

**PC Oscilloscope  
Spectrum Analyzer  
Logic Analyzer  
DSO-50x12 Series  
User's Manual**

**Revision II**

**Software Win 7/2000/xp/Vista Version**



**CLOCK COMPUTER CORP.**

<http://www.clock-link.com.tw>

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(DSO-50212, DSO-50412)  
Software Win 7/2000/xp/Vista Version**

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## Accessories Contents

- The DSO-50x12 Series Aluminum unit.
- Logic Analyzer Pod.
- Two pieces (DSO-50212 Series) or Four pieces (DSO-50412). calibrated 300MHz Probe with (x1, x10). 10pF input Capacitance.
- Housing with twenty piece color wires and easy hook clips.
- USB 2.0 cable.
- Universal Power Supply with DC Adapter **12V/1A** (DSO-50212), **12V/2A** (DSO-50412).
- DSO-50x12 Series User's Manual.
- Control Software CD.

## System Requirements

In order to use the DSO50x12, the following equipment is necessary:

- **Computer System:** Pentium PC system with at least one USB interface (USB 1.1 or 2.0 version).
- **Memory:** A minimum of 256 MB free RAM. 512 MB or 1GB is better.
- **Mass Storage:** At least one CD drives and hard disk drives.
- **Monitor:** Any monitor compatible with the above display adapter.
- **Operation System:** Windows 2000/XP/VISTA.

## Installing Hardware

- Connects USB cable to DSO.
- Setup USB driver from CD.
- Plug in power source from +12V DC Adapter.
- Waiting for control software turn on.

## Installing Software

- Insert the distribution CD into drive E: (here E: is CD driver).
- Enter file to run E:\DSO50x12\dso50x12.exe.
- Follow the on screen instructions.

## Feature

- Innovative cross triggering: logic analyzer channels can trigger the analog channels and vice versa.
- Long time pre-triggering up to 262143\*256 points, about -67M points.
- Fast data capture and screen update rates.
- Hot key function that is convenient to use.
- Deep 512K/2M sample data acquisition buffers on each channel (A1, A2, A3, A4, D0 ~ D11).
- Precision 200MHz Frequency counter, up to 7 digital resolution @ 512K memory for each analog channel.
- Advance Fast Fourier Transformations function to Bandwidth test.
- Support Pulse width and TV(NTSC525, PAL625) Triggering and count.
- Support high speed (up to 50MHz SCL clock) I<sup>2</sup>C , SPI Triggering.
- Support I<sup>2</sup>C, SPI, UART, more... serial bus timing encode.
- Convenient Timing state display for logic debug.

## Guide to Operations

When making measurements with the Digital Storage Oscilloscope / Logic Analyzer Cards, meaningful data can only be captured with some prior knowledge of the characteristics of the circuit under test.

Before initiating any capture cycles, the DSO must be configured using the control program. See the software section later in the manual for instructions on these procedures.

To connect the DSO to the test circuit, there are two standard BNC probes, one for each Analog input channel, and a series of mini-clips on the Logic Analyzer Pod for the Logic Input channels. The scope probes have removable hook clips on their ends and an attached alligator clip for the signal ground connection. The Logic Analyzer Pod has inputs for 12 channels, D0 channel is the external clock input, and 8 ground points.

For synchronous data captures, external clock sources can be connected to the D0 channel. At times, it may also be necessary to connect the test circuit to the computer system itself.

This will eliminate more noise in the test application due to ground level differentials. This is especially true when dealing with high speed timing analysis. Use a heavy gauge wire to make a connection between the test circuit ground and the case of the computer.

Each Analog channel probe has a calibration adjustment. It is important that this calibration be made at least twice a year. See Calibration for more information.

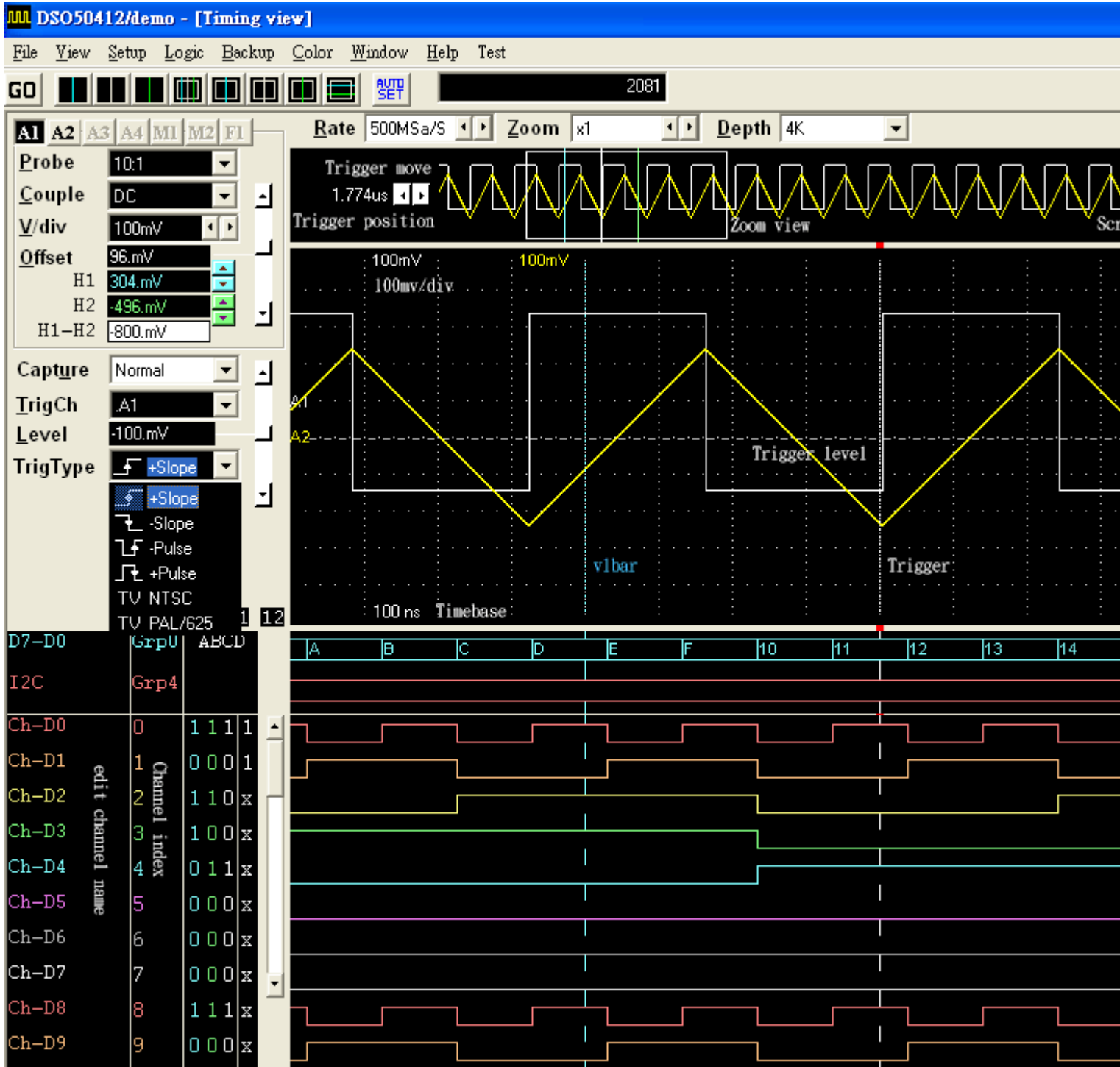
**When connecting the probes to any signal, make sure that the signal voltage is within the limits of the DSO. check the technical information section for absolute maximum and recommended maximum input voltages for the probes.**

**Logic Analyzer Pod Markings:**

**D0 ~ D11 Channel data inputs.**

**GND Signal ground connection.**

## Main Screen



## Horizontal Scroll Bar

This scroll bar is used in conjunction with a selected waveform or cursor. The Horizontal Scroll Bar will move a selected waveform or cursor left or right in the display area.

The Horizontal Scroll Bar works with Display, Analog input channels, Memory, Logic Analyzer channels, V1Bar, V2Bar, and Trigger Bar.

## Vertical Scroll Bar

This scroll bar is used in conjunction with a selected waveform or cursor.

The Vertical Scroll Bar will move a selected waveform or cursor up or down in the display area.

The Vertical Scroll Bar works with Display, Analog input channels, Memory, H1Bar, and H2Bar.

## Hardware Specifications

### DSO-50212M Series Hardware Specifications

Model	DSO-50212M	Remark
Record Length	2MB / Ch	Points
Sampling Rate	Ch.A1: 1Sa/s to 1Gsa/s Ch.A2: 1Sa/s to 500MSa/s D0 ~ D11:1Sa/s to 500MSa/s	With a 1, 2, 5, sequence. Internal clock
External clock	1KHz to 50MHz (max.)	From Logic Channel D0
<b>Analog Channel</b>	Ch.A1, Ch.A2	8bit resolution
Input Bandwidth	Ch.A1: 200MHz (-3db) Ch.A2:100MHz (+/-0.5db), 125MHz (-1db)	@BNC connect (Probe 10:1)
Input Impedance	1Mohm // 15pF	@BNC connect (Probe 1:1)
Max. input voltage	50v (100v Transient)	
Input Sensitivity	5mv/div to 2v/div	
Trigger Sensitivity	0.5 div (250MHz)	
Trigger Level	Adjustable 250 level	10 Vertical Divisions
Trigger Type	Slope +/-, Pulse width +/-, TV (NTSC / PAL), Horizontal Synchronous Count Trigger.	Pulse detect < 16ns(min.)
<b>Digital Channel</b>	D0 ~ D11 (12ch)	Logic Pod
Input Bandwidth	150MHz (max.)	
Input Impedance	100K ohm    2pF	
Input Sensitivity	< 500mv	
Channel skew	< 2ns	
Max. Input Voltage	+/- 50v (100v Transient)	
Threshold Voltage	-2v to +6v	
Trigger Qualify	Parallel: 0, 1, X (don't care) settings for all Digital channels I <sup>2</sup> C: 0, 1, X (don't care) settings for 4 (bytes+ Ack) long SPI: 0, 1, X (don't care) settings for 36bit long	
Operate	Mouse	
Power Supply	DC Adapter 12V/1A	
PC Interface	USB (Version 1.1/2.0)	
Net Weight	1.2 KGS	
Size (Dimension)	220mm x142mm x 40mm	Aluminum Case
Accessories	Logic Analyzer pod, USB 2.0 cable. Calibrated Probe (1:1, 10:1) x 2 pcs. User's Manual, Software CD. Housing with Color wires & clips x 16 pcs. DC Adapter 12V/1.0A.	

## DSO-50412M Hardware Specifications


Model	DSO-50412M	Remark
Record Length	2MB / Ch	Points
Sampling Rate	Ch.A1, Ch.A3: 1Sa/s to 1Gsa/s Ch.A2, Ch.A4: 1Sa/s to 500MSa/s D0 ~ D11:1Sa/s to 500MSa/s	With a 1, 2, 5, sequence. Internal clock
External clock	1 KHz to 50MHz (max.)	From Logic Channel D0
<b>Analog Channel</b>	Ch.A1, Ch.A2, Ch.A3, Ch.A4	8bit resolution
Input Bandwidth	Ch.A1, Ch.A3: 200MHz (-3db) Ch.A2, Ch.A4:100MHz (+/-0.5db),125MHz (-1db)	@BNC connect (Probe 10:1)
Input Impedance	1Mohm // 15pF	@BNC connect (Probe 1:1)
Max. input voltage	50v (100v Transient)	
Input Sensitivity	5mv/div to 2v/div	
Max. input voltage	50v (100v Transient)	
Trigger Level	Adjustable 250 level	10 Vertical Divisions
Trigger Type	Slope +/-, Pulse width +/-, TV (NTSC / PAL), Horizontal Synchronous Count Trigger.	Pulse detect < 16ns(min.)
<b>Digital Channel</b>	D0 ~ D11 (12ch)	Logic Pod
Input Bandwidth	150MHz (max.)	
Input Impedance	100K ohm    2pF	
Input Sensitivity	< 500mv	
Channel skew	< 2ns	
Max. Input Voltage	+/- 50v (100v Transient)	
Threshold Voltage	-2v to +6v	
Trigger Qualify	Parallel: 0, 1, X (don't care) settings for all Digital channels. I <sup>2</sup> C: 0, 1, X (don't care) settings for 4 (bytes+ Ack) long. SPI: 0, 1, X (don't care) settings for 36bit long.	
Operate	Mouse	
Power Supply	DC Adapter 12V/1A	
PC Interface	USB (Version 1.1/2.0)	
Net Weight	1.8KGS	
Size (Dimension)	225mm x 135mm x 60mm	Aluminum Case
Accessories	Logic Analyzer pod, USB 2.0 cable. Calibrated Probe (1:1, 10:1) x 4 pcs. User's Manual, Software CD. Housing with Color wires & clips x 16 pcs. DC Adapter 12V/2.0A.	

