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# ARTRAY Camera / Capture Module Software Developer Kit

Dynamic Link Library for Windows XP

## **User's Manual**

2007.8.21

ARTRAY CO., LTD

## < Introduction >

This booklet explains about Software Developer Kit (SDK) for cameras and capture module (frame grabbers) provided by ARTRAY.

SDK is provided by Dynamic Link Library (DLL).

This library is designed for programmers in a way that they do not need to bother internal control of cameras and hardware.

This DLL can be used with C++, C, VB.NET, C#.NET and Delphi.

### Use of Library

This library is in the format of Windows Dynamic Link Library (DLL).

This library is to be used in Microsoft Windows XP.

There is no guarantee of proper operation with other operating systems.

This library partly uses Microsoft DirectX8.1. However, installation of MS DirectX8.1 may be required to operate the library.

### Configuration of Library

ArtCamSdk_[Model Name].dll	DLL for ARTCAM-[Model Name]
ArtCamSdk.dll	DLL for DirectShow camera
ArtCnvSdk.dll	DLL for ArtCnvII
CArtCamSdk.h	Header file for C language
CArtCamSdk.hpp	Class header file for C++
ArtCamSdk.cs *1	Class file for C#.NET
ArtCamSdk.vb*1	Class file for VB.NET
ArtCamSdk.pas	Class file for Delphi

Please install each DLL to SYSTEM\*1 directory or copy to directory created for the compiler. Copy all other files to the directory prepared for software development.

\*1 Please note that names may vary slightly depending on the type of DLL.

\*2 System directories for Windows XP are as below.

Windows XP: C:\WINDOWS\SYSTEM32

## Directory composition tree(2007/7/18)

SDK-root

DLL

ArtCam-CCD

**ArtCamSdk\_098.dll**  
**ArtCamSdk\_150P2.dll**  
**ArtCamSdk\_150P3.dll**  
**ArtCamSdk\_150P.dll**  
**ArtCamSdk\_200SH.dll**  
**ArtCamSdk\_267KY.dll**  
**ArtCamSdk\_274KY.dll**  
**ArtCamSdk\_320P.dll**  
**ArtCamSdk\_500P.dll**

ArtCam-CMOS

**ArtCamSdk\_036MI.dll**  
**ArtCamSdk\_130MI.dll**  
**ArtCamSdk\_130MIV.dll**  
**ArtCamSdk\_200MI.dll**  
**ArtCamSdk\_300MI.dll**  
**ArtCamSdk\_500MI.dll**

For ARTCAM-130MI-MOUT

Runtime

MFC70.dll  
MFC71.dll  
MSVCI70.dll  
MSVCP70.dll  
MSVCP71.dll  
MSVCR70.DLL  
MSVCR71.dll

**ArtCamSdk.dll**  
**ArtCamSdk\_Sata.dll**  
**ArtCnvSdk.dll**

For DirectShow camera

For SATA camera

For ArtCnvII-NTSC converter

English

Manual  
Sample\_1277

Japanese

Lib\_1277  
Lib\_1280  
Manual  
Sample\_1277  
Sample\_1280

## API-Operational Procedure

~ C++ ~

Copy CArCamSdk.hpp and DLL to directory prepared for software development.

Once each file is built in Project, library can simply be used by a class called CartCamSdk, which is described in CArCamSdk.hpp.

This class facilitates use of DLL that is dynamically read.

When you use functions of library, make sure to execute CArCamSdk::LoadLibrary().

If returned value is TRUE, call other function.

To end, call CArCamSdk::FreeLibrary.

Samples C++ is as follows:

For Microsoft Visual C++ 6.0

- Sample\_VC6
- Sample\_VC6\_2Cam
- Sample\_VC6\_Graphic
- Sample\_VC6\_MFC\_FullControl

For Microsoft Visual C++ .NET2002

- Sample\_VC.NET2002
- Sample\_VC.NET2002\_2Cam
- Sample\_VC.NET2002\_Graphic
- Sample\_VC.NET2002\_MFC\_FullControl

For Microsoft Visual C++ .NET2003

- Sample\_VC.NET2003
- Sample\_VC.NET2003\_2Cam
- Sample\_VC.NET2003\_Graphic
- Sample\_VC.NET2003\_MFC\_FullControl

For Microsoft Visual C++ .NET2005

- Sample\_VC.NET2005
- Sample\_VC.NET2005\_2Cam
- Sample\_VC.NET2005\_Graphic
- Sample\_VC.NET2005\_MFC\_FullControl

For Borland C++ Builder 6

- Sample\_BCB6
- Sample\_BCB6\_2Cam
- Sample\_BCB6\_Graphic&Allbpp
- Sample\_BCB6\_FullControl

For Borland C++ Builder 2006

- Sample\_BCB\_2006
- Sample\_BCB\_2006\_2Cam
- Sample\_BCB\_2006\_Graphic&Allbpp
- Sample\_BCB\_2006\_FullControl

~ C language ~

Copy ArtCamSdk.h and DLL to directory prepared for software development.

