

USB Camera Startup Guide

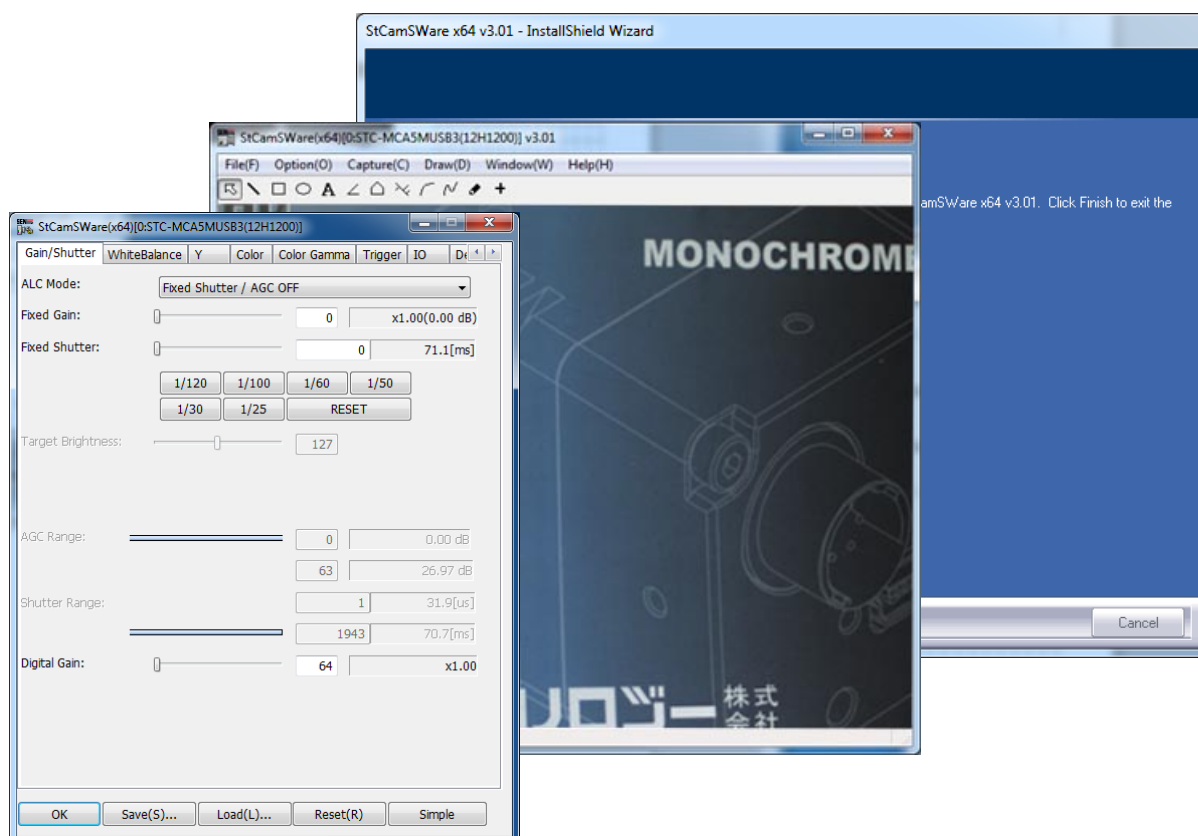


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1 Introduction

1.1 Usage Environment Confirmation

➤ OS

"Windows XP SP2 and later (x86/x64)", "Windows Vista (x86/x64)", "Windows7 (x86/x64)", and "Linux" operating systems are supported.

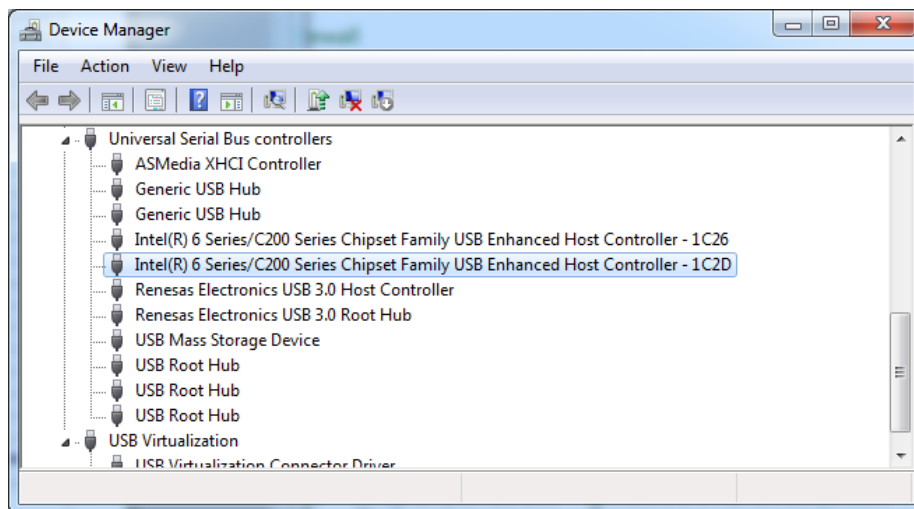
➤ CPU

There are some cautions when using Intel Core i3, i5, or i7 CPUs. For more details, refer to "4. Cautions for Computers Using Intel Core i3, i5, i7 CPUs".

➤ USB 2.0/3.0 Ports and Host Controller

Computers that are connected to the USB 2.0 camera must be compatible with USB 2.0, and computers connected to the USB 3.0 camera must be compatible with USB 3.0.

If it is compatible with USB 2.0, you should see a line in the [USB (Universal Serial Bus) Controller] of the [Device Manager] that contains the word "Enhanced", "EHCI", or "Standard Enhanced".

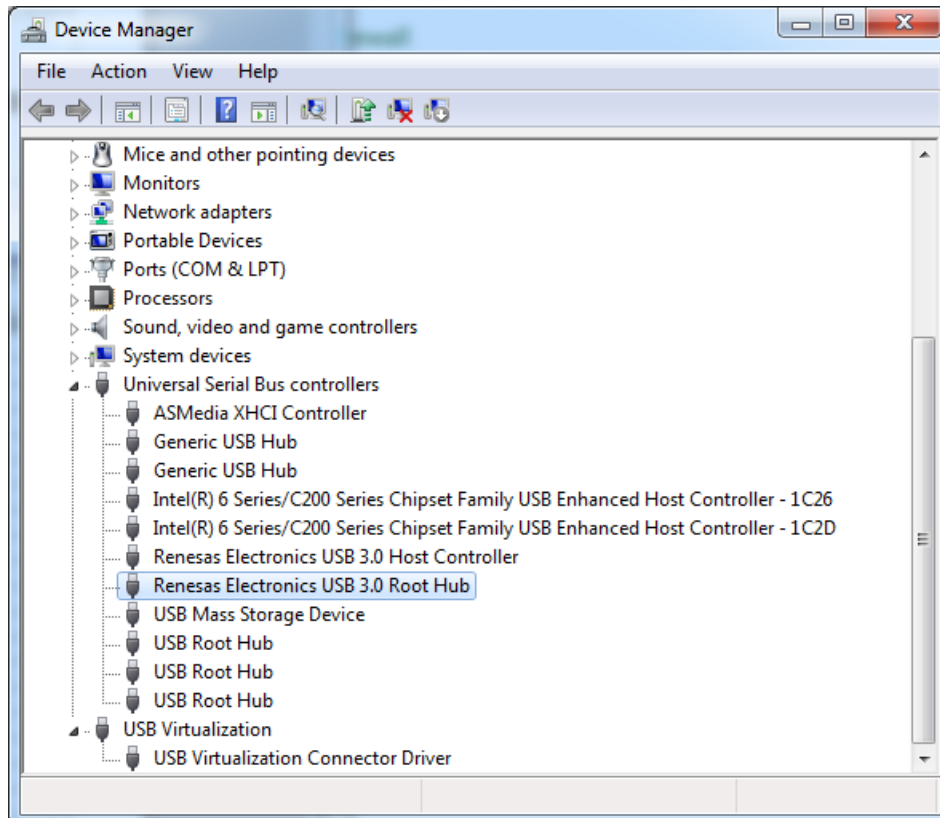


Confirm that the USB icon of the connection port has a "+" mark as shown below.



