

**SVO-03-MIPI / SVO-03 Utility Software
[SVOCtl]**

Software Manual

Ver. 1.0

NetVision Co., Ltd

Revision History

Edition	Date	Detail	Charge
1.0	2019/07/25	Revised translation (Equivalent to Japanese version 1.1)	S.Usuba

Contents

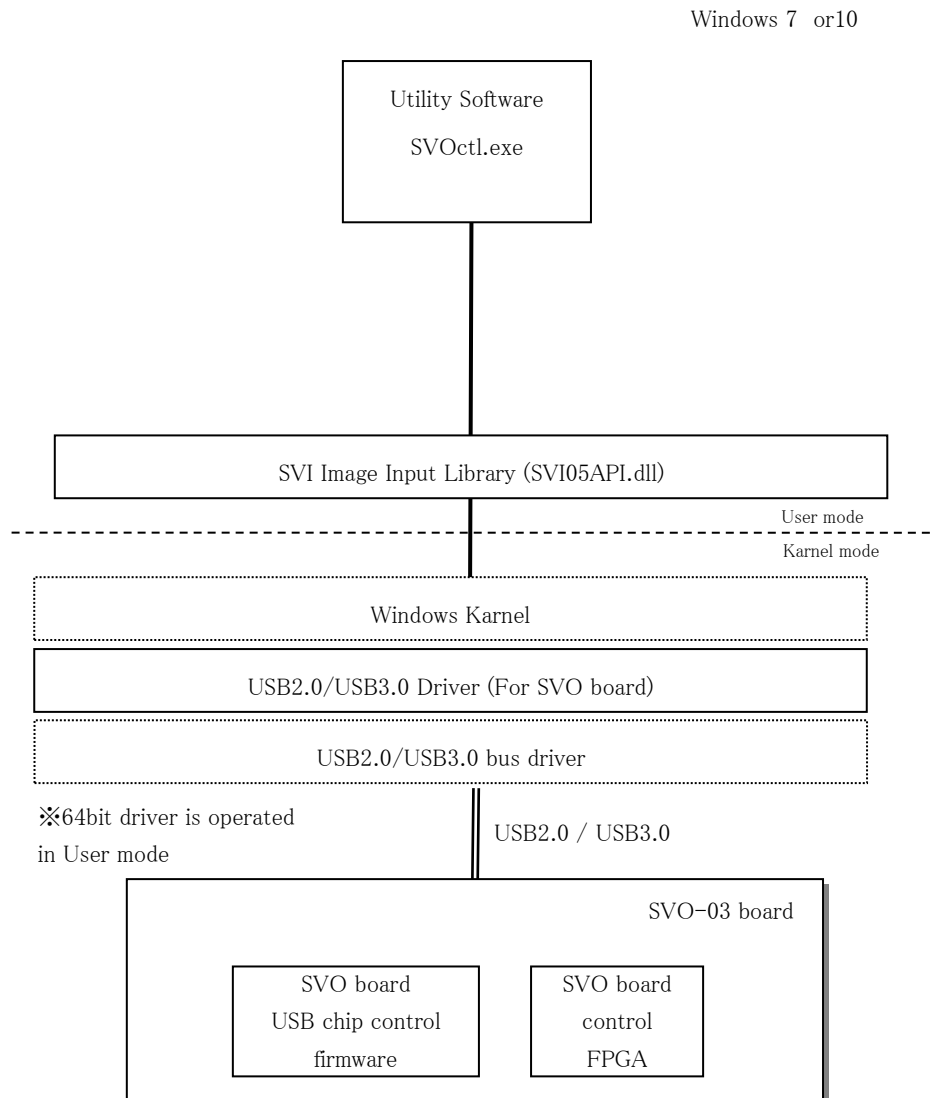
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1. Outline

This document is a manual of SVO-03 / SVO-03-MIPI utility software “SVOctl”. “SVOctl” is utility software for transmitting / receiving output timing data and EDID file to the board in I2C data transmission / reception and HDMI input mode.

Software configuration of SVOctl is described in **【Figure1】**.

