QVGA AND VGA RESOLUTION INPACT ON SUBJECTIVE QUALITY FOR SCALABLE VIDEO CODING (SVC) STANDARD ADVANCED VIDEO CODING (AVC)

Konni. Anil Kumar[1] (Research Scholar), Dr. B.S.S. Ramesh Babu[2] (Assistance Professor)
RAGHU INSTITUTE OF TECHNOLOGY AUTONOMOUS, DAKAMARRI,
VISAKHAPATNAM, Andhra Pradesh - 531162

ABSTRACT

Many architectures and studies are evolving for the challenge of the storage (memory utilization),because memory can be more expensive itself .so the designers are exploring new theories in which more data can be stored in less memory ,but the other challenging is retrieving the stored data so the data compression and decompression evolved and the fixed standards such as the MPEG which was abbreviated as the motion picture expert group are set so that compression and decompression which can be done without any data loss .The major compression techniques ware AVC(advanced video coding)which is also called as mpeg-4 and h256 and the SVC(scalable video coding)which is said to be the extension of the AVC. The video is also termed as a type of data where the clarity defines its excellence. The video is said to be the group of images that captured particular action continuously, .here in this paper the discussion of construction of the vga and qvga based on the Verilog hdl has performed. The vga has the resolution of 640x480 and the qvga has the resolution of 320x240.here the construction of these two are done and based on the user compatibility these are termed as best and each has its own properties.

Keywords: horizontal counter, vertical counter, AVC and SVC. Parameters of vga and qvga are drawn from the Xilinx ISE tool.

I. INTRODUCTION

The advances in video coding at the side of the increase in available community potential assist the development and efficient transmission of multimedia services over stressed out and wireless networks. In specific, mobile communication networks have conquered a massive growth of services which can be targeted round visual stimuli starting from mobile snap shots over cellular video to immersive cell multimedia. Recent forecasts estimate an increase of 50% in keeping with year for mobile video traffic till 2022. Because the cease-users are the final judges of the great of multimedia services, its miles crucial to account for and degree the subjectively perceived excellent when designing and running such visual stimuli primarily based offerings and structures. End-user opinion is commonly acquired thru subjective experiments in which visitors price the quality of the shown take a look at cloth by giving an opinion score.

The distinction among VGA and QVGA is certainly pretty easy. QVGA handiest has a quarter of the area of VGA. VGA has a decision of 640×480 pixels while QVGA is only half of as tall and half as wide at 320×240. You also can show this out quite effortlessly via the term QVGA because it stands for Quarter. Video Graphics Array (VGA), turned into advanced through IBM as the standard for the displays of their computer

systems. This included a resolution of 640×480 pixels. This turned into the standard resolution for a majority of computer displays until it was outdated through better and larger resolutions like XGA and SVGA. Although QVGA turned into already created and used a quick even as after VGA, it become no longer actually that famous till cell gadgets used it.

The smaller monitors on those gadgets meant that the use of the VGA decision might no longer handiest impractical but could additionally be counterproductive because the higher decision could require extra processing power, something that is continually in short supply in cellular devices. But with the greater current advances in era, greater effective gadgets have turn out to be not unusual. Devices that use VGA monitors have began to appear. The advantage of VGA display screen is within the pleasant. Just like with some other sort of display screen, more pixels normally cause better images. This becomes very sizeable with bigger monitors because as you move beyond the same old length of QVGA displays, the image begins to deteriorate as a substitute quick. Devices that have VGA monitors are also lots greater flexible in comparison to QVGA monitors.

II. LITERATURE SUVREY

The video coding is the video compression in which the data compression is completed with the aid of thinking about some particular video coding requirements, so that the video can be saved in much less space via compression and also can be transmitted in narrow bitstrem. A video coding popular is nothing however a report that notifies a bit stream shape and a deciphering approach for video compression.

The well-known does no longer concentrate on the encoder; rather it concentrates on the output structure that an encoder ought to produce. Standardization allows encoders and decoders from special manufacturers to work together throughout number programs. Review on Fpga Based Vga Controller The screen for a trendy VGA organization incorporates 640x480 of photo elements referred to as pixels. A picture is proven at the display screen by using turning on and stale completely pixels.