* Even when it is compatible with USB 2.0, images may not be displayed depending on the performance of the USB 2.0 host controller used by the computer. Generally, chipsets compatible with USB 2.0 (such as Intel ICH4 to ICH9) can handle faster communication than single unit USB 2.0 controller chips (such as NEC μ PD720101, μ PD720100) used for the PCI expansion board. We recommend using an Intel chipset ICH4 to ICH9. In most cases, you can confirm the chipset used in your computer by using the "CrystalCPUID" tool from <http://crystalmark.info/>.

If it is compatible with USB 3.0, you should see a line in the [Device Manager] that contains the words "USB 3.0", "EHCI", etc.



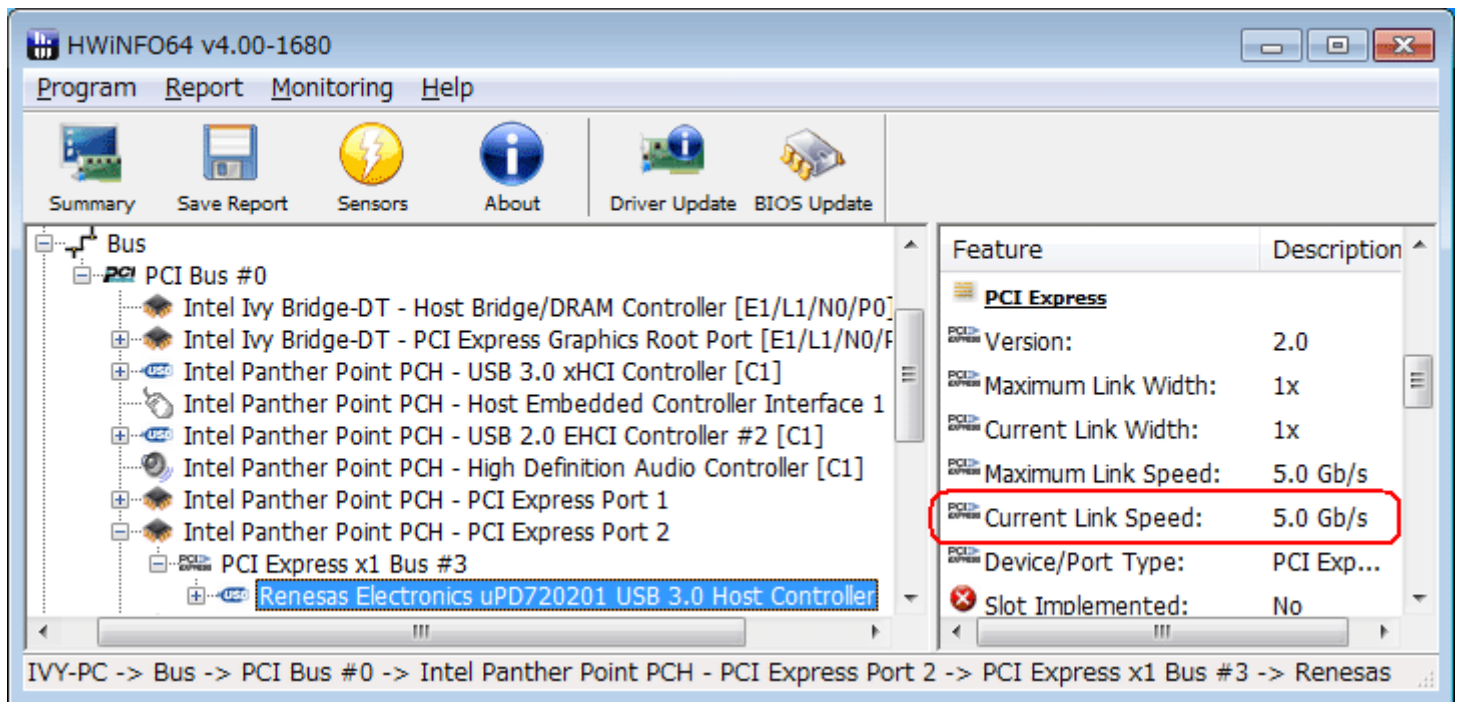
* Even when it is compatible with USB 3.0, images may not be displayed depending on the performance of the USB 3.0 host controller or of the host controller driver used by the computer. We have conducted operational checks for the following host controllers. Please download and install the latest drivers from the board manufacturer.

Chip Maker	Model	Driver	Firmware	Operation Status
Renesas	D720202	3.0.12.0	2.0.1.1	Operated properly.
	D720201	3.0.12.0	2.0.0.6	Operated properly.
	D720200	2.1.27.0 2.1.28.1	3.0.2.8	Operated properly. Driver version 2.1.16.0 and later is recommended. An error occurs with older versions even when the USB 2.0 camera is used. With older drivers, a BSoD (OS crash) may occur.
FRESCO	FL1100 FL1009 FL1000	3.5.24.0		Operated properly. However, with older drivers such as 3.0.x.x, images may not be acquired.
Intel	Intel 7 Series Chipset	1.0.5.235		Operated properly (however, chipset is not compatible with Windows XP).
VIA	VL800	1.50 1.80 1.90	0719	An error occurred with Windows XP.
TI	TUSB7340	1.12.16 1.12.18 1.12.24		An error occurred with Windows XP.
ASMEDIA	ASM1042	1.14.1.0 1.14.2.0 1.14.4.0 1.14.8.0 1.14.10.0	v110914_00_02_51	An error occurred with the ASMEDIA driver. It operated properly with the Microsoft driver provided with the Windows 8 Release Preview. However, images could not be acquired for some image sizes.
Etron	EJ168A	1.0.0.105 1.0.0.107 1.0.0.113		An error occurred.

Regarding updated information for host controllers that have already received operational checks, refer to the Application Note.

➤ PCI -ExpressLink Speed

If the PCI-Express port that is the connection destination for the USB 3.0 interface board is not compatible with Gen2.0, the link speed is restricted to 2.5Gb/s, and the transfer speed may decrease. You can confirm your link speed at [HWiNFO](http://www.hwinfo.com/)(<http://www.hwinfo.com/>). If the PCI-Express port is compatible with Gen2.0 and the link speed is 5.0Gb/s, you should see 5.0Gb/s as the "Current Link Speed" as shown below.



※ Even if the above conditions are met, it may not operate properly because of other conditions.

1.2 CD ROM Contents

1. Viewer Software / Drivers (StCamSWare)
StCamSWare Installer: 32bit / 64bit
StCamSWare User's Guide
2. Documents
USB 2.0: Product Specifications / User's Guide
USB 3.0: Product Specifications / User's Guide
3. Software Development Kit (SDK)
StandardSDK
TriggerSDK
4. Other Drivers
USB 2.0: DirectShow driver, LabVIEW driver, Linux driver
5. Application Notes

readme.txt

Startup Guide (This Document)

2 Installing / Uninstalling

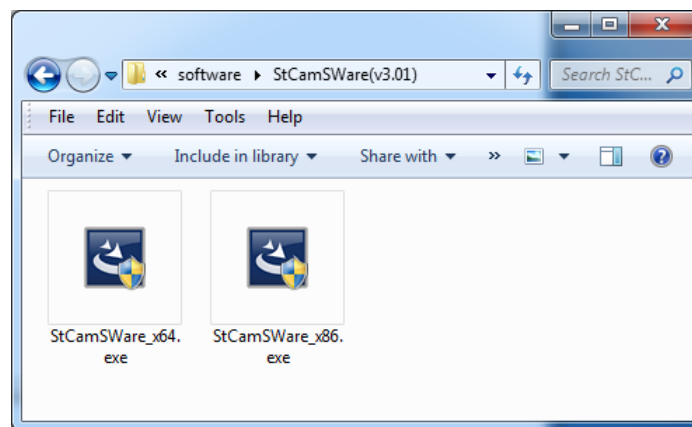
2.1 Before Installing

- If an older version of the StCamSWare (or StCamDemo) is installed on your computer, uninstall the program first.
- Do not connect the camera to the computer before StCamSWare software installation is complete.
- Keep in mind that the software installers for 32-bit OS and 64-bit OS are different.
- Be sure to use StCamSWare ver.3.01 or later for the USB 3.0 camera.

