International Journal of Innovative Research in Science and Engineering
Vol. No.2, Issue 10, October 2016
www.ijirse.com
ISSN (O) 2454-9665
ISSN (P) 2454-0663

A FUTURE ASPECT OF MIXING SIGNAL TECHNOLOGY WITH APPLICATIONS OF DIGITAL IMAGE PROCESSING IN THE FIELD OF COMPUTER SCIENCE

Md. Shahnawaz Akhtar

Research Scholar, Department of Computer Science, OPJS University, Churu, Rajastan (India)

ABSTRACT

As we know computer science is the study of theory, experiment, and engineering that form the basis for the design and uses of computers. It is the scientific and practical approach to computation and its application and the systematic study of the feasibility ,structure, expression and mechanization of the methodical procedure (or algorithms) that underline the acquisition ,representation ,processing, storage ,communication of and access to information.

A mixed signal integrated circuit is any integrated circuit has both analog circuits and both have commonly used in the field of computer science also. In real life applications mixed signal designs are everywhere; In this paper we will study application of mixing signal technology in the field of computer science algorithm.

Key words: Information Technology, RF, CMOS, ICs, CAD, E-Resources

I. INTRODUCTION

A mixed –signal system on a chip can be a combination of analog circuits, digital circuit, intrinsic mixed signal circuits, with embedded software.

Mixed circuits integrated circuits have both digital and analog circuits on the same chip. the quality and categories of the chip change with other potable technologies. Mixed signals integrated circuits are very essential computers to FM tuners in all types of digital products like media players, which have digital amplifiers.

Although the mixed signal ICs are more difficult to design and manufacture as compare with analog and digital system.

Mixed Integrated circuits have many advantages with conventional methods in terms of power and consumption and also create problems in forming chip design.

If we are analysis the mixed signal chip with analog and digital signals then we can says that mixed integrated circuits system used in cell phone, control logic and can say often certain an entire system on chip.

Still technocrats from the industry and education field should come out and work for designing and production of the Integrated circuits. they may work in the research field in the specific includes in digital,analog,mixed

ISSN (O) 2454-9665
ISSN (P) 2454-0663

signal, and RF CMOS ICs for the variety of applications, and verification and testing techniques for analog ,digital and RF ICs,CAD tools for design and analysis and interdisciplinary research works.

Computer architecture:-Logical aspects of system implementations as seen by the programmer, such as, instructions sets(ISA) and format,opcode,data types, addressing modes and I/O.

Instruction spects set architecture (Isa) is different from micro architecture, which consists of various processor design techniques used to implement the instruction set.

Computers with different micro architectures can share a common instruction set.

For example, the Intel Pentium and the AMD athlon implement nearly versions of the x86 instruction set, but have radically different internal designs.

Computer architecture is the conceptual design and fundamental operation structure of a computer system. It as a function description of requirements and design implementations for the various parts of a computer.

It is the science and art of selecting and interconnecting hardware components to create computers that meet functional, performance and cost goals.

It deals with the architectural attributes like physical address memory, CPU and how they should be designed and made to coordinate with each other keeping the goals in mind.

Analogy :- building the design and architecture of house –architecture may take more time due to planning and then organization is building house by bricks or by latest technology keeping the basic layout and architecture of house in mind.

Computer architecture comes before computer organization.

Computer organization (CO) is how operational attributes are linked together and contribute to relies the architectural specifications.

Computer organization encompasses all physical aspects of computer systems. E.g. circuit design, control signals, memory types.

Microarchitecture, also known as computer organization is a lower level, more concrete and detailed, description of the system that involves how the constituent parts of the system are interconnected and how they interoperated in order to implement the ISA.

The size of computer's cache, for example is an organization issue that generally has nothing to do with the ISA.

Another example of :it is an architecture design issue whether a computer will have multiples instruction. it is an organization issue whether that instructions will be implemented by a special multiple unit or by mechanism that makes reputed use of the add unit of the system.

The most important abstraction of computer design is consist of software and hardware,

The software consists of application, operating system, and compiler.

And hardware consist of precession/O system, logic-gates, states machine etc.,circuit –transistors etc ,layout –mask patterns etc.

The building blocks computer organization are Microprocessor,memory,Mass storage(Disk) and network interface.

ISSN (O) 2454-9665
ISSN (P) 2454-0663

II. DESIGN ISSUES MATTER

- We cannot assume infinite speed and memory
- Speed mismatch between memory and processor
- Handle bugs and error (bad pointers, overflow etc)
- Multiple processors ,threads
- Shared memory
- Disk access
- Better performance with reduced power.