## Hot Key Function

"G"/"g"	GO/Stop
"P"/"p"	Probe
"C"/"c"	Couple
"V"/"v"	V/div
"O"/"o"	Offset
"U"/"u"	Capture
"T"/"t"	TrigCh (Trigger Channel)
"R"/"r"	Rate
"Z"/"z"	Zoom
"D"/"d"	Depth
"Space"	to switch A1,A2,A3,A4,F1 Channel
"Print screen"	Copy screen image to clip board.
<b>Control key</b>	
Ctrl + "G"	Turn On/Off Grid display.
Ctrl + "H"	Turn On/Off H bar display.
Ctrl + "D"	Turn On/Off Dots connect.
Ctrl + "Z"	Turn On/Off Zoom view.
Ctrl + "P"	Perform persist.
Ctrl + "R"	Refresh screen.












## Tool Bar

 The Go command tells the DSO to start acquiring data when the trigger conditions are satisfied.

Pressed means Start capture, un-pressed means stop capture.

Moves one or more cursors to the display area. These commands are also available by clicking on the toolbar.

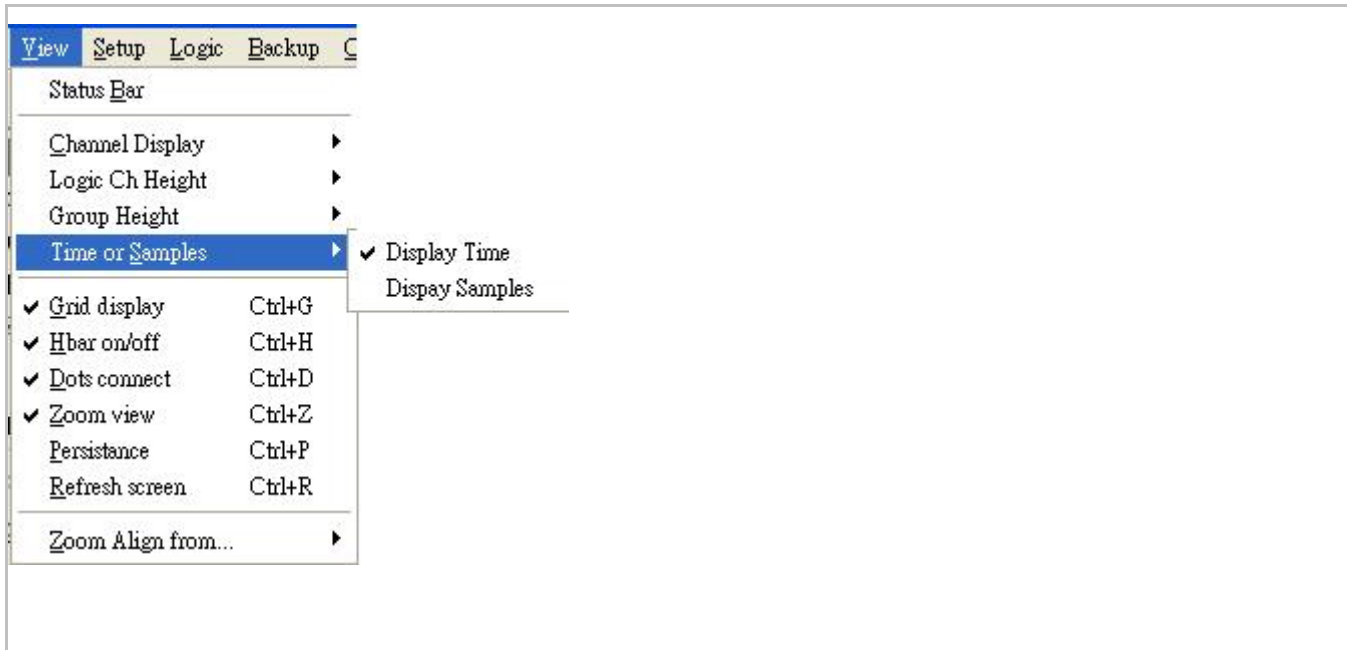
-  Centers waveform display area around V1Bar.
-  Centers waveform display area around V2Bar.
-  Centers waveform display area around the Trigger Bar.
-  Moves Trigger Bar, V1Bar and V2Bar onto the waveform display area.
-  Moves V1Bar onto the waveform display area.
-  Moves Trigger Bar onto the waveform display area.
-  Moves V2Bar onto the waveform display area.
-  Moves H1Bar and H2Bar onto the waveform display area.
-  Automatic setup parameters for Trigger Channel.

## File Menu



<b>Load data</b>	This option loads a data file (.dso), with a setting file (.ini) together.
<b>Load data option</b>	This option select of A1, A2, A3, A4 or D0 ~ D11 channel to be load.
<b>Save setting</b>	This option saves the current settings to a setting file (.ini).
<b>Save data</b>	This option saves a data file (.dso), every time saves all (A1, A2, A3, A4, D0-D11) data depend on Depth setting.
<b>Transfer data to Excel</b>	This option will convert data to Microsoft Excel by Decimal, Hexdecimal, Ascii or unit(v).
<b>Load setting</b>	This option loads a previously Setting file (.ini).
<b>Load Default Setting</b>	Reset all parameters to factory defaults.
<b>Auto. Load Setting</b>	Turns on or turns off the Autoload option. When this option is on, all settings will be loaded when start the program.
<b>Print Screen</b>	This option allows you to print Screen (Hard copy).
<b>Print FFT</b>	This option allows you to print FFT form.
<b>Print Timing View</b>	This option allows you to print Main Screen Form.
<b>Exit</b>	Use this command to end your session. You can also use the Close command on the application Control menu.

## View Menu



<b>Status Bar</b>	Show or hide Status Bar.
<b>Channel display</b>	<p>When display is checked, the channel will be displayed on the screen. When display is not checked, the channel will not be displayed on the screen. Turning Display off for a channel will speed up the display. However the data is still acquired from that channel unless transfer is turned off.</p> <p>A channel's display can also be set with the buttons on the left edge of the screen. If the channel is on the button will be highlighted. You can also turn on/off transfer of the data for a channel.</p> <p>Note: This command applies to both analog and digital channels.</p>
<b>Channel Height</b>	Adjust height of logic channel (D0 ~ D11).
<b>Time and Samples</b>	For Timing display, display Time like as 123.456ms, or display how many samples.
<b>Grid</b>	Show or hide grid on analog display.
<b>Dots connect</b>	<p><b>Dots connect off</b></p> <p>None checking this option will display only the data points of the analog waveform. Logic data is unaffected by this option. This is the second fastest display option.</p> <p>Note that Lines will always be shown when in Sin (X) / X or Filter Interpolation modes.</p> <p><b>Dots connect on</b></p> <p>Checking this option will display the lines connecting the data points and the data points of the analog waveform. Logic data is unaffected by this option. This is the slowest display option.</p> <p>Note: The lines and dots can be set to different colors.</p>
<b>Zoom view</b>	Compress and display the entire memory on the up screen.
<b>Persistence</b>	Turns on or turns off Persistence Mode. In this mode, with each acquisition of data, all previous waveform data remains on the display area. This mode is useful for finding waveform anomalies that occur infrequently. Persistence Mode is also useful for evaluating signal

jitter. Scroll, zoom, change display width, or any update of the screen will erase all of the old data and will initiate a new Persistence Mode capture.

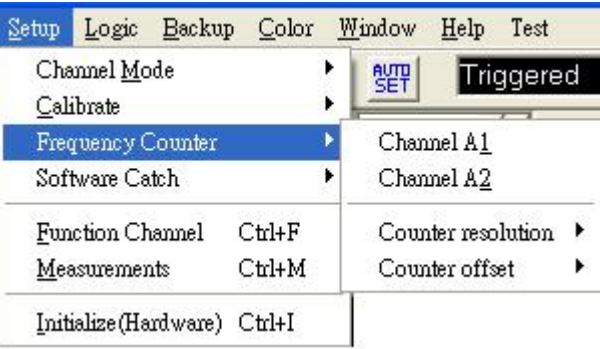
To turn Persistence On, select Persistence from the View Menu. To turn Persistence Off, select Persistence again from the View Menu.

**Note:** scroll, zoom, change display width, or any update of the screen will erase all of the old data.

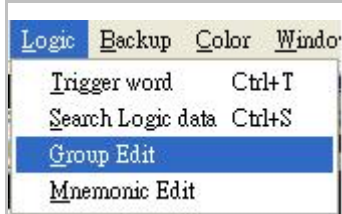
See also: View menu, Toolbar, clear button.

<b>Zoom align from</b>	Set cursor Bar (V1, V2, Trigger, Screen (left or center) ) for zoom operate reference.
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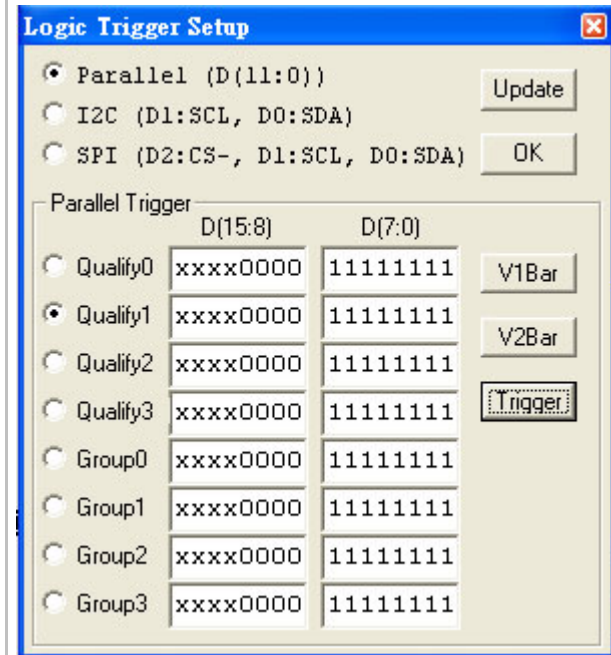
## Setup Menu

	
<b>Channel mode</b>	To select 1 Ch (1Gsa/s sampling) or 2 Ch (500Msa/s) mode in DSO-50212. To select 2 Ch (1Gsa/s sampling) or 4 Ch (500Msa/s) mode in DSO-50412.
<b>Calibration</b>	<ol style="list-style-type: none"> <li>1. Connect the scope probe Ground Connection to the BNC GND.</li> <li>2. Hold the probe's tip against the calibration point on the BNC center Hole.</li> <li>3. A Square wave signal should appear on the screen.</li> <li>4. Adjust the probe calibration until a true square wave is shown on the screen, noting the corners of the waveform which should be sharp and square, not rounded over or peaky.</li> </ol>
<b>Frequency counter</b>	Precision 7 digital resolution frequency counter for A1, A2, A3, A4 channel.
<b>Software catch</b>	To capture data rate lower 500Sa/s be used, no Triggering.
<b>Function Channel</b>	To perform Channel +, -, *, /.
<b>Measurements</b>	Setup Measure Item.
<b>Initialize (Hardware)</b>	This function allows you to restart DSO.