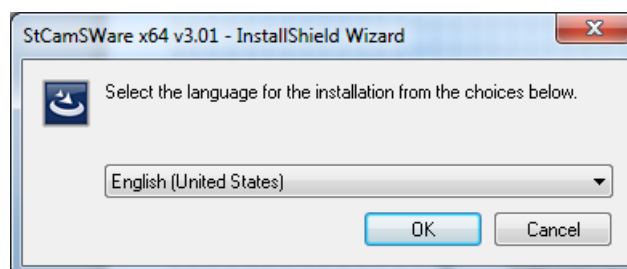
2.2 Installing StCamSWare Software

In this document, the installation and uninstallation methods are explained using 32-bit Windows XP.

- ① After making sure that the USB camera is not connected to the computer, execute StCamSWare_x86.exe (for x86_32-bit environments) or StCamSWare_x64.exe (for x64_64-bit environments) included on the enclosed CD.



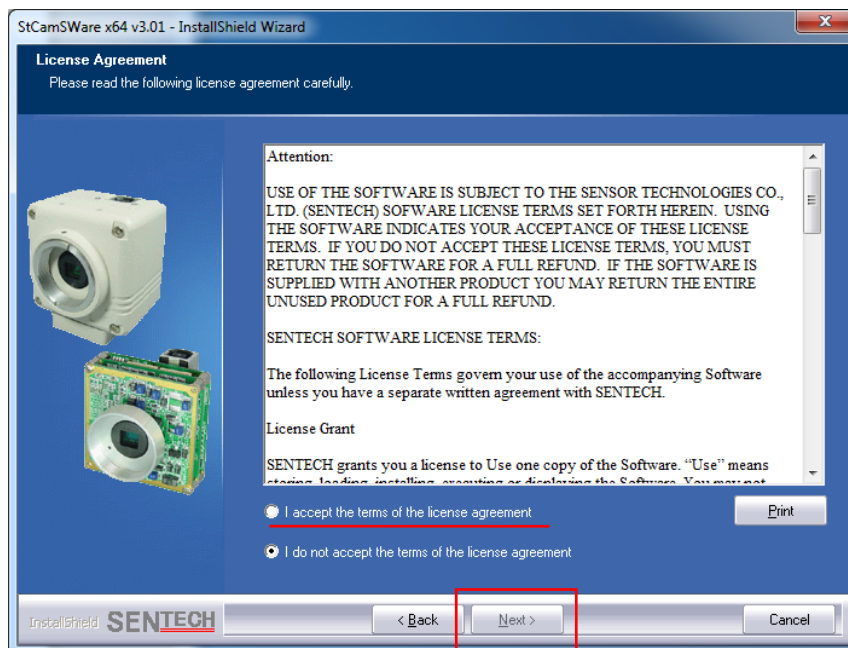
- ② Select the language you want to use during installation. You can choose whether to have the explanations and selections during installation in Japanese or English.



- ③ Click the [Next] button.

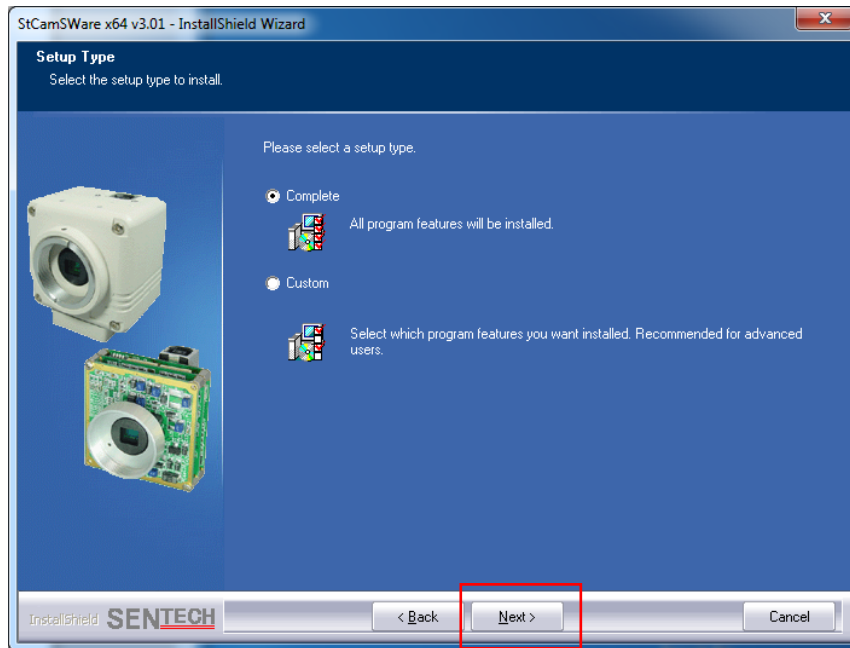


- ④ After confirming the contents of the License Agreement, select "I accept the terms of the license agreement", and then click the [Next] button.



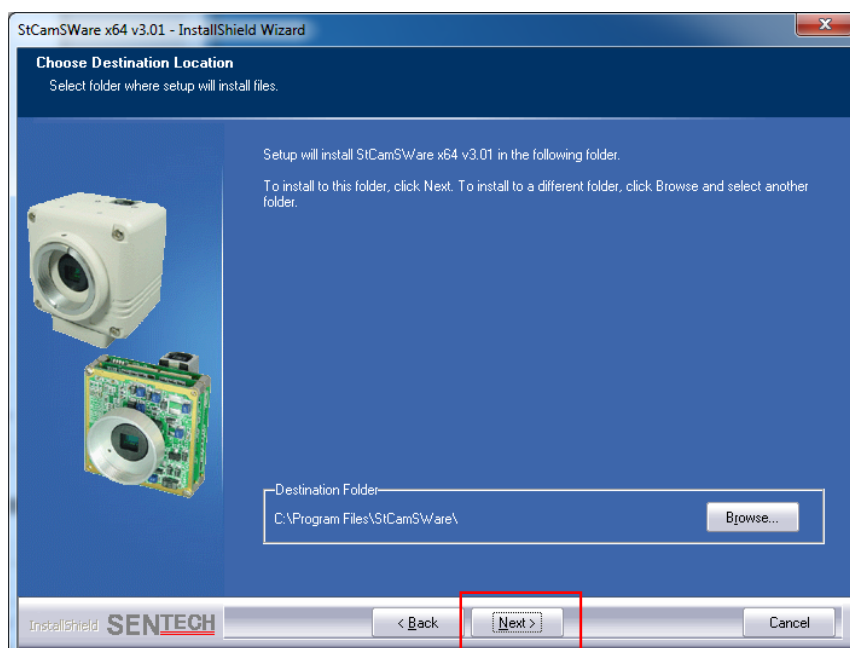
- ⑤ Select either "Complete" (all StCamSWare software including DirectShow and the Twain driver will be installed) or "Custom" (you can choose the installation location and installation contents), and then click the [Next] button.

If you select "Complete", after installation completes, you will be able to capture USB camera images using software that interfaces with DirectShow and Twain driver.



- ⑥ Select the location where you want to install the StCamSWare software, and then click the [Next] button.

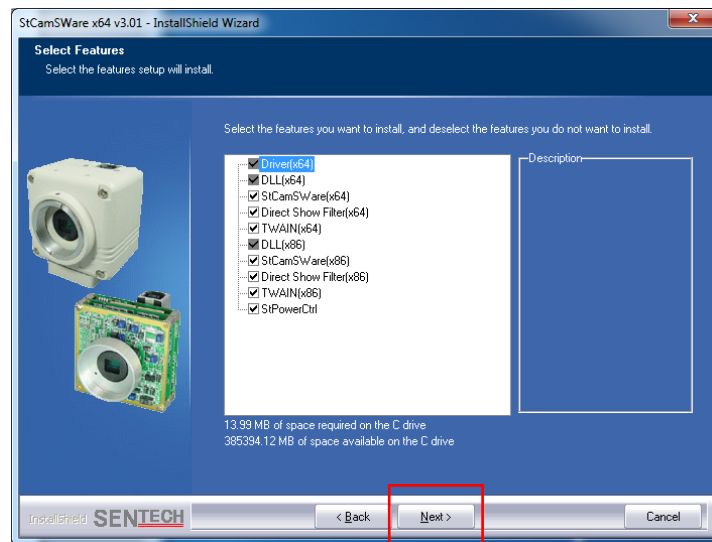
You can change the installation location by clicking the "Browse..." button, but if you do not need to change it, install it to the default location.



