Scanning film and other things

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Types of scanners

- Flat bed
  - Available in sizes from desk top to large format
  - Also available in multi-function devises
- Film
  - Available to handle different format films
  - Most only scan 35mm
- Drum
  - Best quality and most expensive

Flatbed Scanners

- Many only designed for documents
  - Look for one that also does film
  - Some do multiple film formats
  - 35mm, 120 & 220, 4X5 and 8X10
  - Negatives and Positives

Flatbed Scanners

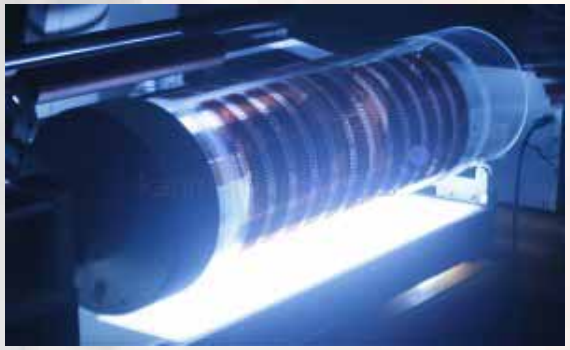
- Light source
  - LED, Xenon or fluorescent lamp
- Sensors
  - Single line array CCD
- Scan speed
  - This will vary from brand to brand
  - Also effected by resolution scan is set to
- Batch Scanning
  - The ability to scan multiple negatives or slides at a time
- Multi-Scan
  - The ability to scan the same image or frame multiple times (typically 4 or 15 times in one slow pass) to help reduce noise in the image data.
- Digital ICE and VueScan
  - This combines the RGB scan and an IR scan to help detect and remove dust, fingerprints, scratches and other film damage

Film Scanners

- Strictly designed to scan film
- Check which film formats scanner can do
  - APS, 35mm and 120 & 220 film
- Most will not do large format sheet films
  - 4X5 and 8X10

Drum Scanners

- Higher quality scans then most film or flatbed scanners
- Spins product while a fixed laser or other beam of light scans the image
- The beam of light is read by a vacuum tube called a Photo Multiplier Tube.



Drum Scanners

- The (PMT) is much more sensitive to light than the pixels on a CCD and can see a broader range of light from black to white with much less noise than a CCD.
- Scanning film with drum scanners is tricky. You must first soak the film in oil before mounting the film to the drum, and then clean the film afterwards.
- Prices start at about $20,000.

Film Scanning

- Resolution and Interpolation
- Scanners very in resolution and Interpolation.
  - Most flatbed scanners have at least 300X300 dpi resolution, this is determined by the number of sensors in a single row (x-direction sampling rate) of the CCD by the precision of the stepper motor (y-direction sampling rate)
  - Interpolation is the adding of pretend pixels
  - This is the filling in of areas between the real pixels to help smooth the image so that it will not pixalate when enlarged

Film Scanning

- All scanners can add phony pixels when set to resolutions above their legitimate optical resolution.
- This is what you are doing in Photoshop when you resize the image and have the “resample” box checked
- Always compare resolution between scanners when making a choice.
- When seeing the resolution listed as 2400X1200 DPI this is just a 1200 DPI scanner optically

Flatbed vs. Film Scanners

- There is the obvious
- Film scanners only scan film
- Some flatbed scanners also scan film
- Flatbed scanners can be used for scanning three dimensional objects
- Why then buy a film scanner?
  - If film is uncut (you do your own processing) some film scanners can scan rolls of film
  - Film scanners may have higher resolution and scan faster

Some Scanner Manufactures

- Artee
- Epson
- Fuji Photo Film Co.
- HP
- Kodak
- Canon
- Nikon
- Konica/Minolta
- Pacific Imaging
- Hasselblad
- Plustek

3D Scanned Objects

- Products for advertising

3 D Objects

- Flowers from the garden

Scanned slides

- 35mm slides

Scanned Negatives

- 35mm B&W negative