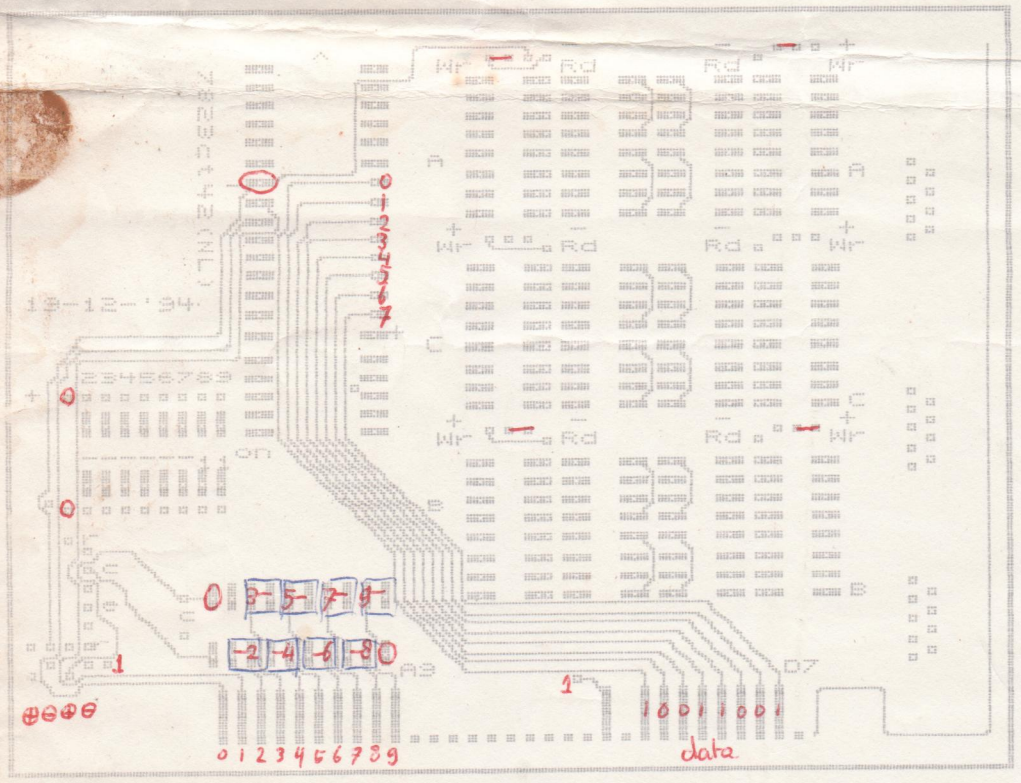
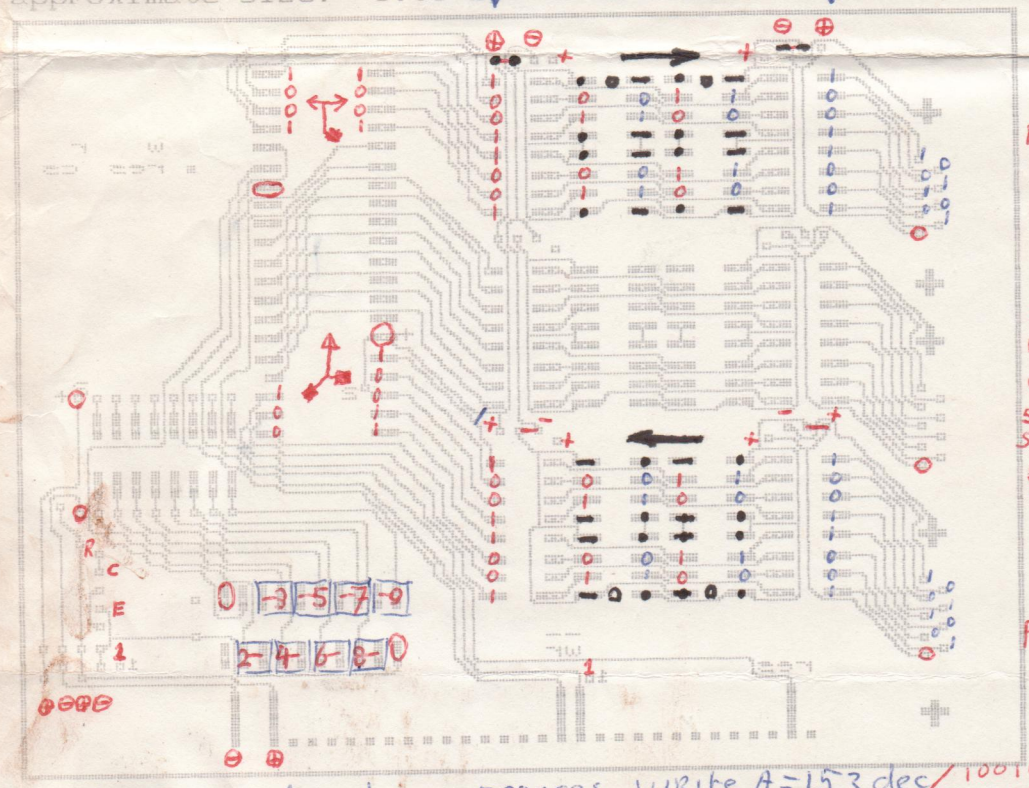
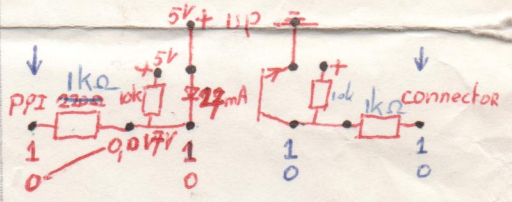
1X checkplot 1 Jan 80 03:55:42
iokaart.lay
v1.3 r4 holes: 405 component side
approximate size: 5.05 by 3.75 inches

