

Development of the User Flexible Display Mode in VLSI Architecture

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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 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 were AVC (advanced video coding) which is also called as mpeg-4 and h264 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. The parameters of VGA and QVGA are drawn from the Xilinx ISE tool.

Keywords: horizontal counter, vertical counter, AVC and SVC.

I. INTRODUCTION

The advances in video coding at the side of the increase in available community 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 snapshots over cellular video to immersive cell multimedia.

Recent forecasts estimate a 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 640x480 pixels while QVGA is only half of as tall and half as wide at 320x240. 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 begun 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 SURVEY

The video coding is the video 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 bitstream. A video coding popular is nothing however a report that notifies a bitstream shape and a deciphering approach for video compression. The w

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 a number program. 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.

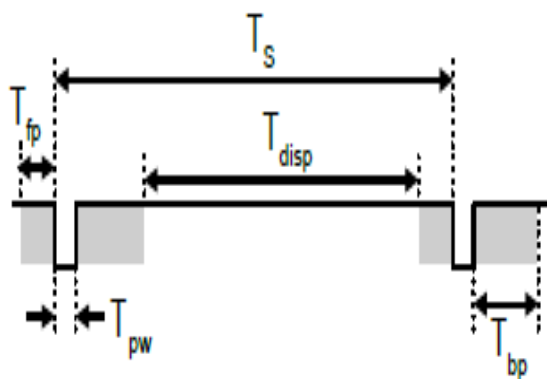
III. VGA (VIDEO GRAPHICS ARRAY)

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. 1 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

Figure1: 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.

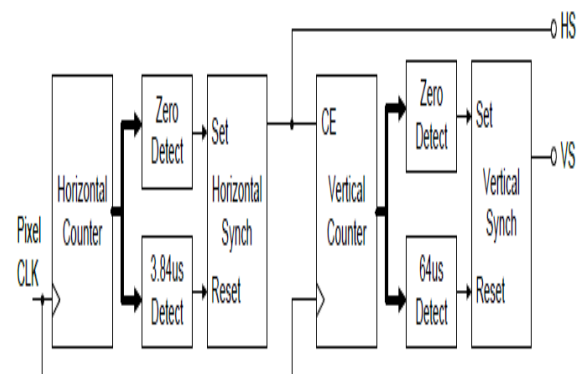


Figure2: VGA display controller block diagram.

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 colour-viewing. Some QVGA shows are geared up with contact screen capability.