## Logic Menu



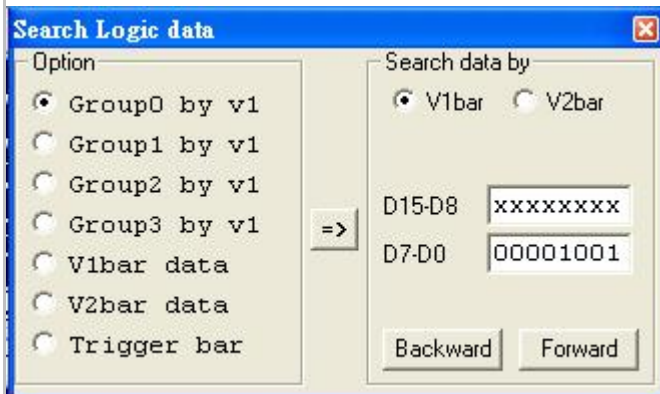
## Trigger word



Set Trigger word for digital channel 11 ~ 0 or Group 0 ~ 3.

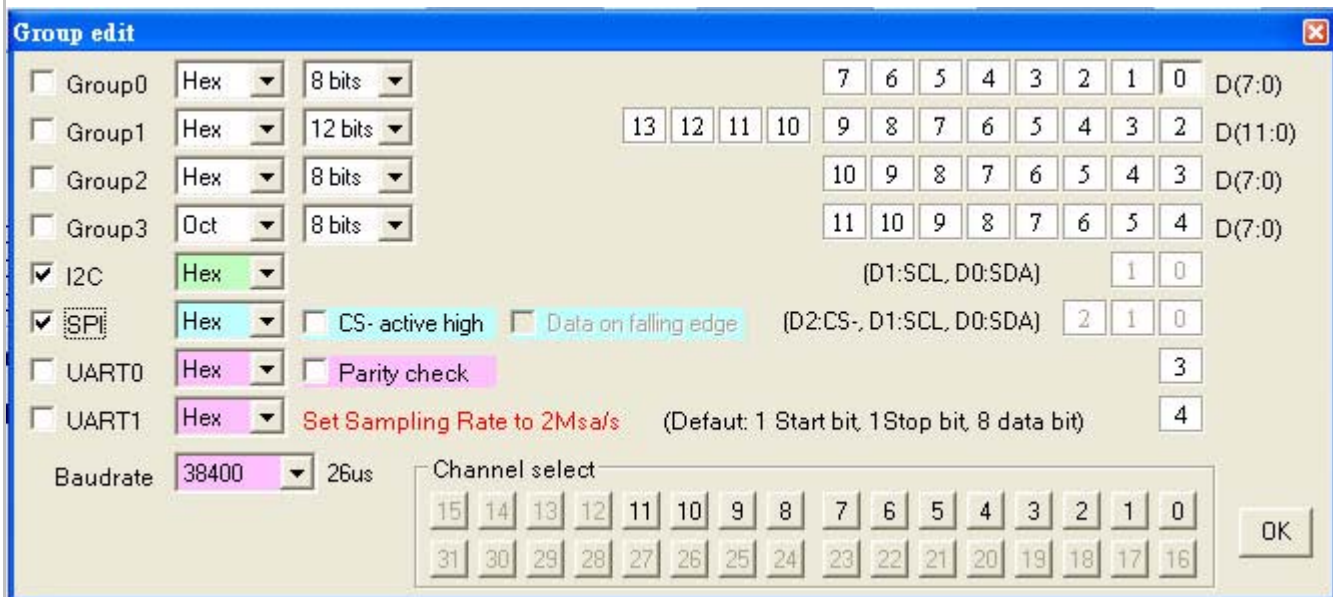
The Trigger word backup four Qualify data and four Group data for quickly set digital trigger. conveniently setup from V bars.

## Search data



Sorting through all your data is easier with our search feature ! You can specify a search pattern, including Don't Care bits, in any shown numeric bases. Then just click on the forward or backwards search to find what you are looking for !

## Group edit



Edit channel 11 ~ 0 for Group Channel, every Group Channel supports 16 Ch Max. Could be display in Hex, decimal, binary, Oct, or Ascii code.

## Mnemonic edit

Group select	Group0	OK
<input checked="" type="checkbox"/>	xxx11xxx	Read
<input checked="" type="checkbox"/>	xxx10xxx	Write
<input checked="" type="checkbox"/>	x11xxxxx	memRead
<input checked="" type="checkbox"/>	x10xxxxx	memWrite
<input checked="" type="checkbox"/>	x1111xxx	Reset
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

As figure Edit Mnemonic code for Groups.

## Backup



### Backup Analog Channel to M1, M2 channel:

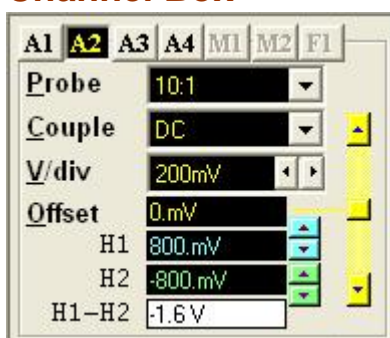
Copy A1 to M1 Store channel A1 to M1( memory 1)

Copy A1 to M2 Store channel A1 to M2( memory 2)

Copy A2 to M1 Store channel A1 to M1( memory 1)

Copy A2 to M2 Store channel A1 to M2( memory 2)

## Channel Box



A different channel can be selected by hitting the "A1, A2, A3, A4, M1, M2, F1" Channel select button.



## Probe

This controls the attenuation level for the probe inputs. This should be set to match the probe itself, either 1x, 10x, 100x or 1000x. When working with signal amplitudes within 200V, either the 1X or the 10X setting can be used. However, if the signal amplitude is outside of 200V, use the 100X setting. Note that using the 10X setting with both the probe and the scope even for signals within 200V will provide better frequency response through the system due to smaller voltage swings through to the digitizer..

Voltage range Probe and probe settings:

5mv/div to 2v/div @probe 1:1

50mv/div to 20v/div @probe 10:1

500mv/div to 200v/div @probe 100:1

5v/div to 2000v/div @probe 1000:1

## Coupling

The three selections available are AC, DC, and GND couple. In the AC setting, the signal for the selected channel is coupled capacitively, effectively blocking the DC components of the input signal and filtering out frequencies below 10 Hz. The input impedance is 1MW || 5pF.

In the DC setting, all signal frequency components of the signal for the selected channel, are allowed to pass through. The input impedance is 1 MW || 5pF.

In the GND setting, both the input and the A/D converter are connected to ground. Again, the input impedance is 1 MW || 5pF. Use for setting the Ground reference point on the display or if calibrating the DSO board.

## **Volts/Division**

V/div controls the vertical sensitivity factor in Volts/division for the selected analog channel.

Each V/div step follows in a 1-2-5 sequence.

To get the best representation of the input signal, set V/div such that the maximum amplitude swing is displayed on the screen.

This will match the signal amplitude to use most of the digitizer's range, allowing the most bits to be used.

Volts/division can be set via the V/div Combo to Settings.

Volts/division Probe can be set to

5mV, 10mV, 20mV, 50mV, 100mV, 200mV, 500mV, 1V, 2V (1:1)

50mV, 100mV, 200mV, 500mV, 1V, 2V, 5V, 10V, 20V (10:1)

500mV, 1V, 2V, 5V, 10V, 20V, 50V, 100V, 200V (100:1)

5V, 10V, 20V, 50V, 100V, 200V, 500V, 1000V, 2000V (1000:1)

## **Offset**

This parameter offsets the input signal in relation to the digitizer. This changes the usable input voltage range. The input voltage range is the offset +/- 5 divisions.

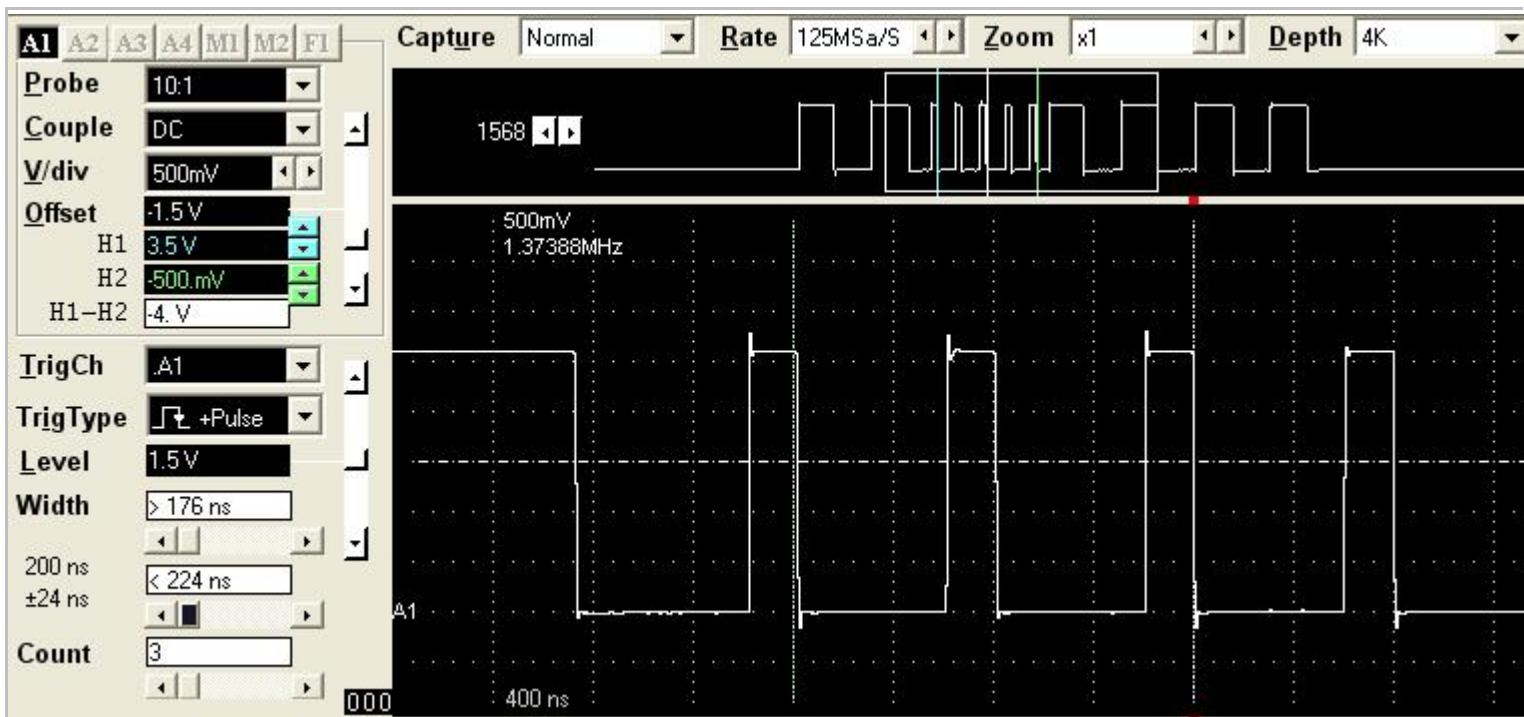
Thus if you moved the offset to 1.00V with 1V /division the usable range would be 6.00V to -4.00V. Data outside the input range is clipped and stored as either the max or min input value. The offset references the 0.00V point (GND) for the input channel.

The ground point is marked on the screen by the Ground Point Tick Marks to the right of the Analog Display. To change the offset in this dialog box, move the elevator button in the scroll bar. The offset can also be changed by grabbing and moving the appropriate Ground Point Tick Mark in the analog display area.

