

# Media Technology

## Group Work 4

*Digital Video Compression*  
(Codecs, Codec Parameters, Data-rate, Visual Quality)  
January 21, 2004

# Group Work Report

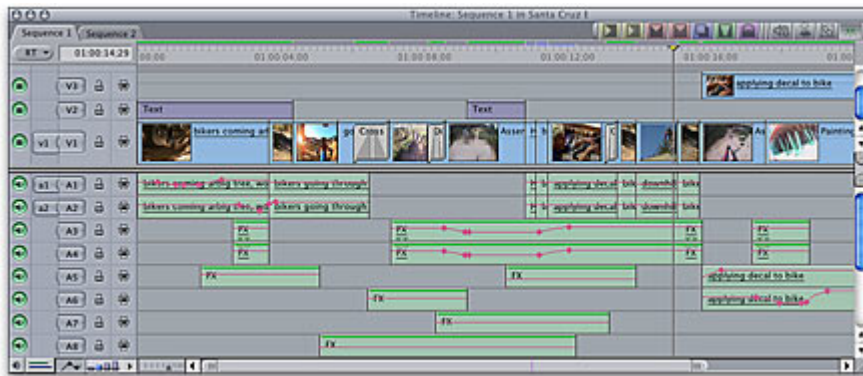
## **Group Work Report**

- Please prepare a 1 to 2 page report of your findings from this group work. Outline the important points from each exercise and your results.
- Everyone should hand in their own report (no group reports please).
- The report is due, in printed form, by the beginning of the next Media Technology lecture (January 28, 2004).

# Overview for Today

1. Review of VirtualDub
2. Intro to the DivX video codec.
3. Compress a video file with multiple target bitrates.
4. View each encoded file and rate the quality.

