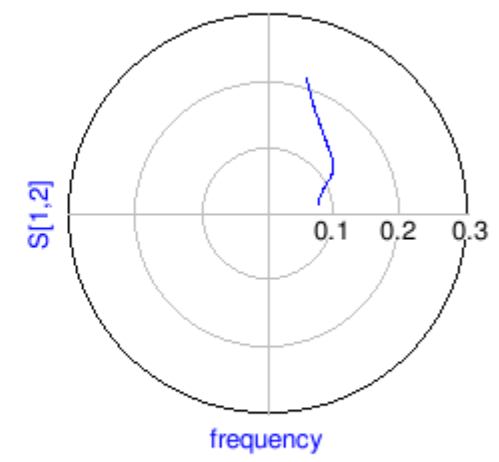




Cartesian Polar Tabular  
 Smith Chart Admittance Smith  
 Polar-Smith Combi Smith-Polar Combi



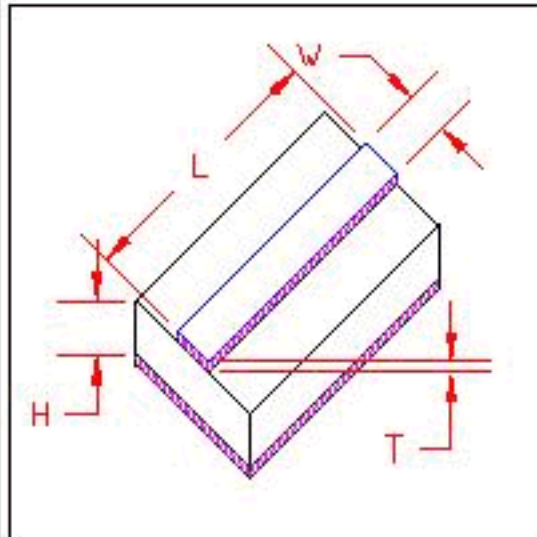
frequency	StabK
1e9	1.09678
1.29e9	1.09099
1.58e9	1.08344
1.87e9	1.07498
2.16e9	1.06615
2.45e9	1.0574
2.74e9	1.04906
3.03e9	1.0414
3.32e9	1.03463
3.61e9	1.02888
3.9e9	1.02424
4.19e9	1.02077





Transmission Line Type

Microstrip



Substrate Parameters

Er	2.94	NA
Mur	1	NA
H	10	mil
H_t	1e+20	mil
T	0.1	mil
Cond	4.1e+07	NA
Tand	0	NA
Rough	0	mil
	0	NA

