WHAT IS NON-INTERLACED?

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The term 'non-interlaced' is associated with display devices. these. are. monitor and display card. To understand it completely, one should have a fundamental concept about the functioning of the display card and the display mechanism of the monitor. A brief discussion of them is as follows:

Display Card: The function of the display card is to produce visual signal corresponding to the content of the video RAM. Display card contains DRAM, Display Logic, Character Generating ROM and Frequency Generating Device. The Card reads each screen position's character byte and attribute byte (for text mode) from video RAM. then gets the shape, color & appearance of the character corresponding to those bytes from the Character Generating ROM and generates visual signal with its own Display Logic at a specified frequency intended by the current video mode. This visual signal is supplied to the monitor through signal cable. The monitor is assumed compatible.

Monitor: Monitor is a device that receives the signal through cable and display pictures in its CRT (Cathode Ray Tube) at the frequency provided by the Display Card. Physically. CRT consists of smallest illuminable dots. called pixels. All the pixels are arranged in a rectangular chunk forming horizontal lines and vertical lines. A monitor having maximum 1024 X 768 resolution means that its rectangular chunk has 768 horizontal lines of each containing 1024 pixels. In Displaying pictures, an electron beam traverses each line from left to right. Horizontal frequency of monitor means that how many lines the electron beam traverses in one second. Vertical frequency means that how many pictures are being produced in one second. And as all horizontal lines together form a picture, so dividing the horizontal frequency by total number of lines, we get vertical frequency or number of pictures per second. Higher quality monitor (multisync monitor) can deal with higher fre-

quency and can adjust itself automatically to the frequency of the video card. As higher frequency creates many numbers of illumination or more pictures per second, the picture is sharp and flicker-free.

High Resolution Difficulty: For high resolution, both the card and the monitor has to serv much number of dots (pixels) per second if vertical frequency (or sweep frequency) is kept constant and scanning is done sequentially as illustrated above. The hardware performs sequential scanning of line at high resolution and high frequency.

On the other hand. if high resolution is intended to display with normal horizontal frequency, then vertical frequency (or sweep) or refresh rate will be reduced. This will cause flickering in the screen.

So, a cheaper hardware with alternate scanning (in high resolution) at moderate horizontal frequency is available known as interlaced.

Interlaced : In this mechanism, alternate (or differently selected) lines are scanned on the first pass, then going back and filling the missing one on the second pass. If the complete picture is refreshed only 40 times a second, the illusions of an 80 Hz refresh rate is cre-
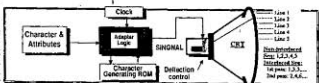

Figure : Display Mechanism with CRT & Display Card

ated. greatly reducing flicker. But picture becomes a little blurred.

Non-Interlaced : In this mechanism, lines are scanned sequentially with high frequency even at high resolution. Scanning sequence of line is 1,2,3,4,5,...... maxline—no intermediate line is dropped— all lines are scanned in every pass. This yields sharp pictures. For high precision drawing this type of display is necessary.

Condition of Non-interlaced Display : To insure non-interlaced display, both the Display Card and the Monitor must be non-interlaced.

1) If Card is interlaced and Monitor is non-interlaced, display will be interlaced.

2) If Monitor is interlaced and Non-Interlaced Card provides non-interlaced high resolution signal, display will shut down. In such case. monitor may suffer damage.

Practical Non-interlaced Observation : As a general consequence, at high resolution the pictures should be sharp. Non-interlaced displays obey this. But in interlaced display, at high resolution screen becomes a little blurred (in most cases) as it seems there is an extra white screen over the actual screen. But this type of detection cannot be regarded absolutely correct as different manufacturers have different quality in their products and persons are different in their visions.

Which Monitors have non-interlaced display : Non-interlaced Monitor provide non-interlaced display for all resolutions (within its range as its name implies). But, it is noted that **Interlaced Monitors** also provide non-interlaced display for low resolution. For a typical Interlaced Monitor, the following table illustrates it.

No.	Resolution	Color	Non-Interlaced
1.	320X200	4/255	Non-Interlaced
2.	640X200	16	Non-Interlaced
3.	640X350	2/16	Non-Interlaced
4.	640X480	256	Non-Interlaced
5.	800X600	256	Interlaced
6.	1024X768	256	Interlaced
7.	1280X1024	256	Interlaced

Superiority Of Non-interlaced Monitor: As non-interlaced Monitors are built with high frequency circuitry, it approximately requires extra 1/7th of interlaced cost. The cost is reasonable to purchase. In many cases, Non-interlaced Monitors are equipped with some enhanced features, then it may cost more. Due to enhancement. Non-interlaced Monitors produce soft (perfect contrast and radiation) and better pictures (color purity, convergency & linearity) than the corresponding Interlaced one (even when the Interlaced monitor has Non-Interlaced Display). Therefore, for better picture definition sharpness and softness. Non-Interlaced is preferable.