Turning on one pixel does no longer talk too much, but becoming a member of numerous pixels creates a picture. The display constantly seems over the entire display screen, quickly turning man or woman pixels on and stale. In spite of the fact that pixels are grew to become on every one in flip, we get the feeling that every one of the pixels are on for the reason that screen assessments so swiftly. This is the purpose old monitors with moderate sweep rates gleam.
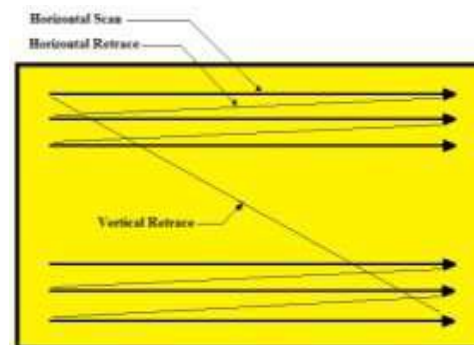

Figure1: Scanning Pattern of VGA Controller

In the figure over the examining method starts from row 0, column 0 within the top left nook of the screen and movements to at least one facet till it achieves the ultimate section. At the factor whilst the output achieves the cease of a column, it

recollects to the begin of the following line. When it achieves the last pixel in the base proper corner of the screen, it backtracks returned to the top left corner and rehashes the checking manner. Keeping in mind the quit aim to lower glint at the display, the entire screen ought to be filtered 60 times each 2d. This duration is known as the revive rate. To decrease glimmer from obstruction from fluorescent lighting fixtures assets, revive rates higher than 60 Hz are in some instances applied as a part of PC displays. Amid the horizontal and the vertical retraces, each one of the pixel is switched off.

The VGA display screen is controlled with the aid of five indicators: red, green, blue, horizontal synchronization and vertical synchronization. The 3 shading signs, all in all alluded to as the RGB signal, control the shade of a pixel at given vicinity at the display screen. They are simple signs with voltages going from 0.7 to 1.0 volt. Varying voltages you possibly can get one-of-a-kind intensities of coloration. These 3-shading signals are treated as virtual indicators, so we will surely switch all people on or off.

To control timing test quotes horizontal and vertical synchronization signals are utilized. Dissimilar to the three simple RGB alerts, these two sync signs are virtual signals. In different words, they deal with either logic 0 or good judgment 1. To manipulate the even deflection circuit in the VGA show the horizontal synchronization signal is applied, in order that the start and quit of a line of pixels is accurately shown over the substantial exhibit place of the display. Similarly, to control the vertical redirection circuit in the VGA display screen the vertical synchronization sign is applied, so

that begin and quit of a casing (of strains) is effectively proven among the top and base edges of the unmistakable presentation variety of the display screen.

At the stop of the day, horizontal synchronization sign comes to a decision the time it takes to output a line, whilst vertical synchronization sign decides the time it takes to clear out the whole screen. By controlling those two sync indicators and the 3 RGB signals, photos are fashioned on the display screen. To accumulate the 640×480 display screen resolution, a clock with a 25.One hundred seventy five MHz frequency is applied. A higher clock frequency is required for a better display decision. For the 25.A hundred seventy five MHz clock, the length is as underneath: 1/25.175MHz= 0.0397 μs in keeping with clock cycle.

