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A High Speed V.L.S.I Architecture For Image Compression Using Manchester

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ABSTRACT: *The research community have the significant attention in the field of approximate computing in the over few years, mainly in the context of several signal processing applications. In computing, the image and video compression algorithms like MPEG and JPEG are especially important. Therefore, due to the imperceptibility of human, they are tolerant of imprecision of computing that can be utilized for achieving highly power efficient implementations on these algorithms. We suggested a reconfigurable inexact architecture for MPEG encoders. Its main objective is to maintain a specific Peak Signal to Noise Ratio (PSNR) threshold for any video. On the basis of characteristics of each unique video we propose two heuristics for tuning the approximate degree of RAB in these two modules during runtime. An experimental result achieves a 30% saving of power over a conventional architecture of MPEG encoder. The presented reconfigurable architecture for the MPEG encoder can be simply expanded to other applications of DSP.*

I.INTRODUCTION

A finite amount of computing imprecision in image and video dispensation algorithms repeatedly results in an unimportant amount of noticeable change of visual in the output, which makes these algorithms as ideal candidates for the use of approximate architectures in computing.

Approximate Computing architectures develop the fact that a small relaxation in the output correctness can result in considerably simpler and lower power implementations.

On the other hand, the most approximate hardware architectures projected so far suffer from the restriction that, for widely varying input parameters, it becomes very tough to provide a quality bound on the output, and in some other cases, the output quality may be severely degraded. The main reason for this output quality variation is that the degree of approximation (DA) in the hardware architecture is permanent statically and cannot be modified for various inputs. One possible solution is to assume a conservative approach and use a very low DA in the hardware so that the output accuracy is not drastically exaggerated. However, such a conventional approach will, as expected, considerably impact the power savings as well.

II.EXISTED SYSTEM

There are of two compression techniques. One is Loss less compression and another one is Lossy compression. Lossy compression is employed to decrease the information of a image, picture or video. By victimization this compression technique the tip user could lose some data. It will be lose to the receiver as well as to the sender. In the applications of net and transmission lossy compression is in the common usage.

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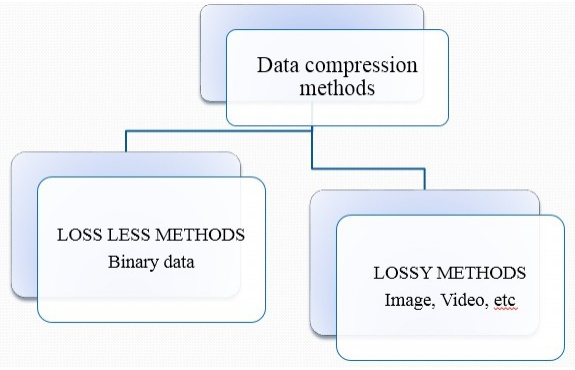

FIG. 1 BLOCK DIAGRAM

To overcome this drawback of reduction of the information, a brand new compression technique was been introduced. i.e, Loss less compression. Loss less compression is sort of opposite to the Lossy compression. Lossy compression is irreversible compression and Loss less compression is a reversible compression. Loss less compression sends the image without reduction of the information to the receiver.

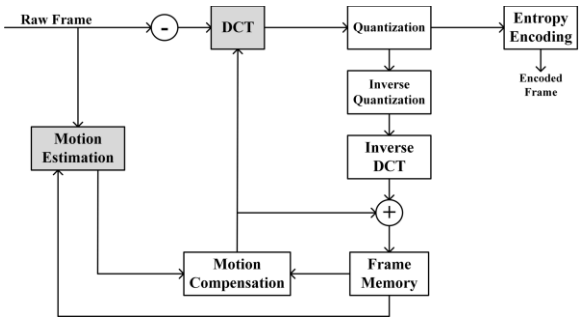

FIG. 2 EXISTED SYSTEM

MPEG encoding includes three kinds of frames: 1) I-frames (intra frame encoded); 2) P-frames (predictive encoded); and 3) B-frames (bidirectional encoded). As evident from their names, an I-frame is encoded totally for data bits. An I-frame generally precedes each MPEG data stream. P-frames are built by using the variations between the present frame and the instantly preceding I or P frame. B-frames are produced relative to the closest two I/P frame on either side of the current frame. The I, P, and B frames are additionally compressed when subjected to DCT, which helps to eliminate the existing inter frame spatial redundancy as much as possible.

III.PROPOSED SYSTEM

By exploitation of Loss less compression, the user won't loss any information or data from the image, picture or video. The image quality also won't be improved by the Loss less compression. The process of Loss less compression is as follows: At initial stage the information of the image are remodeled into binary forms i.e, zero and one format (0,1). This binary information can splits into rows and columns. This can be mentioned as binarisation. During this method the binary digits can form like bits in a very sequence. These bits can forward to down as the regular bits.

