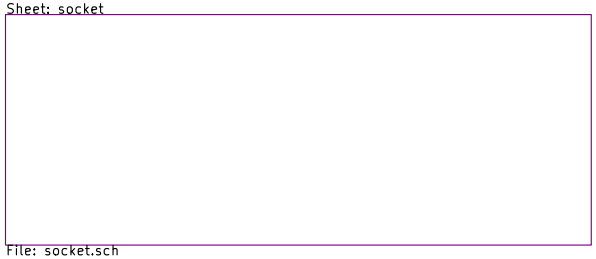
Sheet: socket



File: socket.sch

SOCKET BOARD

This is a reverse schematic of the DATAIO ChipLabProgrammer with DIP48-1 socket

I have some transistors unconnected, checked every corner or the board !

Todo

Describe the serie of comparators on the supply board !
Q6 to confirm purpose

Identify U12, probably a µController, to put precise names on unkown nets.

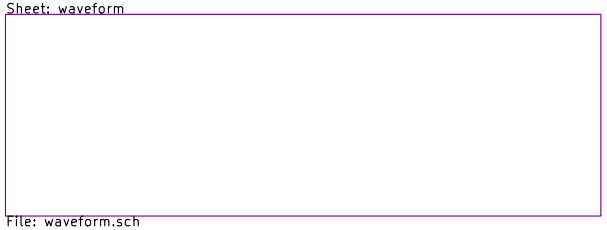
Find a datasheet with pin names for U34 (TC17G032AT)

Find some info on NCR drivers U35, U38, U39

The real PCB doesn't have any silkscreen on it. Pretty annoying to find a component.
I wrote numbers on the PCB for Q and U only.

What can be done is complete the KICad annotation, fixe all errors and then use the PCB to place components and get a 3D view.

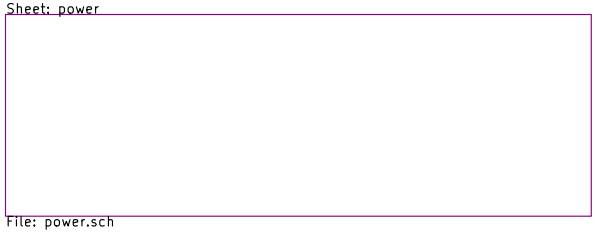
Sheet: waveform



File: waveform.sch

WAVEFORM BOARD

Sheet: power



File: power.sch

POWER BOARD

Reverse engineering of a DATAIO Chiplab

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DATAIO

Sheet: /
File: chiplab.sch

Title: Chiplab Programmer

Size: A4	Date: 2025-12-09	**Rev: beta1**
KiCad E.D.A. kicad 5.1.12		Id: 1/4

Liste des CMS trois pattes

JA: double diode, relais K et pin du ZIF
A1E: double diode

41A: NPN 2904
1P: NPN 2222

CAPA
AA4 : 10n
AA5: 100n

U1A 74LS14 — str_595 → DE_595
U1B 74LS14 — clk_595
U1D 74LS14 — ser_595
U1C 74LS14 — clk_595
U1F 74LS14 — str_595

BOARD_ID → RN1 R_Pack08 (GND, 10K)

C CAA5_7 100n — GND
+5V — CAA5_7 100n — GND
GND — CAA5_7 100n — GND
CAA5_7 100n — GND
CAA5_7 100n — GND
VPP_Relays — VPP_Relays_readback

J1 (ZIF socket)
ZIF1 ZIF2 ZIF3 ZIF4 ZIF5 ZIF6 ZIF7 ZIF8 ZIF9 ZIF10 ZIF11 ZIF12 ZIF13 ZIF14 ZIF15 ZIF16 ZIF17 ZIF18 ZIF19 ZIF20 ZIF21 ZIF22 ZIF23 ZIF24 ZIF25 ZIF26 ZIF27 ZIF28 ZIF29 ZIF30 ZIF31 ZIF32 ZIF33 ZIF34 ZIF35 ZIF36 ZIF37 ZIF38 ZIF39 ZIF40
GND
SomePinStuckUP
J3_DetectSocketBoard

U11 74LS595 — ser_595, clk_595, str_595, clk_595, OE_595 → PIN30 PIN31 PIN14 PIN15 PIN18 PIN19 PIN22
U5 74LS595 — ser_595, clk_595, str_595, clk_595, OE_595 → PIN23 PIN26 PIN27 PIN10 PIN11 PIN34 PIN35
U3 74LS595 — ser_595, clk_595, str_595, clk_595, OE_595 → PIN33 PIN36 PIN39 PIN38 K13 K14 K15
U2 74LS595 — ser_595, clk_595, str_595, clk_595, OE_595 → K10 K9 K8 K7 K6 K5 K4
U12 74LS595 — ser_595, clk_595, str_595, clk_595, OE_595 → K3 K2 PIN40 PIN37 PIN32 PIN31 PIN30