【Figure 1】 Software Configuration



2. SVOctl.exe

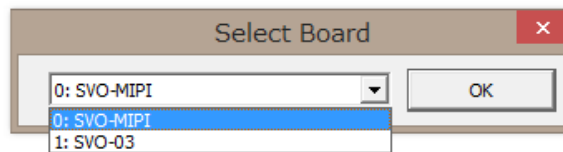
SVOctl controls the I2C interface of the SVO board, and performs setting of the target device, acquisition of information, and setting of the SVO board.

2.1. Top Window

When you start the software, you will immediately see the top screen if one of the SVO boards is connected. If more than one SVO board is connected, the Select Board dialog screen appears, as shown in Figure 2, select the SVO board you want to work with and press the OK button to display the top screen

"ID =" Displays the "UVC Board ID" set in "SVO Setting screen" below.

【Figure 2】Select Board Dialog



When using an SVO board, the board model number is recognized as follows.

- SVO-03: SVO-03 board operation
- SVO-MIPI: SVO-03-MIPI board during normal operation
- SVI-09: When boot loader of SVO-03-MIPI board is started

If a board name other than the above is detected when connecting an SVO board, it is possible that a communication error or x86 version software is running in an x64 environment.

This software provides menu items depending on a model number of automatically recognized like SVO-03 or SVO-03-MIPI. Recognized board identifier and version of USB (USB2.0 / USB3.0) are displayed on title bar, as shown in [Fig.3]. USB3.0 connection becomes indispensable to high-resolution non-compression image transfer concerning a transfer speed. When dealing with 720p or higher resolution on SVO-03, make sure that "USB 3.0" is displayed in the title bar of the top screen.

【Figure 3】Top Window of SVOctl



Lists of Menu on top window of SVOctl are showed on Table2.

【Table 2】SVOctl Top Window Menu Chart

I2C Slave Address	Specifies the slave address (7bit) of camera by hexadecimal.
Sub Address	Set register address in hexadecimal representation (8 bit). If “Word address mode” is checked, SVM-03 transmits the length of the address in word long (16bit).
Write Value	Set value to transmit in hexadecimal representation. If it is blank, SVM-03 doesn’t transmit. And SVM-03 can transmit plural bytes by delimited comma.
Read Counts	Set the number of bytes to read from Sub Address.
Read Value	Display comma delimited values read by pushing “Read”.
Write	Write “Write Value” to “Sub Address” of “I2C Slave Address”.
Read	Read I2C Data and display to “Read Value”. Read “Read Counts byte” size from “Sub address” of “I2C Slave address”.
Word Address Mode	When checked, the length of the sub-address is sent and received by the word length (16bit). The setting also applies to the Setting File Write.
Restart Condition	Sets the format for I2C Read.
Camera Reset	Set the reset signal to the camera. (Output L when Check)
Setting File Write...	Read the comma-delimited configuration file and transmit to camera. Please confirm “Format of Setting File for I2C Connecting” about I2C confirm.
SVM Info...	Display SVM Info window. This function is used for our remote support, not need to use in normal operation.
Clear	Clear “Read Value” edit box.
SVM Restart	Restart SVO board.

