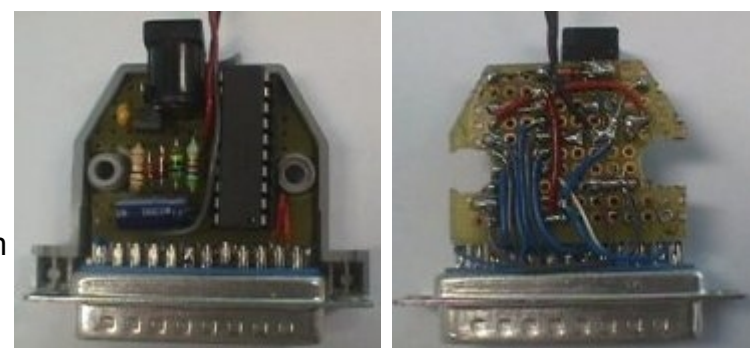


Y! GeoCities ?



12.09.2004

```
_out (set pin6 of ADC high)  
_in (read a data byte from ADC)
```

Under different OS and processor modes these I/O instructions take different number of processor cycles. Read [this](#) if you want to know more.

I tried to set an external oscillator for ADC clock and avoid two "out" commands to save some time, but this way we loose synchronisation between ADC and PC and data became messed. ADC must be synchronised with the PC.

Conclusion: Almost everything I know about parallel ports I learned at this great site: <http://www.beyondlogic.org/spp/parallel.htm>. Since I have just few PCs available for testing, it is possible that many unpredictable things (nice or bad) happen. I'm thankful for any suggestion from you. I will update this page if you know or find out anything worth mentioning.

Tips: Don't buy a new transformer for power supply. The existing loudspeaker's transformer will do fine.

If you are testing LPTScope with a notebook, 1kOhm resistor between LPT and ADC could be too high (both with schematics and with testing for bidirectional capability). Notebooks gives less than 5V on the LPT port. Try with 680 Ohm, or even less.

If you cannot find ADC0820 in your store, try with [ADC08061](#), which is pin compatible with ADC0820. It's faster and about same price.

Other LPT handling and programming related stuff:

<http://www.lvr.com/parport.htm>

<ftp://ftp.armory.com/pub/user/rsteview/LPT/zha96lpt.faq>

...

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[Download LPTScope program for Windows \(ver 1.1\)](#) (initial version)

[Download source of LPTScope program \(ver 1.1\)](#)



[Download LPTScope program for Windows \(ver 1.2\)](#) (improved direct accessing to LPT1 port under NT based OSes, from [Zilot](#))

[Download source of LPTScope program \(ver 1.2\)](#)

[Download LPTScope software for DOS](#) (in QBasic, from Miroslav Novak)

LPTscope is a MFC program written in VC++6.0.

The program reads directly from I/O adress 888 which is LPT1 data port on most PCs. If you use Win95/98/ME everything is ok about direct reading from the LPT1. But with WinNT/2k/XP (NT based) things are a little complicated. I/O ports are protected from direct access. You can read [this article](#) for detailed info.

To work under a NT based OS, LPTScope uses IOManager.sys driver for direct access to LPT1 port.

The init part of the program (CMainFrame::OnShowWindow) detects the Windows version and if this is NT based, IOManager.sys is automatically installed and started.

The init part of the LPTscope also measures the PC speed. This is achieved by a simple times-of-loops counting in a given period. This information gives us the max sample rate possible on the given machine.

LPTscope reads the samples at the maximum speed all the time. By changing the time base we don't make any difference on the reading speed of the samples. The effect of changing the time base is implemented at display-time only: not all the samples are shown in the case of lower time base than the max one.

The principle of the how the program works is quite simple: A separate thread (ReadThread()) reads a block of MAX_SAMPLES samples from LPT1 and after that it sends a notification to the view to display this freshly readen block of data. The user can change time and Y base on the view side, click and move to measure precisely the signal with the mouse, change trigger properties etc.

The program is tested on Win98,Me,2K and XP.

I hope you will find it useful.

Drop me a note if you find a bug or after making some meaningful change to the code. Read the agreement if you intend to have any other use than a personal one. LPTScope software is freeware for personal use, provided 'as-is', without any express or implied warranty.

TODO:

- Detection of the available LPT ports.
- Frequency analisys - add FFT algorithm for displaying frequency domain graph.

How to talk with a LPT (and any other) port from within NT based Windows:

[PortTalk driver](#) - my favorite

<http://egor.spb.ru/doc/BookCD/DrDobbs/articles/1996/9605/9605a/9605a.htm>

<http://64.113.35.210/tviclpt.htm> - a serious commercial solution