The DPC7146 NetLook™ Video-conferencing development kit is a high performance solution for developing videoconferencing systems for PCs with a PCI-bus architecture. It is based on Philips’ proven desktop video architecture, allowing quick time-to-market and low risk development.

**Emerging market with a huge potential**

With almost every modern PC using the PCI-bus, the DPC7146 NetLook development kit allows OEMs to address the huge emerging market for PCI-based videoconferencing systems. It features an interface for the addition of a dedicated hardware CODEC, or an ISDN or POTS modem chipset. The Netlook kit is also highly suitable for software CODECs with existing network connections such as POTS and ISDN, corporate LANs or WANs. Videoconferencing via the internet is also possible, making the kit ideal for the huge installed base of existing PC set-ups using the fast PCI-bus and an existing POTS/ISDN connection, as well as for new designs.

**Proven high performance video processing**

The DPC7146 NetLook kit uses ICs from Philips’ desktop video chipset, specifically designed for applications such as videoconferencing systems and already proven in a number of market-leading video processing systems. Philips ICs are also designed to integrate smoothly with each other, avoiding the need to design specific interfaces.

The SAA7111A is a true multi-standard decoder accepting S-video and CVBS inputs to PAL, NTSC and SECAM standards, making systems based on the DPC7146 NetLook suitable for use anywhere in the world. Both the decoder and SAA7185B digital encoder implement the full broadcast standards providing solid, stable and accurate pictures.

The SAA7146A PCI Bridge features high performance 2D scaling, resulting in very few artefacts even when pictures are reduced to icon size, making it ideal for windowing and high-end applications. It also has a hardware-accelerated vanity picture function and by performing most of the video processing on-board, the SAA7146A helps reduce load on the CPU, maintaining high overall system performance. In addition to the PCI-bus, it supports a variety of interfaces including an Intel/Motorola 8/16-bit DEBI (Digital Expansion Bus Interface) port, an I²C bus connector, and a 4-bit general purpose interface. The DEBI port allows the addition of a hardware videoconferencing CODEC, or an ISDN or POTS modem chipset.
Complete development kit
- DPC7146 video capture and playback card featuring a digital multistandard decoder, a PCI bridge, a digital video encoder and an audio DAC
- control, video capture and debugging software including device drivers for Windows 3.1/NT/95 and a sample video capture application
- complete documentation including the board's Gerber files, datasheets, etc.
- camera
- videoconferencing software
VDO professional™ from VDO net and iVisit™ from Boxtop

System requirements
- 486 66 MHz PC (Pentium 90 MHz recommended)
- PCI-compliant VGA or super VGA board
- Direct Draw
- sound card
- internet/ISDN/POTS/LAN/WAN access (depending on the medium used)

Note: these requirements are for Philips' software; 3rd party videoconferencing software may have additional or higher requirements.

**DPC7146 NetLook videoconferencing development board**

**Video front-end**
This consists of the SAA7111A multistandard video decoder which accepts signals in all TV standards (PAL, SECAM and NTSC) from a CVBS or S-Video source. It converts the analog signal to digital and decodes it for further processing stages.

Colour decoded video streams are fed to one of the two video inputs of the SAA7146A in 8-bit (D1) or 16-bit (D2) format. The SAA7146A interfaces video functions to the PCI-bus and has a range of other interfaces to provide flexible connection to other video and audio ICs. It includes a hardware vanity picture feature, an on-board 2D high performance scaler to allow electronic zooming and also a binary ratio scaler. An I²C interface is used to control the decoder with the SAA7146A PCI Bridge normally acting as I²C-bus master.

**Video back-end**
Video playback to TV uses the SAA7185B encoder and a standard application uses Direct Mode (DM), where video data are fed directly to the encoder. For additional functionality, the SAA7146A supports line and field memory access via VMI connectors, using additional Line Memory Mode or Field Memory Mode modules. Encoded video signals are available as CVBS or S-Video signals.
ISA/68000 bus interface
This high-speed ISA/68000 bus interface can be used to connect a hardware videoconferencing CODEC, ISDN chip or any other ISA/68000 style device.

Connectors for video and ISA/68000 bus signals
These VM connectors allow additional boards to be connected and provide access to most video and DEBI data signals during development.

Audio processing (optional)
The kit also features an audio analog-to-digital converter.
Manufacturers of videoconferencing systems can thus develop audio wave drivers which allow the transfer of audio data to the PCI-bus, a unique capability of the SAA7146A PCI Bridge.

Videoconferencing development software
Developed to assist customers’ software application and driver development, the software kit provides developers with source code for a sample video capture application. This code can be easily adapted to a specific application allowing very easy product differentiation and quick development times, the two most critical factors for success in this market. The application software interfaces to DLLs which have been optimized for Windows and are ready to use. Furthermore, the kit includes virtual device drivers (VxD) and a debug utility, as well as a register editor and universal I²C transceiver. The software capture drivers are designed for Microsoft’s Video for Windows architecture, and are modular and expandable. The modules include:

- **Dynamic class library**: contains all of the classes required to control the kit.
- **D MSD 46.D LL, D ENC 46.D LL**: these DLLs include controls for the SAA7111A and SAA7185B respectively.
- **Virtual device driver**: the SAA714x VxD performs kernel level operations and is responsible for providing services to the DLLs.
- **Video capture device driver**: provides low-level video capture services for Windows multimedia applications featuring real-time video capture, video preview and video overlay.
- **Audio capture device driver**: this driver supports a configurable capture buffer size and is capable of capturing 16-bit stereo audio in an AVI file.
- **Debug utility**: allows the user to identify quickly, view and edit configuration information and registers for all PCI devices in the system, and access other devices connected to the PCI Bridge.
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