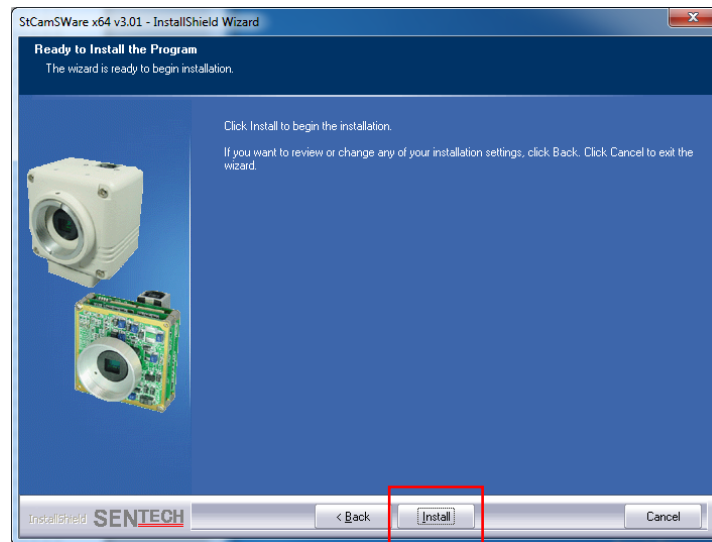
- ⑦ If you select "Custom" as the setup type, you still must install the USB driver and DLL. However, you can choose which other functions you want to install. Select all necessary functions, and then click the [Next] button.

If you selected the DirectShow or Twain function, after installation completes, you will be able to use the USB camera with software that interfaces with DirectShow or Twain driver.

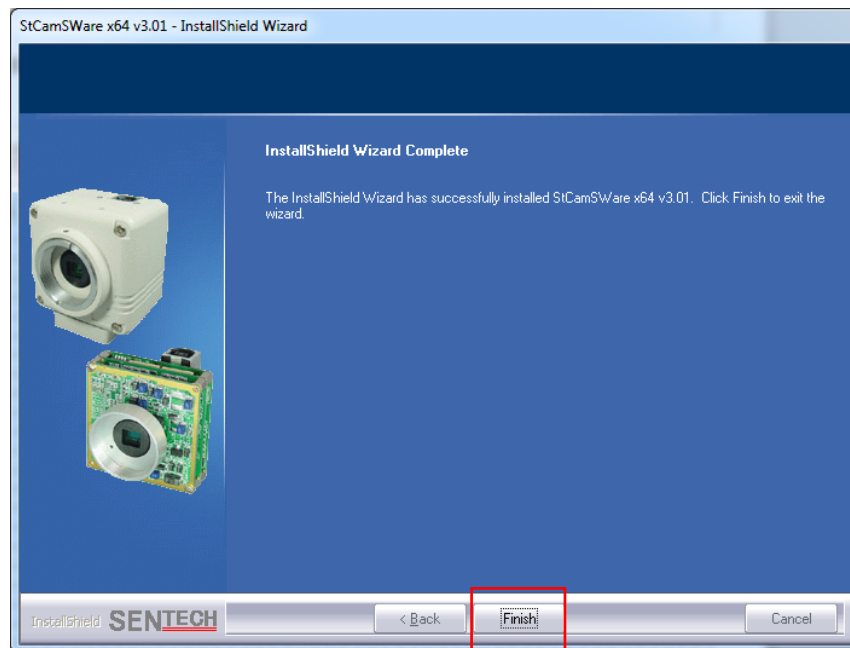
When "Complete" is selected as the setup type, this screen will not appear.



- ⑧ Click the [Install] button.

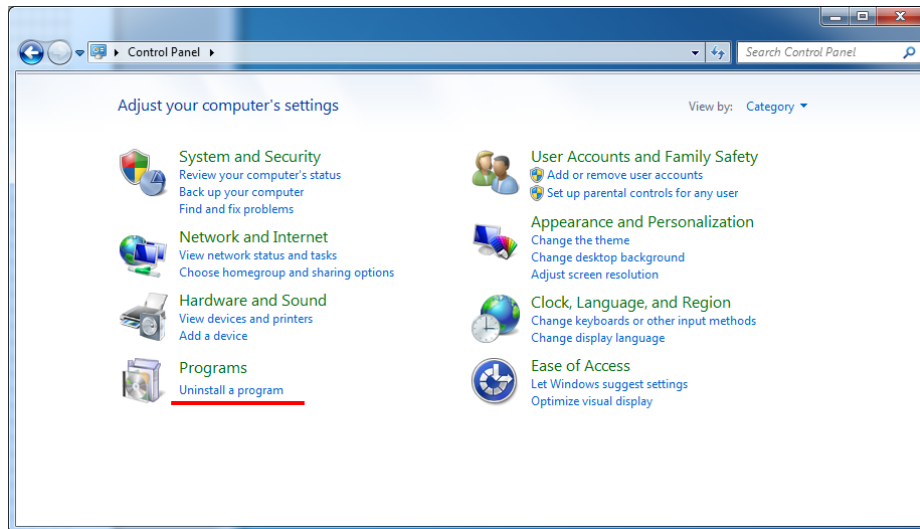


- ⑨ Installation is complete. Click the [Finish] button to close the installer.

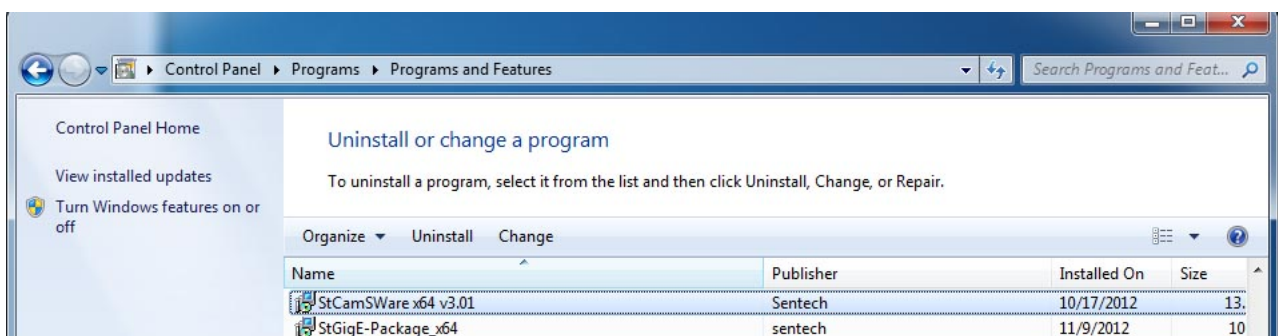


2.3 Uninstalling StCamSWare Software

- ① Go to the Control Panel.
- ② After making sure that the USB camera is not connected to the computer, go to "Add or Remove Programs".

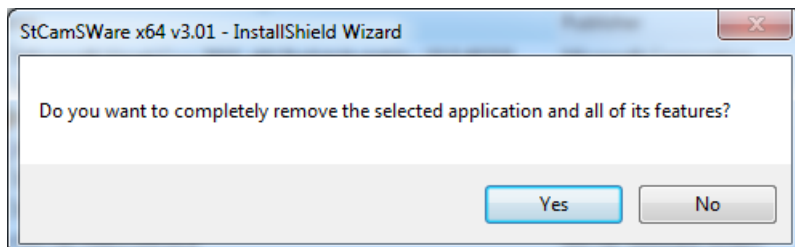


- ③ Select "StCamSWare (or StCamDemo)".



- ④ Select "Yes".

The screen that appears differs according to the installed StCamSWare software version.



- ② Click the [Finish] button.



※ Depending on the StCamSWare (or StCamDemo) version, the displayed message and CD folder contents may differ.

3 Notes on Using the Trigger Function

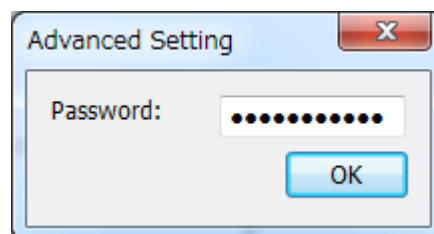
- If you do not plan on using the USB camera trigger function, either create your own software using the NormalSDK, or use the StCamSWare software.
- When using the USB camera trigger function, it is recommended that you create your own software using the NormalSDK, or use the "StTrgDisplay***.exe" included in the CD-ROM. ("****" differs depending on the language used for creation (e.g.: VB6 and VC6).)

