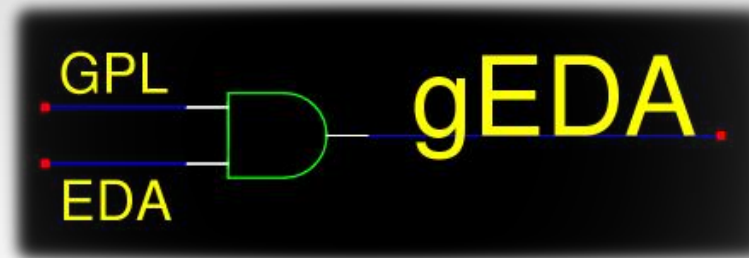


Strumenti liberi per la formazione tecnico-professionale



GPL'd suite of Electronic Design Automation

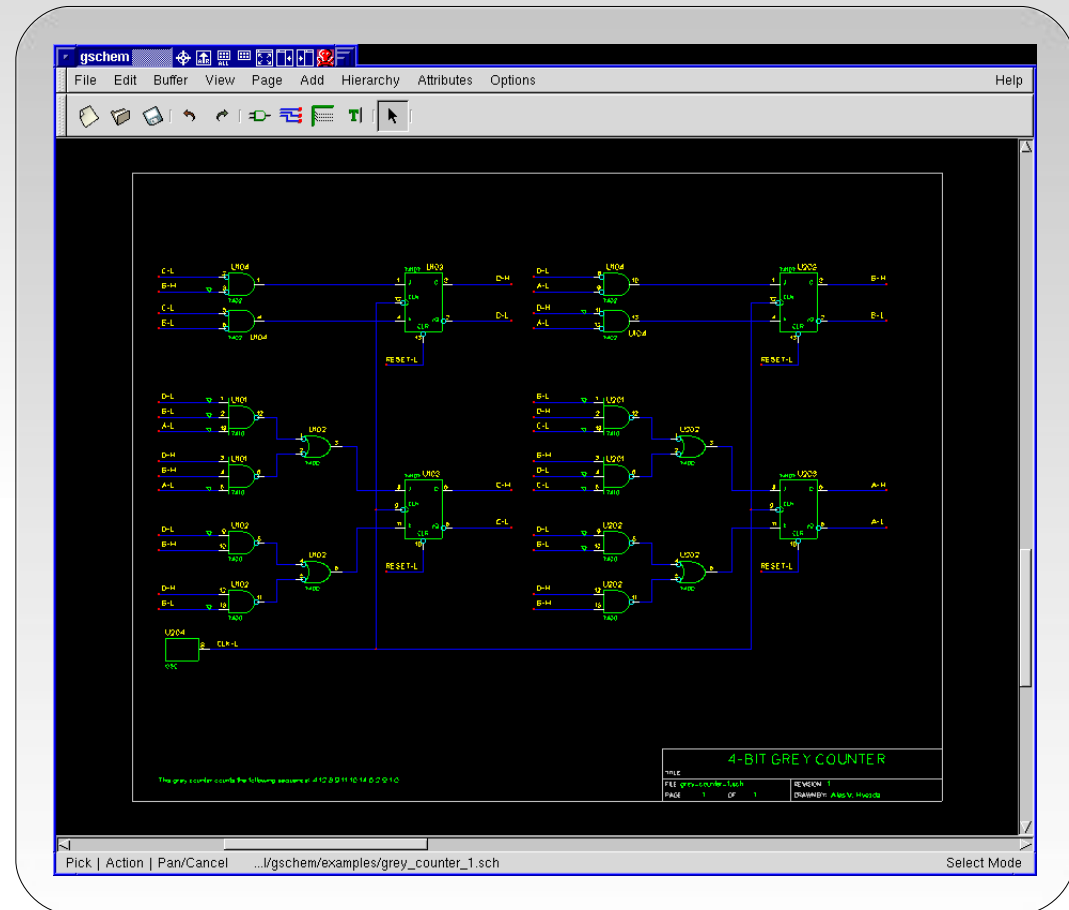


Il progetto è una collezione di Software Libero per il disegno di circuiti elettrici che include la gestione degli attributi, la lista dei materiali (BOM), la lista dei collegamenti (netlist) in 20 formati diversi, simulazione analogica e digitale dei circuiti e la progettazione dei circuiti stampati (PCB).

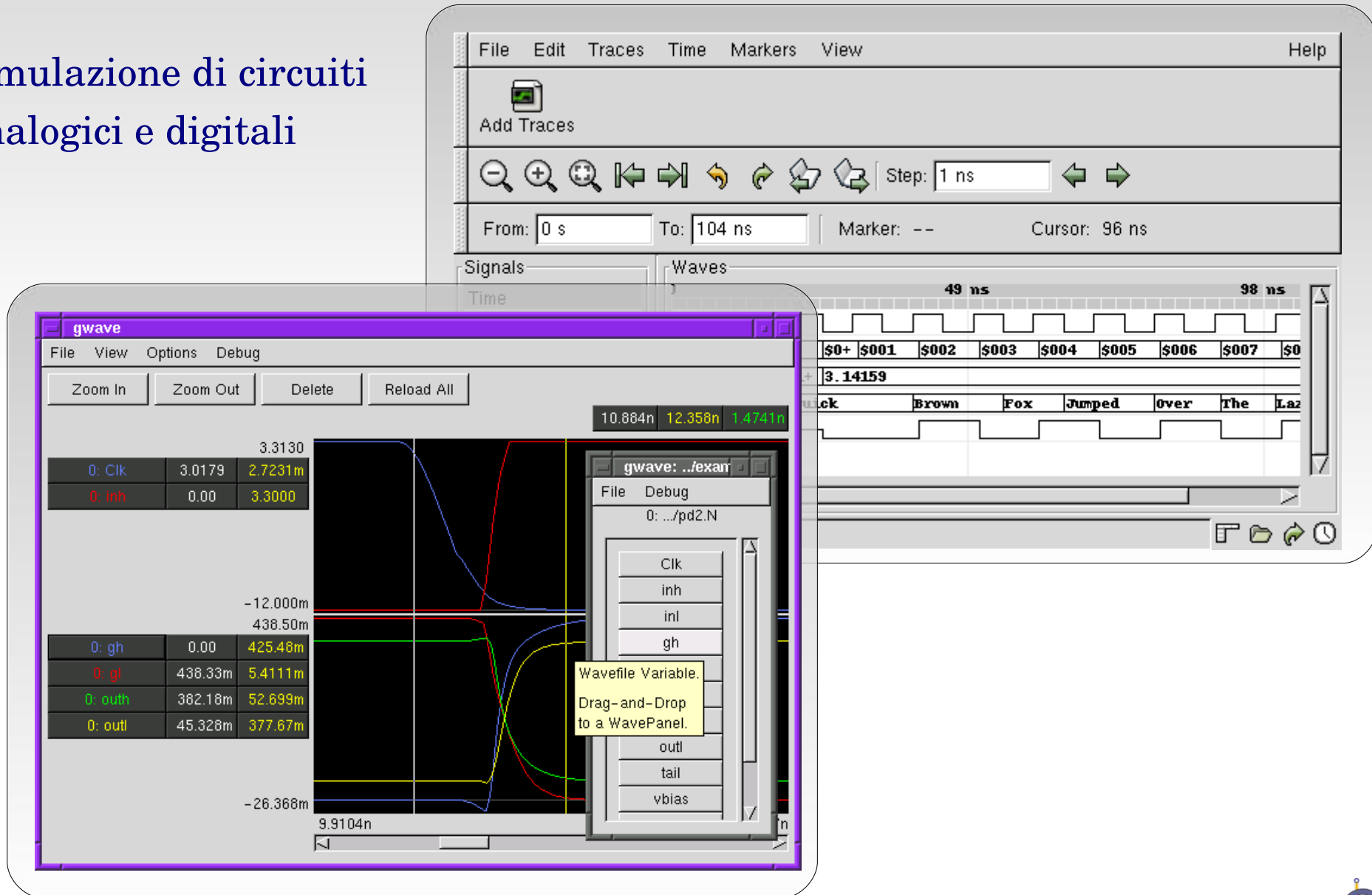
<http://www.geda.seul.org/>

<http://www.gedasymbols.org/>

- disegno degli elementi elettrici
- cad 2D completo
- gestione librerie componenti
- gestione degli attributi
- gestione dei collegamenti
- numerazione automatica dei collegamenti
- gestione gerarchica degli schemi e dei simboli
- scripting con “guile”
- stampe in formato ps, pdf, png



- simulazione di circuiti analogici e digitali



The image shows two overlapping windows from the ngspice/gwave suite. The background window is the main GTKWave interface, displaying a digital signal waveform with a time scale from 0 s to 104 ns. The foreground window is the 'gwave' window, which shows a detailed view of the waveform and a list of wavefile variables.