III. VGA (VIDEO GRAPHICS ARRAY)

A VGA controller circuit ought to generate the HS and VS timings alerts and coordinate the shipping of video data primarily based at the pixel clock. The pixel clock defines the time available to display one pixel of statistics. The VS signal defines the "refresh" frequency of the display, or the frequency at which all facts on the display is redrawn. The minimal refresh frequency is a feature of the display's phosphor and electron beam intensity, with sensible refresh frequencies falling inside the 50Hz to 120Hz range. The quantity of strains to be displayed at a given refresh frequency defines the horizontal "retrace" frequency. For a 640-pixel by way of 480-row show the use of a 25 MHz pixel clock and 60 +/-1Hz refresh, the signal timings proven in Fig. 14 can be

derived. Timings for sync pulse width and back and front porch durations (porch periods are the pre- and post-sync pulse instances at some point of which facts cannot be displayed) are based totally on observations taken from real VGA displays.
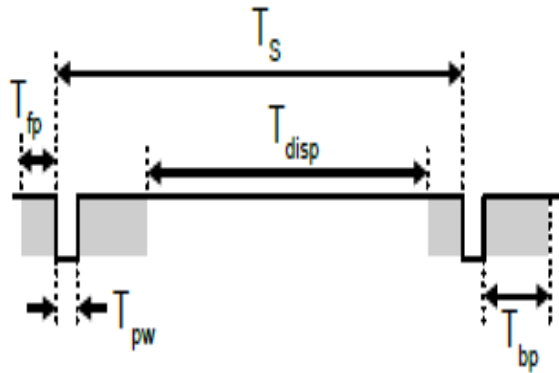
Symbol	Parameter	Vertical Sync			Horiz. Sync	
		Time	Clocks	Lines	Time	Clks
T_S	Sync pulse	16.7ms	416,800	521	32 us	800
T_{disp}	Display time	15.36ms	384,000	480	25.6 us	640
T_{pw}	Pulse width	64 us	1,600	2	3.84 us	96
T_{fp}	Front porch	320 us	8,000	10	640 ns	16
T_{bp}	Back porch	928 us	23,200	29	1.92 us	48

Figure3: Signal timings for a 640-pixel by 480 row display using a 25 MHz pixel clock and 60 Hz vertical refresh.

A VGA controller circuit, such as the only diagramed in Figure4, decodes the output of a horizontal-sync counter driven with the aid of the pixel clock to generate HS signal timings. You can use this counter to discover any pixel place on a given row. Likewise, the output of a vertical-sync counter that increments with every HS pulse may be used to generate VS sign timings, and you may use this counter to find any given row. These continually walking counters can

be used to form an address into video RAM. No time dating between the onset of the HS pulse and the onset of the VS pulse is targeted, so you can set up the counters to effortlessly shape video RAM addresses, or to reduce interpreting logic for sync pulse generation.
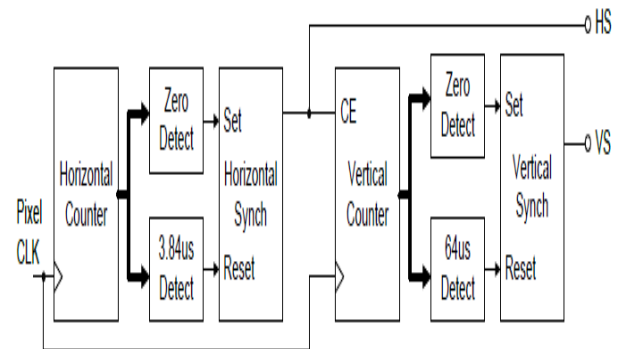

Figure4: VGA display controller block diagram.

IV. QVGA (QUARTER VIDEO GRAPHICS ARRAY)

QVGA (Quarter Video Graphics Array) is a small-screen display mode wherein the decision is 320 pixels horizontally by means of 240 pixels vertically (320 x 240). This is 25 percentage of the overall range of pixels afforded by the VGA (Video Graphics Array) show mode at the beginning delivered through IBM in 1987. Because the show on small-screen gadgets is often more in top than width, QVGA resolution is now and again expressed as 240 x 320.

