

APPLICATION NOTE

**SAA7146 Software
Development Kit**

AN96054

Abstract

The SAA7146 Software Development Kit will be delivered together with SAA7146 sample devices or with SAA7146 reference design boards. It demonstrates the capabilities of the device and provides drivers and Dynamic Link Libraries that customers can use in their own applications.

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SAA7146 Software Development Kit

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Summary

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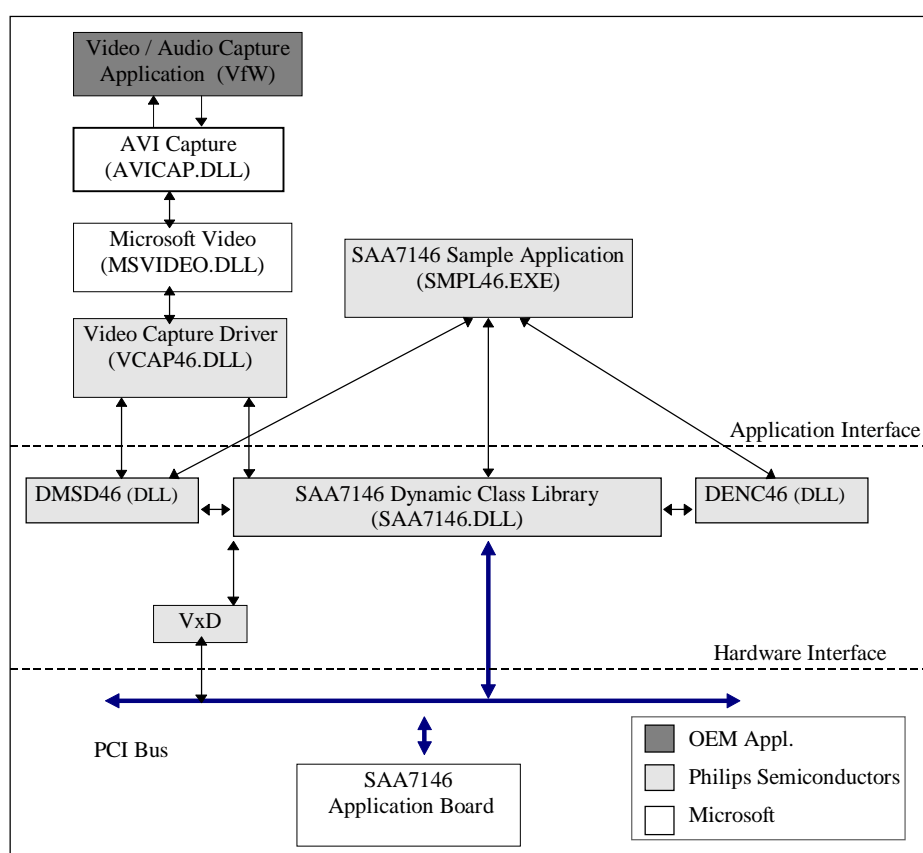
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1. Overview

The Philips Semiconductors SAA7146 software demonstrates the capabilities of the device and provides drivers and Dynamic Link Libraries (DLLs) that customers can use in their own applications. This software has been tested with the reference design board. The SAA7146 Dynamic Link Library provides a high level interface to the device. Standard Microsoft Interfaces for video and audio control are used to interface driver DLLs to the existing applications like Video for Windows capture. Figure 1 shows the developed software in the Microsoft Video for Windows architecture. The DMSD46 DLL provides an interface to the SAA7110/11 DMSD devices via the SAA7146 DLL, the DENC46 DLL to the SAA7182/83 Encoder devices.



2. Target Platforms and Operating Systems

The SAA7146 Software Kit is designed for Microsoft Windows 95, Microsoft Windows 3.1, and Microsoft Windows for Workgroups 3.1.1 running on IBM PC or PC compatible computers (486DX2 66 or faster) with a PCI bus. Microsoft Visual 'C'/'C++' compilers and tools were used to develop this software, along with the Microsoft Software Developers Kit (SDK), and the Drivers Development Kit (DDK). Tools from NuMega and Vireo were used to develop and debug the Virtual Device Driver (VxD) and Dynamic Link Libraries (DLLs).

3. System Requirements and Development Tools

This is a list of minimum system requirements for full utilization of the SAA7146 software.

- ◆ IBM PC or PC compatible 486 DX2 66MHz PCI system (or higher performance system)
- ◆ 3.5 inch floppy disk drive for installation.
- ◆ PCI board designed with the Philips SAA7146 device
- ◆ PCI compliant VGA or SuperVGA board, with accessible framebuffer (supporting one or more of the color space formats supported by the SAA7146).
- ◆ Microsoft Windows 3.1 or Windows for Workgroups 3.1.1. (Windows 95 for the Windows 95 version of the drivers and DLLs)
- ◆ Text editing application (needed to edit/update macro files and initialization files).
- ◆ Video/Audio/data source for Philips SAA7146 device.

The following tools are useful to develop applications, DLLs, and capture drivers for Microsoft Windows.

- ◆ Microsoft Visual 'C'/'C++' compiler version 1.52 & 4.1
- ◆ Microsoft CodeView
- ◆ Video for Windows Driver Development Kit (DK)
- ◆ Microsoft Windows Software Development Kits (SDKs)
- ◆ Microsoft Windows Driver Development Kits (DDKs)
- ◆ Microsoft Assembler MASM 6.0 or greater

4. Installation Procedures

An installation program is provided with the Windows 3.1 software version. Executing the setup.exe file will install software and SDK. The setup program decompresses the software and places the files in appropriate directories. It will also automatically update your system.ini file to include the required entries. Default versions of SAA7146 software specific .ini files are placed in the windows directory.

5. Software Development Kit

The Software Developers Kit contains the following software modules:

- ◆ Dynamic Link Library (DLL)
- ◆ Virtual Device Driver (VxD)
- ◆ Video capture driver
- ◆ SAA7146 Register Editor
- ◆ SAA7146 Debugger
- ◆ SAA7146 Universal I²C Transceiver
- ◆ Demonstration and sample source code

6. Demonstration & Sample Source Code

The sample application (SMPL46.EXE) extensively uses the SAA7146 Application Interface. It is written with Microsoft Visual C++ and demonstrates opportunities for customized software applications:

- ◆ Initializing the SAA7146 and the connected Decoders & Encoder
- ◆ Using the PCI BIOS to find the SAA7146 and VGA cards
- ◆ Video overlay in a window
- ◆ Video capture to system memory
- ◆ Video output to an external monitor
- ◆ Audio capture and playback
- ◆ Clipping
- ◆ RPS programming
- ◆ Windows programming (DCI, Direct Draw usage)