GTKWave Interface (Background):

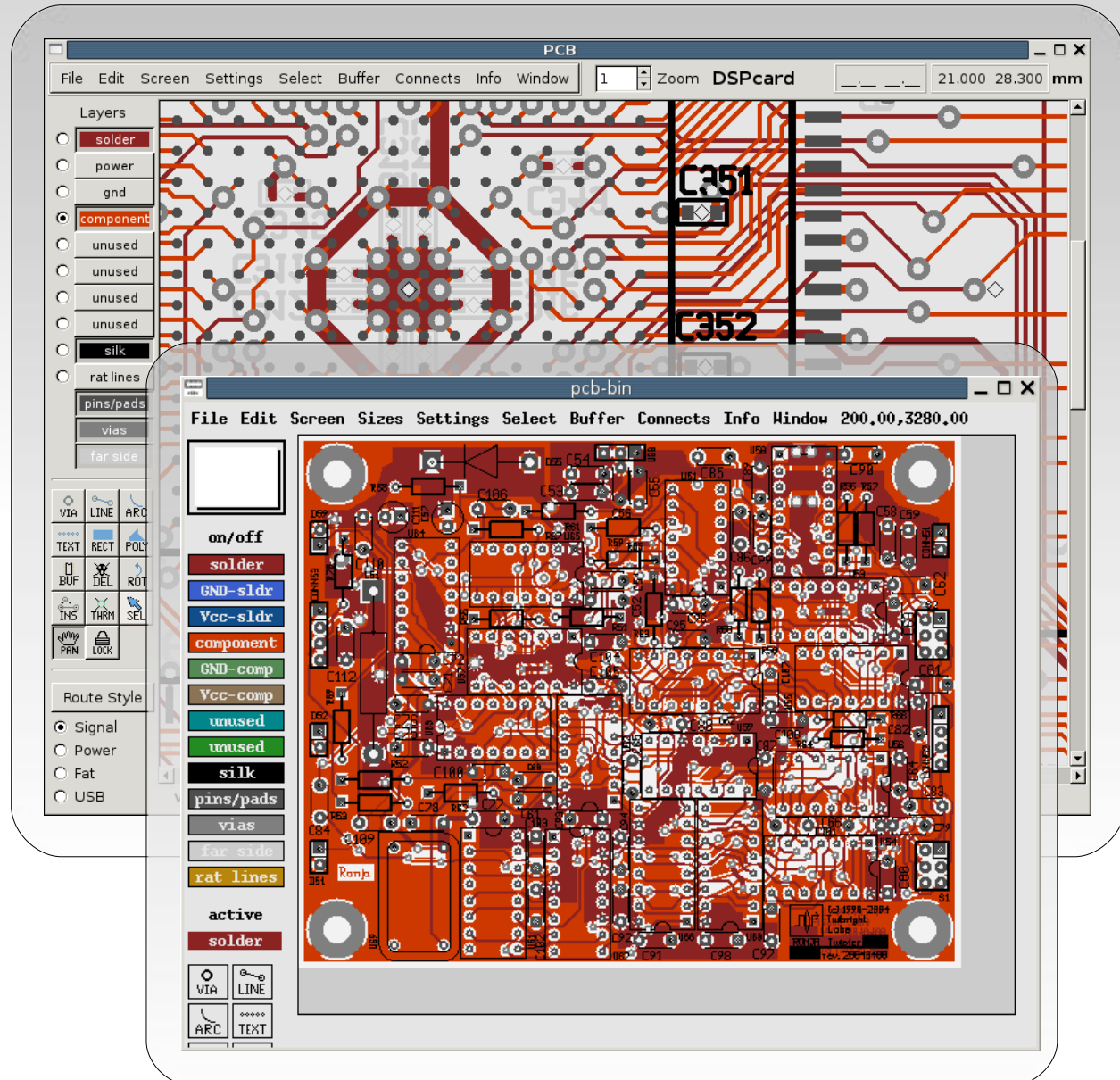
- Menu: File, Edit, Traces, Time, Markers, View, Help
- Buttons: Add Traces, Zoom In, Zoom Out, Delete, Reload All
- Step: 1 ns
- From: 0 s, To: 104 ns, Marker: --, Cursor: 96 ns
- Signals: Time
- Waves: 49 ns, 98 ns
- Waveform: Digital signal with levels \$0+, \$001, \$002, \$003, \$004, \$005, \$006, \$007, \$0

gwave Window (Foreground):

- Menu: File, View, Options, Debug
- Buttons: Zoom In, Zoom Out, Delete, Reload All
- Time: 10.864n, 12.358n, 1.4741n
- Waveform: Analog and digital signals
- Wavefile Variable List:

0: CIK	3.0179	2.7231m
0: inh	0.00	3.3000
0: gh	0.00	425.48m
0: gl	438.33m	5.4111m
0: outh	382.18m	52.699m
0: outl	45.328m	377.67m
outl		
tail		
vbias		
- Tooltip: Wavefile Variable. Drag-and-Drop to a WavePanel.

- fino a 8 strati di rame
- output RS-274-X (Gerber)
- NC Drill output
- Centroid (X-Y) data output
- stampa postscript e EPS
- Autorouter
- Trace optimizer
- Rats nest
- Design Rule Checker (DRC)
- Connectivity verification
- Interoperabilità con “gschem” e “xcircuit”





