

# Getting Started with Digital Video on the PC

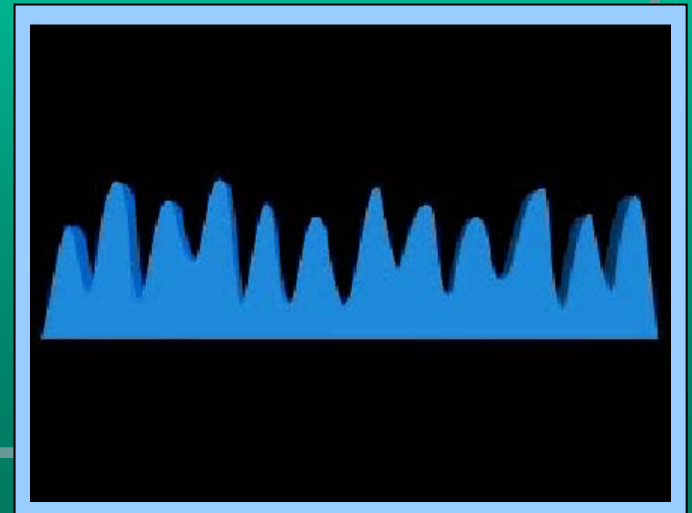
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# Analog Video

- Analog video is stored as a continuous stream of data on magnetic tape
- When transferred or copied it loses quality
- May deteriorate over time while on magnetic media



# Analog Equipment

- VHS
- VHS-C
- S-VHS
- 8 MM / Hi-8
- RCA Connectors / S-VHS Connectors



# Digital Video

- Digital video is stored as a series of ones and zeroes on magnetic tape or digital media (CD / DVD)
- No quality is lost when transferred or copied
- Won't deteriorate over time if not stored on magnetic tape
- Better image quality



# Digital Video Equipment

- Mini DV Cameras
- Digital 8 Cameras  
(Sony's pseudo digital)
- IEEE 1394 / Firewire / iLink connectors
- Analog connectors for compatibility
- Some have USB 1.0 / 2.0 connectors



# Mini DV Info

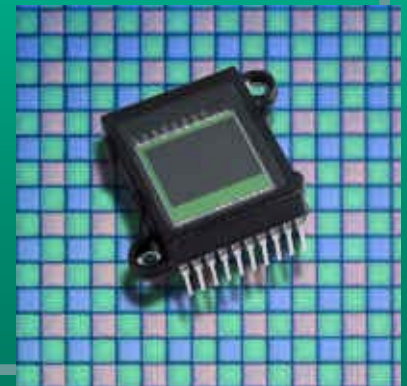
- Set of compressed video standards (codec) agreed upon by camera companies in 1994
- 720 x 480 resolution at 29.97 frames per second
- Records video compressed at a 5:1 ratio (lossy)
- CD quality stereo audio
- 3.6 MB per second of data

Mini **DV**



# Buying a Digital Video Camera

- Images generated by CCD (Charge-coupled device)
- Single CCD cameras use single sensor to capture all three primary video colors
- Multi CCD cameras use one sensor per primary video color
- Optical / Digital Zoom
- LUX rating
- Signal to Noise Ratio