Physical Parameters

W	25.3786	mil
L	1914.17	mil
	0	NA
	0	NA

Analyze

Synthesize

Electrical Parameters

Z0	50	Ohm
Ang_l	90	Deg
	0	NA

Component Parameters

Freq  GHz

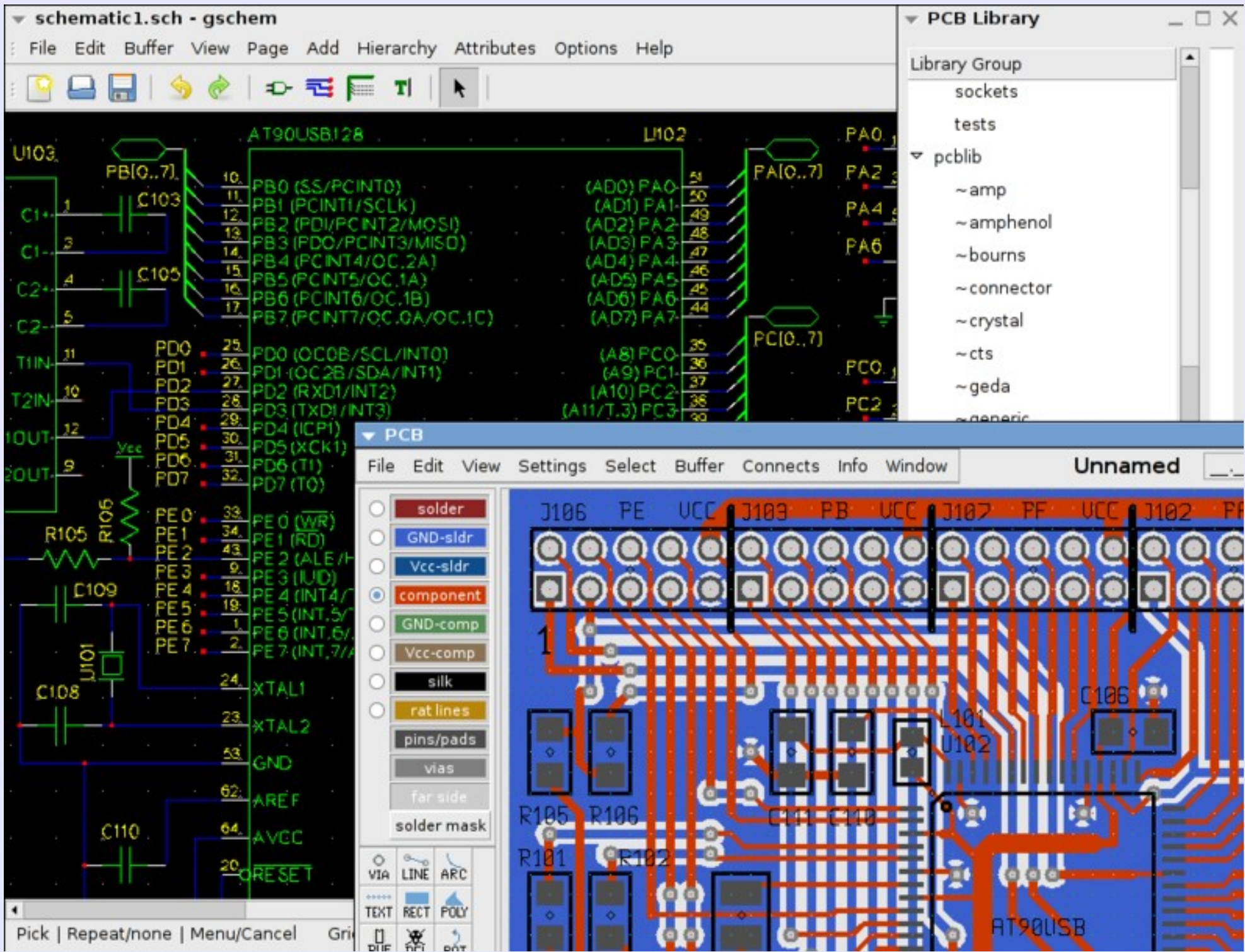
Calculated Results

ErEff: 2.37626  
 Conductor Losses: 0.0866159 dB  
 Dielectric Losses: 0 dB  
 Skin Depth: 0.0978576 mil

Values are consistent.