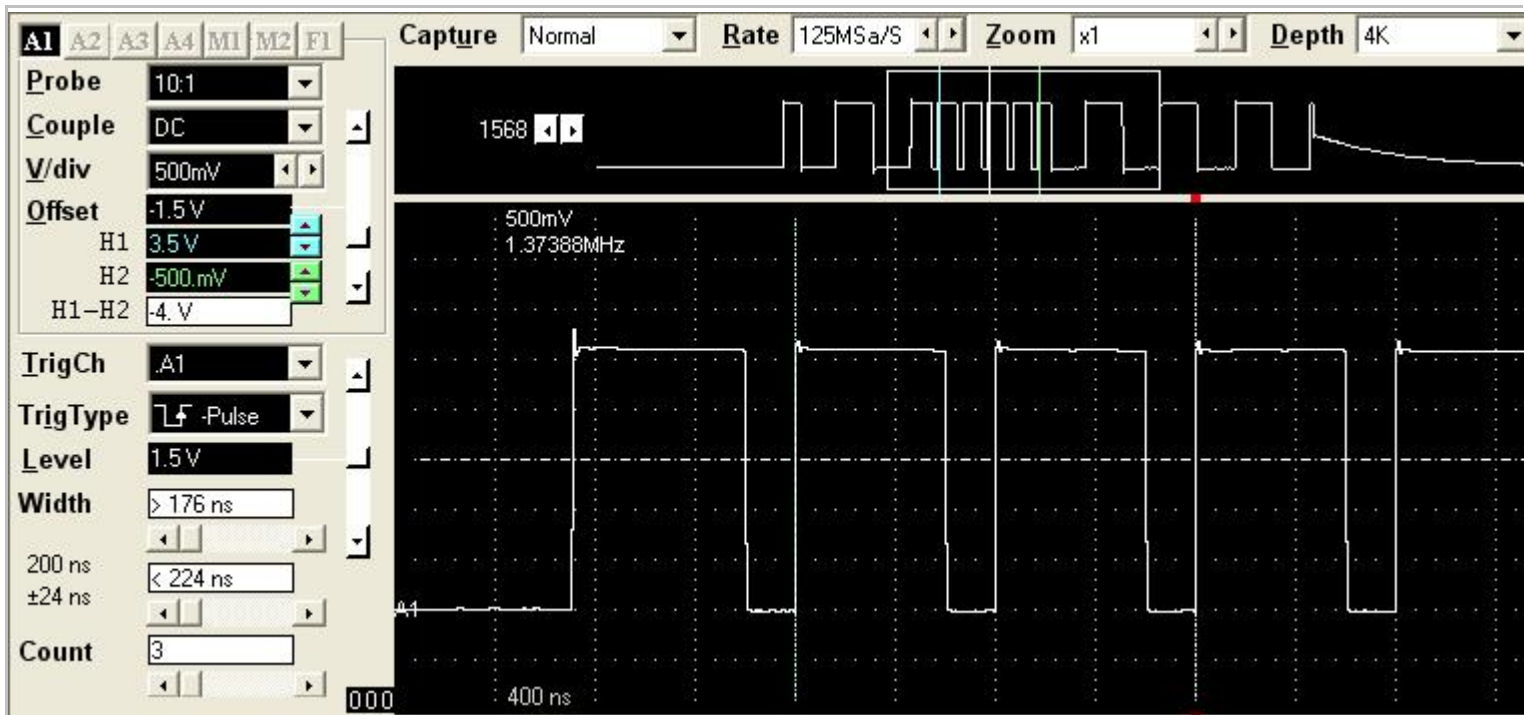
## Trigger Box

<b>TrigCh</b>	.A1
<b>TrigType</b>	+Pulse
<b>Level</b>	-320.mV
<b>Width</b>	> 40 ns
100 ns	< 160 ns
±60 ns	
<b>Count</b>	3

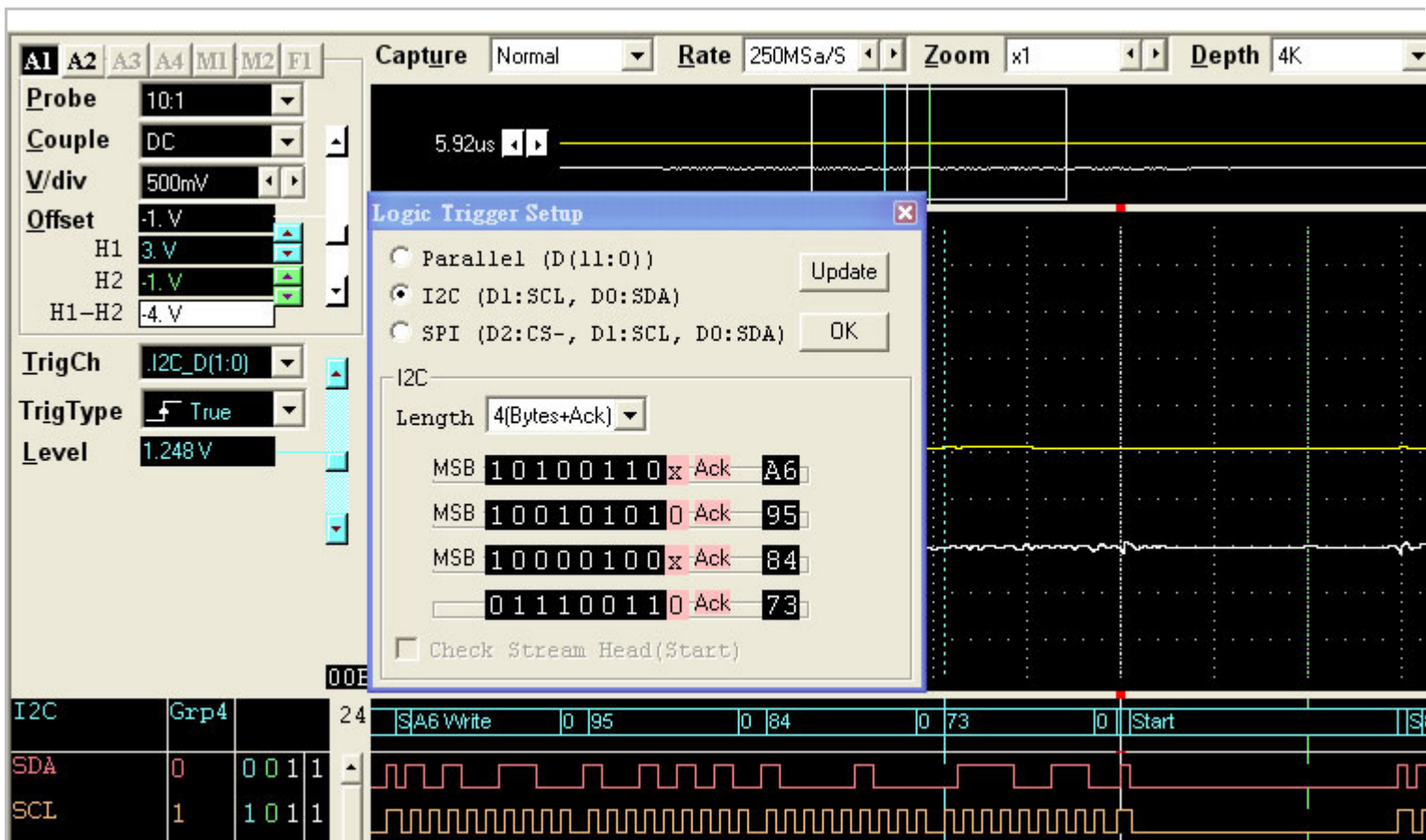
<b>TrigCh</b>	To select A1, A2, A3, A4 or Logic pod for Trigger source.
<b>TrigType</b>	To select +Slope, -Slope, +Pulse width, -Pulse width, NTSC/525 or PAL/625 for Analog channel.
<b>Level</b>	To adjust Trigger Level for A1, A2, A3, A4 or Threshold for Logic Channel.
<b>Width (Pulse width)</b>	To adjust pulse width for A1, A2, A3, A4 Analog Channel trigger.
<b>Count</b>	To adjust pulse count for A1, A2, A3, A4 Analog Channel trigger.



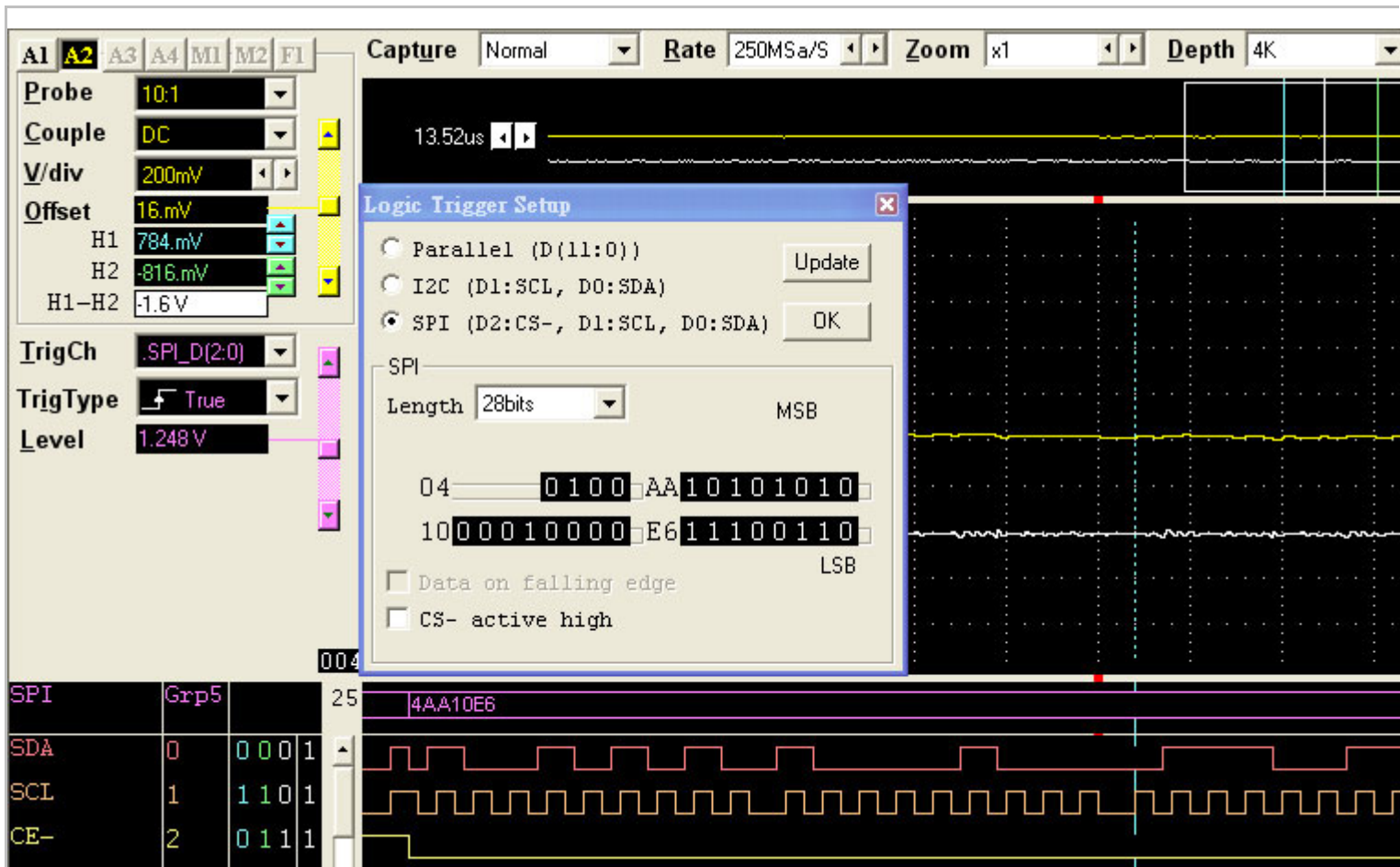
This figure shows 200ns +Pulse width Trigger at third count.



This figure shows 200ns -Pulse width Trigger at third count.

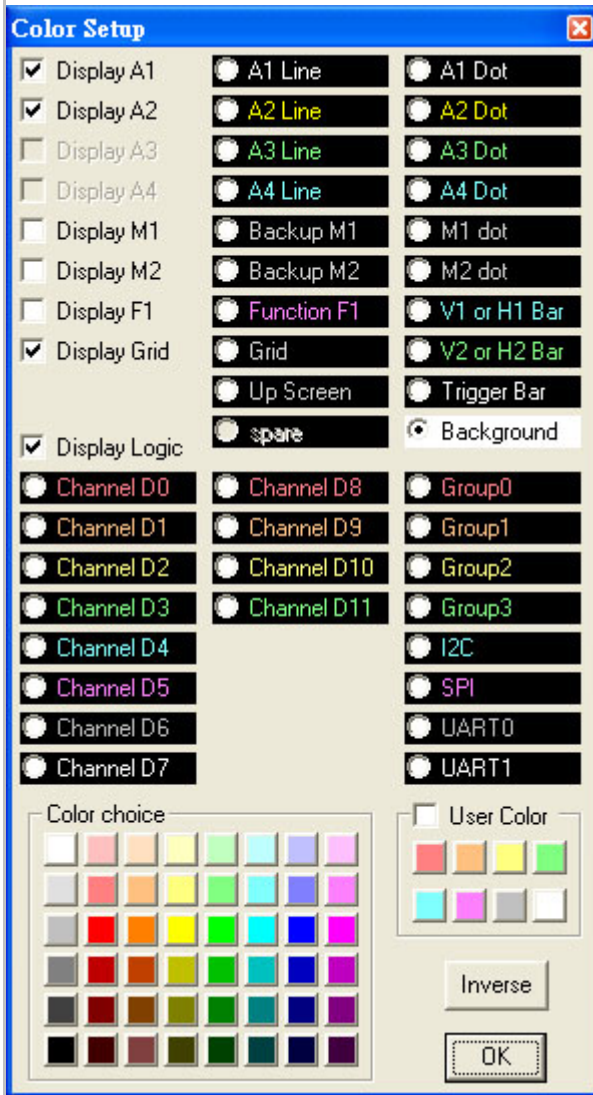


This figure shows 4 (bytes + Ack) I2C Trigger.