Copy ArtCamSdk.h, use LoadLibrary and GetProcAddress to obtain address of function within DLL.

Once all pointers of functions which are described in header are obtained, SDK is ready for use.

As long as you do not have to use C language for your development environment or platform, please use C++ version.

~ C#.NET ~

Copy CS files and DLL to a folder prepared for software development.

Once CS file is added to Project, it's ready for use.

Sample C# is as follows:

For Microsoft Visual C# .NET2002

- Sample\_CS.NET2002
- Sample\_CS.NET2002\_2Cam
- Sample\_CS.NET2002\_Graphic
- Sample\_CS.NET2002\_FullControl

For Microsoft Visual C# .NET2003

- Sample\_CS.NET2003
- Sample\_CS.NET2003\_2Cam
- Sample\_CS.NET2003\_Graphic
- Sample\_CS.NET2003\_FullControl

For Microsoft Visual C# .NET2005

- Sample\_CS.NET2005
- Sample\_CS.NET2005\_2Cam
- Sample\_CS.NET2005\_Graphic
- Sample\_CS.NET2005\_FullControl

We use ArtCamSdk\_130MI.cs as sample.

Please change the file depends on your camera.

~ VB.NET ~

Copy VB file and DLL to a folder prepared for software development.  
Once VB file is added to Project, it's ready for use.

Sample VB.NET is as follows:

For Microsoft Visual Basic .NET2002

- Sample\_VB.NET2002
- Sample\_VB.NET2002\_2Cam
- Sample\_VB.NET2002\_Graphic
- Sample\_VB.NET2002\_FullControl

For Microsoft Visual Basic .NET2003

- Sample\_VB.NET2003
- Sample\_VB.NET2003\_2Cam
- Sample\_VB.NET2003\_Graphic
- Sample\_VB.NET2003\_FullControl

For Microsoft Visual Basic .NET2005

- Sample\_VB.NET2005
- Sample\_VB.NET2005\_2Cam
- Sample\_VB.NET2005\_Graphic
- Sample\_VB.NET2005\_FullControl

We use ArtCamSdk\_130MI.vb as a sample.  
Please change a vb file depends on your camera.

Regarding VB, we prepared SDK according to VB.NET.

There is no guarantee of operation with earlier versions.

~ Delphi ~

Copy ArtCamSdk.pas and DLL to a folder prepared for software development.

Library can simply be used by a class called TArtCam  
This class facilitates use of DLL that is dynamically read.

Sample Delphi is as follows

For Borland Delphi 7

- Sample\_Delphi7
- Sample\_Delphi7\_2Cam
- Sample\_Delphi7\_Graphic&Allbpp
- Sample\_Delphi7\_FullControl

For Borland Delphi 2006

- Sample\_Delphi\_2006
- Sample\_Delphi\_2006\_2Cam
- Sample\_Delphi\_2006\_Graphic&Allbpp
- Sample\_Delphi\_2006\_FullControl

## Caution to use DLL

### 1. Caution to use DirectShow camera

Use ArtCamSdk.dll to control DirectShow camera by our SDK.

You need to set up correct capture size after formatting DLL. Because capture size is not set up properly at the default setting.

For example, if you use ARTCAM-150P3-DS, resolution is 1360\*1024.

Set up the resolution clearly as ArtCam\_SetCaptureWindow(hACam, 1360, 1024, 150) after calling HACAM hACam = ArtCam\_Initialize(hWnd).

If you do not set up it, controlling height and width takes wrong value. It would cause unusual shut down because of illegal access to a memory.

### 2. Caution to use SATA camera

Use ArtCamSdk\_Sata.dll to control SATA camera by our SDK.

You can use the DLL at all SATA cameras. But you need to set up the setting for each camera by SetCameraType.

Please refer the "SetCameraType" in the "SDK Functions Manual" page.

Also please refer the sample in it.

About ARTCAM-130MI-SATA and ARTCAM-200MI-SATA, change resolution size of ARTCAM-300MI-SATA, and you can use it.

### 3. Caution to use several cameras

#### a. Switch cameras and use

You can get camera index number to use by calling function

"ArtCam\_EnumDevice" after calling "ArtCam\_Initialize."

Call "ArtCam\_Preview" after setting connected camera's index at "ArtCam\_SetDeviceNumber."

Please call "ArtCam\_Close" every time when you switch a camera.

#### b. Use same time

It is all most impossible to preview more than 2 cameras at same time if cameras clock is normal because of USB's limitation of transferring range.

Divide normal clock with the number of cameras in which connect same time and clock down (Optional).

For example, if you want to connect 3 normal 24MHz cameras, we recommend to clock down to 8MHz (24MHz / 3 cameras = 8MHz(under)).

If a camera correspondence to a "SetHalfClock" function, you can switch 24MHz / 12MHz by DLL.

Please refer the SDK sample for 2 cameras to use.

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