



This is a brief review of my experiences with the ZeroPlus Logic Cube Lap-C 16032.

About one year ago, I found myself in need of a logic analyzer. Previously, when I needed to decode or measure some logic signals I simply built a small circuit on a breadboard containing some microcontroller which measured the levels and in turn sent them to a PC which then analyzed the data. This method works fine, but it's quite time consuming and boring to keep building essentially the same thing over and over again. So, this time I decided to have a look at what kinds of logic analyzers there were for sale. I was amazed to find that it was possible to buy a logic analyzer from ZeroPlus with 16 inputs, a sample rate of 100MHz and 32K samples memory for as little as 100 euro. So, I bought one.

The logic cube is quite small and comes with an application to control the analyzer and visualize the measured data. A very nice feature of this software is its ability to include plug-ins which enables you to decode all kinds of serial and parallel protocols like IIC, SPI... etc. It's even possible to create your own plug-in for some protocol using the design suite of ZeroPlus, but it does take some time to understand the method ZeroPlus uses for its plug-ins. Though at first I thought that I would not need the protocol analyzer all that much, it turns out that this is the one feature which I use all the time. It's very nice to see the digital signals together with their actual meaning, without having to do any analyzing yourself. Quite often I use the Logic Cube to sample some data and after that scan through some protocols, by simply selecting them and look whether the data is recognized by the selected plug-in, in order to see what the protocol actually is. This is something which previously I had to do with pen and paper, which is a tedious task. As any other program the ZeroPlus software takes some getting used to, but after working with it for some time I actually find it quite intuitive. I especially love the fact that I can decide how much of the signal history I want to see before a trigger occurred. And the A, B and T bars to measure relative times work like a charm. You simply need to drag the A or B bar to some position, or have it snap to some edge, and you instantly see its relative time to the other bars.

After working with the analyzer regularly for about one year now, I only found two things, which in my opinion, can be improved. The first thing would be the trigger abilities of the hardware. Though the analyzer perfectly supports level and edge-count triggering for each channel and even combinations of channels, it does not support pulse width triggering i.e. if I have a noisy signal and I want to trigger at pulses which are longer than a certain time, this is not possible. The second thing I would like to see changed is a marketing issue. I was a little



disappointed to see that the LAP-C 16032 came with only 2 test clips for 16 input channels so I needed to buy some extra, it would perhaps be better to make the price a little higher and include at least 18 clips.

Ruudje



ZEROPLUS

關於孕龍

「孕龍科技股份有限公司」ZeroPlus Technology Co., Ltd.，于 1997 年創立。孕龍科技專精於電玩遊戲週邊產品設計。在 2004 年擴展事業版圖於電子量測儀器市場，研發團隊擁有新進微處理控制技術，開發出最新專利技術之量測儀器－「PC-Based 邏輯分析儀」；獨家創新技術獲得多項專利技術，申請國家遍及全球各地，目前仍持續增加專利數量與國家。2005 年甫上市即獲得產業界 IC 上市公司等數百家科技大廠，及各大高等教育學府採用，締造優異銷售成績，成為臺灣市場佔有率最高的邏輯分析儀。