3. Software Development Kit (SDK)\TriggerSDK(vx.xx-x)\TriggerSDK(vx.xx-x)\bin

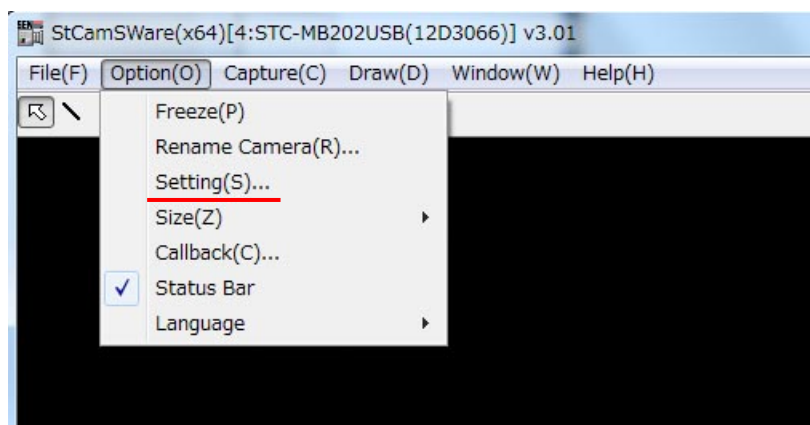
- The trigger function included in the StCamSWare software is for simple operational checks. Therefore, you cannot save settings for this trigger function.
In order to use the trigger function with the StCamSWare software, enter the password to the password screen by going to [Help] > [Advanced Setting].



Password: triggeruser



Go to [Option] > "Setting" to display the trigger function adjustment screen.



4 Cautions when Using a Computer with a CPU Compatible with Power Saving Mode

Problems such as 'No images can be acquired' or 'There are many missing frames' have been reported when our company's USB camera is used with computers equipped with a CPU compatible with power saving mode (Intel Core i3, i5, i7, etc.). (Similar problems have been known to occur with USB cameras from other manufactures as well.)

[Cause of the Problem]

It is possible that while image data is being transferred, the computer switches to power saving mode, and as a result, image data is not transferred.

[Countermeasure]

You can resolve this problem by disabling the power saving mode. There are different methods for doing this, but for some computers, it may not be possible to disable the power saving function. In addition, if the power saving mode is disabled, there may be negative effects such as an increase in power consumption, temperature, etc.

- ① Disable the power saving mode in the BIOS settings.

Set the BIOS "ACPI C State" to [Disable], or gradually decrease the "Max ACPI C State" value until the problem is resolved (C3->C2->C1). (Depending on the computer, the setting method and names may be different. Setting may also be impossible.)

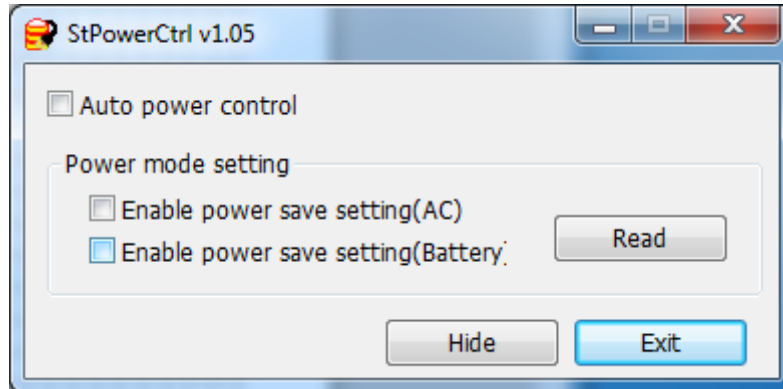
- ※ For more details on the BIOS setting method, contact your computer's manufacturer.
- ※ Similar functions may be included under different names.
- ※ You are responsible for changes to the BIOS settings.
- ※ Keep in mind that by disabling this function, your computer's power consumption and temperature may increase.

- ② Disable the power saving mode using our company's computer power management software "StPowerCtrl".

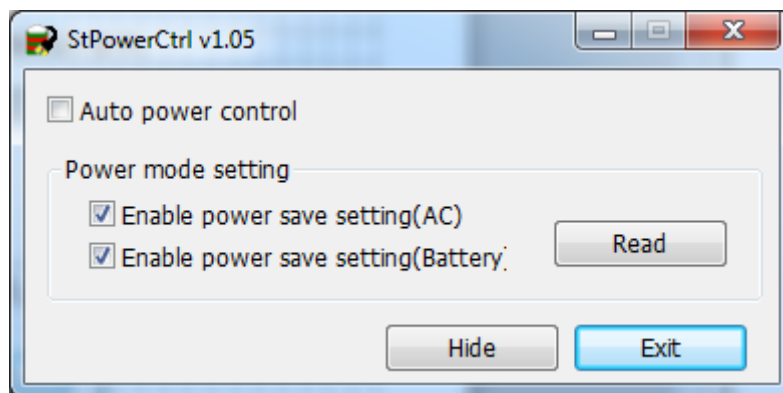
① Manual Control Mode

Remove the check from the box next to [Auto Power Control] to switch to manual control mode.

Remove the check from the box next to [Enable Power Saving Setting (AC/Battery)] to disable the power saving function.



Place a check in the box next to [Enable Power Saving Setting (AC/Battery)] to enable the power saving function.



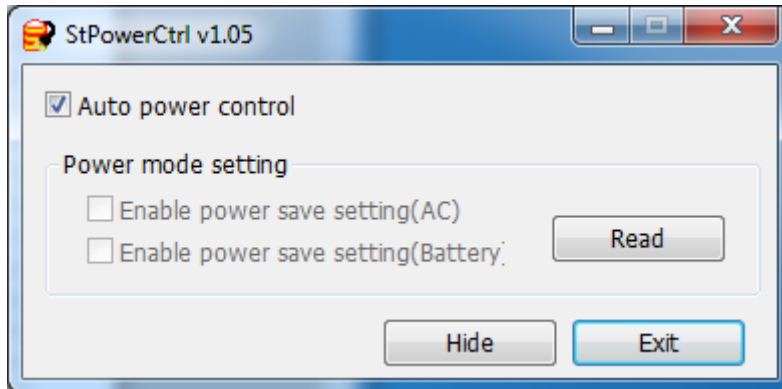
Remove the check from the box next to [Enable Power Saving Setting (AC/Battery)] if you experienced this problem and see if it is resolved.

This setting is kept even after you close StPowerCtrl (saved in the registry).

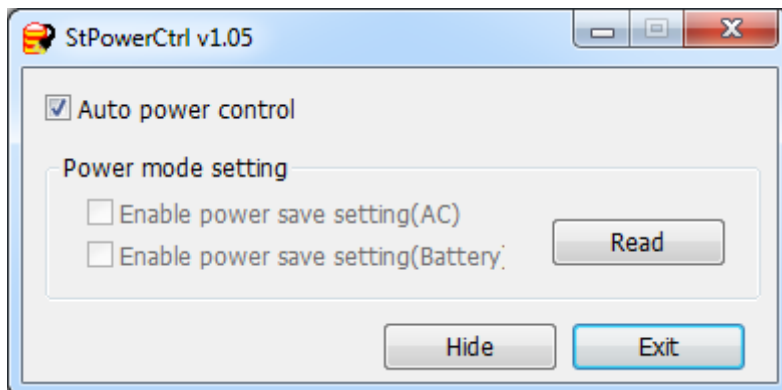
② Auto Control Mode

Place a check in the box next to [Auto Power Control] to switch to auto control mode.

When our company's USB camera is detected, the power saving function will be disabled automatically.



When our company's USB camera is disconnected or when StPowerCtrl is closed, the power saving function will be enabled again automatically.