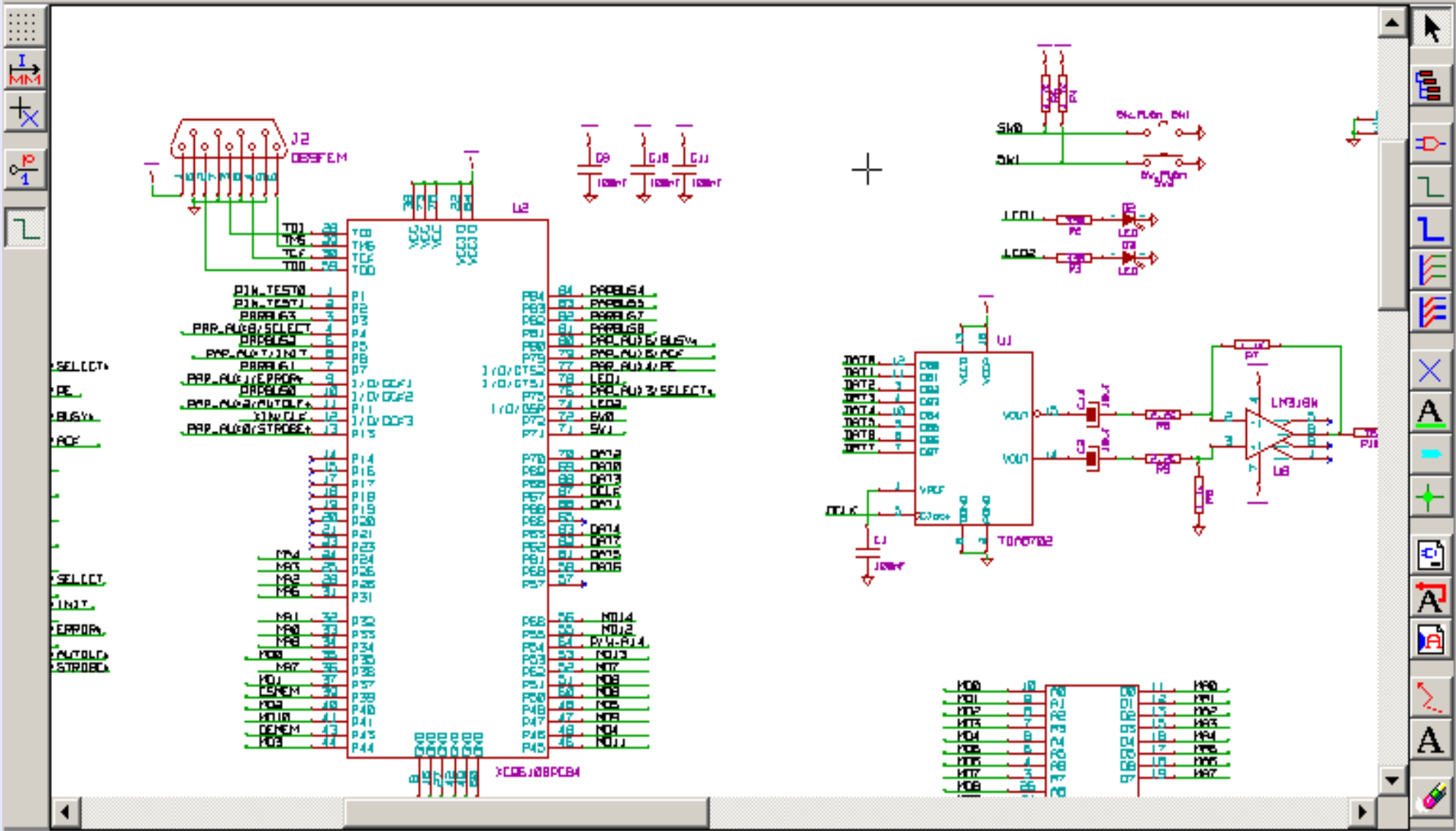
# gEDA

- GTK
- balík programů – různé programy, jeden mail list
- malý okruh - kreslení schémat a desek
- velký okruh - taky analogová simulace (gspiceui) a „verilogová“ (Icarus Verilog)
- autorouter :-)



# KiCAD

- wxWidgets (+ Windows)
- návrh plošného spoje a zpracování (eeschema, pcbnew, gerbview)
- unifikované rozhraní, autorouter
- 3D modely ;)