QVGA presentations are used in small computers and customer electronic devices along with non-public virtual assistants (PDAs), cell phones, virtual cameras, camcorders, hand-held game consoles, portable MP3 gamers and portable electronic take a look at gadget. Liquid crystal display (LCD) panels with the QVGA specification provide complete color-viewing. Some

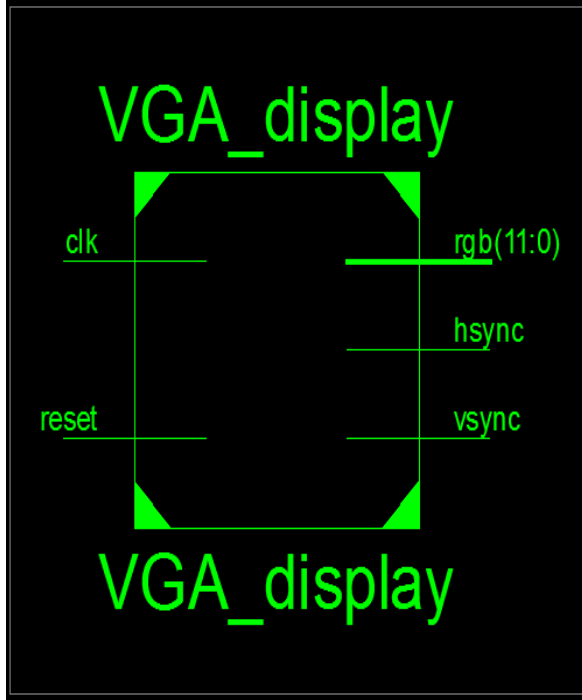QVGA shows are geared up with contact screen capability.

V. RESULTS
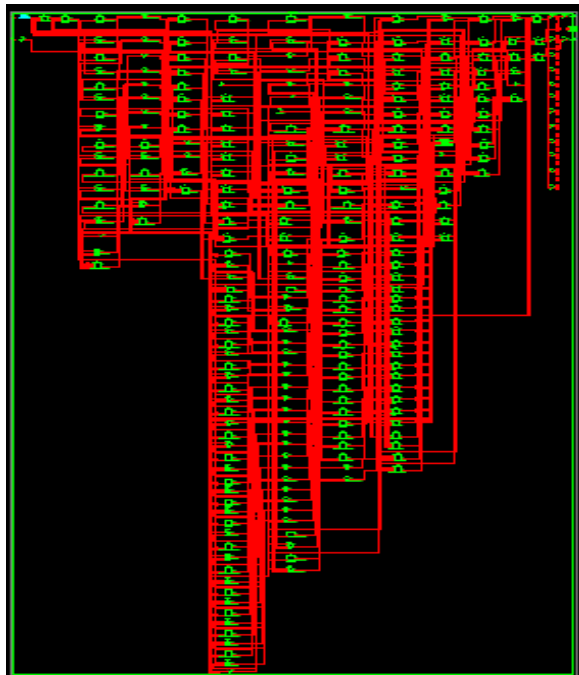

Figure5: RTL Schematic of VGA

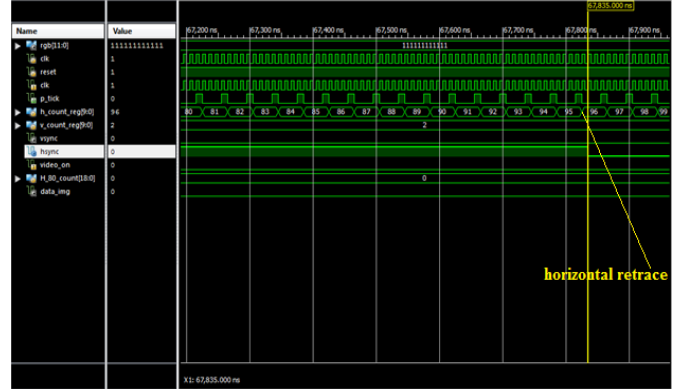**Figure6: view technology schematic of VGA**