V. RESULTS

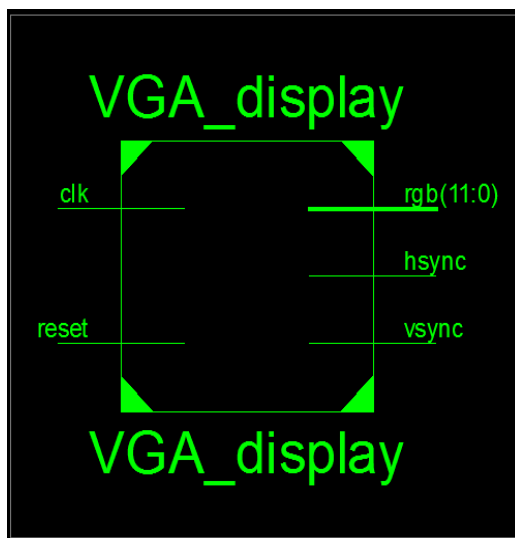


Figure3: RTL Schematic of VGA



Figure4: view technology schematic of VGA

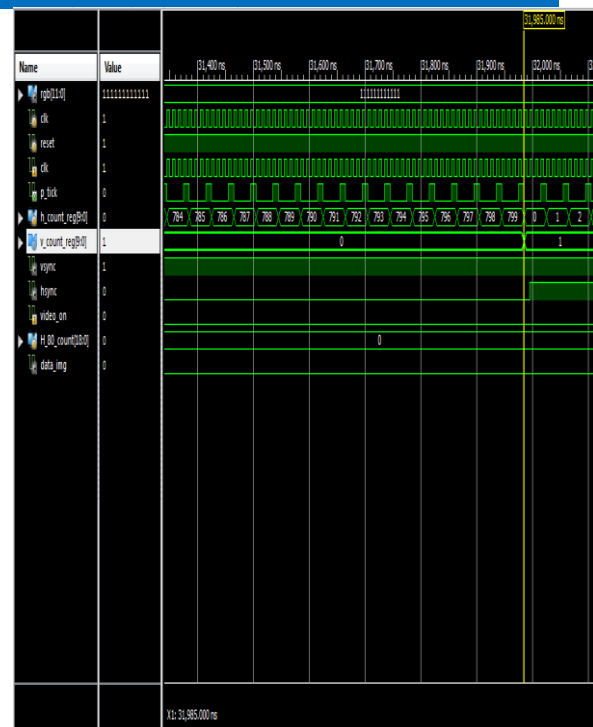


Figure 5: simulated waveform of VGA

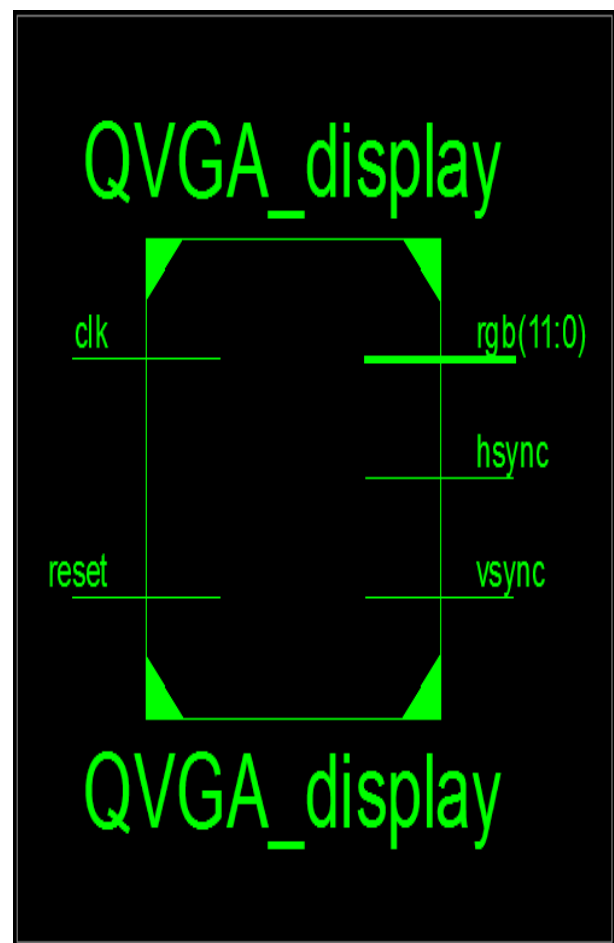


Figure6: RTL schematic QVGA

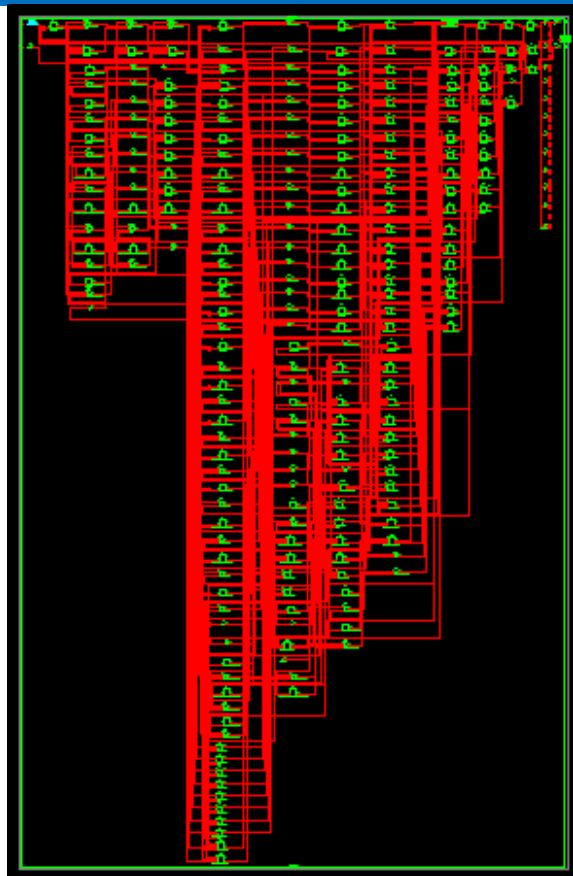


Figure7: view technology schematic of QVGA

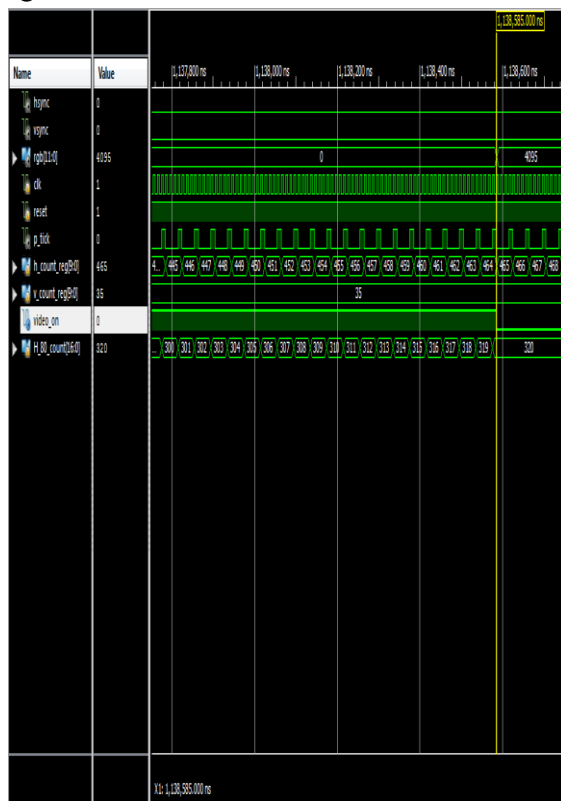


Figure8: simulated waves forms of QVGA

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

Table 1: parameters of VGA and QVGA

VI. CONCLUSION

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 a 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 both VGA and 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.

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