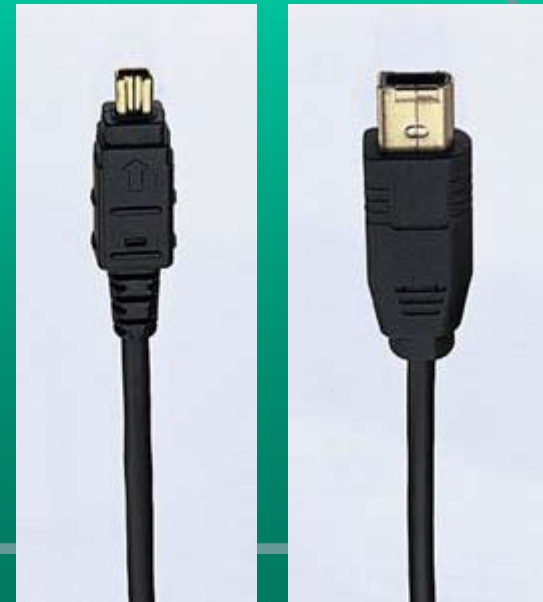
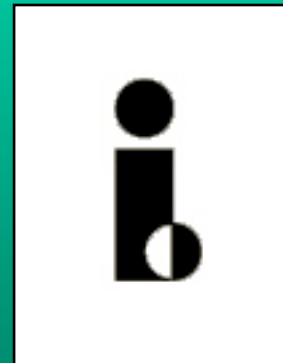
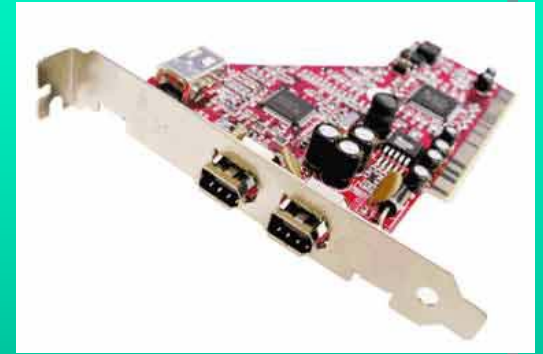
# Getting Video into the Computer

- Internal analog video capture (ATI All-in-Wonder)
- External digital converter (Canopus ADVC 100)
- External USB 1.1 / 2.0 video capture (Pinnacle Dazzle)
- Digital to digital transfer (IEEE 1394 / Firewire / iLink)



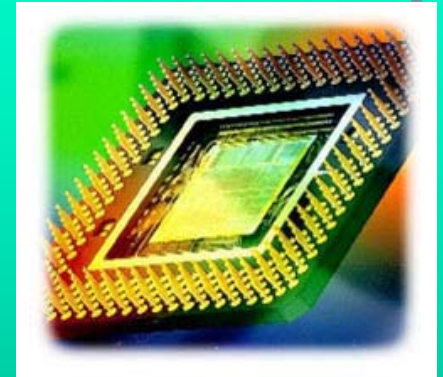
# Firewire

- Bi-directional (data moves both ways)
- Transfer format only
- Designed to move lots of data fast (video)
- 10 MB per second
- No conversion loss during transfer
- 6 pin & 4 pin connectors



# Demands of Digital Video

- There is no such thing as too fast a CPU, too much RAM or too large a hard drive
- Large displays help with viewing multiple data windows & previews
- Having fast I/O like Firewire is an important component in moving video back and forth



# Video File Sizes

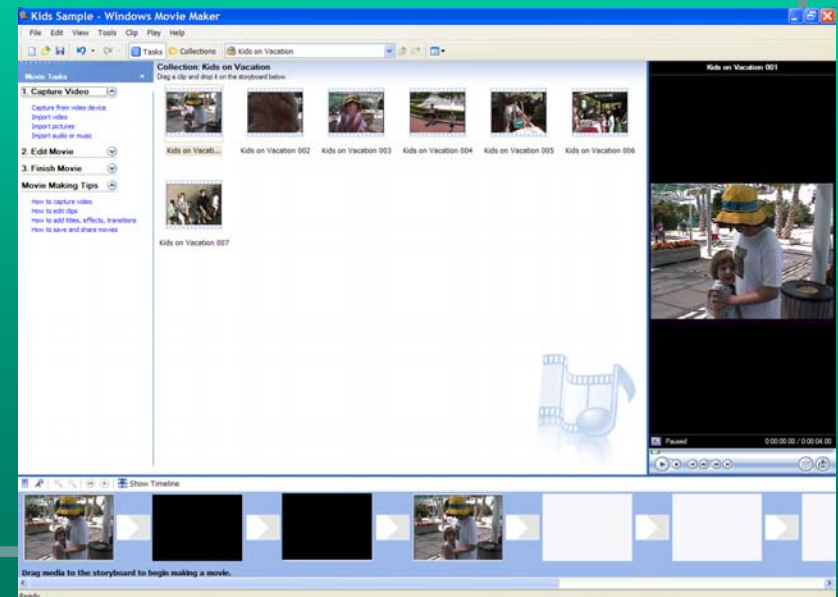
- Mini DV digital video requires 4MB of hard drive space per second
- 240 MB per minute / 1.4 GB per hour
- Length, dimensions, frames per second and compression all impact the file size of video