BOARD IDENTIFICATION
+5V — R3 10K — BOARD_ID
R2 10K — R1 10K
U10 74LS165 — clk_595, str_595 → BOARD_ID

ZIF05 — CA4 10K — PIN05 — 470 — Q7 2904
ZIF40 — 10K — CA4 — Q1 2904 — 470 — PIN40

ZIF08 — CAA_7 C — R? 10K — PIN08 — R? 470 — Q? 2904
ZIF10 — CAA_7 C — R? 10K — PIN10 — R? 470 — Q? 2904
ZIF11 — PIN11 — R? 470 — Q? 2904
ZIF12 — CAA_7 — R? 10K — PIN12 — R? 470 — Q? 2904
ZIF13 — PIN13 — R? 470 — Q? 2904
ZIF14 — U1E 74LS14 — K11 — R14 10K — VPP_Relay — CAA_7 10n — PIN14 — R? 470 — Q? 2904 — CK1 — R? 10K — Q? 2222
ZIF15 — PIN15 — 470 — Q? 2904
ZIF17 — U6C 74LS14 — K13 — R12 10K — VPP_Relay — CAA_7 10n — PIN17 — 470 — Q? 2904
ZIF18 — U6D 74LS14 — K14 — R13 10K — VPP_Relay — CAA_7 10n — PIN18 — 470 — Q? 2904
ZIF20 — PIN20 — R? 470 — Q? 2904
ZIF22 — PIN22 — R? 470 — Q? 2904
ZIF23 — PIN23 — R? 470 — Q? 2904
ZIF24 — U6E 74LS14 — K10 — R11 10K — VPP_Relay — CAA_7 10n — PIN24 — R? 470 — Q? 2222 — CK10 — R? 10K — Q? 2904
ZIF25 — PIN25 — 470 — Q? 2904

This part of the schematic is only responsible to apply '0' in various ways to the zif socket pins.
-simple translator
-translator + RC

Others pins receive the Vpp via a relay

ZIF24 usually GND have a relay to 0v

zif1 — ZIF1 … ZIF40 — R 0 R 0 R 0 R 0 Vpp 0 Vpp Vpp 0 0 0 0 0 0 K — ZIF41 … ZIF80 — R Vpp Vpp Vpp Vpp R Vpp R Vpp Vpp Vpp 0

Error detection (not clampling)
SomePinStuckUP — ZIF1 … ZIF40 — ZIF41 … ZIF80

Each pin of the socket have a PCB trace near the GND to simulate a surge protector. Very easy to short circuit.
ZIF01 … ZIF40 — GND — GND — ZIF41 … ZIF80

ZIF26 — K10 — U6E 74LS14 — VPP_Relay — CAA_7 10n — R11 10K — CK10 — Q? 2904 — U8A 74LS05 — R? 470 — PIN26
ZIF28 — R? 10K — CAA_7 C — Q? 2904 — R? 470 — PIN28b — Q? 2904 — U8F 74LS05 — R? 470 — CK — PIN28
ZIF29 — K9 — VPP_Relay — CAA_7 10n — U6A 74LS14 — R17 10K — CK9 — Q? 2904 — U8B 74LS05 — R? 470 — PIN29

ZIF43 — K4 — U4F 74LS14 — CAA_7 10n — VPP_Relay — R10 10K — CK4
ZIF45 — K5 — U4E 74LS14 — CAA_7 10n — VPP_Relay — R8 10K — CK5
ZIF47 — K6 — U4D 74LS14 — CAA_7 10n — VPP_Relay — R7 10K — CK6
ZIF49 — K7 — U6B 74LS14 — CAA_7 10n — VPP_Relay — R16 10K — CK7
ZIF46 — K3 — U4C 74LS14 — CAA_7 — VPP_Relay — R2 10K — R6 10K — CK3
Q? 2904 — 470 — U9D 74LS14 — U9C 74LS14
ZIF35 — Q? 2904 — R? 470 — PIN35
ZIF51 — K2 — U4B 74LS14 — VPP_Relay — R7 10K — CAA_7 C — R5 10K — CK2
Q? 2904 — R? 470 — U9B 74LS14 — U9A 74LS14 — U8E 74LS05 — R? 470 — PIN45
ZIF33 — Q? 2904 — R? 470 — PIN33
ZIF32 — K3 — U4A 74LS14 — VPP_Relay — CAA_7 — R? 10K — R? 10K — CK3
Q? 2904 — R? 470 — U9F 74LS14 — U9E 74LS14 — U8D 74LS05 — R? 470 — PIN32
ZIF31 — Q? 2904 — R? 470 — PIN31
ZIF30 — K8 — U6F 74LS14 — VPP_Relay — CAA_7 10n — R9 10K — CK8
Q? 2904 — U8C 74LS05 — R? 470 — PIN30

Reverse engineering of a DATAIO Chiplab

https://buymeacoffee.com/franck78 If usefull to you

Sheet: /socket/
File: socket.sch

Title: Chiplab Programmer

Size: A1 | Date: 2025-12-09 | **Rev: beta1**
KiCad E.D.A. kicad 5.1.12 | Id: 2/4


µControler
FPGA
A
B
C
Portes inutilisées et circuits entièrement sonnés.
U15
U25F
74LS04
Reverse engineering of a DATAIO Chiplab
https://buymeacoffee.com/franck78 if usefull to you
Sheet: /waveform/
File: waveform.sch
Title: Chiplab Programmer
Size: A0
Date: 2025-12-09
Rev: beta1
KiCad E.D.A. kicad 5.1.12
Id: 3/4

Tension without socket board nor software control:

01: 31.2v
02: 1.9v
03: 0v
04: 0v
05: 33.1v
06: 30.0v
07: 15.6v
08: 5.1v
09: 5.1v
10: -5.3v
11: 10v (ref generated by U3)
12: 0v
13: 0v
14: 0v
15: 0v
16: 0v
17: 0v
18: 0v
19: 0v
20: 0v

SMD TRANSISTORS DIODE

A1 2 (double diode)
A7 1 zener 1v3
1P 5 (2222 npn)
TB 3 (2907 pnp)
W5 1 zener 2v7

AA2 3 100p (blanc)
AA3 1 xx (vert pale)
AA4 1 10n
AA5 100n

flat 1µ 10 decoupling

CAPA CHIMIQUES

pin 1 positif pad carré, tous

Slow power up

Sheet: /power/
File: power.sch

Title: Chiplab Programmer

Size: A1	Date: 2025-12-09	**Rev: beta1**
KiCad E.D.A. kicad 5.1.12		Id: 4/4