user manual for

VIATRONICS

the fastest printing interface
for 8bit Atari

BASIC INFORMATION

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INTRODUCTION

The inspiration for making this interface was online night discussions with a group of friends and their request to create a device that would connect a Centronics standard printer to Atari. In the past, such interfaces were commonly produced and available. Nowadays, this is quite a challenge to get it.
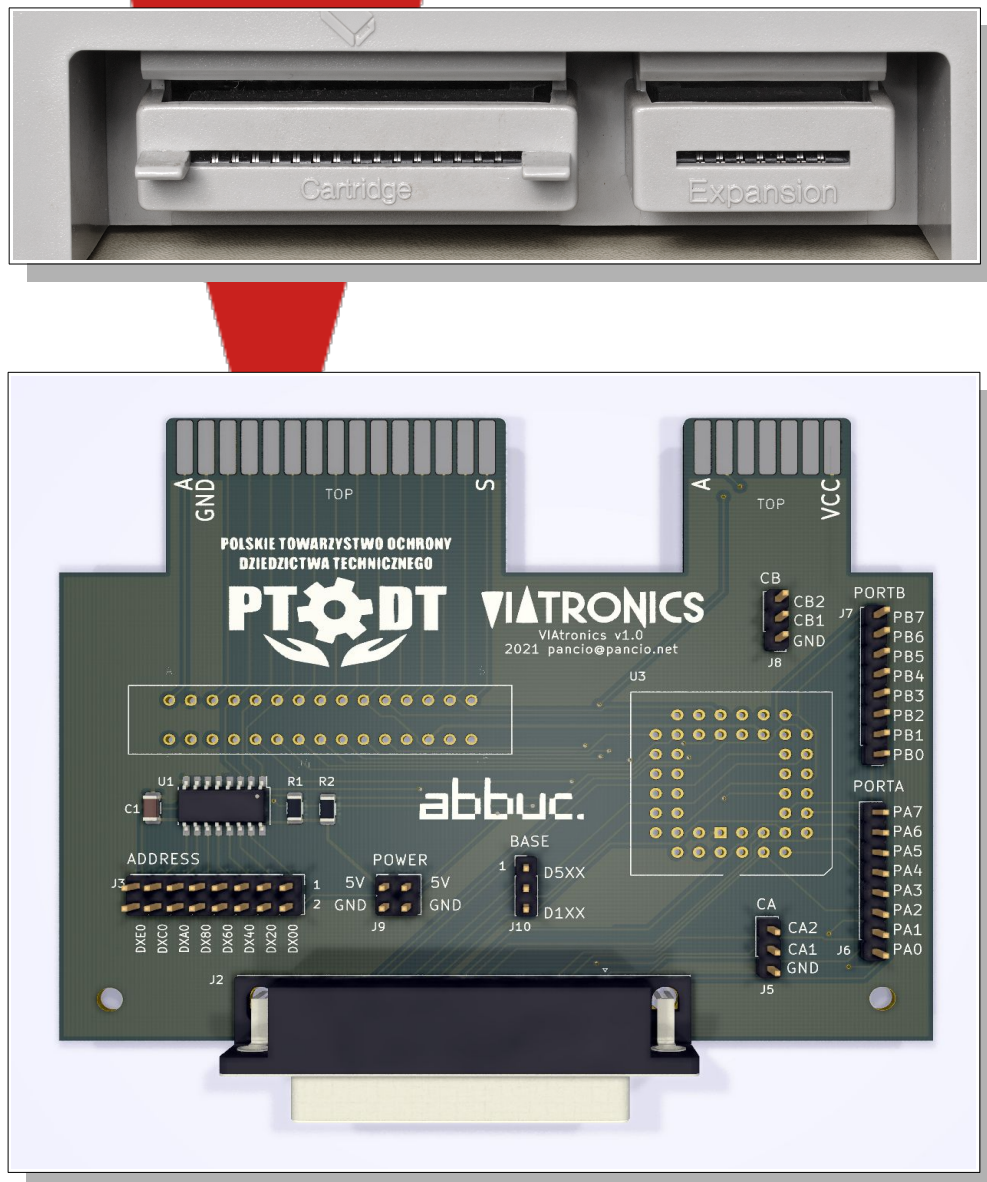
VIAtronics is a new device that fills this gap and provides a much faster printing speed than solutions based on slow serial port (SIO), standard cartridge or joystick transmission. Printing is performed with the maximum possible speed because the executive system is directly connected to the computer processor bus and runs at its full speed.

