Multimedia Platforms
Multimedia Computer Block Diagram
Windows MCI (Multimedia Control Interface)
Quicktime

Apple compressors:
- photo compressor,
- animation compressor,
- video compressor,
- Radius Cinepak,
- Intel Indeo,
- Real-time video (RTV),
- Motion JPEG
- MPEG playback

QuickTime application
Movie Toolbox
Component Manager
ICM
MIDI
Video Digitizer
Audio Digitizer
Movie controller
File dialog box
Other Mac devices
DirectX
ActiveMovie
ActiveMovie Architecture
ActiveMovie Filters
ActiveMovie Dynamic Rate Control
DirectShow

DirectShow System Overview

- Working with multimedia presents several major challenges:
- Multimedia streams contain large amounts of data, which must be processed very quickly.
- Audio and video must be synchronized so that it starts and stops at the same time, and plays at the same rate.
- Data can come from many sources, including local files, computer networks, television broadcasts, and video cameras.
- Data comes in a variety of formats, such as Audio-Video Interleaved (AVI), Advanced Streaming Format (ASF), Motion Picture Experts Group (MPEG), and Digital Video (DV).
- The programmer does not know in advance what hardware devices will be present on the end-user's system.
DirectShow System Overview

DirectShow is designed to address each of these challenges. Its main design goal is to simplify the task of creating digital media applications on the Windows® platform, by isolating applications from the complexities of data transports, hardware differences, and synchronization.
DirectShow Components
DirectShow Filters

- DirectShow uses a modular architecture, where each stage of processing is done by a COM object called a filter.
- DirectShow provides a set of standard filters for applications to use, and developers can write their own custom filters that extend the functionality of DirectShow.
To play an AVI video file:

- Read the raw data from the file as a byte stream (File Source filter).
- Examine the AVI headers, and parse the byte stream into separate video frames and audio samples (AVI Splitter filter).
- Decode the video frames (various decoder filters, depending on the compression format).
- Draw the video frames (Video Renderer filter).
- Send the audio samples to the sound card (Default DirectSound Device filter).
Filter Graph