SVM Setting...	Display SVM Setting Window and change such as settings of SVO board. It is invalid in SVO-MIPI USB mode.
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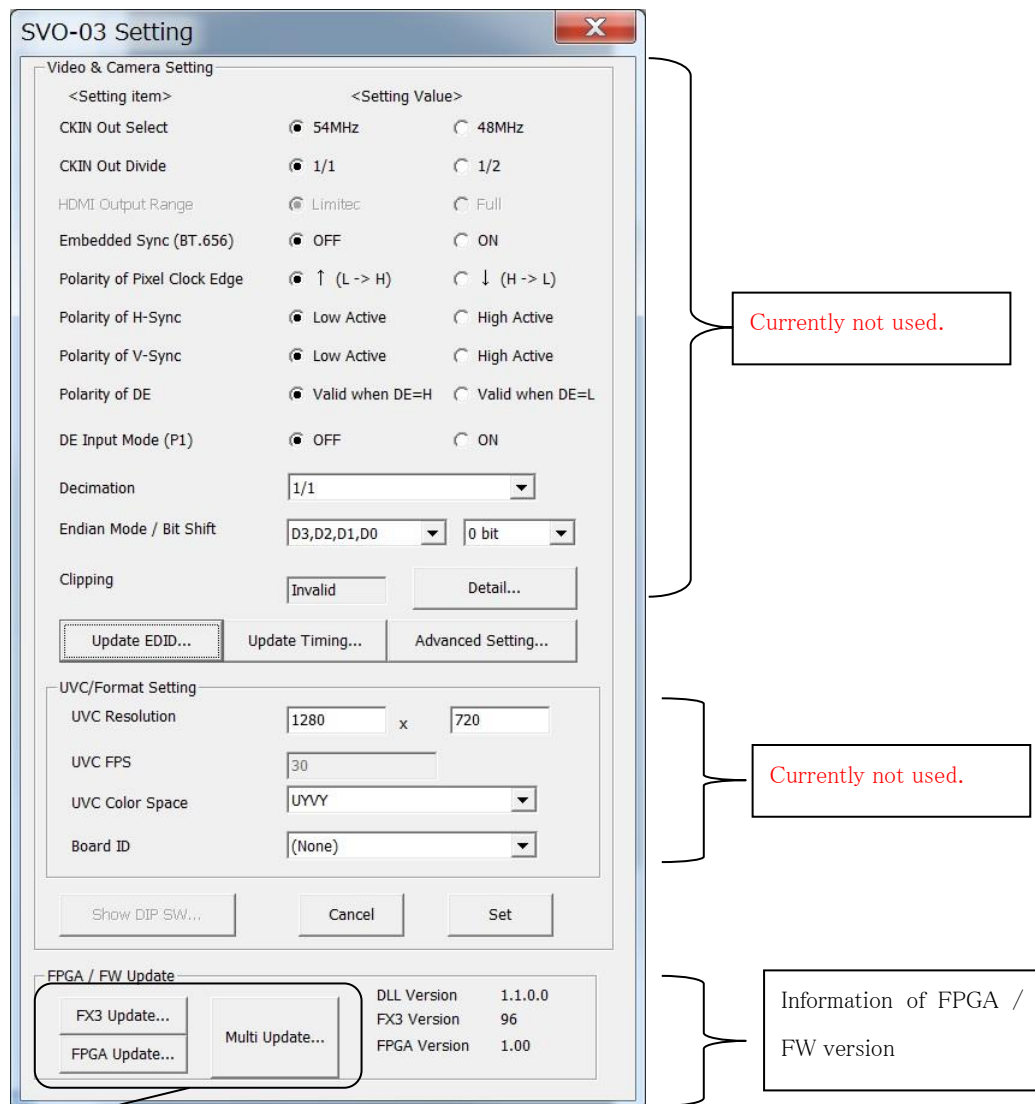
2.2. SVM Setting Window

The following dialog shows how to change the configuration of the SVO board. This dialog is displayed by pressing the "SVM Setting..." button on the top screen.

In the setting window, displayed setting items vary according to the kind of a recognized board. The following figures are setting windows connected with SVO-03 mode. The model number of a recognized board is shown on the window title of the setting window.

For SVO-MIPI boards, the SVM Setting screen can be opened only in HDMI mode operation.

【Figure 4】SVM Setting Window



Description of version information is shown in [Table 4].

【Table 4】version information

項目	説明
DLL Version	Display used DLL, FX3 FW and FPGA version of SVO-03.
FX3 Version	If board is not connected to PC definitely, FX3 and FPGA version are not displayed definitely.
FPGA Version	

2.3. Preparation of output timing data

In order to operate the SVO-03-MIPI board in HDMI mode, it is necessary to write the output timing data and EDID file.

Output timing data is generated by the PC software SVOGenerator. After starting up in USB mode (DIP SW No. 8 ON), start up SVOGenerator, call up the “Device Setting” screen in the usual procedure, and set the timing parameters as in USB mode. Then click the “SAVE SET” button to export the svo file.