This figure shows 28 bits **SPI** Trigger.

## Color Setup



The color of each channel, Group, cursor line(V1, V2, Trigger bar, Screen, H1,H2)... can be set independently.



## Measurements

Measurements	
V_Max.	240.mV
V_Min.	-240.mV
V_p-p.	480.mV
Period	2.4us
Freq.	416.667kHz
V_Max.	240.mV
V_Min.	-232.mV
V_p-p.	472.mV

Automatic measurements on input waveforms can be performed. These include frequency, period, rise time, fall time, min, max, area, ....

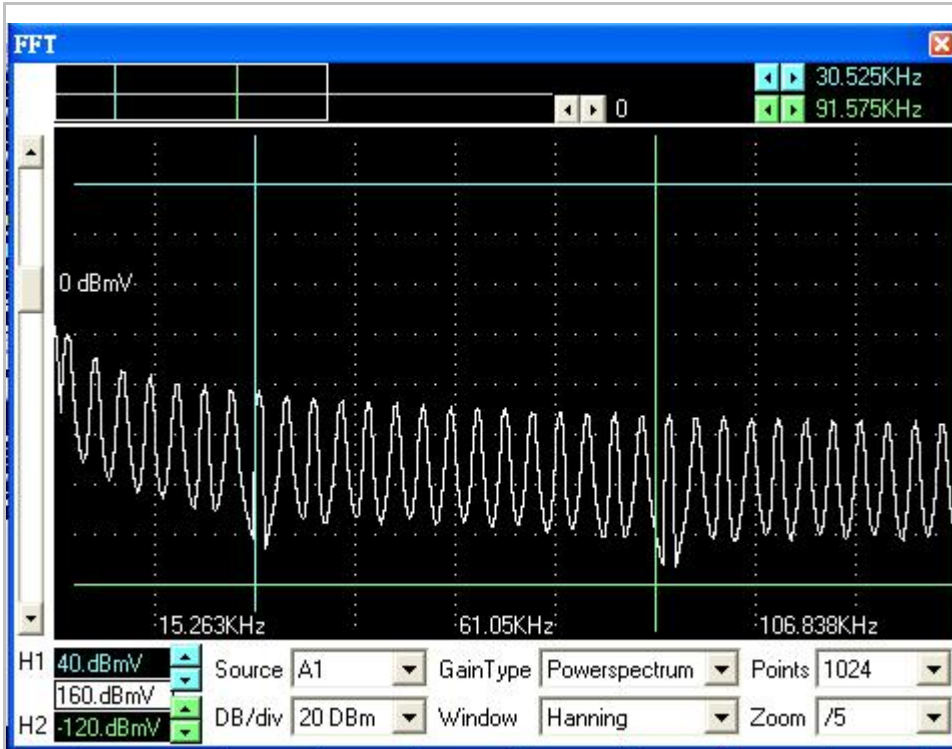
Pulse parameter measurements are performed as specified by ANSI/IEEE std 181-1977 IEEE Standard on Pulse Measurement and Analysis by Objective Techniques.

Up to 10 signal parameters can be measured, tested, and displayed simultaneously. To setup A measurement, select the [Measurements \(Setup menu\)](#) and choose one of the tests to setup (1 to 11).

## Parameter Measurements

<b>Area</b>	Sum of all voltages * sample time.
<b>V1Bar (time)</b>	V1Bar (time) position of V1Bar in time.
<b>V2Bar (time)</b>	V2Bar (time) position of V2Bar in time.
<b>Trigger (time)</b>	Trigger position of trigger Bar in time.
<b>V1-V2 (time)</b>	Time difference between V1Bar and V2Bar.
<b>V1-trigger (time)</b>	Time difference between V1Bar and Trigger.
<b>V2-trigger (time)</b>	Time difference between V2Bar and Trigger.
<b>H1-H2 (voltage)</b>	Voltage difference between H1Bar and H2Bar.
<b>V_max.</b>	Maximum voltage.
<b>V_min.</b>	Minimum voltage.
<b>V_p-p.</b>	The difference between maximum and minimum voltages.
<b>V_avg.</b>	Average of minimum and maximum voltages.
<b>rms SQRT</b>	$( (1/ \# \text{ samples}) * ( \text{sum} ( \text{each voltage} ) * ( \text{each voltage} ) ) ) )$
<b>rms (AC) SQRT</b>	$( (1/ \# \text{ samples}) * ( \text{sum} ( \text{each voltage} - \text{mean} ) * ( \text{each voltage} - \text{mean} ) ) ) )$
<b>Period</b>	Average time for a full cycle for all full cycles in range.
<b>Risetime(10..90)</b>	Average time for a rising transition between the 10% to the 90% points.
<b>Risetime(20..80)</b>	Average time for a rising transition between the 20% to the 80% points.
<b>Falltime(10..90)</b>	Average time for a falling transition between the 10% to the 90% points.
<b>Falltime(20..80)</b>	Average time for a falling transition between the 20% to the 80% points.
<b>Pulse width (positive)</b>	Average width of positive pulses measured at 50% level.
<b>Pulse width (negative)</b>	Average width of negative pulses measured at 50% level.
<b>Frequency</b>	Average frequency of waveform.

## FFT



The FFT window allows control and display of FFT's.

The following controls are available:

**Window** Select the FFT window type: (Triangular, Hanning, Hamming, Blackman-Harris, Rectangular, Wetch and Parzen).

**Sample points** Select how many points the FFT will sample, points can't exceed memory depth.**Horizontal zoom** Select horizontal zoom ratio.

The FFT routines will process the selected channel starting at V1Bar and continue until "Sample Points" number of points has been reached. If V1Bar is not within the buffer, start of buffer will be used.

Further information on FFT's can be found in the following sources:

Embedded Systems Programming magazine Volume 3, Number 5, May. 1990

Embedded Systems Programming magazine Volume 7, Number 9, Sept. 1994

Embedded Systems Programming magazine Volume 7, Number 10, Oct. 1994

Embedded Systems Programming magazine Volume 8, Number 1, Jan. 1995

Embedded Systems Programming magazine Volume 8, Number 2, Feb. 1995

Embedded Systems Programming magazine Volume 8, Number 5, May. 1995

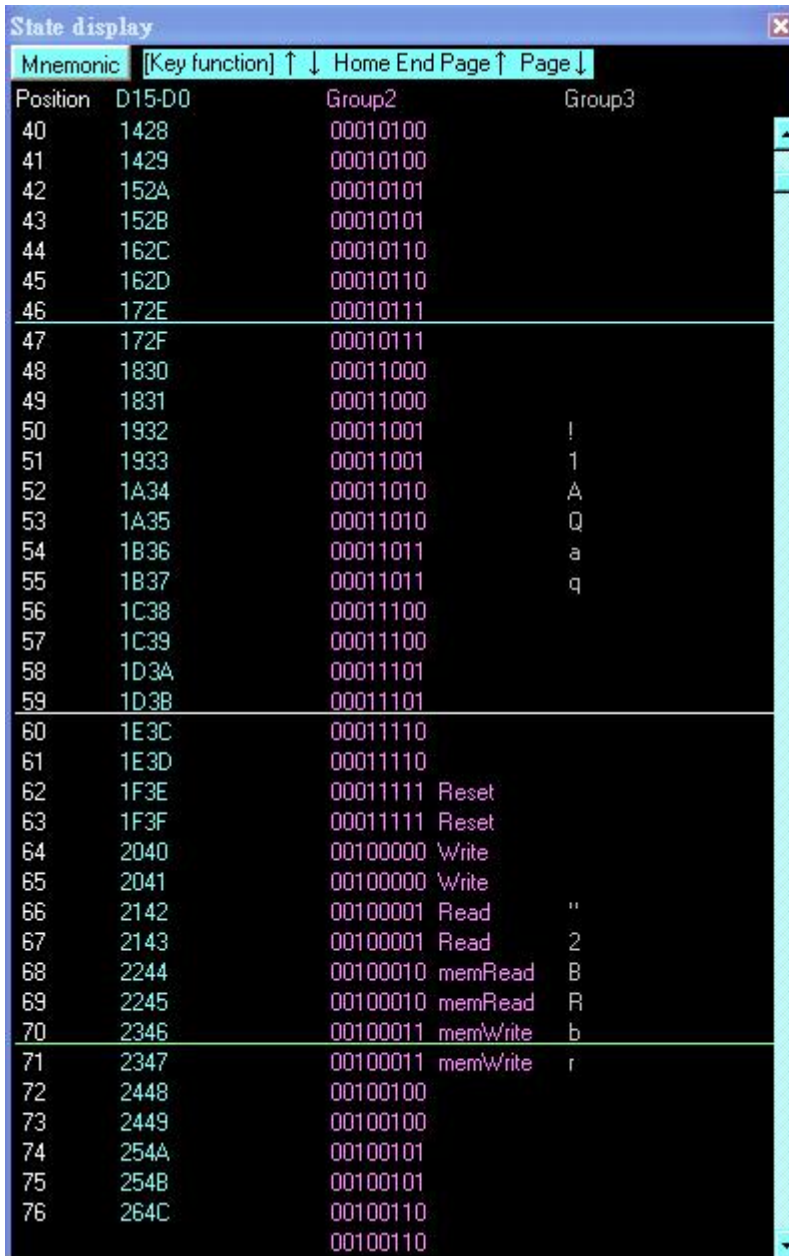
Circuit Cellar Ink, The Computer Applications Journal Issue 52 Nov. 1994

Circuit Cellar Ink, The Computer Applications Journal Issue 61 Aug. 1995

Dr. Dobb's Journal Issue 227 Feb. 1995



## State List



The screenshot shows a window titled "State display" with a menu bar containing "Mnemonic", "[Key function] ↑ ↓", "Home", "End", "Page ↑", and "Page ↓". The main area displays a table with columns for Position, D15-D0, Group2, and Group3. The data is as follows:

Position	D15-D0	Group2	Group3
40	1428	00010100	
41	1429	00010100	
42	152A	00010101	
43	152B	00010101	
44	162C	00010110	
45	162D	00010110	
46	172E	00010111	
47	172F	00010111	
48	1830	00011000	
49	1831	00011000	
50	1932	00011001	!
51	1933	00011001	!
52	1A34	00011010	A
53	1A35	00011010	Q
54	1B36	00011011	a
55	1B37	00011011	q
56	1C38	00011100	
57	1C39	00011100	
58	1D3A	00011101	
59	1D3B	00011101	
60	1E3C	00011110	
61	1E3D	00011110	
62	1F3E	00011111	Reset
63	1F3F	00011111	Reset
64	2040	00100000	Write
65	2041	00100000	Write
66	2142	00100001	Read "
67	2143	00100001	Read 2
68	2244	00100010	memRead B
69	2245	00100010	memRead R
70	2346	00100011	memWrite b
71	2347	00100011	memWrite r
72	2448	00100100	
73	2449	00100100	
74	254A	00100101	
75	254B	00100101	
76	264C	00100110	
		00100110	

Channels can be organized into groups and be displayed on screen in ASCII, binary, decimal, hex-decimal, and user defined mnemonics.

Channels can be displayed in any sequence. Time between V1bar, V2bar, and Trigger is displayed.