MUCS-PCB & HobbyPlatform EDA Tools

Integrazione di PCB con MUCS

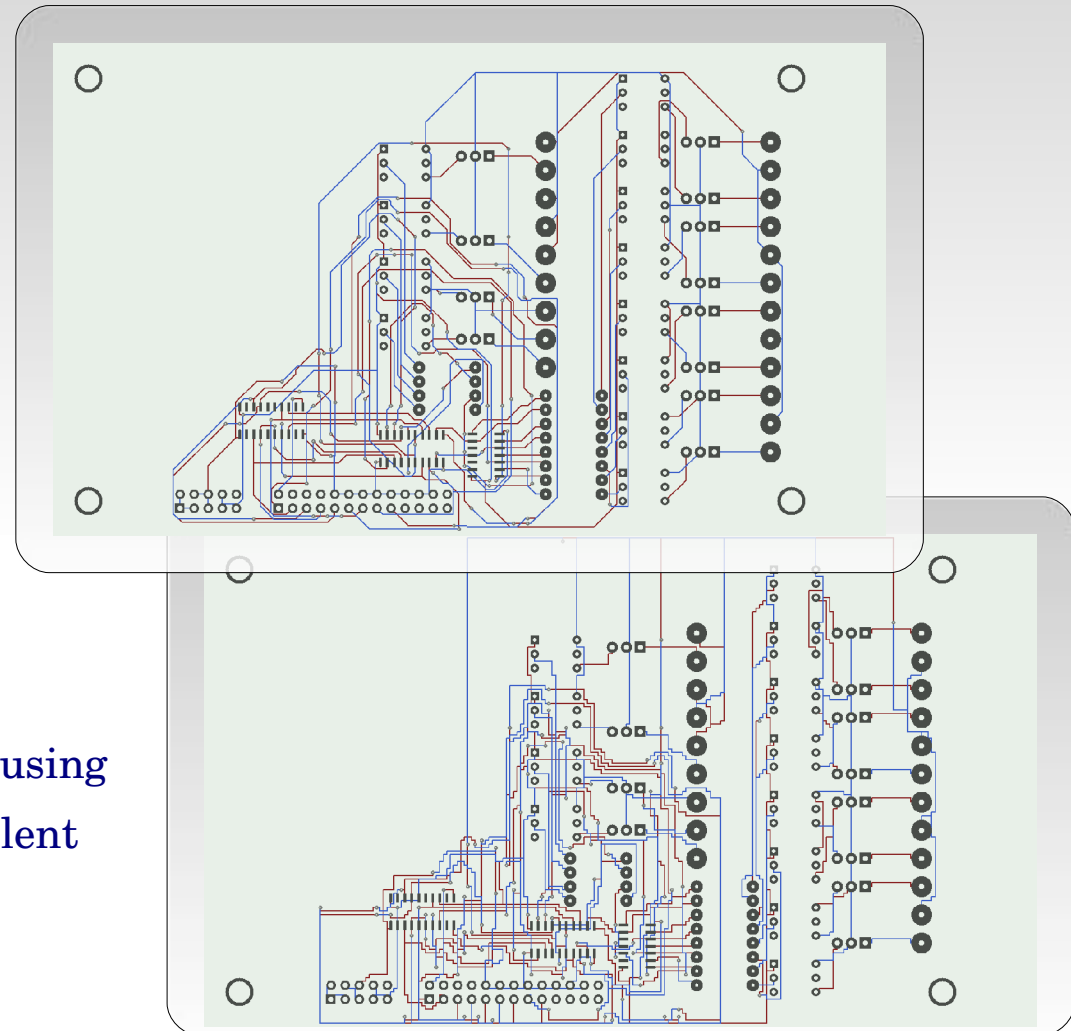
MUCS-PCB: The University of Manchester School Of Computer Science PCB design software

3 algoritmi di sbroglio automatico:

layer_pair - a two-layer serial router

mat - a true multilayer serial router

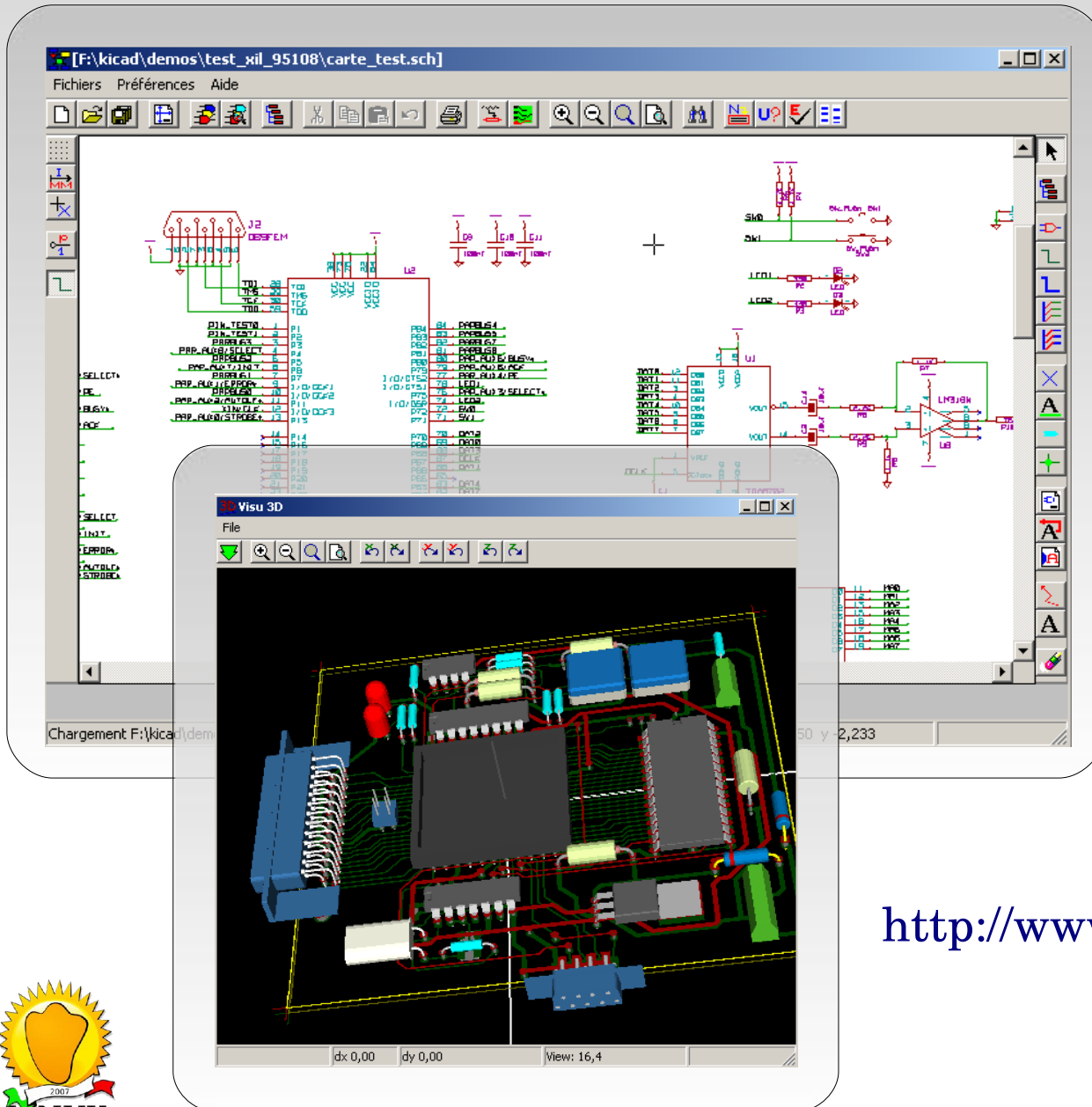
procore - an automated rip-up global router using simulated annealing techniques to achieve excellent results



<http://intranet.cs.man.ac.uk/apt/projects/tools/mucs-pcb/>

<http://www.delorie.com/hobbyplat/edatools/>





- Eeschema: Schematic entry
- Pcbnew: Board editor
- Gerbview: GERBER viewer

http://www.lis.inpg.fr/realise_au_lis/kicad/

Non è di solo software libero che la scuola può usufruire.

Il settore dell'elettronica e della domotica liberi offrono oggi una panoramica di strumenti che una scuola tecnica può facilmente fare propri.