There are two versions of the VIAtronics interface. One, designed first, only fits Atari XE series computers with ECI slots (VIAtronics ECI). The second version fits every Atari XL / XE series computer, because it only requires a cartridge slot (VIAtronics CART). The latter is a more universal device, but at the cost of giving up small advantages.
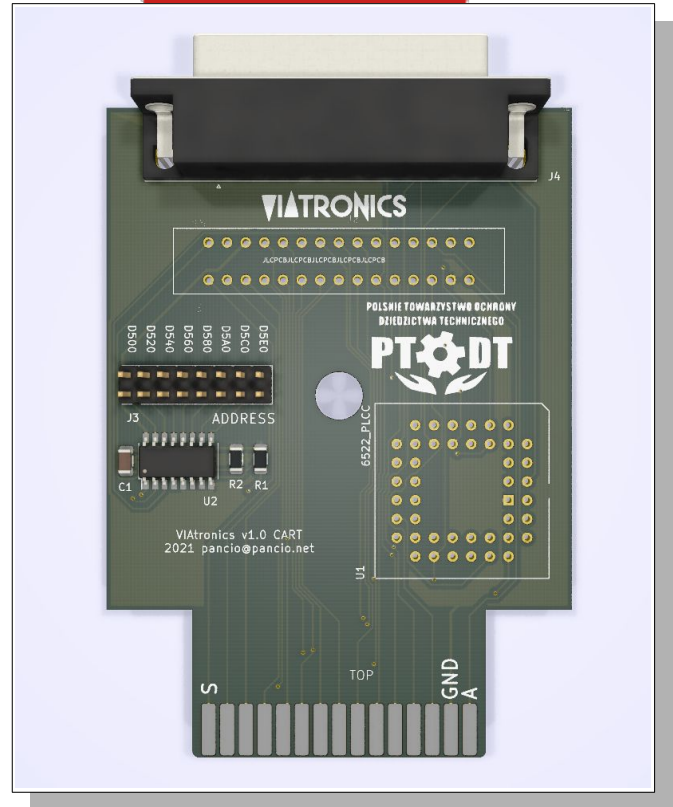
The author created this project as free hardware for non-commercial use, and full documentation is available on the author's website: https://systemembedded.eu.

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REQUIREMENTS

The interface in ECI version fits into any 8 bit Atari XE computer with CART (cartridge) and ECI (expansion) ports **only**:

The interface in CART version fits into any 8bit Atari XL, XE and XEGS computer with CART (cartridge) port. The ECI port is **not** required!

A Centronics-compatible printer is required. And, of course, the Centronics cable that will connect the interface to the printer:

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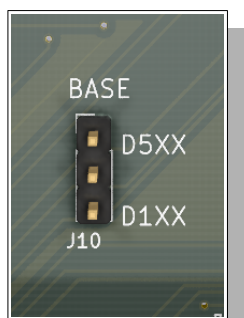DZIEDZICTWA TECHNICZNEGO

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HARDWARE

The interface build uses a small PCB containing chip VIA6522 with two 8-bits parallel ports with control signals. Additional chip IC 74HCT138 is used as an address decoder. All printer signals connect to the DB25 female port.

All signals of PORTA, PORTB, CA, and CB were pulled out on the board in the ECI version of the interface, which can be used for the user's own needs further. Some of these signals are not available in the CART version, such as IRQ, RESET, and D1XX, the device will not be able to report interrupts, and the address space has been limited to the $D5 page. However, this does not affect printing ability.