③ Refresh Button

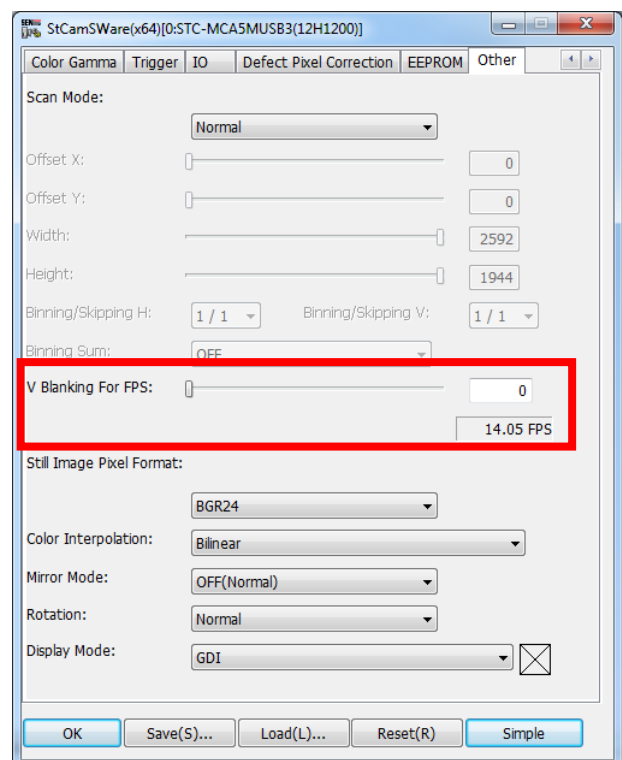
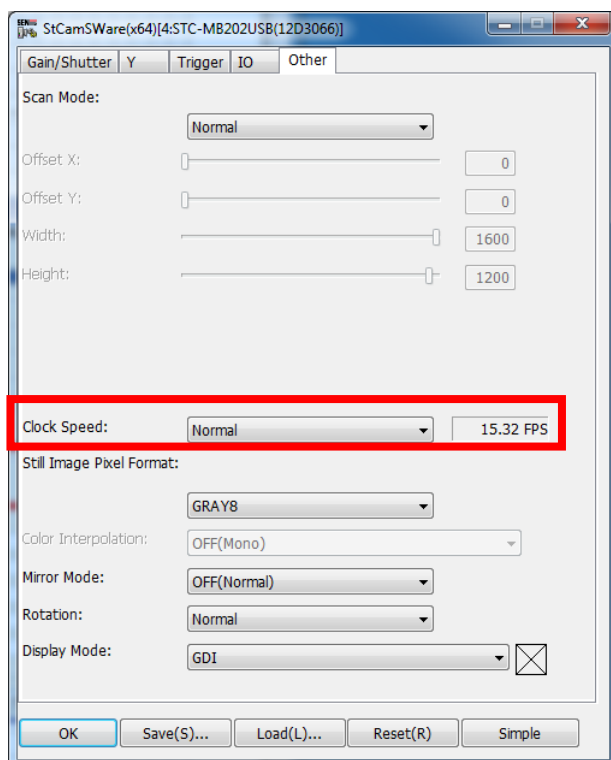
The current power saving setting are read and the display is refreshed. If you change the power plan, manually click the [Refresh] button.

④ Hide Button

The setting screen becomes hidden. To display it again, click the icon in the task tray. You can recognize the current status by the color of the icon in the task tray even when the setting screen is not display.

Power Saving Function	Icon
Either AC/Battery is enabled	 17:18 2011/06/22
Both AC/Battery are disabled	 17:18 2011/06/22

③ Reduce the camera's operation clock to 1 sec. or 1/4, or adjust the blanking period to reduce the frame rate.

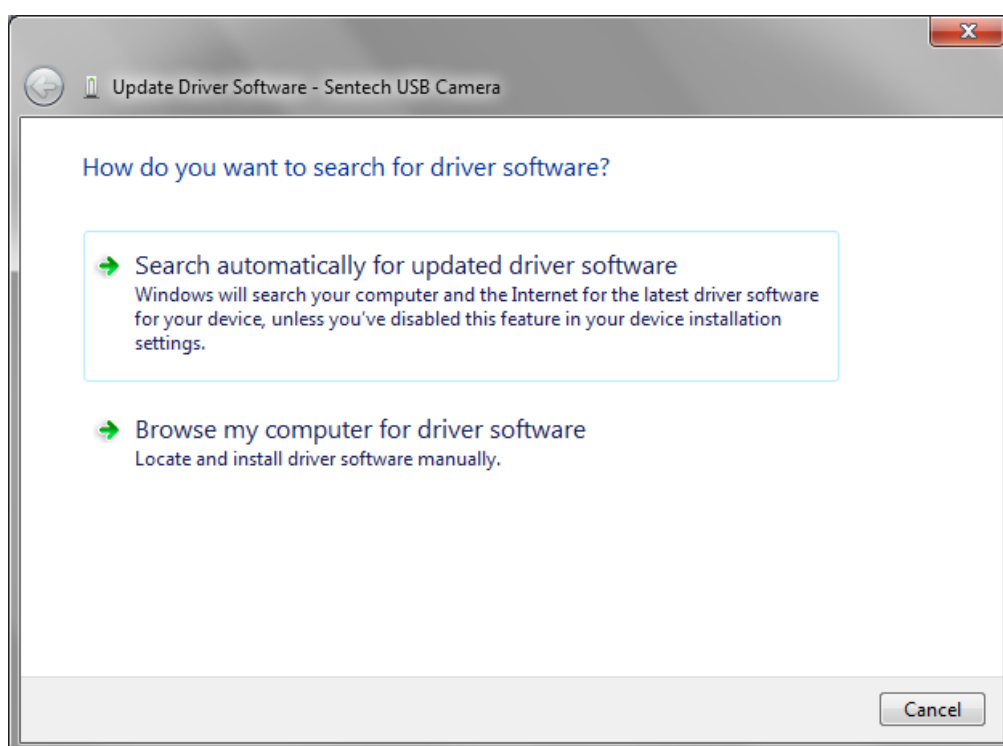


5 FAQ

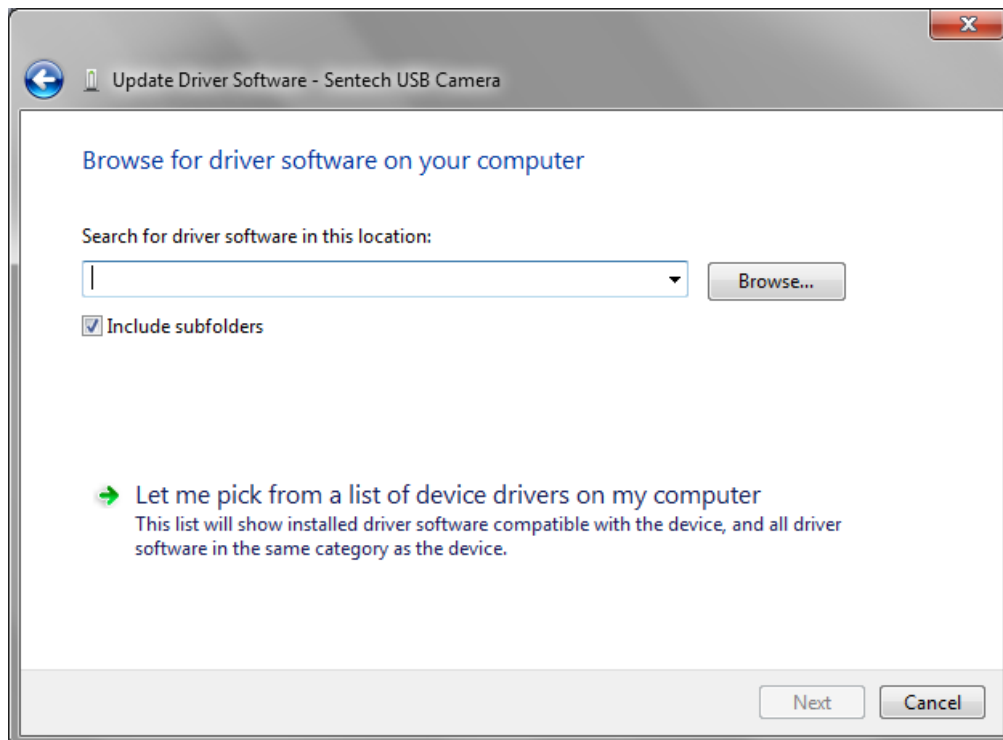
5.1 If driver installation failed, how to install the driver.

⇒ If driver is unrecognized on the device manager as “Sentech USB Camera” Installing the driver manually as following procedure.