## USB driver install

### Windows 2000 USB driver install

When USB2.0 control interface be connected to computer, screen will display as following:



Click Next to continue



Click Next to continue



Click Next to continue



Edit or browse path to ...\\USB20driver\\win2000\_XP\\gene.inf  
(here F: is CD location, dso25216 may be dso50x12 or dso29xxA/B or la5000 or pg32x00)  
Press OK

## Upgrade Device Driver Wizard

### Driver Files Search Results

The wizard has finished searching for driver files for your hardware device.



The wizard found a driver for the following device:



USB2.0 Device

Windows found a driver that is a closer match for this device than your current driver. To install the driver Windows found, click Next.



f:\dso25216\usb20driver\win2000\_xp\gene.inf

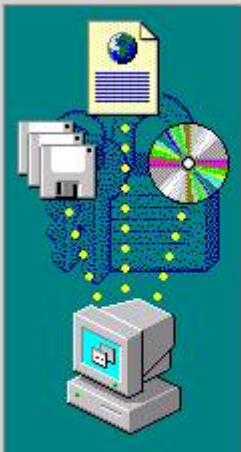
< Back

Next >

Cancel

Click Next to continue

## Digital Signature Not Found



The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

Usb2.0 Controller 5

If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at <http://windowsupdate.microsoft.com> to see if one is available.

Do you want to continue the installation?

Yes

No

More Info

Click Yes to continue



Completing install

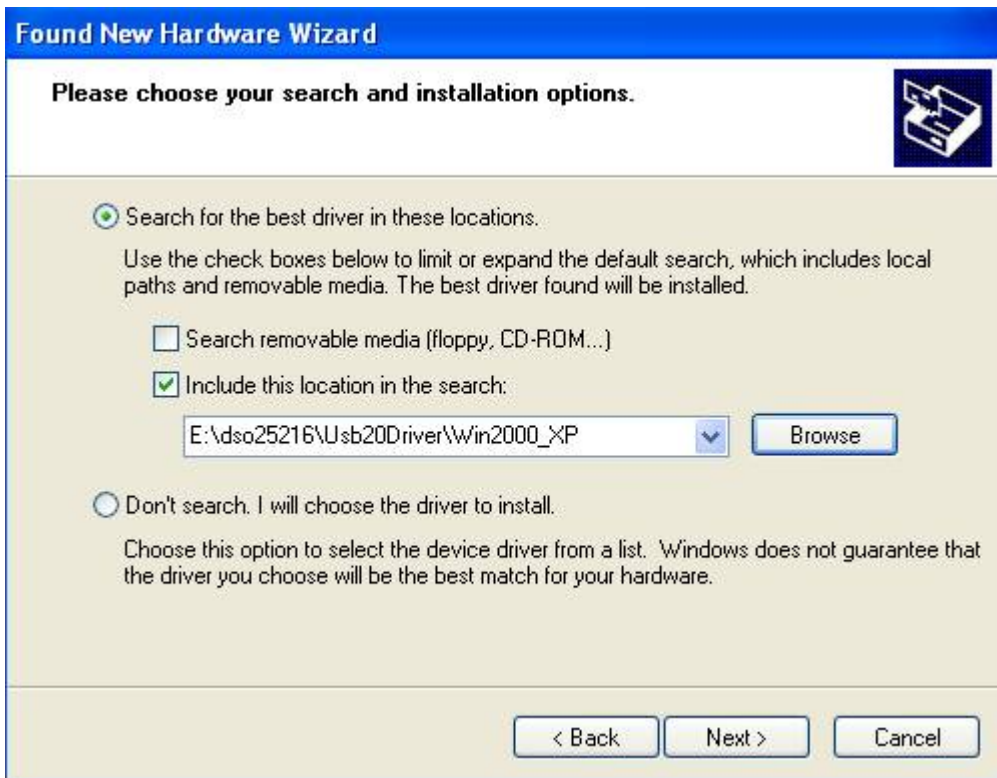
Windows XP USB driver install

When USB2.0 control interface be connected to computer, screen will display as following:



Click Next to continue





Edit or browse path to ...\USB20driver\win2000\_XP\gene.inf

(here E: is CD location, dso25216 may be dso50x12 or dso29xxA/B or la5000 or pg32x00)

Click Next to continue



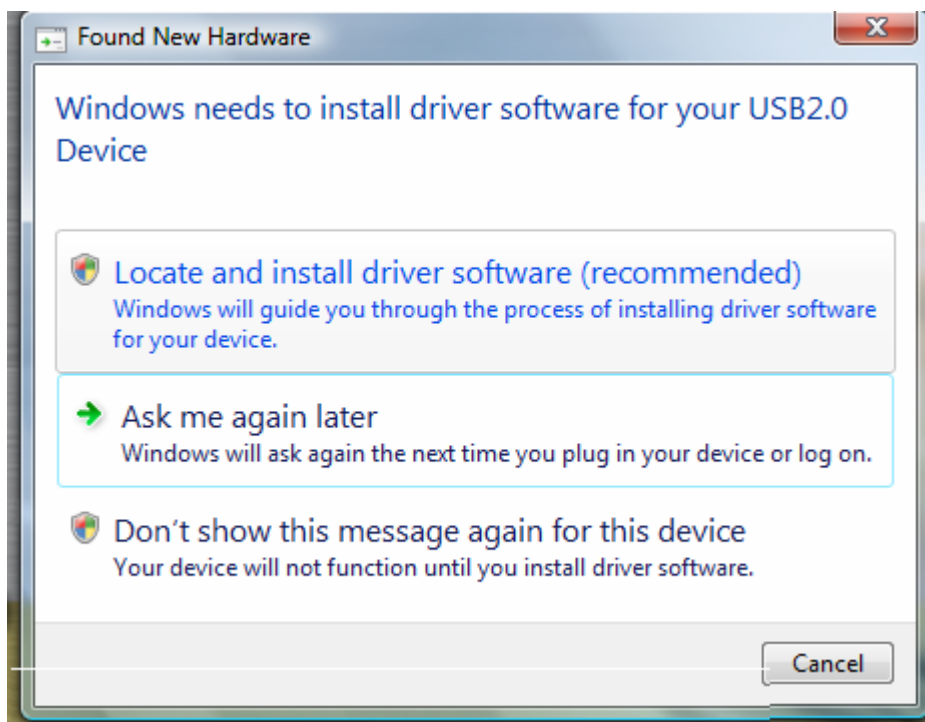
Press Continue Anyway



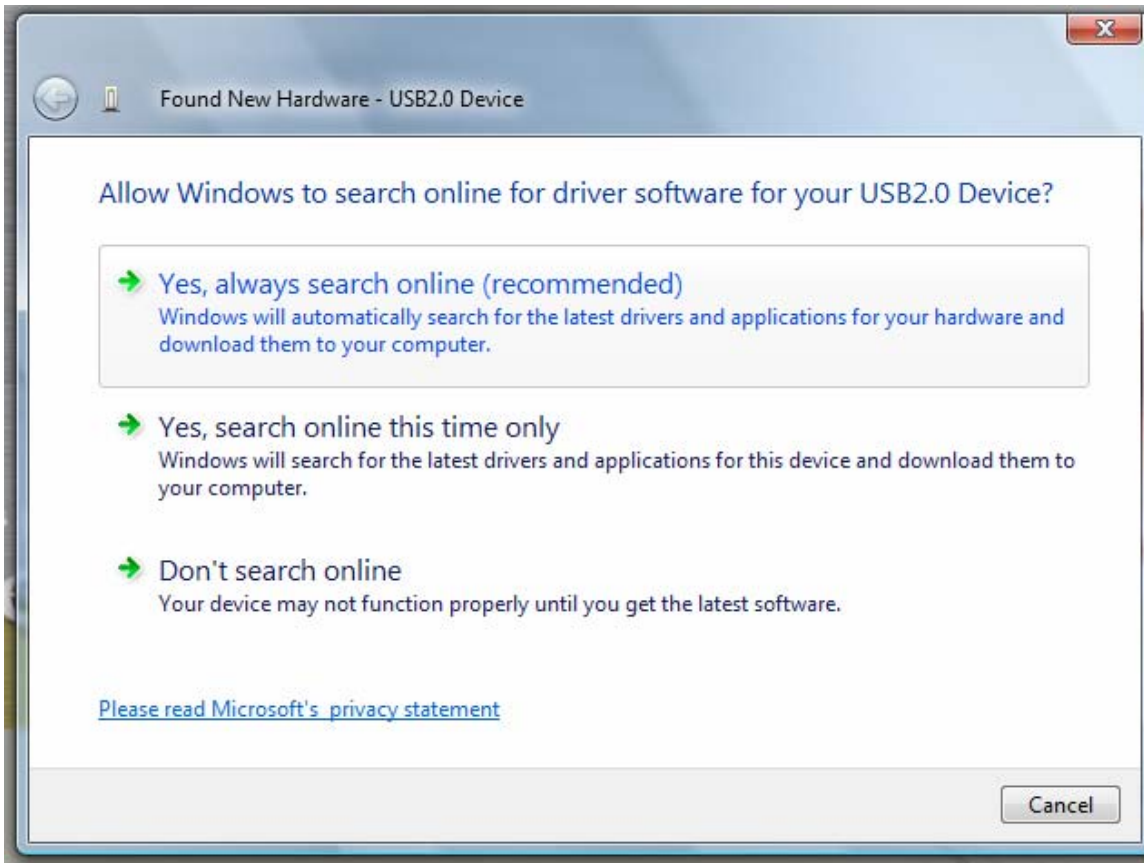
Completing install

Windows Vista USB driver install

When USB2.0 control interface be connected to computer, screen will display as following:



Press **Locate and install driver software (recommended)** Continue Anyway



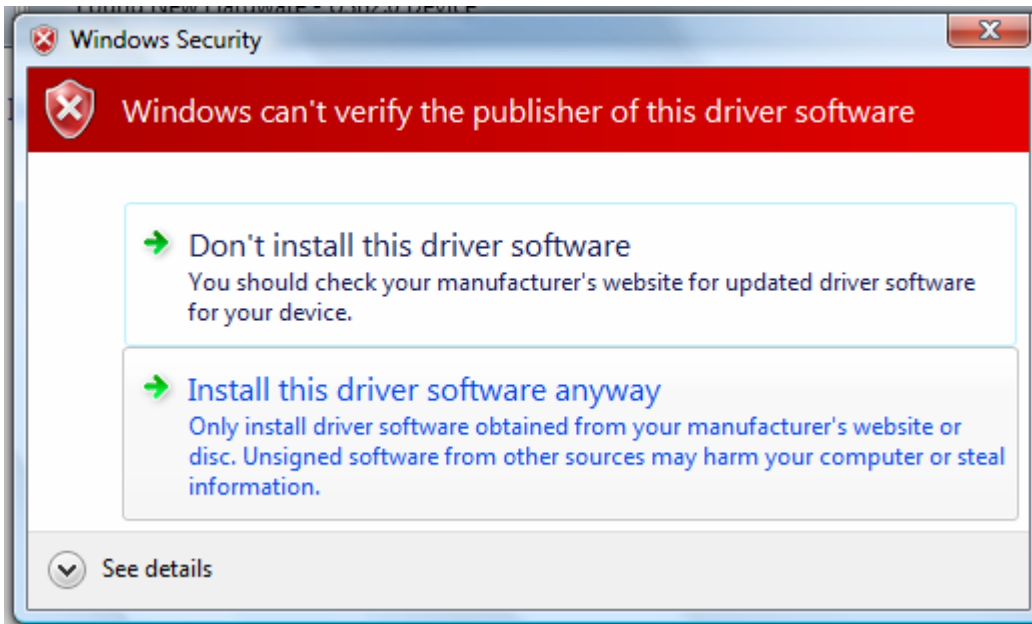
Press Continue Anyway



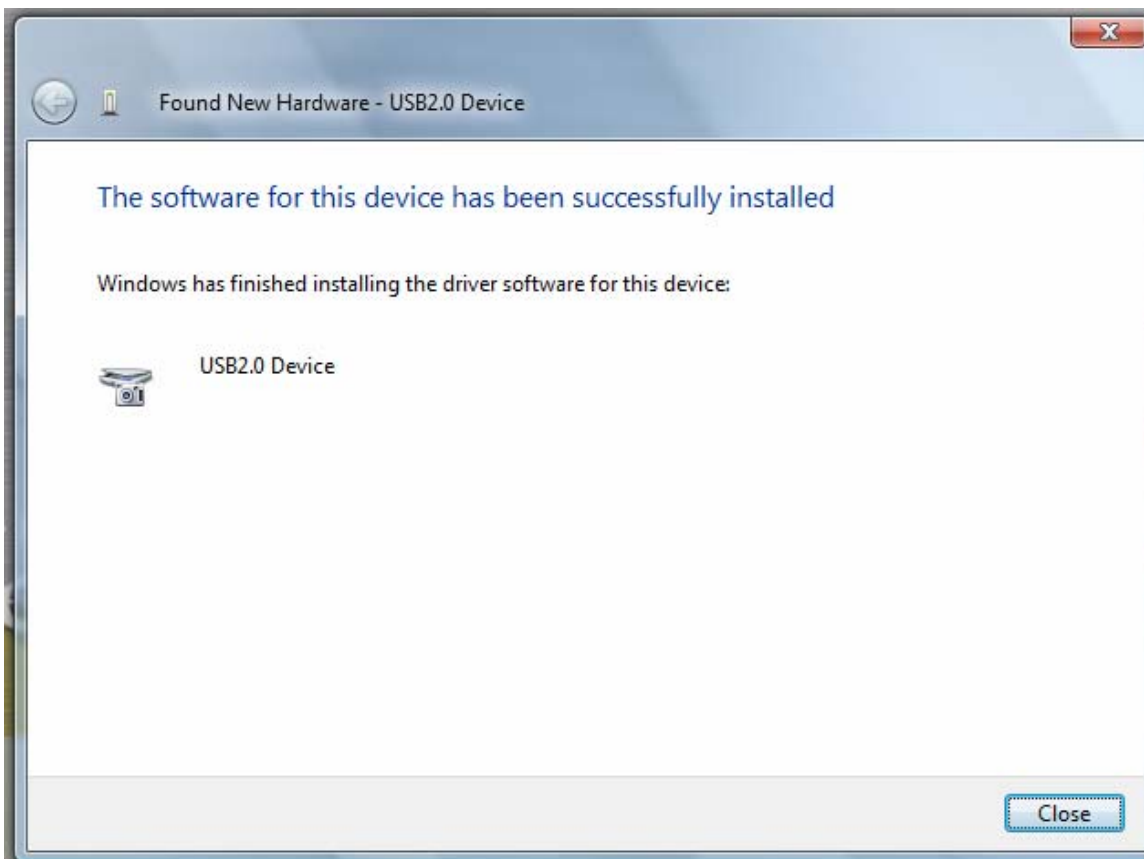
Press **Insert the disc that came with your USB2.0 Device**



Click Next to continue



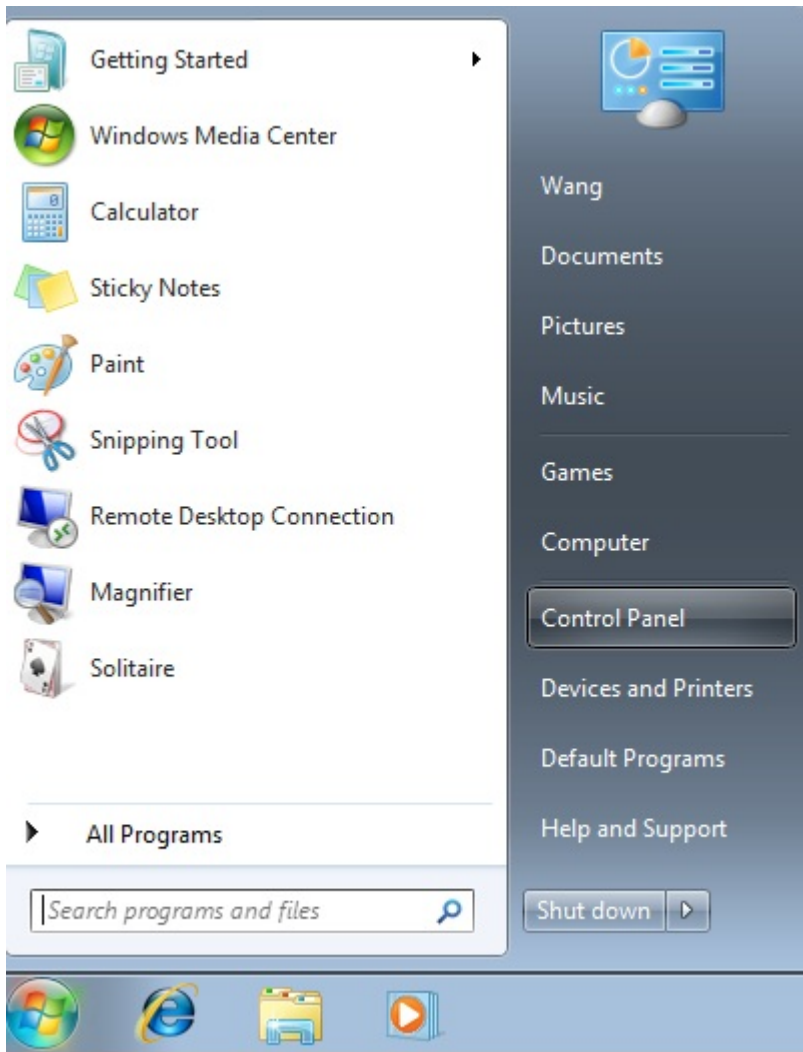
Press **Install this driver software anyway** to Continue



Completing install

### Windows 7 USB driver installation

First at all, Choose System and Security from Control Panel as following:





Choose Device Manager from System as following:



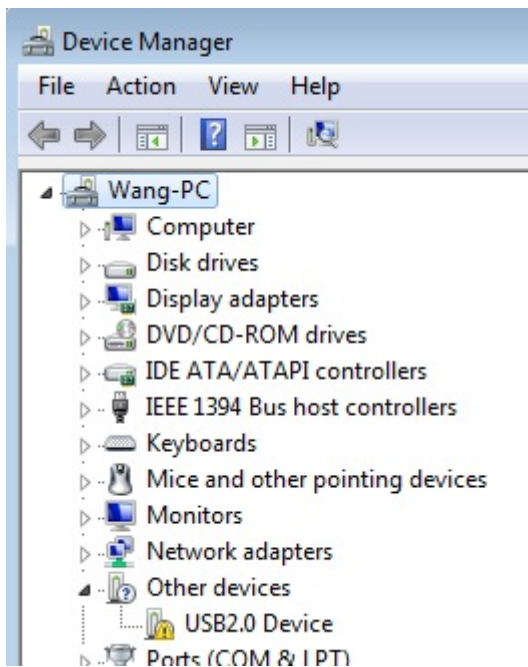
You will find out "other devices" has show device as following:

LA-5000 show USB2.0 Device.

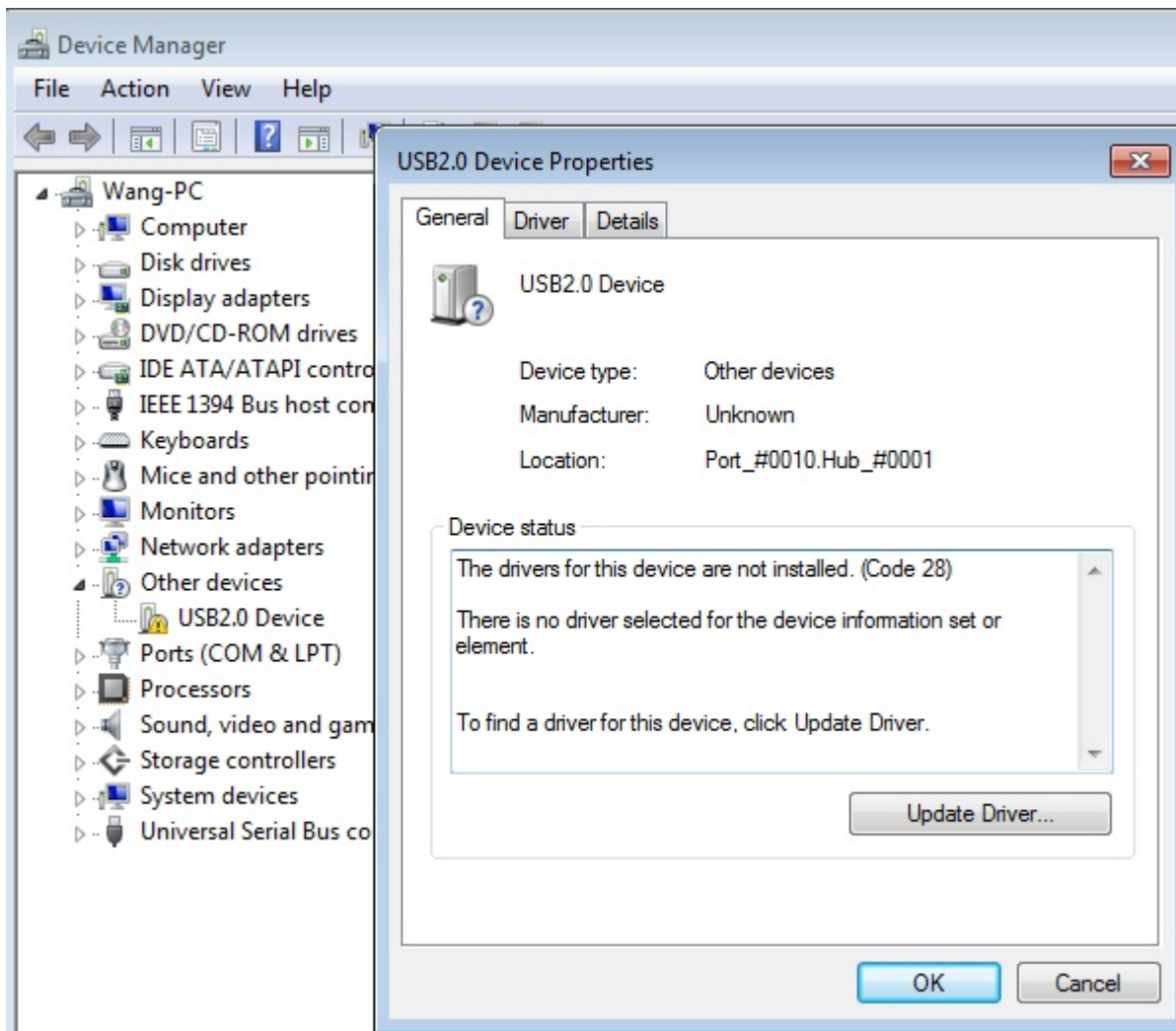
LA-2132 show LA2132 Device.

DSO-29xxA/B show DSO2900A/B Device.

