

# The CRT Controller

How to modify CRTC registers to achieve a non-standard horizontal and vertical screen resolution

# Video bandwidth

- PC systems display pixels at a rate that is determined by an internal hardware timer
- An oscillator generates this rate-frequency (it is known as the 'dot clock')
- Modern SVGA systems can select among several different dot clocks
- Faster dot clock rates are used with higher screen-resolutions

# Example: VESA mode 0x101

- Radeon BIOS programs CRTC hardware for 640-by-480 screen-resolution (8bpp)
- Screen refresh-rate is 60 Hz (frames/sec)
- This mode uses a 25.2 MHz Dot Clock
- One pixel is drawn per dot-clock oscillation
- But extra time is needed for the horizontal and vertical retrace operations