Figure 7: simulated waveform Horizontal retrace has done when horizontal count is 96
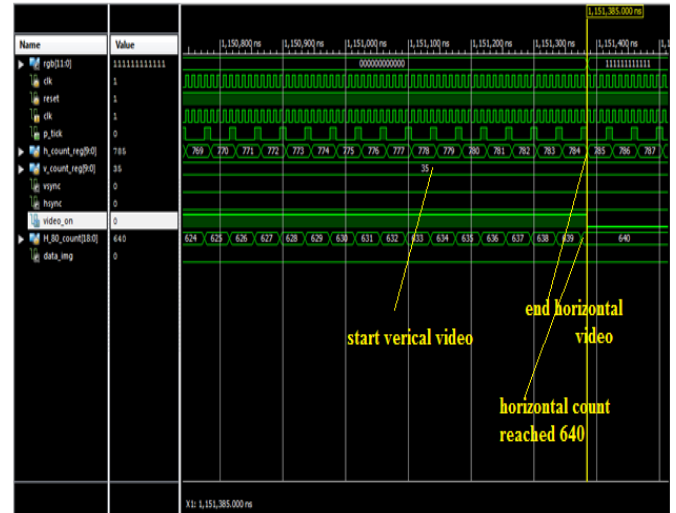

Figure 8: The horizontal video end s at 784 horizontal count and the vertical video starts when vertical count reaches to 35.
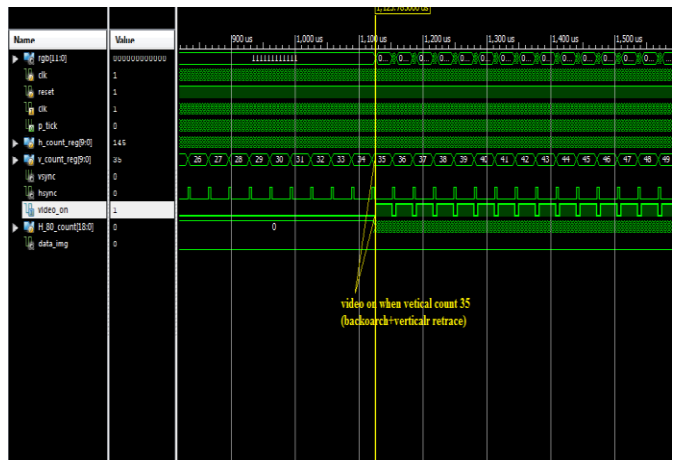

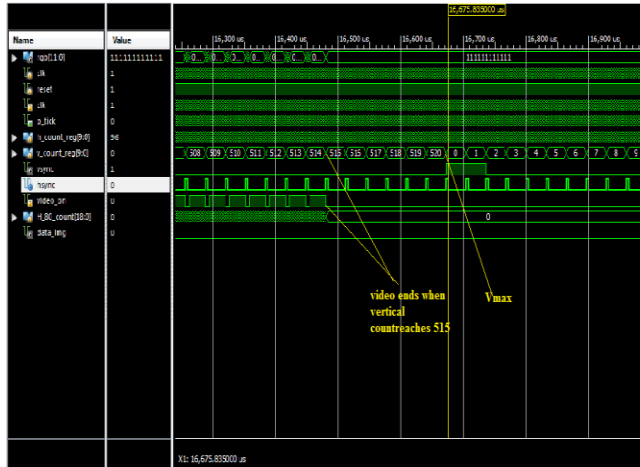**Figure 9: The video is displaying when vertical count reaches to 35**

