

4 Video data

Answers from page 78.

Q1: a) The 'video in' on the graphics card does not allow analogue video to be captured

Q2:

Here is an example of what I found:

Video Capture Card 1

Sigma REALmagic DVR PCI

Encodes into MPEG 1 and MPEG 2

Max frame rate 60fps

Audio input on this card

Data transfer rate: 15Mbps

Max capture resolution: 704 x 480 pixels

Live preview of video as it is captured

Places little demands on computer system

Min system spec: 266MHz Pentium and 64MB RAM

Cost £699 plus VAT

Video Capture Card 2

Pinnacle Systems Studio DC10 Plus - Version 8

Encodes into MPEG 1, MPEG , AVI, MJPEG and RealVideo 8

Max frame rate: 30fps

Relies on PC soundcard to capture sound

Data transfer rate: 6Mbps

Max capture resolution: 768 x 576 pixels

Places big demands on computer system, so requires fast system processor

Min system spec: 500MHz Pentium and 128MB RAM

Cost £109 plus VAT

Graphics Card with video capture capability

Sapphire Radeon 9600Pro AllinWonder 128MB D/VIVO/DDR AGP

Encodes into MPEG 2

Max frame rate: 30fps

Requires soundcard to capture sound (I think!)

Max capture resolution: 720 x 480 pixels

System requirements: at least a Celeron CPU and 128MB RAM

This graphics card has additional features, but here I am only examining its video capture capabilities.

Cost: £153 plus VAT

Summary: More money buys a more capable video capture card that places fewer demands on the rest of the computer system. These best capture cards also support a greater bit rate and capture sound input along with the video. The hardware codecs in the specific capture cards are more varied than in the graphics cards. Can you think why capture cards do not offer greater capture resolutions than around 768 x 576, and why this *may* never be necessary?

Q3: d) 440Mbps

Q4: $(640 \times 480) \times 30\text{fps} \times 24\text{bpp} = 211\text{Mbps}$

Q5: d) Any, information on the codec to use is contained in the header of the container AVI file

Q6: MPEG movies are stored as a key frame, which is a JPEG image, followed by a series of frames - these other frames are not entire images, but just store any changes since the last key frame. They use a lossy compression in which the quality / file size ratio can be adjusted.

Q7: a) 24fps, 600 x 400 pixels, 12 bits

Q8:

Video settings	bit rate	file size (25mins = 1500s)
24fps, 600x400 pixels, 24 bits per pixel	138Mbps	24GB
24fps, 600 x 400 pixels, 12 bits	69Mbps	12GB
6fps, 300 x 200 pixels, 12 bits	4Mbps	772MB
12fps, 600 x 200 pixels, 24 bits	35Mbps	6GB
12fps, 300 x 200 pixels, 24 bits	17Mbps	3GB

Q9: a) A transition was used

Q10:

An effect alters how the video is displayed on screen (similar to an effect in a painting or photo-editing program), a transition determines how one video clip ends, while another starts. I looked at the effects and transitions in Microsoft Windows Movie Maker v5.1:

Video Effects

Drag a video effect and drop it on a video clip on the storyboard below.

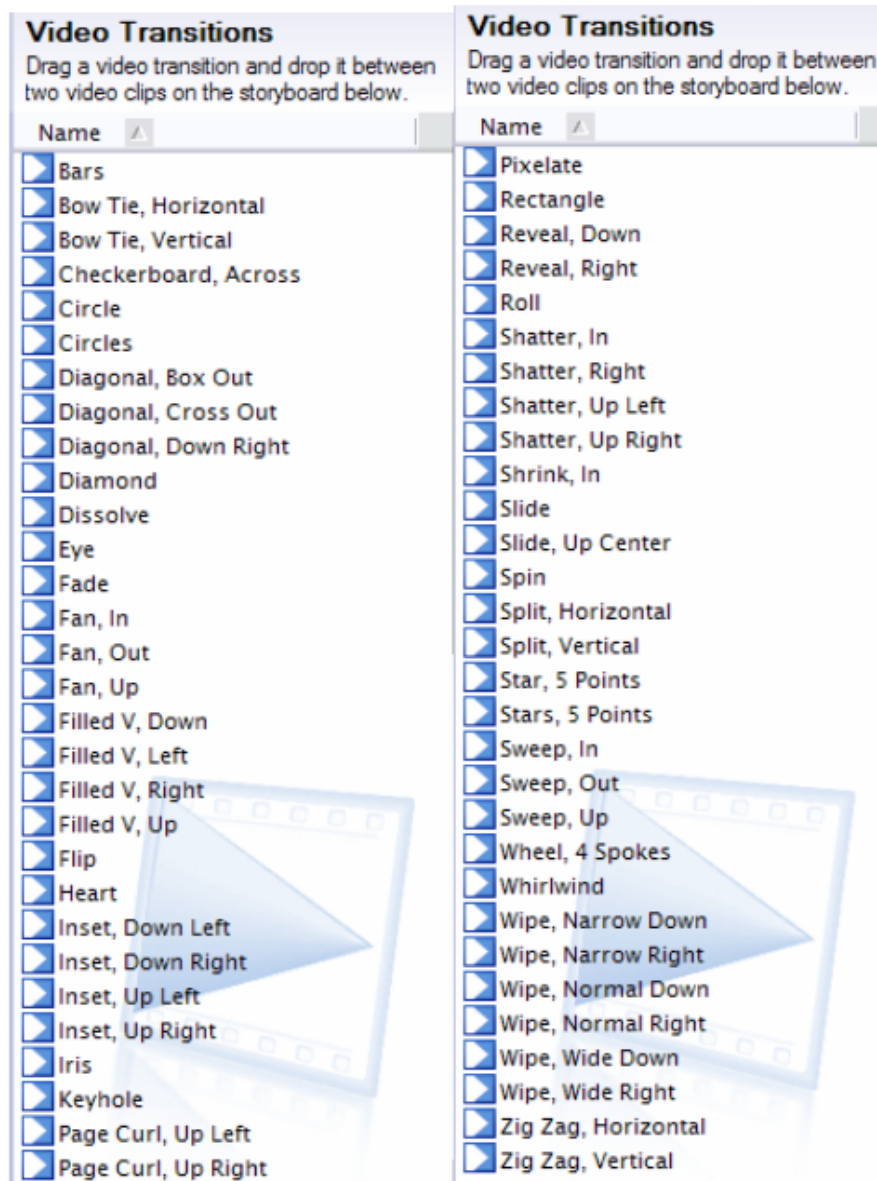
Name ▲

- ★ Blur
- ★ Brightness, Decrease
- ★ Brightness, Increase
- ★ Ease In
- ★ Ease Out
- ★ Fade In, From Black
- ★ Fade In, From White
- ★ Fade Out, To Black
- ★ Fade Out, To White
- ★ Film Age, Old
- ★ Film Age, Older
- ★ Film Age, Oldest
- ★ Film Grain
- ★ Grayscale
- ★ Hue, Cycles Entire Color Spectrum
- ★ Mirror, Horizontal
- ★ Mirror, Vertical
- ★ Pixelate
- ★ Posterize
- ★ Rotate 90
- ★ Rotate 180
- ★ Rotate 270
- ★ Sepia Tone
- ★ Slow Down, Half
- ★ Smudge Stick
- ★ Speed Up, Double
- ★ Threshold
- ★ Watercolor



18 effects!

Transitions:



34 transitions!

When listing effects and transitions, variations of the same effect can be omitted, e.g. just 'wipe' transition, rather than listing all six variations of the wipe transition.