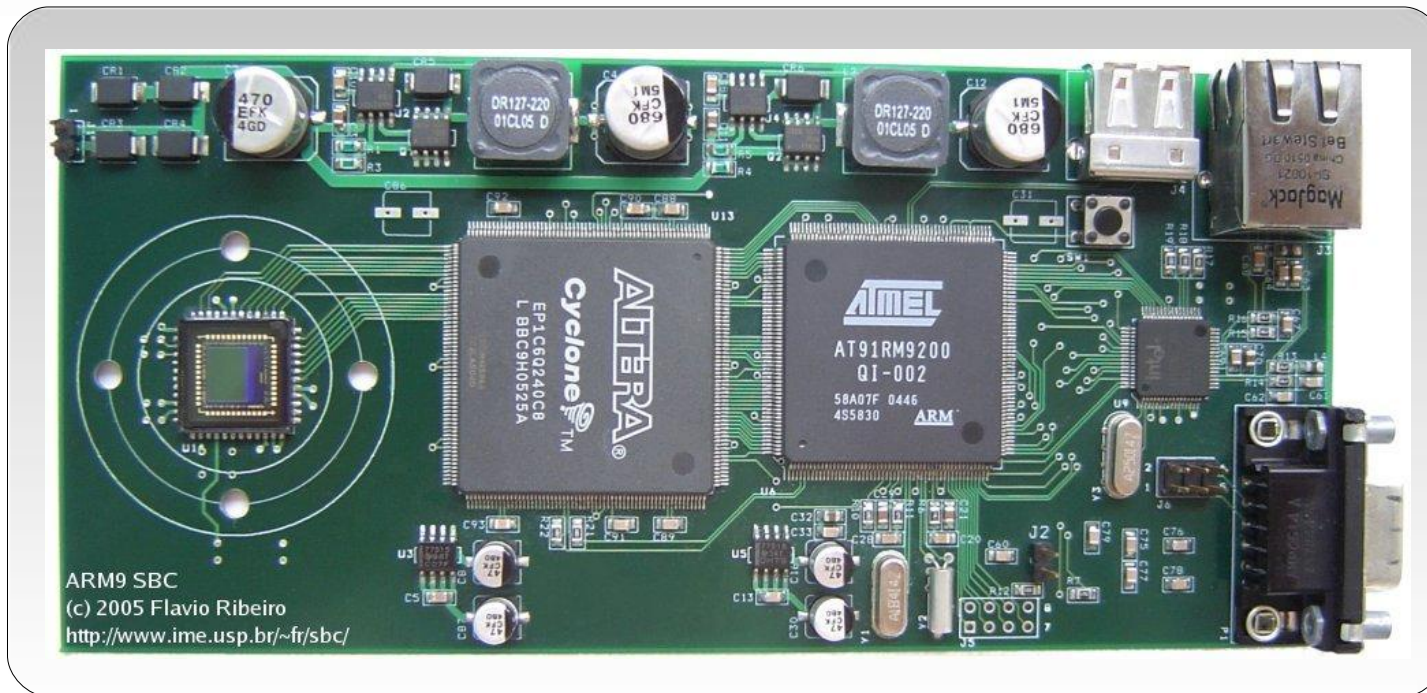
<http://www.geda.seul.org/links.html>

Possibilità concrete, semplici esempi di tecnologia e progetti di interesse nel campo dell'elettrotecnica, elettronica, automazione industriale, controllo ambientale e domotica.

Open ARM9 SBC

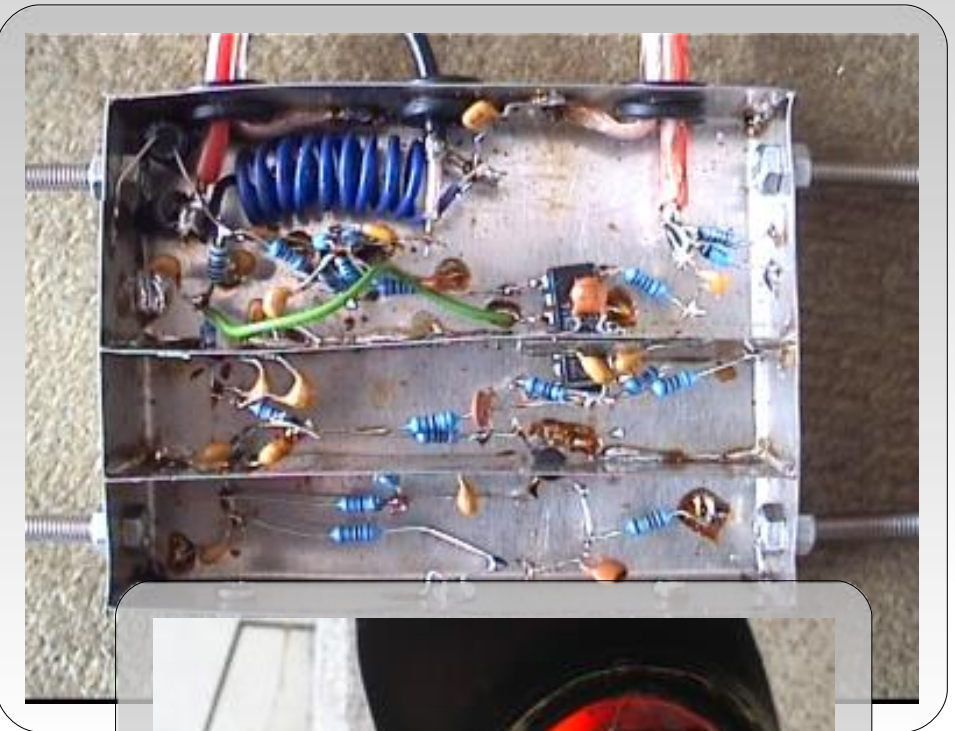
<http://www.ime.usp.br/~fr/sbc/>

- 180 MHz ARM9 processor (Atmel AT91RM9200)
- 3 MPixel CMOS sensor (Micron MT9T001)
- Altera Cyclone FPGA with 6000 LEs
- 2x32 MBytes of SDRAM (32MB for the ARM9 and 32MB for the FPGA)
- 16 Mbits of serial flash
- 1 high speed USB 2.0 interface
- 1 serial (RS-232) interface
- 1 10/100 Intel Ethernet interface
- 1 SPI interface



Progetto per l'autocostruzione di un collegamento punto-punto ottico per trasmissioni digitali a 10Mbit/sec per distanze $\leq 1,4\text{Km}$

Licenza:

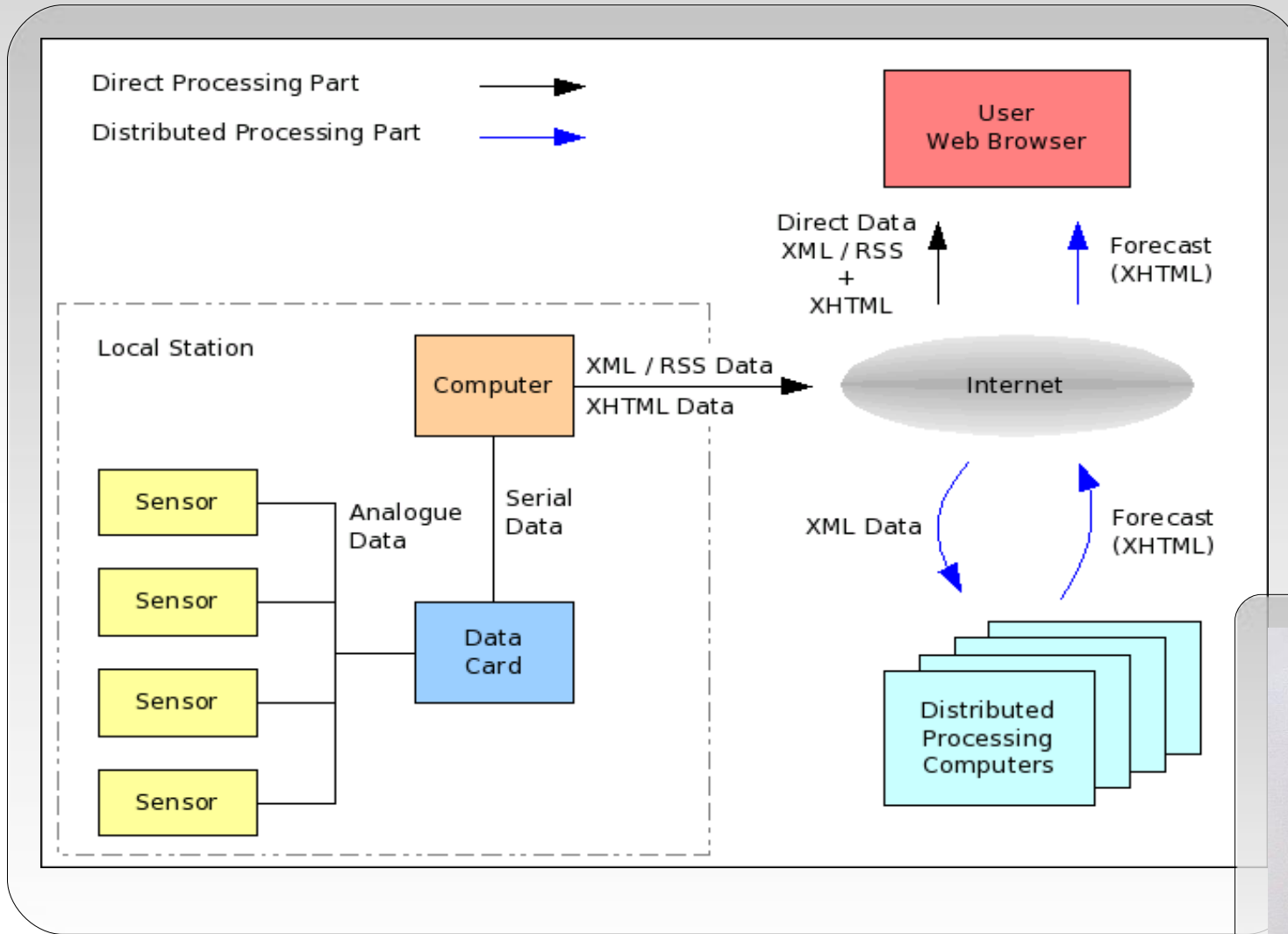


Darrell Harmon's SBC Project

- Atmel AT91RM9200 microcontroller - ARM920T core, MMU, 208PQFP
- Xilinx XC3S200 FPGA (Also supports XC3S400)
- 32MB SDRAM connected to AT91RM9200
- 32MB SDRAM connected to FPGA
- 64MB NAND Flash
- Compact Flash Socket
- 2MB Atmel Serial Data Flash for bootloader and kernel
- 10/100 Ethernet
- 12Mb/s USB
- 2 Serial ports
- 6-14VDC power input

<http://www.dlharmon.com/sbc.html>





- Direzione e intensità del vento
- Precipitazioni
- Irraggiamento

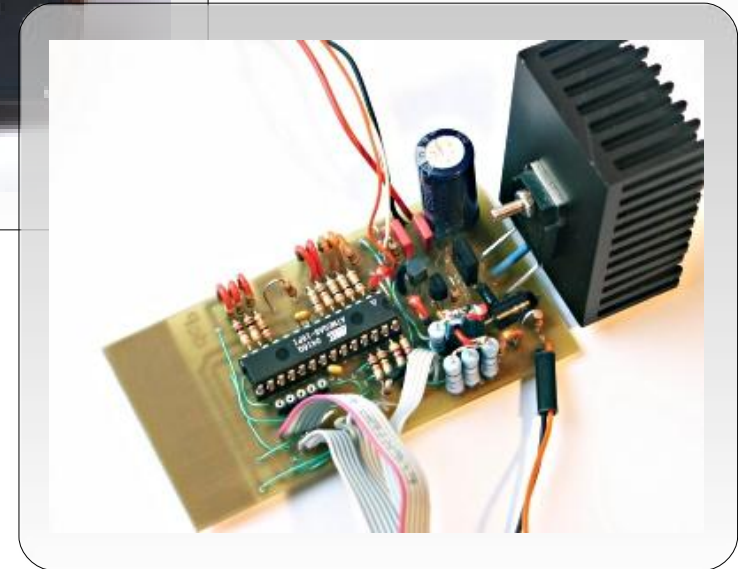


Progetto di una stazione metereologica con raccolta dati ed elaborazione

A digital DC powersupply

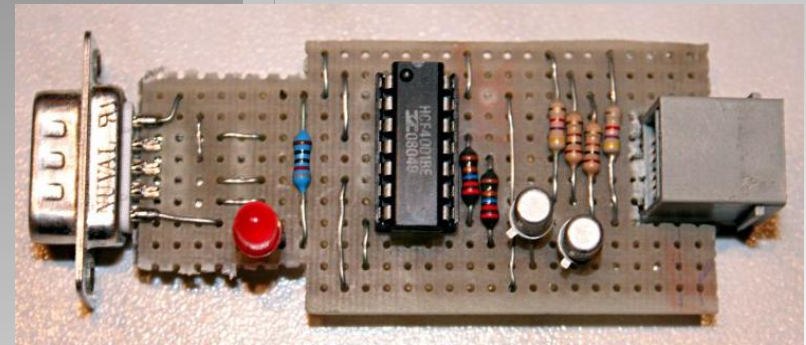
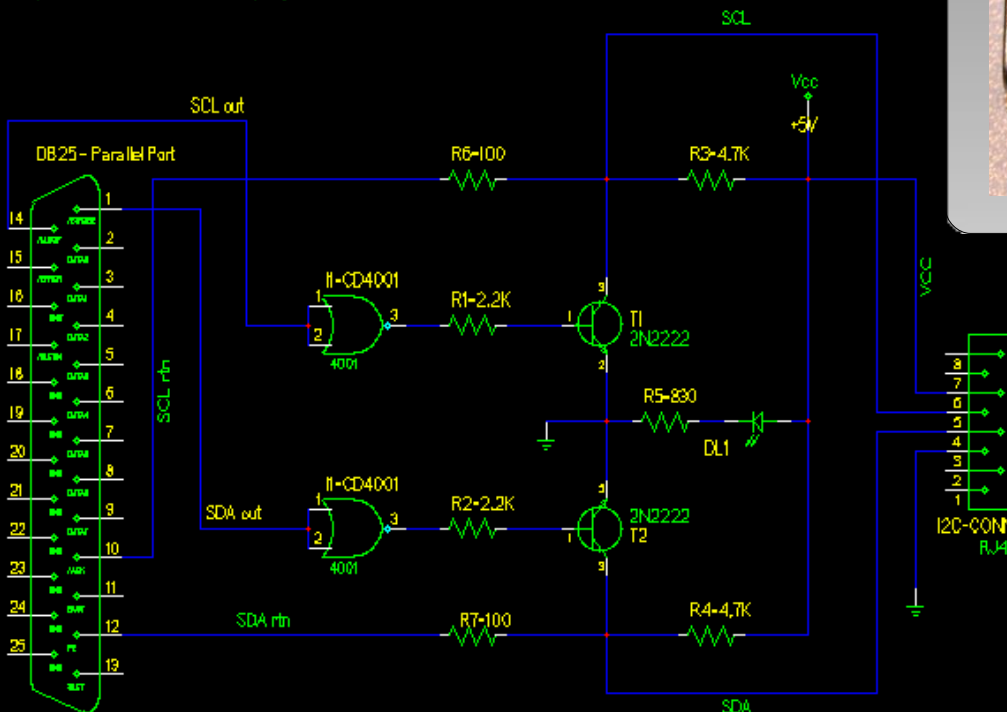