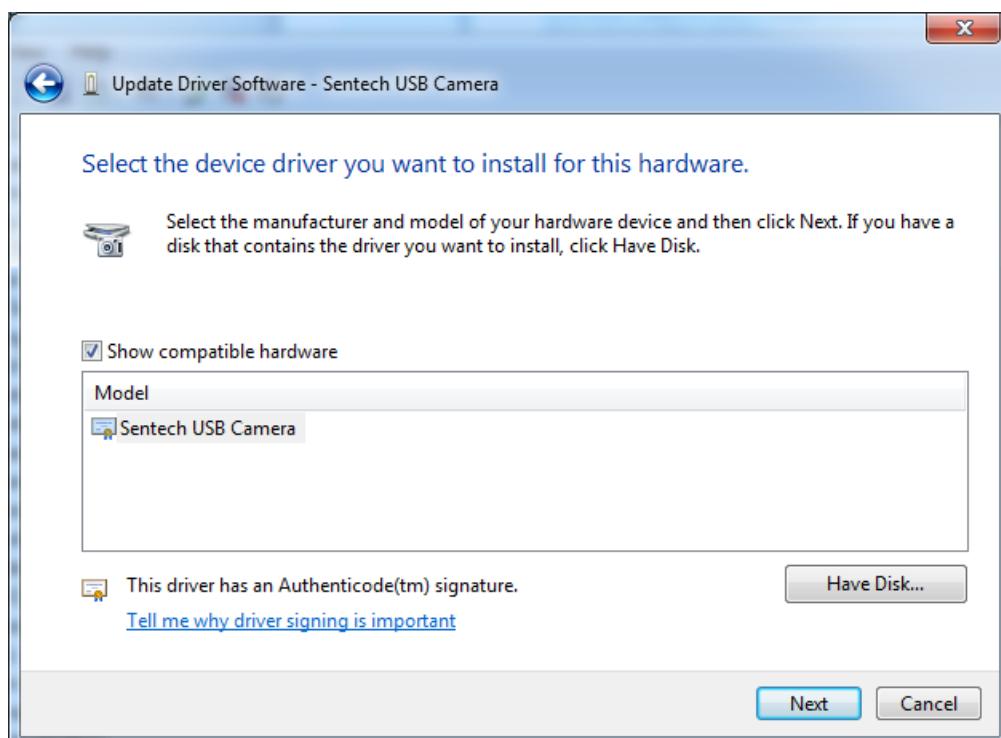
- ① Right Click on the unrecognized camera on Device Manager. Select “Update Driver Software”
- ② Click the [Back] button, select "Install from a list or specific location [Advanced]", and then click the [Next] button.



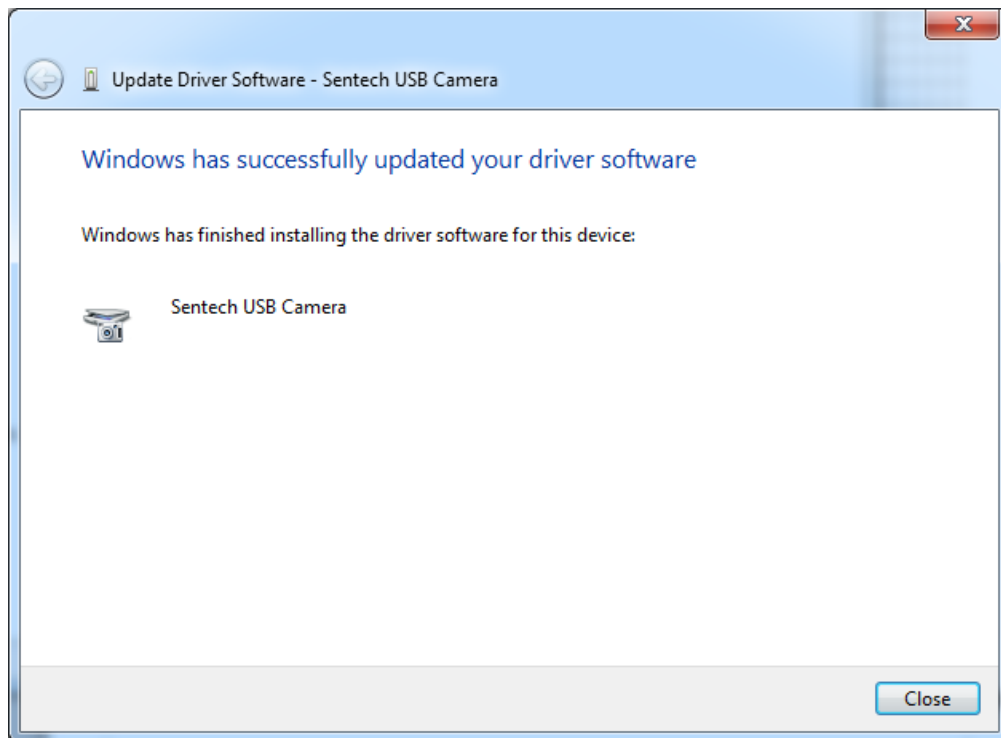
- ③ Choose "Select a driver for installation without searching", and then click the [Next] button.



- ④ Select the driver and then click the [Next] button. If multiple drivers with the same name are displayed, select the first driver from the top. If the version number is displayed, select the version with the highest number.



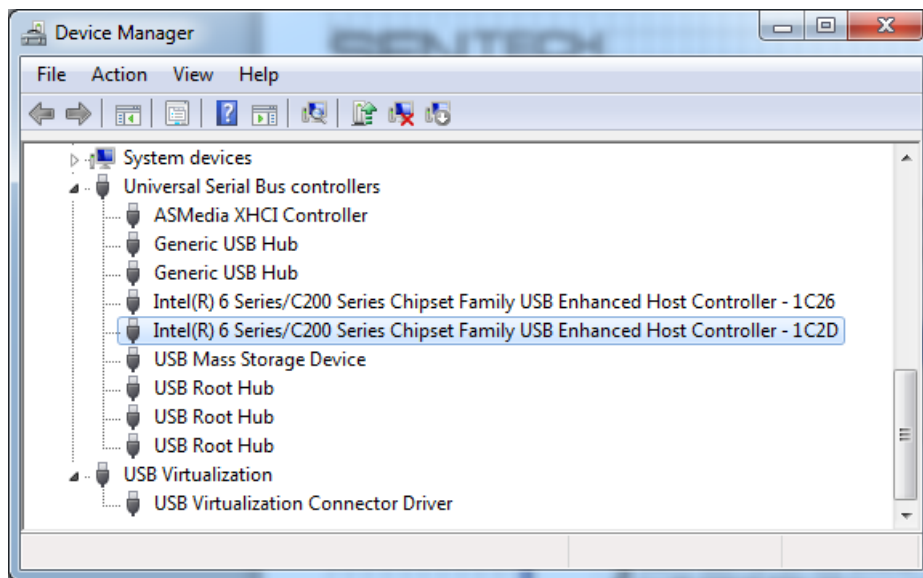
- ⑤ Click the [Continue Anyway] button.



5.2 It doesn't work! What's wrong?

⇒ Is your computer compatible with USB 2.0 High Speed?

If it is compatible with USB 2.0 High Speed, you should see a line in the [USB (Universal Serial Bus) Controller] of the [Device Manager] that contains the word "Enhanced", "EHCI", or "Standard Enhanced". Even if it is compatible with USB 2.0 High Speed, you may not be able to use the camera because the transfer speed is not sufficient.



⇒ Is the camera connected to a USB port on the main body of the computer? Or is it connected to a USB port on the PCI expansion board?

Generally, chipsets compatible with USB 2.0 (such as Intel ICH4 to ICH9) can handle faster communication than single unit USB 2.0 controller chips (such as NEC μ PD720101, μ PD720100) used for the PCI expansion board. We recommend using an Intel chipset ICH4 to ICH9.

⇒ Are there other USB devices connected?

If other USB devices are connected, the transfer speed may be insufficient and image capture may fail. Disconnect other USB devices and see whether it is resolved.

⇒ Are you using a HUB?

We recommend not using a HUB. Especially if a HUB not compatible with USB 2.0 is used, image capture may not be possible.

Also, sufficient power may not be being supplied to the camera.

⇒ Is your USB cable too long?

Generally, only USB cables up to 5m are available. It cannot operate properly with a 10m cable.