III. Enhancing performance (speed)

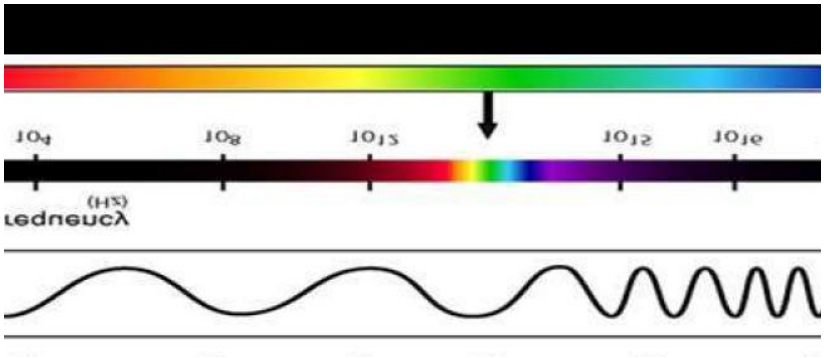
- Pipeline
- On board cache
- On board L1 & L@ cache
- Branch prediction
- Data flow analysis(In complilers)
- Speculative execution

IV. Future aspects

Bits and Bytes:-If we increase the quality we represent information using electrical signals, then any how efficiency will be increase.

Digital Logic:- We have to build circuits to process information in a more advance form. Processor and Instruction set:- Due to mismatching speed between memory and processor, efficiency of system reduced. Infinite speed and memory may dangerous We have to handle bugs and errors (badpointer,overflow etc) in specific time. We can get better performance with reduced power with proper management. Since digital image processing has very wide applications and almost all of the technical fields are impacted by DIP, we will just discuss some of the major applications of DIP. Digital Image processing is not just limited to adjust the spatial resolution of the everyday images captured by the camera. It is not just limited to increase the brightness of the photo, e.g. Rather it is far more than that. Electromagnetic waves can be thought of as stream of particles, where each particle is moving with the speed of light. Each particle contains a bundle of energy. This bundle of energy is called a photon. The electromagnetic spectrum according to the energy of photon is shown below

International Journal of Innovative Research in Science and Engineering
Vol. No.2, Issue 10, October 2016
www.ijirse.com
ISSN (O) 2454-9665
ISSN (P) 2454-0663



In this electromagnetic spectrum, we are only able to see the visible spectrum. Visible spectrum mainly includes seven different colors that are commonly term as *VIBGOYR*. VIBGOYR stands for violet , indigo , blue , green , orange , yellow and Red.

But that doesnot nullify the existence of other stuff in the spectrum. Our human eye can only see the visible portion, in which we saw all the objects. But a camera can see the other things that a naked eye is unable to see. For example: x rays , gamma rays , e.g. Hence the analysis of all that stuff too is done in digital image processing

V. APPLICATIONS OF DIGITAL IMAGE PROCESSING

Some of the major fields in which digital image processing is widely used are mentioned below

- Image sharpening and restoration
- Medical field
- Remote sensing
- Transmission and encoding
- Machine/Robot vision
- Color processing
- Pattern recognition
- Video processing
- Microscopic Imaging

VI. CONCLUSION

In this paper ,we proposed a mechanism in which mixing signal technology execution remain ready to run(with digital image processing).we also proposed a model to convert(mixed signal system) for enhancing performance and the future aspect are sometimes it is contracted to mixing ,condition variables ,signals for implementation in different field of engineering and science and medical field.

REFERENCES

ISSN (O) 2454-9665
ISSN (P) 2454-0663

Kurzweil, R. 2000. *The Age of Spiritual Machines*. Penguin. Lenat, D. B., and Guha, R. V. 1990. *Building Large Knowledge-Based Systems*. Addison-Wesley.

Looks, M.; Goertzel, B.; and Pennachin, C. 2004. Novamente: An integrative architecture for artificial general intelligence. In *Proceedings of the AAAI Fall Symposium Series*. AAAI Press.

Looks, M.; Goertzel, B.; and Pennachin, C. 2005. Learning computer programs with the Bayesian optimization algorithm. In *Proceedings of the Genetic and Evolutionary Computation Conference*. Springer-Verlag.

Mareschal, D., and Johnson, S. P. 2002. Learning to perceive object unity. *Developmental Science* 5:2:151–185.

Marr, D. 1982. *Vision: a computational investigation into the human representation and processing of visual information*. W. H. Freeman.

Deacon, T. 1997. *The Symbolic Species*. Norton.

Dennett, D. 1978. *Brainstorms: Philosophical Essays on Mind and Psychology*. Bradford Books.

Edelman, G. M. 1988. *Neural Darwinism: The Theory of Neuronal Group Selection*. Basic Books.

Eliasmith, C., and Anderson, C. 2003. *Neural Engineering*. MIT Press.

Anderson, J. R. 1993. *Rules of the Mind*. Erlbaum.

Baddeley, A. 1999. *Essentials of Human Memory*. Taylor and Francis Group.

Bateson, G. 1980. *Mind and Nature: a Necessary Unity*. Fontana.

Baum, E. B. 2004. *What is Thought?* MIT Press.

Blank, D. S.; Kumar, D.; and Meeden, L. 2002. A developmental approach to intelligence. In *Proceedings of the Thirteenth Annual Midwest Artificial Intelligence and*
Cognitive Science Society Conference.