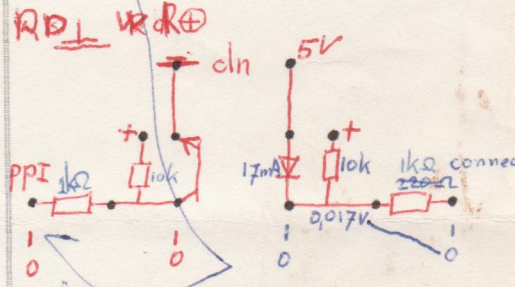


1X checkplot 1 Jan 80 03:56:40
iokaart.lay
v1.3 r4 holes: 405 solder side
approximate size: 5.05 by 3.75 inches





als drempelspanning 2V is
loopt er een stroom van 13mA
drempelspanning is 1,14V
stroom door led is 17mA by 220Ω
stroom door led is 4mA by 1000Ω



Controlle: 1voedingslijnen 5proces
2adressering/stuurlijnen
3data lijnen
4opto couplers
5proces

WRite A=153 dec / 10011001Bin / 99HEX
Read B(153) dec / 10011001Bin / 99HEX

Some information about this I/O print

This I/O print is a fully adressable bidirectional optical separated 24 bits i/o devise, wich is developped for save communiction by three eight bit ports into, or out your PC.

By using this devise, you must pay attention, connecting tension on pin 2, and mass on the frame of the used 9 pins Sub'D or seriel cable-connectors, wich will be attached to an externel devise.

However, it's allmost out off the question you damage your sytem from outside this device, be carefull adressing the prescented dip-swich sinds this devise uses 4 successive adresses starting from offset.

Dip-which adress bits 23456789 : (1 means on, or equal to conducting).

For instance, IF you choice is 00000011 (adress 300hex).

.....THEN it uses : (adress 300hex for port a).
(adress 301hex for port b).
(adress 302hex for port c).
(adress 303hex for programming PPI

Enought for that, further this devise is biderectional, including the opto-couplers(ILQ74), that is however just by turning them a 180 degrees. Two per port, and change involved jumpers : (Wr+ o=o o -Rd) (Wr+ o o=o -Rd).

(for the curious ones, who want to know how, to make this devise bidirectional for each port, the optical separation was accomplished by inverting common anodes and emitters and a high level-low current connection on the datalines to devine all tension levels.)

Including this part, you have to pay some attention!

Note :There are 8 manners to configure the print hardware,and 4 software manners, 2 for inithialization of the PPI (accept for port C), and 2 manners for a software high, or a low level data output.

How obout portC, portC of the PPI Programmeble Peripheral Interface, can be programmed to lots of other functions, like interrupting and handshaking etc. That is however, in this case not the matter, so, make sure you programm the PPI correct.

Combining these configurations, we'l have 32 likely nondamaging results writen below, of wich you perhaps not have bin asking for!!!

(For instance port A).

PPI jumpers can be found on the side of the PPI(8255a-5).
DEV jumpers can be found on the side of the connectors.
X means change all X's written above.