Some programs placed on the cartridge may conflict with the VIAtronics interface due to using the same addresses. After finding such a conflict, to change the device addressing setting the user can set two jumpers on the BASE and ADDRESS selector (VIAtronics ECI) or one jumper on the ADDRESS selector (VIAtronics CART).
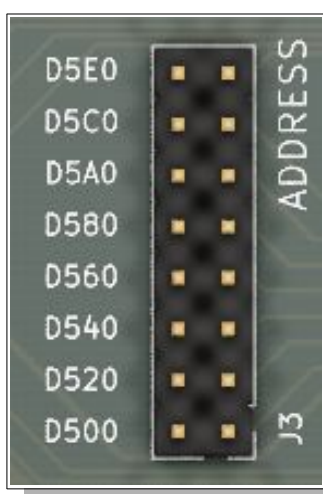
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Possible configurations for VIAtronics ECI are in table below. The user can select device address from range $D100-$D1E0 or $D500-$D5E0 with a $20 step:

J10 - BASE ADDRESS	
1-2	D5XX
2-3	D1XX

J9 - DEVICE ADDRESS		
1-2	D100	D500
3-4	D120	D520
5-6	D140	D540
7-8	D160	D560
9-10	D180	D580
11-12	D1A0	D5A0
13-14	D1C0	D5C0
15-16	D1E0	D5E0

Possible configurations for VIAtronics CART are in table below. The user can select device address from range $D500-$D5E0 with a $20 step:

J3 - DEVICE ADDRESS	
1-2	D500
3-4	D520
5-6	D540
7-8	D560
9-10	D580
11-12	D5A0
13-14	D5C0
15-16	D5E0

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SOFTWARE

The old software that allows printing on 8bit Atari computers does not support the VIAtronics interface for apparent reasons: the interface did not exist during their creation.

However, for the ABBUC competition, to which VIAtronics was entered in 2021, the author of the interface wrote a short program in Turbo Basic XL that can send graphics and text from the computer's memory to a printer:

```
10 REM            BASE - VIAtronisc port
11 REM            PA/PB port A, port B
12 REM            DDRA setup BIT on port A
13 REM            DDRB setup BIT on port B
14 BASE=$D500:PA=BASE+1:PB=BASE
15 DDRA=BASE+3:DDRB=BASE+2
16 POKE DDRB,$0F:POKE DDRA,$FF
17 POKE PA,0:POKE PB,0
18 DIM A$(40)
19 A$="THIS IS PRINT TEST▙\"
20 EXEC LINE:END
21 --------------------------------
22 PROC LINE
23   FOR Y=1 TO LEN(A$)
24     POKE PA,ASC(A$(Y,Y))
25     POKE PB,0:PAUSE 0:POKE PB,255
26   NEXT Y
27 ENDPROC
```

Anyone who knows the basics of programming on 8bit Atari can write such a driver for his printer. It is enough to see the printer control codes, usually found in the printer manual. The most common control codes standards used by old printer manufacturers are Epson and IBM. The program above uses Epson codes.

If the user does not want to code the printing program himself, he can use the only program at the moment that supports printing with the use of VIAtronics – "Drukarz" (means "Typesetter" in English). The freeware program was written and is still in active development by AtariFan. It allows you to print graphics via SIO (on Atari 1029 and printers connected via the classic Centronics interface) and VIAtronics. The program enables basic operations on the image before printing (mirror image vertically and horizontally, moving up/down, left/right, negative). It can be downloaded from: http://atari8.eu or from the utilities archive on http://atarionline.pl, as well as other tools such as "VIAtronics Tester" or "HATABS".
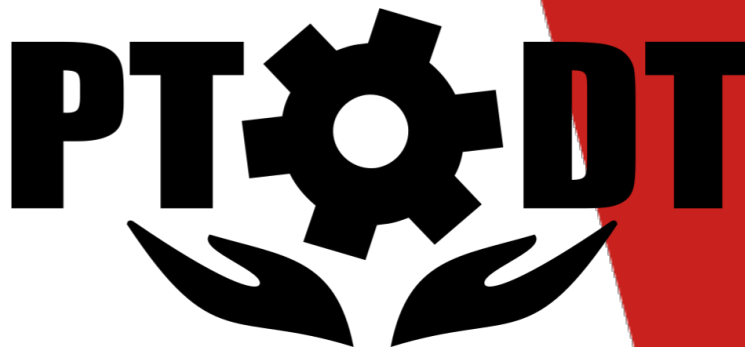
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PTODT

This is the first project created as part of the activities of PTODT (Polskie Towarzystwo Ochrony Dziedzictwa Technicznego, which means the Polish Society for the Protection of Technical Heritage), founded for the protection of technical heritage, especially in the field of informatics and computers. The association's aims are to gather technical knowledge and technical monuments, protect them, and educate about them. We invite anyone willing to participate in the association. Visit the PTODT website: http://ptodt.org.pl.

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