Progetto di alimentatore stabilizzato
controllabile via linea seriale da PC



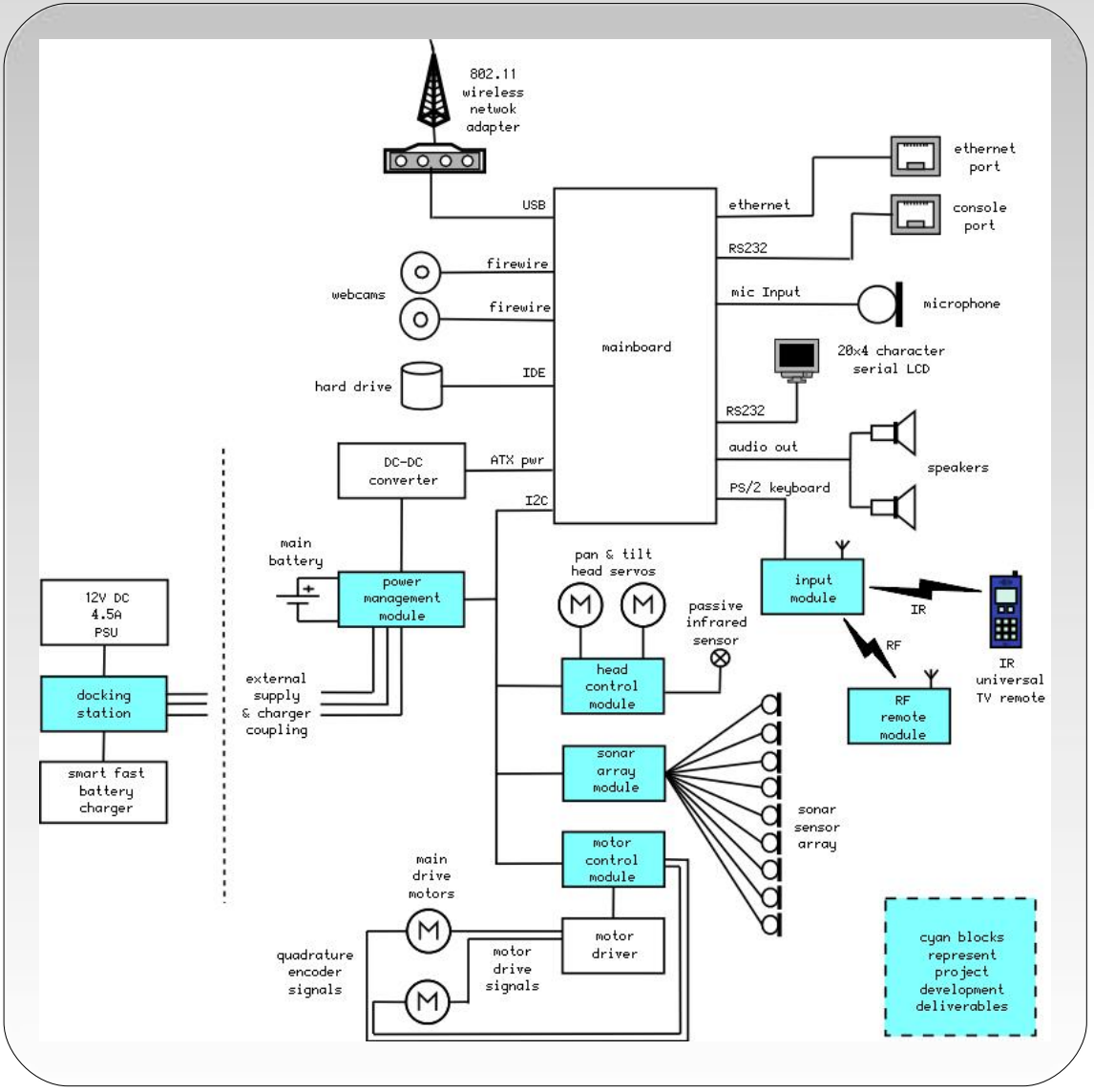
DS1624 parallel port thermometer v0.4

A PC's parallel port to I2C converter
Reviewed and redesigned by Fabrizio Fiorucci <fiorucci@oasi.asti.it>
<http://fabrizio.oasi.asti.it/projects/ds1624/>

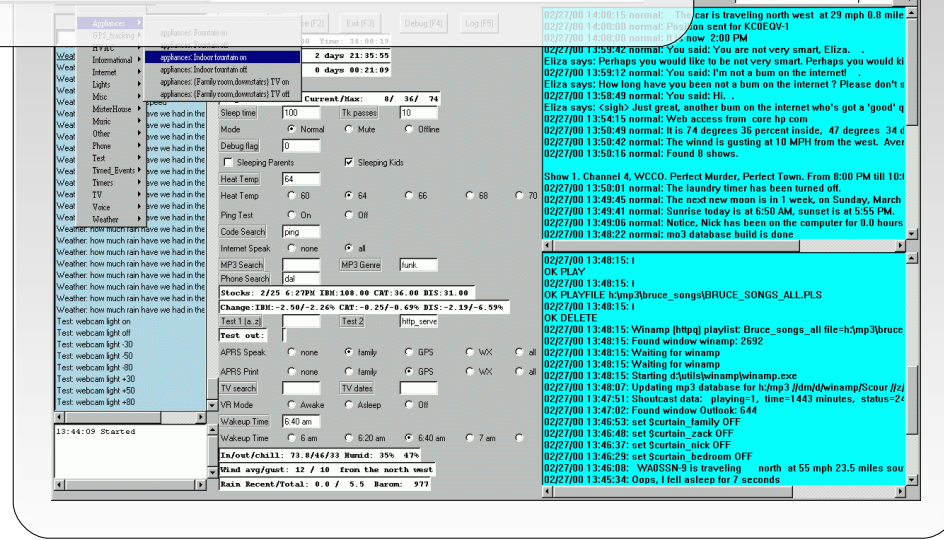
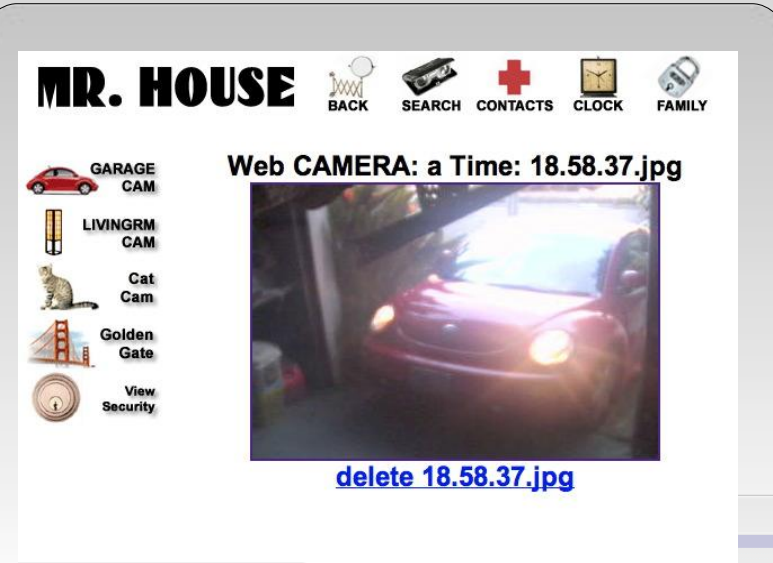
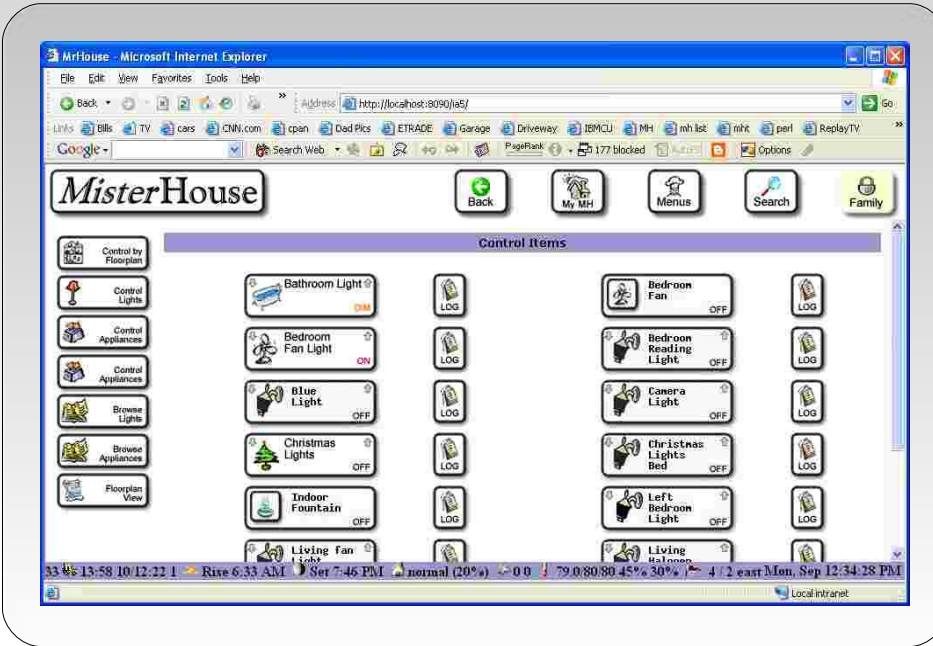