	CONFIGURATION								ERRORS		CHANGE			
SOFTW inith	PPI jump	PPI		opto	DEV	DEV jump			PPI data	DEV data	opi JUMP	OPTO COUPLER	DEV JUMP	NOTE
1 out	wr	led	up	trans	wr	F			0	>1			X	
2 out	wr	led	up	trans	wr	F			1	>1			X	
3 out	wr	led	up	trans	rd				0	>0	C	O R R E	C T	
4 out	wr	led	up	trans	rd				1	>1	C	O R R E	C T	
5 out	wr	trans	dn	led	wr	F			0	>1		X	X	
6 out	wr	trans	dn	led	wr	F			1	>1		X	X	
7 out	wr	trans	dn	led	rd				0	>1		X		
8 out	wr	trans	dn	led	rd				1	>1		X		
9 out	rd	led	up	trans	wr	F			0	>1	X		X	
10out	rd	led	up	trans	wr	F			1	>1	X		X	
11out	rd	led	up	trans	rd				0	>1	X			
12out	rd	led	up	trans	rd				1	>1	X			
13out	rd	trans	dn	led	wr	F			0	>1	X	X	X	
14out	rd	trans	dn	led	wr	F			1	>1	X	X	X	
15out	rd	trans	dn	led	rd				0	>1	X	X		
16out	rd	trans	dn	led	rd				1	>1	X	X		
17in	wr	led	up	trans	wr				1	<0	X	X		
18in	wr	led	up	trans	wr				1	<1	X	X		
19in	wr	led	up	trans	rd	F			1	<0	X	X	X	
20in	wr	led	up	trans	rd	F			1	<1	X	X	X	
21in	wr	trans	dn	led	wr	F			1	<0	X			
22in	wr	trans	dn	led	wr	F			1	<1	X			
23in	wr	trans	dn	led	rd				1	<0	X		X	
24in	wr	trans	dn	led	rd				1	<1	X		X	
25in	rd	led	up	transf	wr				1	<0		X		
26in	rd	led	up	transf	wr				1	<1		X		
27in	rd	led	up	transf	rd	F			1	<0		X	X	
28in	rd	led	up	transf	rd	F			1	<1		X	X	
29in	rd	trans	dn	led	wr				0	<0	C	O R R E	C T	
30in	rd	trans	dn	led	wr				1	<1	C	O R R E	C T	
31in	rd	trans	dn	led	rd	F			1	<0			X	
32in	rd	trans	dn	led	rd	F			1	<1			X	

These 32 results can actualy be splitted up, while the data high and low level can be wasted, its either high, or low, in others terms its allways somthing. Like one possibility occurs, however.

for correct configuration, please note line-number 3 or 4 for (PPI writing to an ext. DEV.) and line-number 29 or 30 for (PPI reading an ext. DEV.)

Last but not least, pin-configuration on print-connectors.

```
                    **********
                    *        *  **********
                    *        *  *        *
                    *  pin nr 5=D0        *
                    *        *  **********
                    *        *  *        *
                    *        *  pin nr 9=D1
                    *        *  *        *
                    *  pin nr 4=D2        *
                    *        *  **********
                    *        *  *        *
                    *        *  pin nr 8=D3
                    *        *  *        *
frame=mass----------*  pin nr 3=D4        *
                    *        *  **********
                    *        *  *        *
                    *        *  pin nr 7=D5
                    *        *  *        *
                    *  pin nr 2=D6        *
                    *        *  **********
                    *        *  *        *
                    *        *  pin nr 6=D7
                    *        *  *        *
                    *  pin nr 1=VCC        *
                    *        *  **********
                    **********
```

Now, i hope your good informed obout this I/O devise, and have lots of fun!!!

Greatings, yours faithfully.

identity comparator	74688	datasheetboek 2	blz 69
opto coupler	ilq74	datasheetboek 2	blz 153
ppi	8255a-5	datasheetboek 2	blz 271
adc	adc 0804	electuur zak-agenda '90	blz 200

---

identiteids comparator 74688 ds2 blz 69

```
                 ___
          vcc  p=q  q7  p7  q6  p6  q5  p5  q4  p4
           -I--I--I--I--I--I--I--I--I--I-
          ¦ 2019 18 17 16 15 14 13 12 11 ¦
          ¦                              ¦
          ¦ )DIL          74 688         ¦
          ¦                              ¦
          ¦ 1  2  3  4  5  6  7  8  9 10 ¦
           -I--I--I--I--I--I--I--I--I--I-
            _  p0 q0 p1 q1 p2 q2 p3 q3 gnd
            e
```