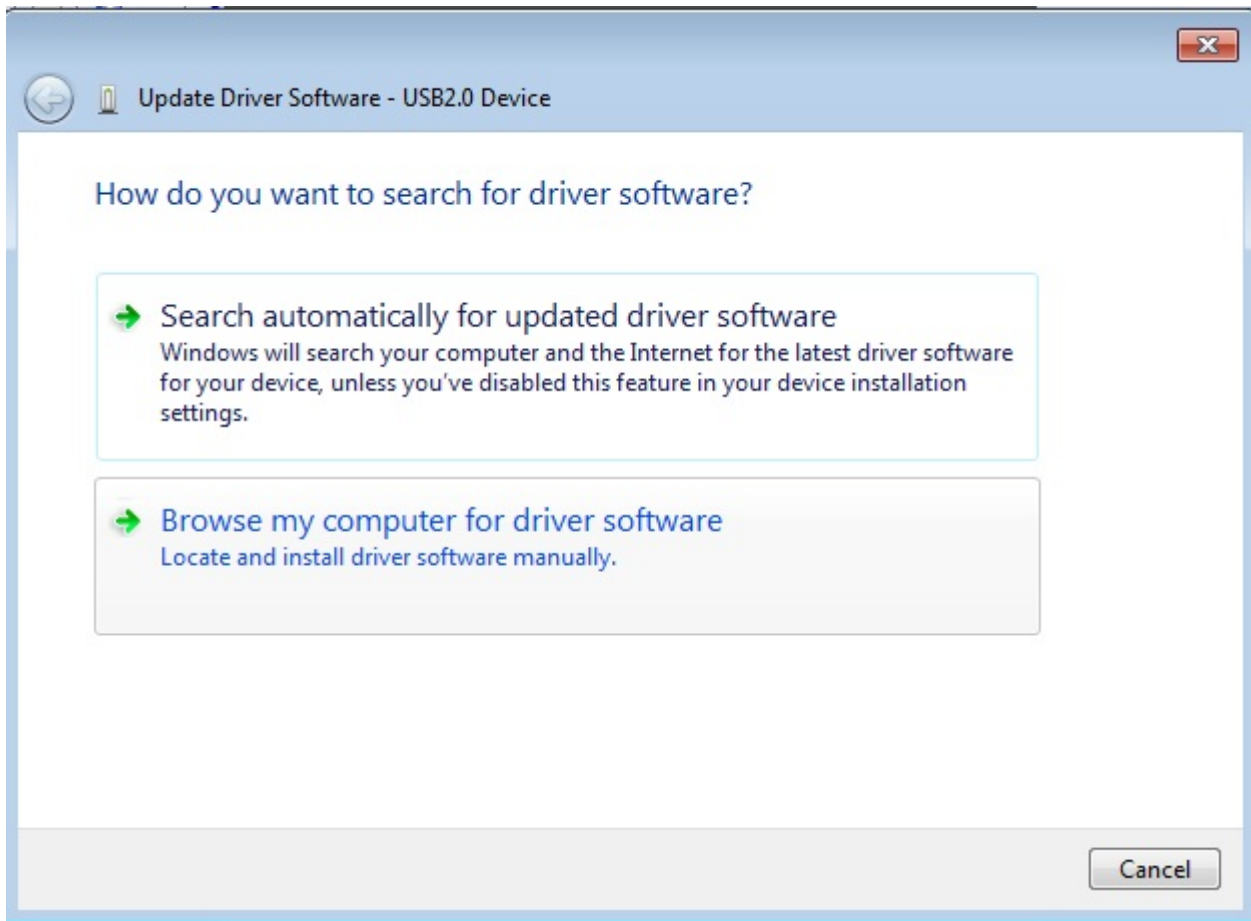
DSO50x12, PG32x00 show "Unknow Device" (still can install).



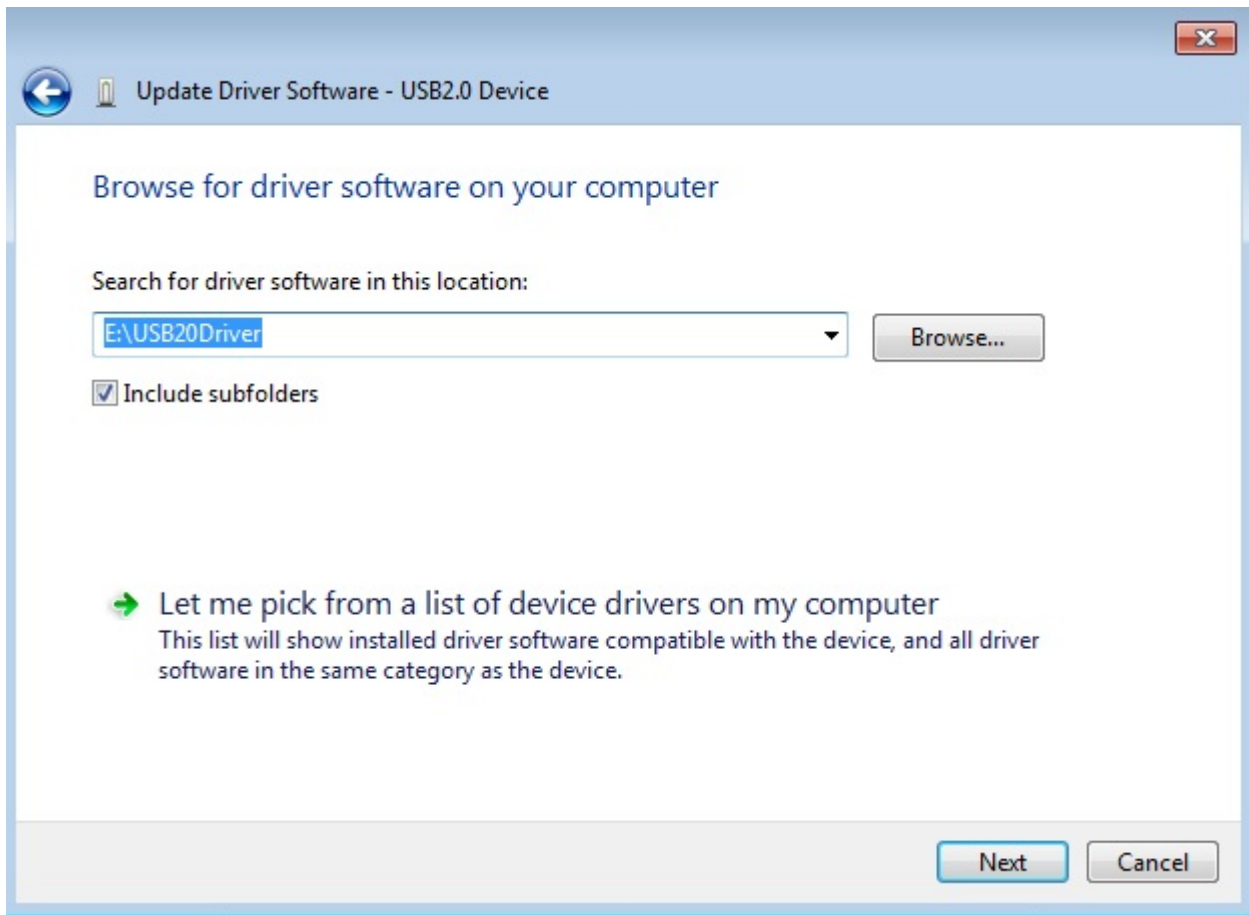
Choose Update Driver



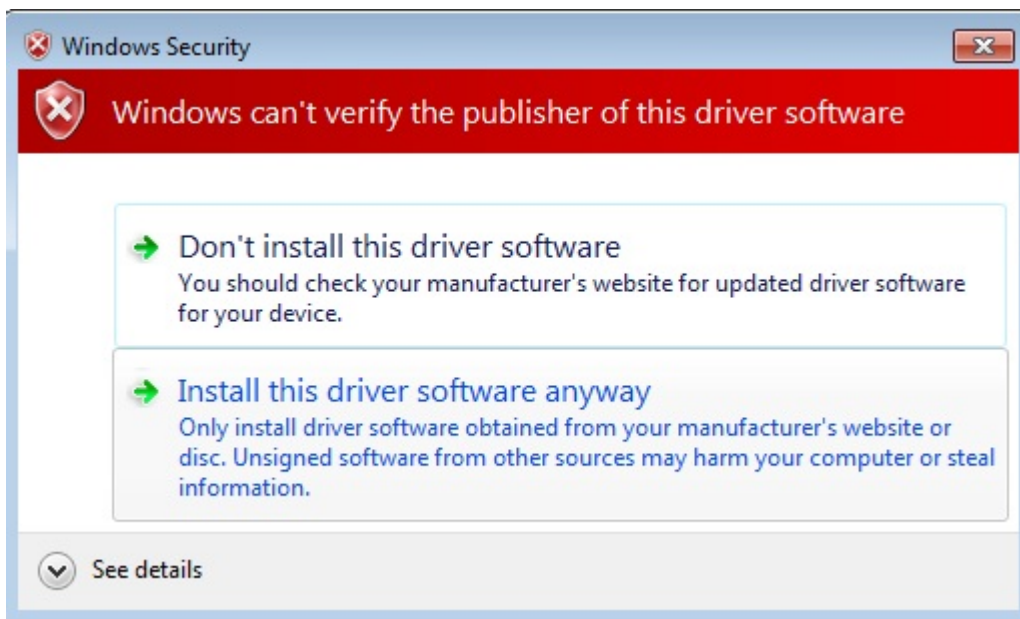
Press [Browse my computer for driver software](#) Continue Anyway

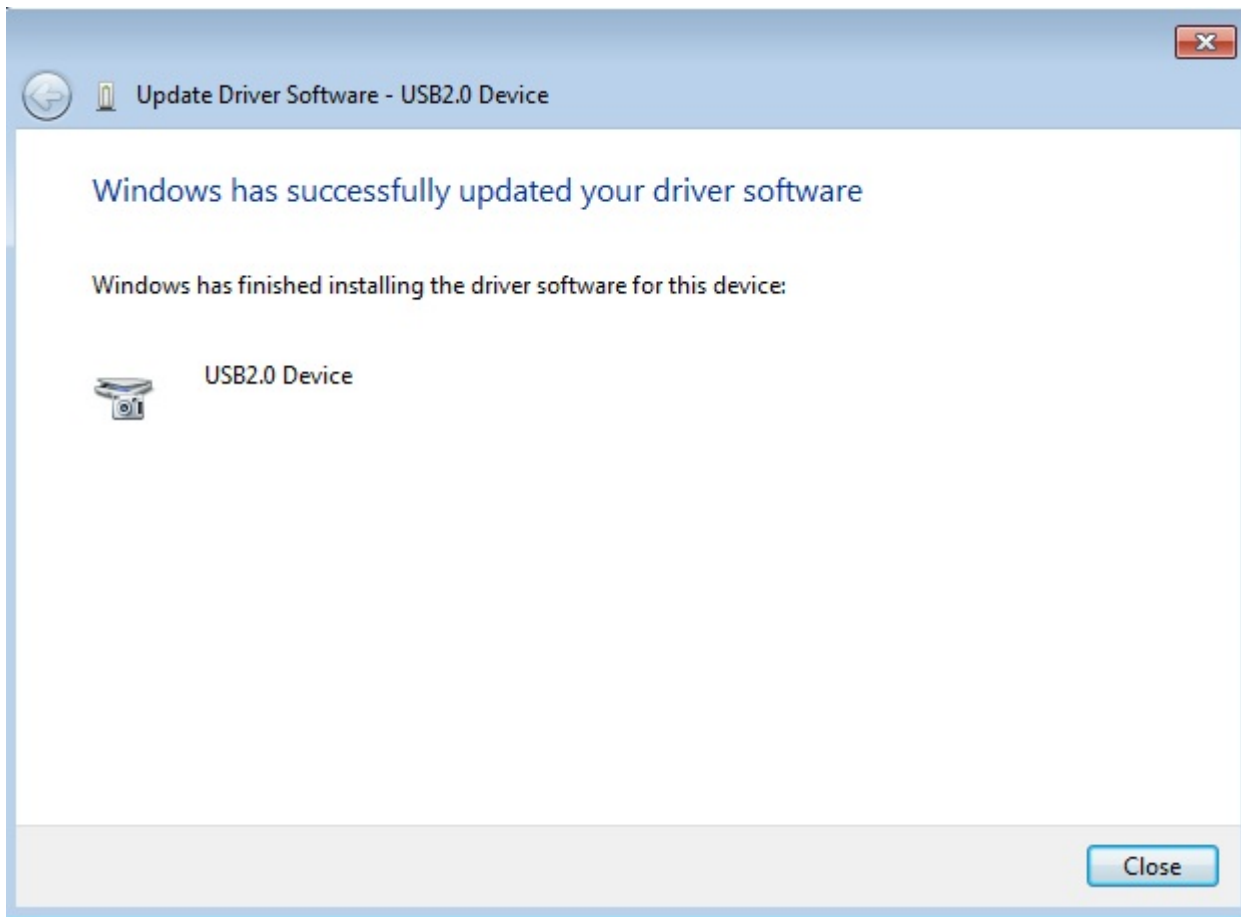


Browse to [E:\USB20Driver](#) from CD. "E:" is CD driver.



Choose "Install this driver software anyway".





Installing is completed.



## Technical Support

Technical Support



CLOCK COMPUTER CORP.

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## Software Updates

Software can be downloaded from our website  
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Email: [ufclockc@ms9.hinet.net](mailto:ufclockc@ms9.hinet.net)