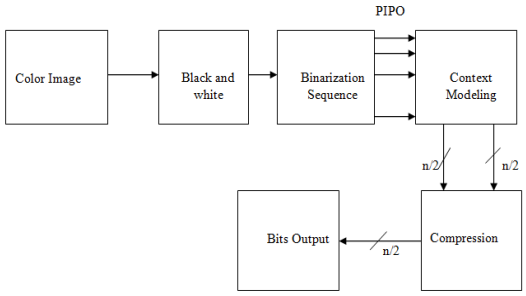

FIG.3 PROPOSED SYSTEM

These bits are ready to merge. Currently the information are united because the initial digit of the primary row with the primary digit of the primary column. During this method all the rows and columns are united. Then the binary data is prepared to compress. As we all know that, we are utilizing Loss less technique here to change the image. The image are reworked into binary information here just in case of Loss less

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compression. This can be very helpful Technique to achieve the precise image as we did like. In this technique, initially the binary data will be upgraded into black and white format as we tend to shown with in the fig 3. Then the image are going to be transmitted into binary knowledge i.e, zero and one format as we tend to shown in figure. Here we tend to square measure victimization 64 bit compression that is extremely helpful to the rework. Finally, this compression can send the original data as output. The ultimate output comes with none loss of information within the image, as a result of we tend to used Loss less compression technique. For this point Loss less compression is extremely advantageous and really helpful technique than Lossy compression technique.

IV.RESULTS

FIG: 2 COLOUR IMAGE

The above image (Fig.2) is to be sent to another person. If this is the case, then we need to change the image into black and white image as in Fig.3.

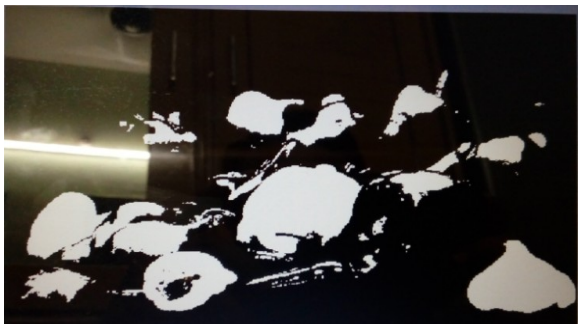

FIG.3 BLACK AND WHITE

This black and white image is further converts to 0, 1 format as it is in the Fig.4.

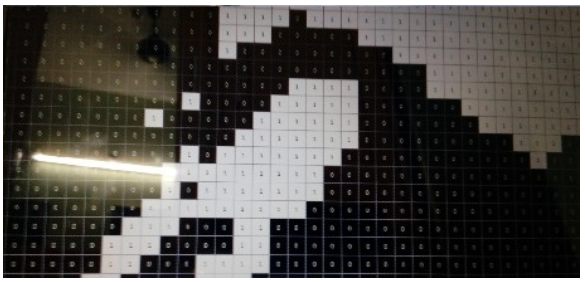

FIG.4. BINARY DATA

Device Utilization Summary (estimated values)			
Logic Utilization	Used	Available	Utilization
Number of Slice LUTs	96	2400	4%
Number of fully used LUT-FF pairs	0	96	0%

FIG.5 SUMMARY REPORT

The Summary report is shown in above fig 5 with slices 4% utilization. Below figure 6 shows the Output of the compressed data.

FIG 6 OUTPUT

V.CONCLUSION

This new and advanced proposed system tells us the about the transformation of the image from one device to another device. Let us assume that I want to transmit a color image from Transmitter to Receiver, and then I have to consume more data. By using this technique, the color image will be transformed into black and white image and then it will be transformed into 0, 1 binary form by compressing the data. Then with this compression technique data is compressed without any loss in data. Hence, finally the color image is translated to binary data by using MATLAB and the binary data is compressed by using Xilinx 14.7.

VI.REFERENCES

[1] F. Ahmed-Zaid, F. Bai, S. Bai, C. Basnayake, B. Bellur, S. Brovold,*et al.*, "Vehicle safety communications—Applications (VSC-A) finalreport," U.S. Dept. Trans., Nat. Highway Traffic Safety Admin., Washington,DC, USA, Rep. DOT HS 810 591, Sep. 2011.

[2] J. B. Kenney, "Dedicated short-range communications (DSRC) standardsin the United States," *Proc. IEEE*, vol. 99, no. 7, pp. 1162–1182,Jul. 2011.

[3] J. Daniel, V. Taliwal, A. Meier, W. Holfelder, and R. Herrtwich,"Design of 5.9 GHz DSRC-based vehicular safety communication,"*IEEE Wireless Commun. Mag.*, vol. 13, no. 5, pp. 36–43, Oct. 2006.

[4] P. Benabes, A. Gauthier, and J. Oksman, "A Manchester code generatorrunning at 1 GHz," in *Proc. IEEE, Int. Conf. Electron., Circuits Syst.*,vol. 3. Dec. 2003, pp. 1156–1159.

[5] A. Karagounis, A. Polyzos, B. Kotsos, and N. Assimakis, "A 90nmManchester code generator with CMOS switches running at 2.4 GHzand 5 GHz," in *Proc. 16th Int. Conf. Syst., Signals Image Process.*,Jun. 2009, pp. 1–4.

[6] Y.-C. Hung, M.-M. Kuo, C.-K. Tung, and S.-H. Shieh, "High-speedCMOS chip design for Manchester and Miller encoder," in *Proc. Intell.Inf. Hiding Multimedia Signal Process.*, Sep. 2009, pp. 538–541.

[7] M. A. Khan, M. Sharma, and P. R. Brahmanandha, "FSM basedManchester encoder for UHF RFID tag emulator," in *Proc. Int. Conf.Comput., Commun. Netw.*, Dec. 2008, pp. 1–6.

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