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ARTRAY Camera / Capture Module Software Developer Kit

User's Manual

2008.10.15

ARTRAY CO., LTD

■ Updating record

Date	Content	Comment
2008/10/07	Update ArtCamSdk_Sata.dll (ver1.2.8.22)	

<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(06/15/2009)

SDK-root

```

├─DLL
│   └─ArtCam-CCD
│       └─ArtCamSdk_098.dll
│       └─ArtCamSdk_098II.dll
│       └─ArtCamSdk_150P2.dll
│       └─ArtCamSdk_150P3.dll
│       └─ArtCamSdk_150P.dll
│       └─ArtCamSdk_150P3V.dll ※For ARTCAM-150P4-HDMI/MOUT
│       └─ArtCamSdk_200SH.dll
│       └─ArtCamSdk_267KY.dll
│       └─ArtCamSdk_274KY.dll
│       └─ArtCamSdk_445KY.dll
│       └─ArtCamSdk_320P.dll
│       └─ArtCamSdk_500P.dll
│       └─ArtCamSdk_500P2.dll
│       └─ArtCamSdk_625KY.dll
│
│   └─ArtCam-CMOS
│       └─ArtCamSdk_036MI.dll
│       └─ArtCamSdk_130MI.dll ※For driver after version 172 (For VISTA)
│       └─ArtCamSdk_130MI.dll.old ※For driver before version 162 (Not for VISTA)
│       └─ArtCamSdk_130MIV.dll ※For ARTCAM-130MI-HDMI/MOUT
│       └─ArtCamSdk_200MI.dll
│       └─ArtCamSdk_300MI.dll
│       └─ArtCamSdk_500MI.dll
│       └─ArtCamSdk_900MI.dll
│
│   └─Runtime
│       └─MFC70.dll
│       └─MFC71.dll
│       └─MSVCI70.dll
│       └─MSVCP70.dll
│       └─MSVCP71.dll
│       └─MSVCR70.DLL
│       └─MSVCR71.dll
│
│   └─ArtCamSdk.dll ※For DirectShow camera
│   └─ArtCamSdk_USTC.dll ※For ARTUST-USB converter
│   └─ArtCamSdk_Sata.dll ※For SATA camera
│   └─ArtCnvSdk.dll ※ArtCnvII-NTSC converter
│   └─ArtCnvSdk.dll.old ※Driver before Ver.1.52(Not for Vista)
│
├─Drivers ※New driver
├─English
│   └─Lib_1277
│   └─Manual
│   └─Sample_1277
│   └─Sample_1280
└─Japanese
    └─Lib_1277
    └─Lib_1280
    └─Manual
    └─Sample_1277
    └─Sample_1280
    
```