Progetto di
termometro con
interfaccia
parallela.

Sensore di
temperatura
con Bus i²c.



<http://oap.sourceforge.net/>



Progetto di domotica Open Source

- X10, power-line & radio & IR
- Varie interfacce (Jabber, Ical & Outlook calendar, WAP, LCD, ...)
- Comandi vocali
- Interfaccia PC desktop & WEB
- Linux & Windows

<http://misterhouse.sourceforge.net/>

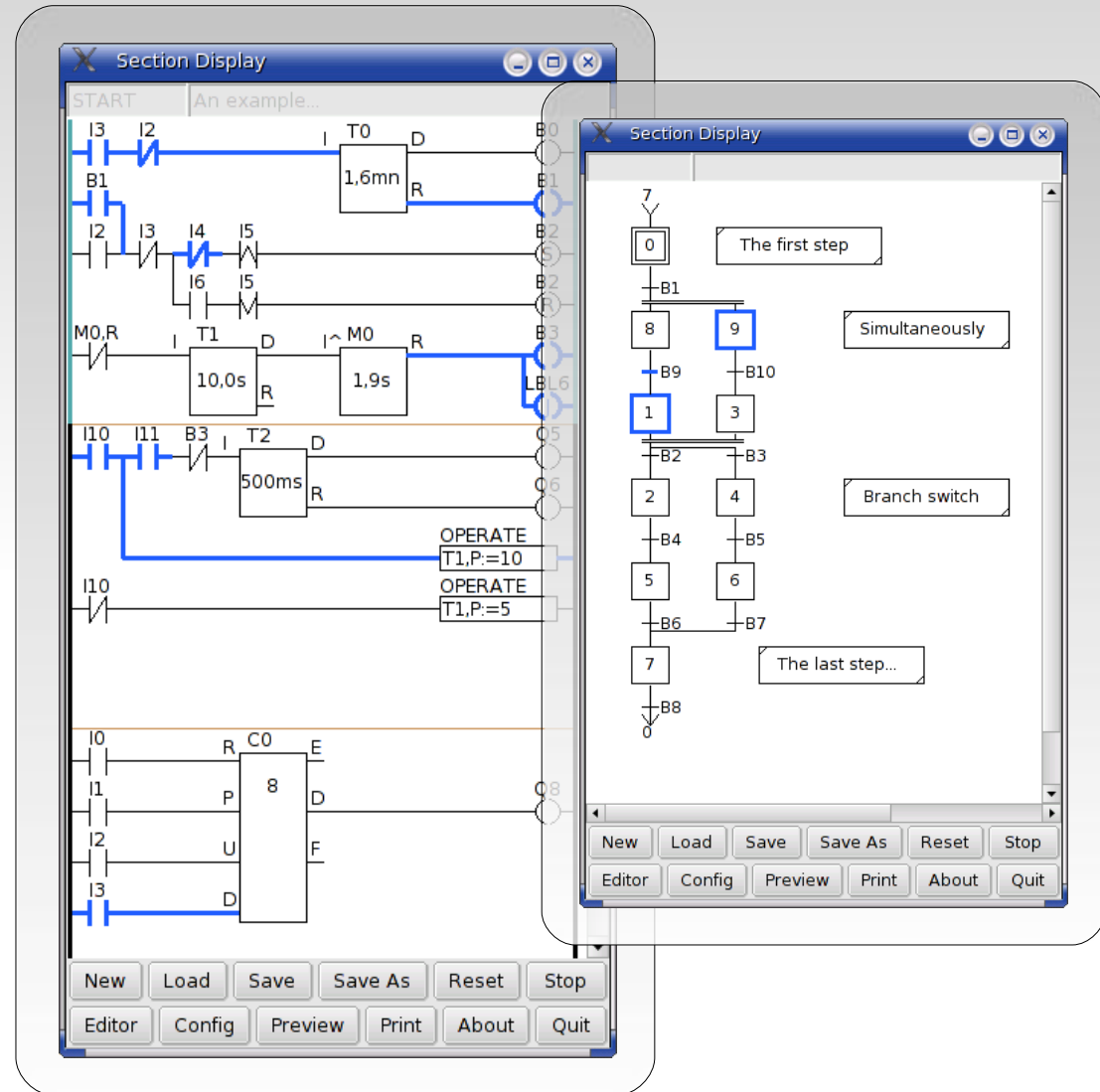


CLASSIC LADDER

Implementazione del linguaggio LADDER, esecuzione real-time su RT-Linux o Xenomai

Interfacce hardware:

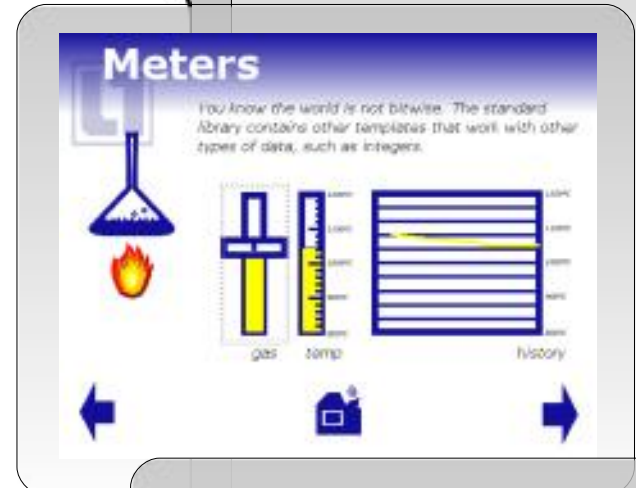
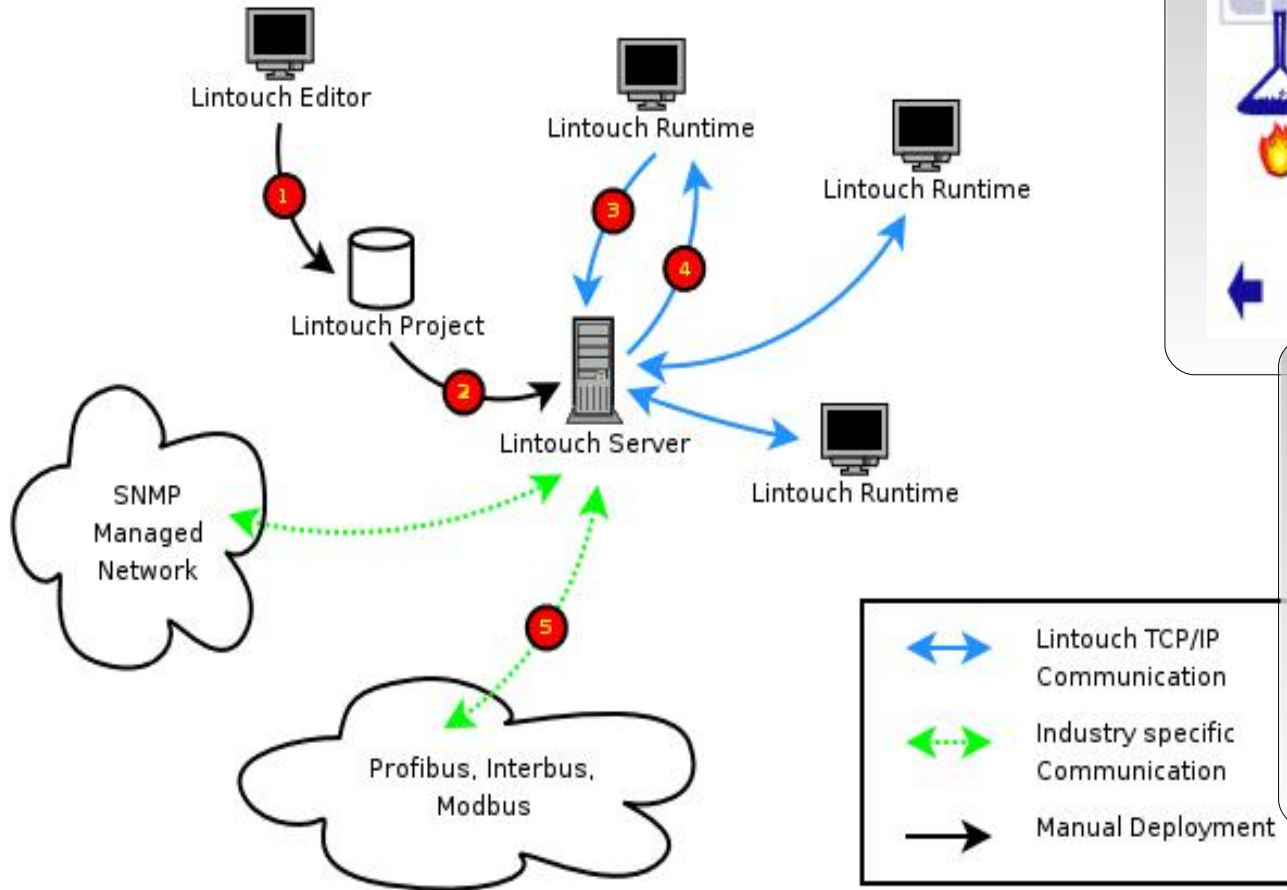
- Accesso diretto alle porte del PC, ad esempio LPT
- Comedi (<http://www.comedi.org>)
- Modbus/RTU distributed modules (Serial) and Modbus/TCP (Ethernet)



<http://membres.lycos.fr/mavati/classicladder/>



Lintouch Architecture





Scicos: Scilab's block diagram modeler/simulator

The screenshot displays the Scicos environment with several windows:

- System-Observer:** A block diagram showing a control system. It includes a sinusoid generator, a random generator, a Demux block, a System block, a Mux block, and an error signal block. The system is connected to a plot window.
- Plot:** A graph showing the system's response over time (0 to 24). The y-axis ranges from -3.0 to 1.2. Multiple colored lines represent different signals, showing convergence towards zero.
- Set parameters dialog:** A window for configuring simulation parameters:

Final integration time	29
Realtime scaling	0
Integrator absolute tolerance	0.0001
Integrator relative tolerance	1.000E-06
Tolerance on time	1.000E-10
max integration time interval	100001
solver 0(Isodar)/100(dasrt)	0
num step	
- Set continuous linear system parameters dialog:** A window for defining system matrices:

A matrix	A-K*C
B matrix	[B,K]
C matrix	eye(A)
D matrix	zeros([B,K])
Initial state	zeros(x0)

<http://www.scicos.org/>





YAKKO Open Source Home Automation



Yakko Management Tool - © Technoware srl 2006

Menu Database Tools Help

Local Association Table: 262626

No.	Event	Map	Class
0	202020	1	Dinner
1	708090	64	Resistive
2	303030		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Messages

```
00:31:46 - SQL: DELETE FROM dspositivi
00:31:45 - SQL: DELETE FROM tabelle
00:31:20 - Serial Port: COM1 (Open)
```

Database: C:\PROGRAMME

YAKKO VISUAL

File Modifica Strumenti

MAPPAL

Lista Blocchi

- nappal
- nappal1
- nappa2

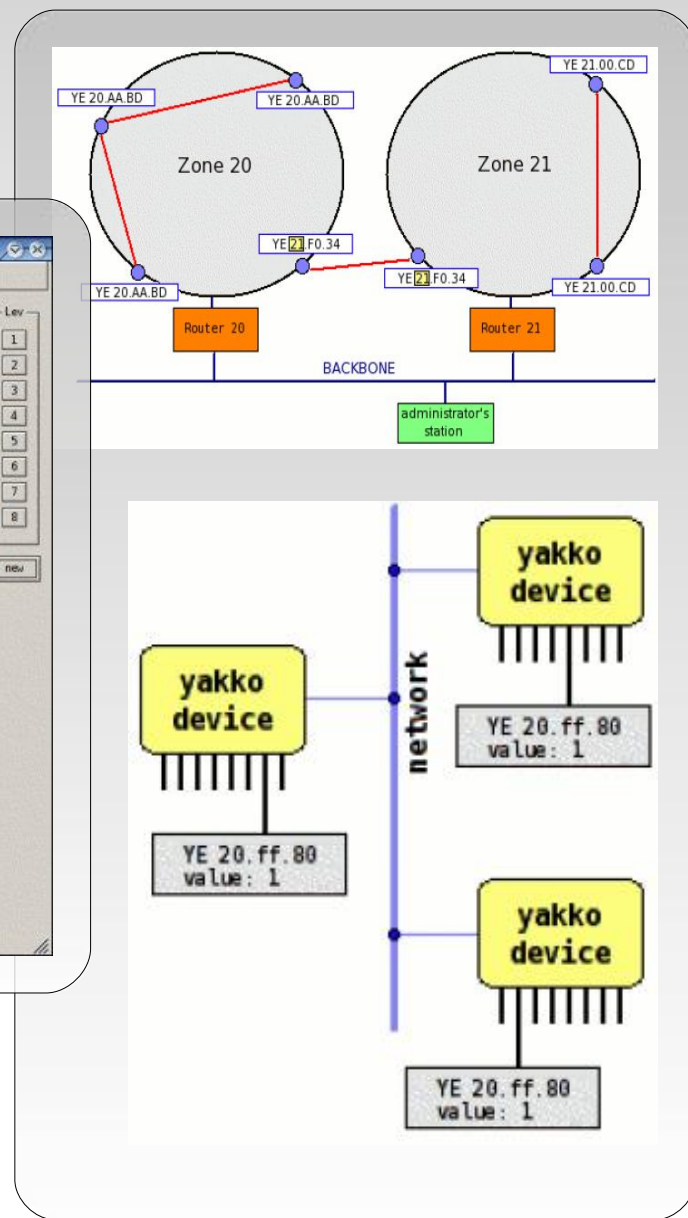
Lev

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

nuv

20202020 - lampada a terra 39

```
14:38:38 298395 04 23232323 L31
14:38:33 802303 04 23232323 L31
14:38:32 226280 04 23232323 L31
14:38:23 521570 c0 20202020 001
14:38:22 125483 c0 20202020 000
```



<http://yakko.sourceforge.net/>



Strumenti liberi per la formazione tecnico-professionale

Grazie