# Target Media Applications



**Final Cut Pro – Non-Linear Digital Editor**

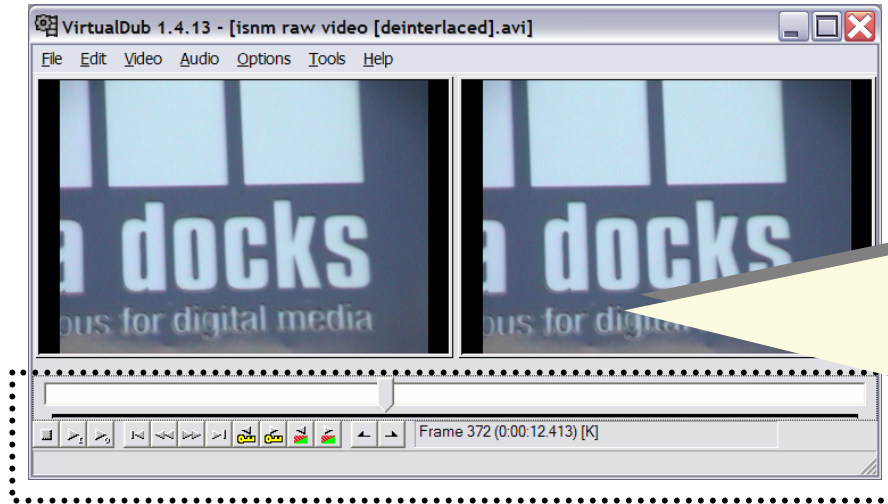


**DVD & Broadband Audio / Video Services**

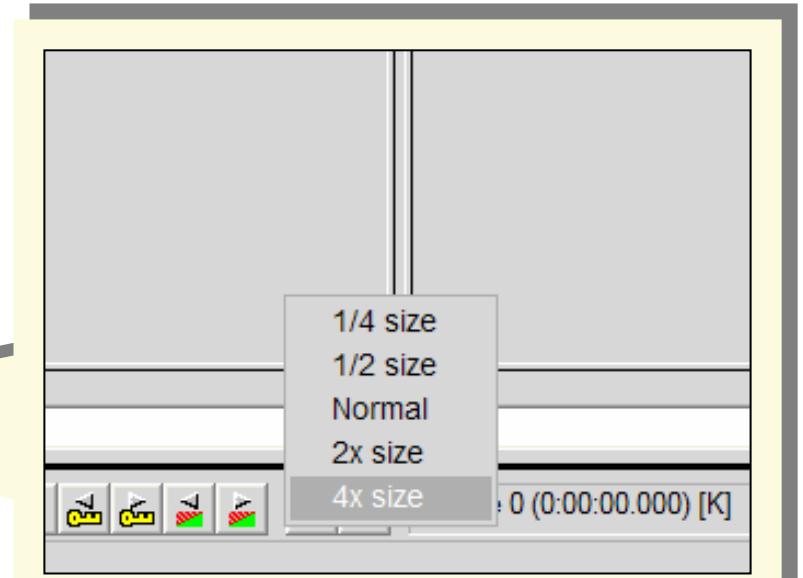


**Mobile Media Applications**

# Review of VirtualDub



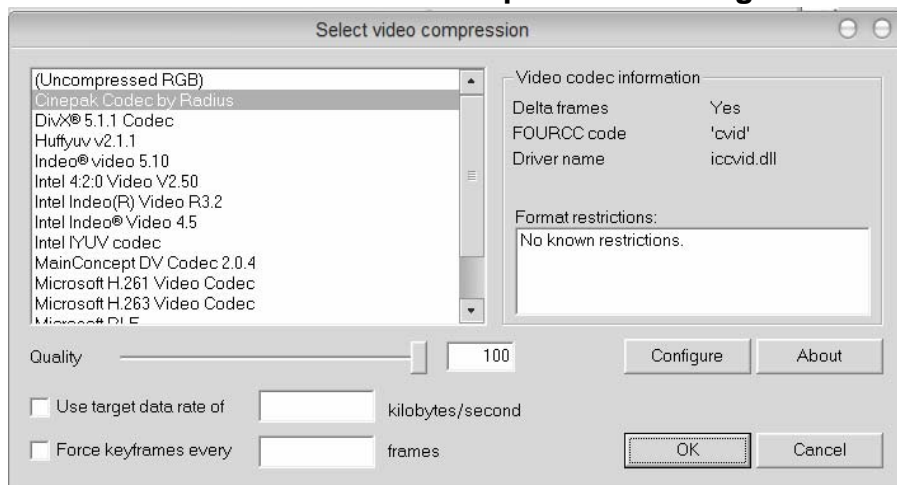
VirtualDub Media Controller



"Right Click" in a preview window  
to access the Zoom control

# DivX Compression Settings

VirtualDub Video Compression Settings



## Things to Notice

- Encoder options *are different* for each codec.
- Some codecs have both presets and 'Advanced' options.
- Not all codecs allow sophisticated adjustments.

Example: DIVX 5.1.1 Encoder Options



# Encoding for Broadband Delivery



**DVD & Broadband Audio / Video Services**

## **Compress the source file for two targets**

- Target 1: Set-top box playback (5Mbit/Sec)
- Target 2: Delivery over broadband Internet (512Kbit/Sec)

## **Procedure**

1. Locate the source file (name & location given in class)
2. Open the source file in VirtualDub
3. Choose MENU: Video>Compression
  - Select DivX 5.1.1 from the drop down list
4. Click "Configure"
5. Choose the appropriate bitrate for Target 1 (5MBit/Sec)
6. Choose "1 pass"
7. Click the "Video tab" in the compressor dialog box
8. Choose a keyframe interval and interlacing mode
9. Click "OK" to exit from the compressor dialog
10. Click "OK" to exit from the virtualdub dialog
11. Choose Menu: File>Save as AVI
12. Select a location on the D drive and click "OK"
13. Repeat for Target 2 (512KBit/Sec)

# Encoding for Mobile Delivery



**Mobile Media Applications**

## **Compress the source file for two targets**

- Target 1: WI-FI Hotspot (192Kbit/Sec)
- Target 2: Low datarate wireless (32Kbit/Sec)

## **Procedure**

- Locate the source file (name & location given in class)
- Open the source file in VirtualDub
- Choose MENU: Video>Compression
  - Select DivX 5.1.1 from the drop down list
- Click “Configure”
- Choose the appropriate bitrate for Target 1 (192Kbit/Sec)
- Choose “1 pass”
- Click the “Video tab” in the compressor dialog box
- Choose a keyframe interval and interlacing mode
- Click “OK” to exit from the compressor dialog
- Click “OK” to exit from the virtualdub dialog
- Choose Menu: File>Save as AVI
- Select a location on the D drive and click “OK”
- Repeat for Target 2 (32KBit/Sec)

# Questions

## Procedure

- Open each of your 4 encoded files and examine them with VirtualDub.
- Use the VirtualDub Zoom control to look closely.

## Questions

- Could you see any visual artifacts in your encoded videos like “blocking” or “ringing”? In which video were these artifacts most apparent?
- What would you say is the relationship between the picture quality and the data-rate?
- What other methods could you use to reduce the data-rate of the video? (Think past group works...)
- In the DivX encoder, what does the keyframe setting do?
- In the DivX encoder, what do the Interlace settings do?
- Why would you ever choose a short keyframe interval?
- Do you think that the data-rate remains constant throughout the entire video? If not, when does the data-rate change and why?