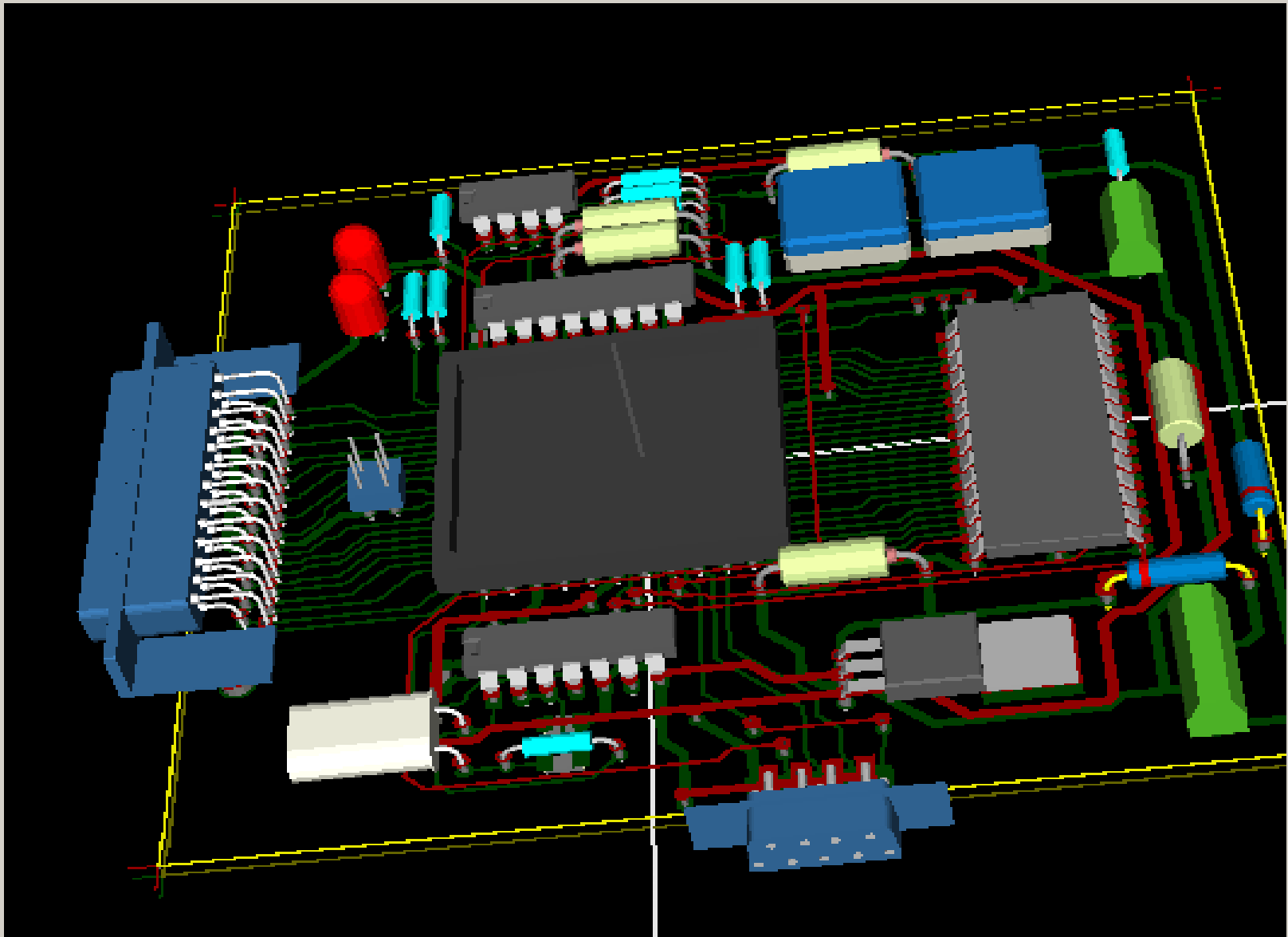




3D Visu 3D



File



dx 0,00

dy 0,00

View: 16,4

# Reference

- ngspice - [ngspice.sourceforge.net](http://ngspice.sourceforge.net)
- gnucap - [www.gnu.org/software/gnucap](http://www.gnu.org/software/gnucap)
- GHDL - [ghdl.free.fr](http://ghdl.free.fr)
- Icarus Verilog - [www.icarus.com/eda/verilog](http://www.icarus.com/eda/verilog)
- QUCS – [qucs.sourceforge.net](http://qucs.sourceforge.net)
- gEda - [www.gpleda.org](http://www.gpleda.org)
- KiCAD - [www.lis.inpg.fr/realise\\_au\\_lis/kicad](http://www.lis.inpg.fr/realise_au_lis/kicad)



# Závěr

Můžete vyzkoušet návrh plošných spojů :-D

Děkuji za pozornost