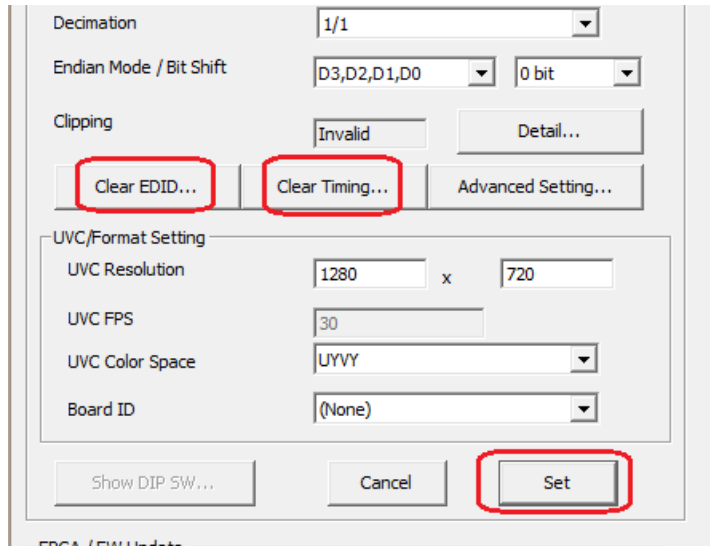
For the detailed operation procedure of “SVOGenerator”, refer to the separate document “SVO-03-MIPI Software Manual”.

The SVO-03-MIPI board acts as an HDMI receiver. It is necessary to set Extended Display Identification Data (EDID) in order to notify the HDMI transmitter of the resolution and timing that the receiver supports. In general, you should set the EDID to the same resolution as the MIPI output resolution.

EDID file needs to prepare 256-byte binary file including Extended-EDID or not including 128-byte. Generate using a general-purpose EDID editor.

2.4. Data writing procedure

【Figure 5】Item used



If output timing data has already been written to the board, a "Clear Timing ..." button will be displayed. Click on it to clear the data. If the output timing data is cleared, an "Update Timing ..." button will be displayed. Click on it and select the svo file created by SVOGenerator.

Similarly, the EDID file is cleared with the "Clear EDID ..." button, and the data to be written with the "Update EDID ..." button is set.

When finished, data is written to SPI-ROM on the SVO-03-MIPI board by clicking the "Set" button. Configuration data will be reflected after board reboot.

2.5. SVO-03 Connecting Procedure

The procedure of connecting SVO-03 with PC is shown below.

1. Switch on the PC and start Windows.
2. Connect SVO-03 board with USB port on PC.
3. Set attached CD-ROM in the drive and install the driver if you are required to install driver.

Note, for more information about install drivers, please refer to "Readme.txt" in CD-ROM.

2.6. Install of Application

Copy Appl folder in the CD-ROM to any folder of PC.

2.7. Format of I2C Configuration File

Use a text file (extension .txt) to write settings to the target device module register by I2C communication is described the following forms.

UNIT, (Radix)

SLAVE, (Slave Address)

(Sub Address), (Writing Value 0), (Writing Value 1), ...

wt, (Wait Value)

BYTE

WORD

- Appoint radix for Slave address, sub address and writing value on UNIT command. You can appoint “10” or “16” for radix. “10” appoints the later numerical value in decimal digit. “16” appoints the later numerical value as hexadecimal number.
- Appoint slave address by SLAVE command.
- You write to register by command beginning with sub address. Sub address is sub address in the device and appointed in 8bit or 16bit. The sub-address length is set by the “BYTE” command (8bit) or “WORD” command (16bit) (SVOCtl ver. 1.3.1 or later). If “Word address mode” is checked, you write sub address in word long (16bit). Contrarily, if “Word address mode” is not checked, only lower 8bit of the address level of the word head becomes effective. Appoint the value to write to register by 8bit in writing value.
- In order to specify the sub address length of the setting file, write the line where “WORD” is written when the sub address is 16 bits and “BYTE” is written at 8 bits, at the beginning of the setting file.
- “wt” command appoints value of waiting time. You can appoint waiting time by msec unit up to 32767 in decimal.
- Commands beginning with “#” are considered as comment until line break and skip to next line. Empty line (Only line break, not include such as space) also is skipped.
- You can use comma or space for the end of the item.

