

Revision History

Revision	Date	By	Remark
V1.1	2010/4/27	SCT	Updated Windows SDK to V0.9.1.8. Revised and updated this document.
V1.0	2010/02/01	SCT	Initial Version

Supported System

Linux	Fedora 11 Ubuntu 8.04 Ubuntu 10.04
Windows	Windows 2000 Windows XP Windows Vista Windows 7

Feature

4ch CIF Preview @ 120 fps/1ch D1 Preview @ 30 fps
4ch CIF H.264 Compress @ 120 fps/1ch D1 H.264 Compress @ 30 fps
Compress Frame Rate: 30, 15, 10, 6 and 3 fps
G.723 Audio Compress
Motion Detection
Front-end OSD
Mask
Variable Bitrate (VBR)/Constant Bitrate (CBR) Control
Group of Picture (GOP) Adjustment
Quantization Parameter (QP) Adjustment
Streaming
8 sets GPIO

1 Windows SDK

1.1 SDK Overview

This SDK uses Microsoft DirectShow as its fundamental framework, and some customize interfaces are added as its extension. Users can write their own filters (filter is a basic unit of DirectShow and corresponds to a COM object) or select someone else's filters to speed up applying this SDK into products. Programming applications on DirectShow Framework requires a certain understanding of the COM programming model.

SDK includes:

- Programming guide (this document)
- Demo applications
 - Capture.exe Live & capture application
 - SystemInfo.exe Program for checking the System information, such as hardware environment and versions of the software
 - DSPMemory.exe Auxiliary tool for operating DSP
 - Playback.exe Playback program
- Board PCI driver
- Filters

Table 1-1 Filter List

Filter	Object File Name	Friendly Name in GraphEdit	Alias names used in the Application Examples Chapter	Explanation
Source Filter	SPCT6100DVR.sys	SPCT6100DVR_DEV	Spct6100DVR1	Mini driver. It sends data from capture device to the downstream filters
Proxy Config	ScoreProxyPlugin.ax			A plug-in, used to implement customized interfaces on source filter.
PinExtended	PinExtended.ax	PinExtended	Preview Divider Capture Divider Audio Divider	Divide multimedia data (video and audio) into four channels
H.264 Decode	h264Dec.ax	H264 Decoder	PAC H264 Decoder	H.264 decoder (compatible standard H.264)
Audio Splitter	TimeStampIntee.ax	Audio Splitter	Audio Splitter	Duplicate audio data
G723 Decode	G723Dec.ax	G723 Decode Filter	Audio decoder PAC Audio decoder	G723 decoder
UYUV Transform	YUVxfm.dll	YUV Transform	YUV Transform	Color space converter

1.2 Requirements for System Running

- IBM or IBM compatible computer
- Pentium 2.0 GHz CPU or better processor
- Minimum 256 MB memory (4 channel)
- At least one unoccupied PCI slot and IRQ
- OS: Windows Windows 2000 , Windows XP , Windows Vista
- DirectX, version 9.0c or above

1.3 Development Environment

- Visual Studio .Net 2005
- DirectX SDK 2004 summer

2 Linux SDK

(Note: This is an excerpt of SPCT6100 Linux SDK Programming Guide. For more information, please refer to a complete one.)

SPCT6100 EVB Board is a powerful video capturing card dedicated to security field. With a PAC DSP inside, it can compress 1 channel live data with D1 resolution to H.264 format, or 4 channels with CIF resolution, at the framerate of 30fps for NTSC, while 25 fps for PAL. SPCT6100 EVB Board can work on both Linux and Windows. On Linux, our device driver is V4L2 compatible, so that those free software based on V4L2 can access SPCT6100 EVB Board directly or with minor modification, such as ffmpeg/ffserver/vlc/gstreamer. While on windows, DirectShow interface is used. This document gives you introduction about how to development application for SPCT6100 using V4L2 interface on Linux.

2.1 Getting Started

Welcome to SPCT6100 Application Development Guide! In this document, you will acquire a comprehensive understanding of how to write applications for SPCT6100 using V4L2 interface. First, let's have an overview of SPCT6100 video capturing system. SPCT6100 Video Capture Card is PCI hosted, so you can plug it into any pci slot. This card has four analog video inputs, with a PAC DSP as its strong heart, it can compress raw data produced by this four analog inputs into H.264 format, many disk spaces thus can be saved. This card transfers data using DMA, every time raw data or compressed data is DMAed to your host memory, driver will inform your applications, you can then do some processing on those data.

To develop basic applications for SPCT6100, we assume you are familiar with the following skills:

- C language
- Linux build system (toolchain, make etc.)
- Linux system call (open, ioctl, mmap etc.)