Length	Dimension	FPS	File Size
1 minute	320 x 240	24 fps	4.9 MB
1 minute	320 x 240	15 fps	3.7 MB
1 minute	160 x 120	15 fps	1.2 MB
1 minute	160 x 120	8 fps	840 KB
1 minute	720 x 480	29.97 fps	240 MB



# Digital Editing Software

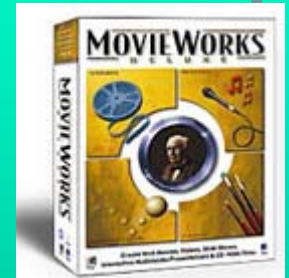
- Windows Movie Maker 2 (Part of Windows XP)
- Free download from Microsoft
- Basic editing features
- Automatic movies
- Easy title wizards
- Slow rendering
- Will quickly want more advanced features



# Digital Editing Software

- Ulead Video Studio 7
- Roxio Video Wave 5
- Dazzle Movie Star 5
- MovieWorks Deluxe
- Sony ScreenBlast Movie Studio

...and many others



# Digital Editing Software

- Pinnacle Studio 8
- Cost: \$70
- Award winning interface
- Very user friendly
- Lots of transitions
- Copyright free music
- Can output video in a variety of formats and media
- Install latest patches



# Optional Digital Video Software

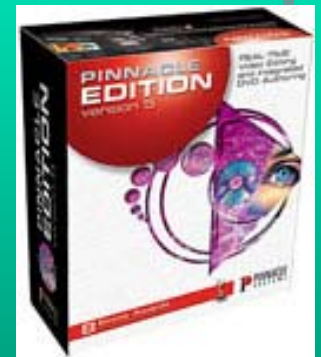
- **Hollywood FX Plus / Pro**  
(Studio 8 effects add on)  
\$50 / \$99
- **Visual Communicator Web**  
(For “live” broadcast type video  
/ green screen / teleprompter)  
\$199
- **Cool 3D Production Studio**  
(3D graphics and special  
effects)  
\$99



**AMAZING  
ANIMATION**

# Advanced Video Editing

- Pinnacle Edition 5
- Adobe Premiere Pro 7
- Ulead MediaStudio
- Avid Xpress Pro
- Sony Vegas 4.0
- Stay “cheap” until you need more power



# Video Output Options

- Back to camera
- Video File / Formats (AVI, MPG, MOV...)
- Web – File
- Web – Streaming (WMV, RM)
- Video tape
- Video CD - VCD
- DVD (DVD-R / DVD+R...)



# Possible Video Configurations

- Use existing analog camera & computer and purchase capture device & Studio 8 software - \$270 to \$300
- Use existing digital camera & computer and purchase Studio 8 with Firewire - \$100
- Use existing computer and buy digital camera, Studio 8 with Firewire - \$500 up
- Buy desktop computer, digital camera, Studio 8 with Firewire - \$1500 up
- Buy laptop computer with Firewire, digital camera, Studio 8 - \$2000 up
- With laptop, you now have a completely portable video production platform that can go anywhere!



# Presentation URL

- <http://www.cpsb.org/presentations>
- [scott.schonefeld@cpsb.org](mailto:scott.schonefeld@cpsb.org)