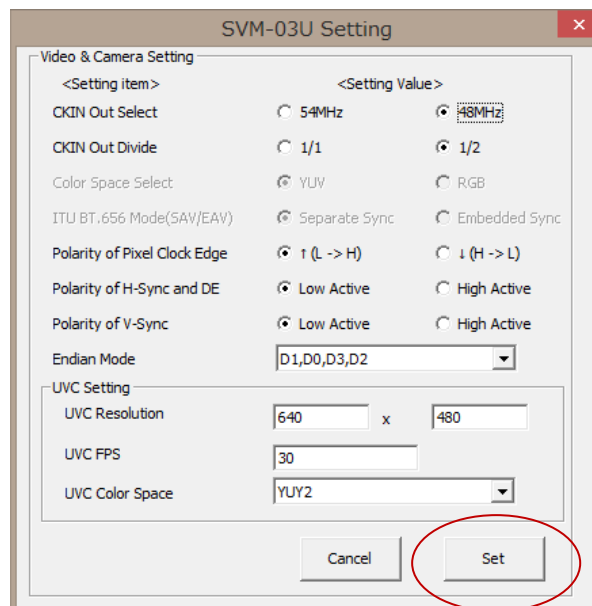
An example of configuration file is shown on the following page.

(Example of setting file)

```
# SVO-SDK Setting file sample
# date : 2008.03.24
# サブアドレス 8bit
BYTE
# Assuming in hexadecimal representation
UNIT,16
# Appointing slave address
SLAVE,2A
# Setting device 1
00,00
01,00,02
02,3A
03,6B
8B,00
# Waiting 100msec
wt,100
# Assuming in decimal digit
UNIT,10
# Appointing slave address
SLAVE,44
# Setting device 2
00,00
01,90
02,130
03,110
100,20
#
# END OF FILE
#
```

2.8. Apply board settings

Configuring of SVO board is achieved by both this application and DIP SW (SW2) on the SVO-03 board. When you change the settings on the SVM Setting display and apply the changes with the Set button, the settings are preserved in the ROM on the SVO-03 board. After clicking the "Set" button, the settings will be reflected by restarting the device by clicking the "SVO Restart" button on the main screen.



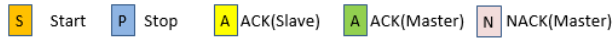
When you open the setting window with SVO-03 board connected to PC, the application acquires current setting value and display these settings on the dialog.

In addition, the setting values held in the SPI-ROM are loaded at the SVO-03 board startup, and the board is configured on the firmware side. Therefore, if you set the application once, you do not need to do from next time.

When using the SVO-03 board, restart the SVO-03 board if the setting value is not reflected after the configuration change.

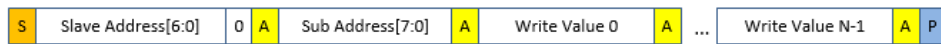
3. I2C Communication Format

explanatory notes

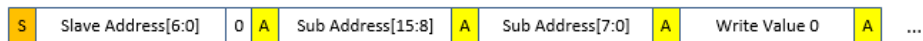


3.1. I2C Write

Word Address: Unchecked

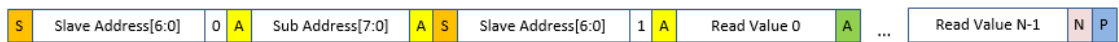


Word Address: Checked

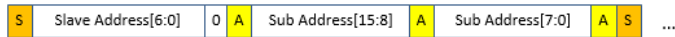


3.2. I2C Read (Restart Condition : checked)

Word Address: Unchecked



Word Address: Checked

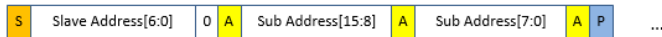


3.3. I2C Read (Restart Condition : unchecked)

Word Address: Unchecked



Word Address: Checked



4. SVOCtl Recommended Operating Environment

PC	:PC/AT Compatible machine
CPU	:Pentium4 1GHz or higher recommended
MEMORY	:512MB or higher recommended
USB	:With USB interface
OS	:Windows7 32/64bit or Windows10 32/64bit

5. Applicable version

モード	FX3 Version	FPGA Version
SVO-03	95 or later	N/A
SVO-03-MIPI		0.30 or later

– SVOCtl: Ver. 1.4.1 or later