■Detail of DLL file

Time	Size(byte)	FileName	Version
2006/07/14 10:52	630,784	ArtCamSdk_098.dll	1.2.7.8
2008/06/18 21:01	663,552	ArtCamSdk_098II.dll	1.2.8.2
2005/12/09 19:19	622,592	ArtCamSdk_150P.dll	1.2.7.7
2006/08/03 11:35	634,880	ArtCamSdk_150P2.dll	1.2.7.85
2008/08/18 13:24	692,224	ArtCamSdk_150P3.dll	1.2.8.26
2008/06/10 16:44	667,648	ArtCamSdk_150P3V.dll	1.2.8.0
2005/12/13 10:51	622,592	ArtCamSdk_200SH.dll	1.2.7.7
2008/04/17 15:25	667,648	ArtCamSdk_267KY.dll	1.2.8.20
2008/01/08 10:49	561,152	ArtCamSdk_274KY.dll	1.2.8.13
2005/12/09 19:19	626,688	ArtCamSdk_320P.dll	1.2.7.7
2008/01/30 17:05	548,864	ArtCamSdk_445KY.dll	1.2.8.13
2006/01/12 16:25	622,592	ArtCamSdk_500P.dll	1.2.7.8
2009/06/08 13:26	655,360	ArtCamSdk_500P2.dll	1.3.0.0
2008/05/20 16:32	552,960	ArtCamSdk_625KY.dll	1.2.8.2
2008/06/17 13:50	663,552	ArtCamSdk_036MI.dll	1.2.8.2
2008/05/29 12:03	671,744	ArtCamSdk_130MI.dll	1.2.8.2
2006/05/23 16:21	643,072	ArtCamSdk_130MI.dll.old※1	1.2.7.8
2007/06/12 18:27	671,744	ArtCamSdk_130MIV.dll	1.2.8.0
2008/05/01 13:46	667,648	ArtCamSdk_200MI.dll	1.2.8.13
2008/05/13 18:37	663,552	ArtCamSdk_300MI.dll	1.2.8.0
2008/06/23 10:53	667,648	ArtCamSdk_500MI.dll	1.2.8.10
2008/05/13 13:31	655,360	ArtCamSdk_900MI.dll	1.2.8.26
2008/06/16 14:38	536,576	ArtCamSdk_V135MI.dll	1.2.8.0
2008/05/22 15:09	663,552	ArtCamSdk_Ov210.dll	1.2.8.12
2008/05/22 13:57	540,672	ArtCamSdk_D131.dll	1.2.7.8
2007/11/05 19:47	458,752	ArtCamSdk.dll	1.2.7.81
2008/10/07 15:27	864,256	ArtCamSdk_Sata.dll	1.2.8.22
2007/11/06 15:14	622,592	ArtCamSdk_USTC.dll	1.2.7.7
2007/03/27 11:28	589,824	ArtCnvSdk.dll	1.2.7.81
2006/01/12 17:25	589,824	ArtCnvSdk.dll.old※2	1.2.7.8

※1. Use this if driver version is before **v1.60**

※2. Use this if driver version is before **v1.52**

■API-Operational Procedure

~C++~

Copy CArtCamSdk.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 CArtCamSdk.hpp.

This class facilitates use of DLL that is dynamically read.

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

If returned value is TRUE, call other function.

To end, call CArtCamSdk::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 cs file depends on your camera.

※If you want to use SDK for ArtCam-300MI, Open ArtCamSdk_130MI.cs,
and switch the word from 「ArtCamSdk_130MI.dll」 to 「ArtCamSdk_300MI.dll」 .

～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.

※If you want to use SDK for ArtCam-300MI, Open ArtCamSdk_130MI.vb,
and switch the word from 「ArtCamSdk_130MI.dll」 to 「ArtCamSdk_300MI.dll」 .

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.

Please make sure to call SetDeviceNumber(0) after SetCameraType.

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.

4. Caution to use new model's camera

For some newer versions of cameras, sample SDK would have not been prepared yet. In this case, load the existed sample dll and compile it to use.

Basic specifications are all most same. Most of the time you can use dll with changing the name of loaded dll.

Sample "Sample_VC.NET_MFC_FullControl" in the folder VC.NET¥2002-2003¥ is always updated.

When a new function is added, there might not be explanation for other languages. In this case, please refer the sample at VC.NET as mentioned above.

5. Caution to use at Windows Vista

We are doing debug testing at Windows Vista(32bit) one by one.

Checked debug

ArtCamSdk_036MI.dll	ArtCamSdk_130MI.dll※1
ArtCamSdk_200MI.dll	ArtCamSdk_300MI.dll
ArtCamSdk_500MI.dll	
ArtCamSdk_150P3.dll	ArtCamSdk_267KY.dll
ArtCamSdk_274KY.dll	
ArtCnvSdk.dll※2	

※1. Use the newest DLL and driver (after **v1.72**)

※2. Use the newest DLL and driver (after **v1.60**)

If the version of DLL and driver are not matched, you will fail to get images when you perform SnapShot function, Preview or CallBackPreview function. And you will receive the error [ARTCAMSDK_CAPTURELOST].

If you get such kind of symptom, please check the driver and DLL's version. Or please call to our support center.

Support Center : support@artray.co.jp

Thank you.

ARTRAY Camera / Capture Module Software Developer Kit

Dynamic Link Library for Windows XP

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