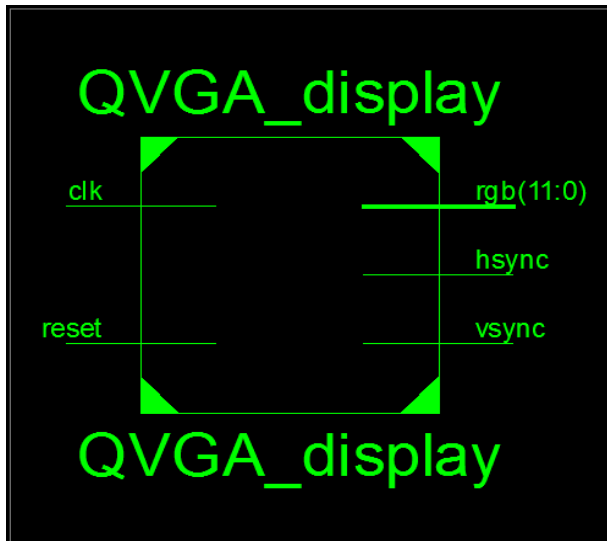**Figure 10: The vertically video ends when vertical count is 514.**
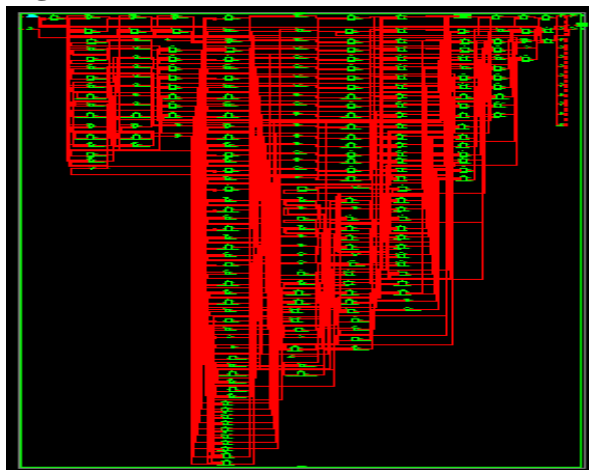

Figure11: RTL schematic QVGA
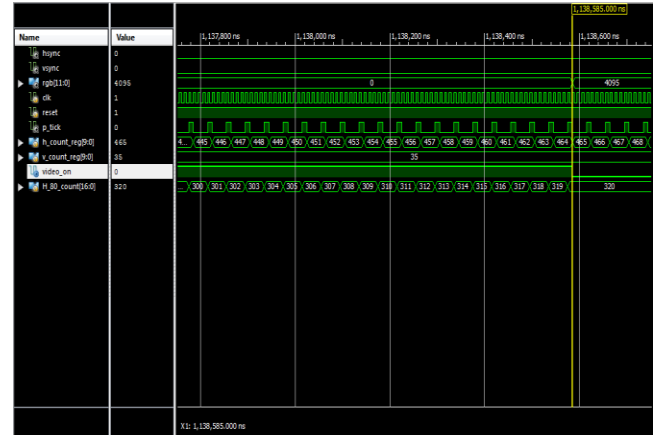

Figure12: view technology schematic of QVGA

Figure13: simulated waves forms of QVGA

Table 1: parameters of VGA and QVGA

Parameter	VGA	QVGA
No of LUTs	155	124
Delay (ns)	11.108	10.104
Power (m Watt)	1.265	1.012

VI.CONCLUSION AND FUTURE SCOPE

The video can be represented by its frame size and frame rate, one image is considered as one frame and number of frames per second can be said as the frame rate .if the frame rate is greater than 16 then the individual images can make an illusion like a video. The characteristics of the retrieved image can be calculated by the display. so the display plays an effective role ,the data of a frame can be determined in 2 dimensional .The display is classified mainly in two variants vga and qvga .In this project developed   hardware   implementation   and working of video display methods VGA and QVGA. Therefore comparisons have not done

for VGA and QVGA. Because each one has its own importance in the industries. Based on the applications designer can choose either VGA or QVGA, so that user will be satisfied. In some cases both are used in one application. The experimental has done with Xilinx ISE tool and their characteristics are drawn and a analytical study is done in employing the VGA and QVGA. In video compression based on MPEG-4 standards. QVGA displays are used in small computers and consumer electronic devices such as personal digital assistants (PDAs), cellular telephones, digital cameras, camcorders, handheld game consoles, portable MP3 players and portable electronic test equipment. Liquid crystal display (LCD) panels with the QVGA specification offer full color-viewing. Some QVGA displays are equipped with touch screen capability. Today, the VGA analog interface is used for high-definition video, including resolutions of 1080p and higher. While the transmission bandwidth of VGA is high enough to support even higher resolution playback, there can be picture quality degradation depending on cable quality and length. How discernible this degradation depends on the individual's eyesight and the display, though it is more noticeable when switching to and from digital inputs like HDMI, DVI or Display Port.

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