⇒ Does it still not work even when you use a different computer?

If it works with a different computer, there may be some problems with the original computer.

⇒ Does it still not work even when you use a different USB cable?

If it works with a different USB cable, there may be some problems with the original USB cable.

⇒ Is your computer CPU an Intel Core i3, i5, i7?

With these CPUs, if the power saving function operates while the USB camera is working, images may not be acquired. (Refer to "4. Cautions for Computers Using Intel Core i3, i5, i7 CPUs".)

5.3 Why is there a horizontal line in the image?

⇒ In the image preview, you may see some offset at the top and bottom of the image.

This phenomenon is referred to as tearing, and occurs when the image data is rewritten while being displayed on the monitor. It is not a camera malfunction.

5.4 How many devices can be connected to one computer?

⇒ It depends on the usage method and usage environment.

It is possible to connect multiple cameras when using them separately and not using them to acquire images at the same time.

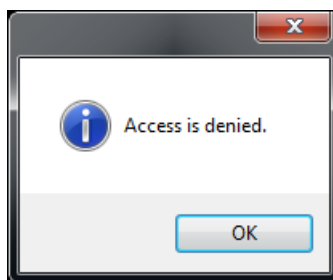
If images are captured at the same time, it may not be possible to acquire images because of the computer processing speed or the limitations of the USB transfer speed.

USB transfer speed is limited, so normally only up to two VGA cameras can be connected at 60FPS, even if the computer has sufficient processing capability (for computers with two of the latest Enhanced Controllers, it may be possible to connect up to four cameras).

If the frame rate can be lowered, it is possible to use three or more cameras by decreasing the operation speed of the cameras.

If the frame rate needs to be maintained, try using the USB of the PCI expansion board so that cameras are connected to the board and main body separately.

5.5 The following message appeared, preview stopped, and the camera needed to be disconnected from the computer for recovery. What happened?



⇒ STC-TC202USB and STC-TB202USB require high current. Therefore, in rare cases, a lack of power may occur with the computer and this message may appear. In this case, try supplying 5V power to the camera directly.

5.6 Drawn figures and text will not refresh. Why?

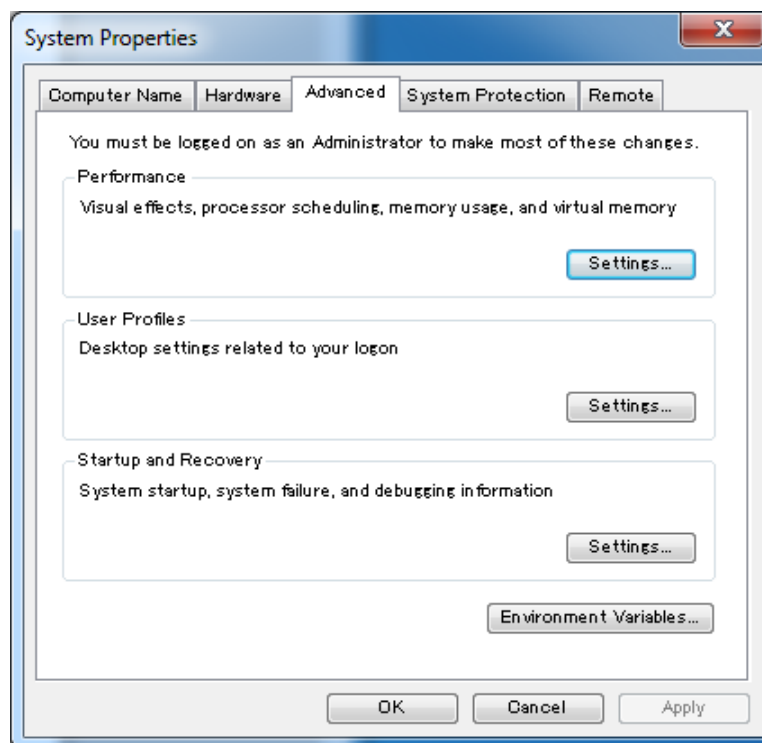
⇒ Displayed drawn data can only be refreshed during the preview. If the preview is stopped, displayed drawn data will not be refreshed.

5.7 How can I reduce the number of missed frames?

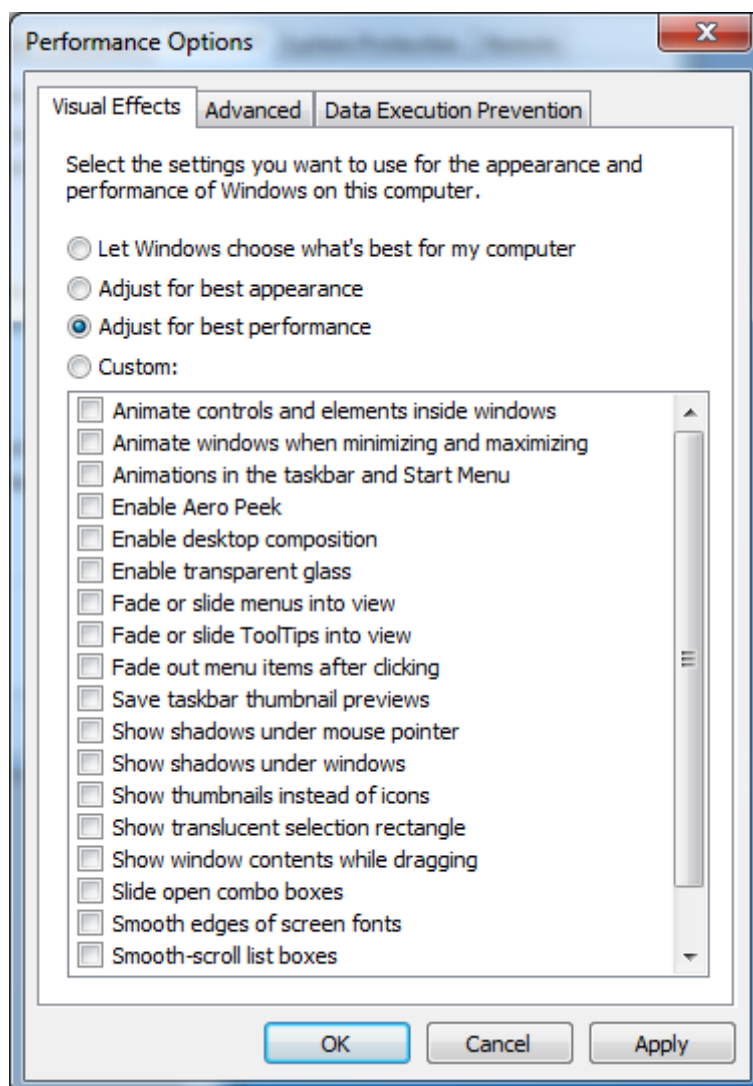
⇒ If there are missing frames because of the load placed on the computer, reduce the load on the computer to reduce the number of missed frames.

If you change the visual effects according to the following procedure, you may be able to reduce the number of missing frames caused when moving windows of other applications or when magnifying and minimizing.

- ① Open [System Properties].
- ② Open the [Advanced] tab, and click the [Settings] button under [Performance].



- ③ From the [Visual Effects] tab, select [Adjust for best performance].



- ④ Click the [Apply] button.

5.8 Is it compatible with Windows Embedded?

⇒ It is not officially supported, but we are aware of some customers who operate it using Windows Embedded. If the error message, "The required section was not found in the inf" appears while the driver is being installed for XP and installation fails, try using the registry editor to register the following keys to resolve the problem. Keep in mind that we are not responsible for any problems that may occur when changing the registry.

Keys	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{6bdd1fc6-810f-11d0-bec7-08002be2092f}	
@(Default)	REG_SZ	"Imaging Devices"
Class	REG_SZ	Image
Icon	REG_SZ	0
Installer32	REG_SZ	sti_ci.dll,ClassInstall
TroubleShooter-0	REG_SZ	hcp://help/tshoot/tsInputDev.htm

6 Revision History

Rev.	Revision Date	Revision Contents	Note
1.00	2012/08/31	● Newly Issued	
1.01	2012/10/03	● Revised "4. Cautions when Using a Computer with a CPU Compatible with Power Saving Mode"	
1.02	2013/01/22	● Revised Compatible with StCamSWare(V3.02)	

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