---

opto coupler ilq74 ds2 blz 153

```
            o  i  i  o  o  i  i  o
           -I--I--I--I--I--I--I--I-
          ¦ 16 15 14 13 12 11 10 9 ¦
          ¦ ^  c  c  ^  ^  c  c  ^ ¦
          ¦ )DIL      ILQ74        ¦
          ¦  |<     >|    |<    >| ¦
          ¦ 1  2  3  4  5  6  7  8 ¦
           -I--I--I--I--I--I--I--I-
            -  +  +  -  -  +  +  -
```

drempel 1,14V

---

ppi 8255a-5 ds2 blz 271

```
   4  5  6  7 WR RES 0  1  2  3  4  5  6  7 VCC 7  6  5  4  3
  -I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I-
 ¦ 4039 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 ¦
 ¦ aaaaaaaaaa        ddddddddddddddddddddddd     bbbbbbbbbbbbb ¦
 ¦                                                            ¦
 ¦  )  DIL40              PPI 8255A-5                         ¦
 ¦                                                            ¦
 ¦ aaaaaaaaaa                 cccccccccccccccccccccc  bbbbbbb ¦
 ¦ 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 ¦
  -I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I--I-
   3  2  1  0  __ __GND A1 A0 7  6  5  4  0  1  2  3  0  1  2
              RD CS
```

---

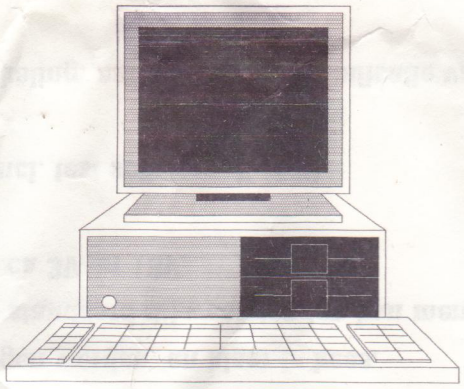
adc 0804 elect z-agd blz 200

```
          CKR
          VCC    0  1  2  3  4  5  6  7
           -I--I--I--I--I--I--I--I--I--I-
          ¦ 2019 18 17 16 15 14 13 12 10 ¦
          ¦        ddddddddddddddddddddd ¦
          ¦ )DIL       ADC 0804          ¦
          ¦                              ¦
          ¦ 1  2  3  4  5  6  7  8  9    ¦
           -I--I--I--I--I--I--I--I--I--I-
           __ __ __ CLK___VI+    a 1/2 GND
           CS RD WR    INT   VI-GND v
                                REF
```

1.3 r4 holes: 405 component side
pproximate size: 5.05 by 3.75 inches

approximate size: 5.05 by 3.75 inches

1.3 F4 notes: 4UD component side
approximate size: 5.05 by 3.75 inches
approximate size: 5.05 by 3.75 inches



Te Koop.

Beste computeraars,

3 x 8 bits (paralel) volledig adresseerbare galvanisch gescheiden bidirectionele I/O kaart.
De connectoren zijn uitgevoerd als 3 x sub D pins male.

Perfect voor communiseren met (zelfgemaakte) randapparatuur zoals,
ad en da converters, besturing van lampen, tv, (stappen) motoren, lezen van
schakelaars, dit alles en nog veel meer, ook in combinatie met elkaar.
Optische scheiding waarborgd de veiligheid van kaart en pc.
Dit, omdat aansluitingsfouten als kortsluiting en te hoge voedingsspanningen
schade kunnen veroorzaken aan Uw systeem.
Gewoon lekker onbezorgd prikken dus.
Ook kan met verschillende (hogere) spanningen gewerkt worden,
omdat de datalijnen verwisselbare stroombegrenzende dil-weerstanden
bevatten en dus makkelijk even snel verwisseld kunnen worden.
Mocht er per ongeluk toch een veel te hoge spanning (bv 220V) aangeboden
worden, kan er snel even de betrokken opto-coupler (1 van de 6)
vervangen worden en klaar is kees.
Met de standaard dil-weerstanden kan men met spanningen werken
tussen ca 3V en 12V.

Kaart incl. test software F 149,-

Ontwikkeling, aanpassing en modificatie van hard/software mogelijk.

Vraag voor demonstratie en info naar Ron de Jong (Tesco), telf. 05910-28986.