IJCSE International Journal of Computer Sciences and Engineering Open Access
Survey Paper Vol.-7, Issue-9, Sept 2019 E-ISSN: 2347-2693

INTEL i3 3220 Microprocessor for a Complete PC Experience

Khan Vaqui[1], Saqib Shaikh[2*], Shakila Shaikh[3]

[1,2]Department of Computer Engineering, Rizvi College of Engineering, Mumbai, India

**Corresponding Authors: shaikh.saqib999@gmail.com*

DOI: https://doi.org/10.26438/ijcse/v7i9.230232 | Available online at: www.ijcseonline.org

Accepted: 12/Sept/2019, Published: 30/Sept/2019

Abstract **-** The advancement of microprocessor architecture depends upon the changing phases of technology. As complexity and speed increases, memory and program performance become progressively important in defining architecture of microprocessors. Architectures and implementations that cover these limits are vibrant to the continued evolution of the microprocessor. This paper illustrates a total in depth review of the Intel manufactured i3 core 3220 microprocessor (Intel core i3). All of the features, limitations, power, application and drawbacks are discussed in his paper. Also, an attempt to cover all the aspects a Microprocessor should possess in order to work in pace with today's world has been displayed. The Introduction has basic information of Intel core i3 3220. Related work displays basic literature for the reviews we have studied. A block diagram of basic functioning of intel core i3 Microprocessor is given. A table with precise features of Intel core i3 Microprocessor is been provided too.

Keywords- Intel core i3 microprocessor, Gigahertz, IMC

I. INTRODUCTION

Intel core i3 microprocessor are Manufactured by Intel, they are Computer: It is electronics programmable logic system. Which consists of CPU memory and I/O interfaces in which with the help of memory and I/O interfaces CPU executes the programme to perform basic various arithmetic and logical operation and digital knowledge world to fulfil specific task. Microprocessor: Associate degree microcircuit that contain all the role of hardware of PC. Some silicone chip styles of the past are to a fault complicated and have relied on out-of-order logic to reshuffle and optimize computer code directions. Going forward, microprocessor designers will continue to deliver better and better software tools, higher software optimization and better compilers

This Intel core designed by keeping its price point cheap, while it still retains the power of Intel core line. As it is (along with Intel i5 series) are used in desktops and low-end laptops.

Intel's core i3 processors have always offered decent performance and good value. The Intel core i3-3220 is a third-generation core. It is a dual core processor which runs at maximum clock speed of 3.3 Gigahertz (GHz.) it also has a 3mb of Intel smart cache. This core cannot be easily overclocked and it does not have a turbo boost. To increase multi-tasking performance, it has Hyper-threading which means each physical core runs as two logical cores, thus enhancing multi-tasking. The core i3=3220 has Intel HD Graphics 2500 on-chip graphics which run on the clock frequency of 650MHz. Section I, contains precise information about Intel core i3 3220. Section II has review of literature paper published by mentioned authors. Section III contains Information table for core i3 3220. Section IV has block diagram and functioning of core i3. Section V contains Application of core i3 in various places. Section VI has the Conclusion as mentioned. Section VII has information about what we have analysed over all.

II. RELATED WORK

In [1] this paper is intended to provide the reader with an overview of the Research Issues and Challenges in i3 processor. Intel Core i3 processor is the ideal entry point for a furious, responsive PC experience. It is acquired with high-quality HD video playback, advanced 3D capabilities. It gives a perfect graphics solution for everyday computing. It features Hyper-Threading technology. It also works on 64-bit microprocessor. It has 2 physical cores.

In [2] this paper is to define the role played by processor in the field of Data manipulation and Graphic display. The processor includes an Integrated Memory Controller (IMC). I3 processors have many advantages such as dual processor has capability to run two independent programs with one hardware. It has 4 tasking threads that allow users to easily execute 3-4 programs at a time. I3 processor have different power management and thermal management unit. I3

processor have 3.06 GHz and 2.93 GHz core speed compared to previous Intel processors.

In [3] this paper focuses on all the features, functions, specifications and operations carried out by the i3 processors in all aspects. It mainly covers all the technical information about the Intel i3 core microprocessors. Some of the main points are included in this review. The Desktop third Generation Intel® Core™ processor family, Desktop Intel® Pentium® processor family, and Desktop Intel® Celeron® processor family are the next generation of 64-bit, multi-core processors built on 22-nanometer process technology. The processors are designed for a two-chip platform. The two-chip platform consists of a processor and a Platform Controller Hub (PCH) and enables higher performance, lower cost, easier validation, and improved x-y footprint.

System Memory Support **consist** of two channels of DDR3 Unbuffered Dual In-Line Memory Modules (UDIMM) or DDR3 Unbuffered Small Outline Dual In-Line Memory Modules (SO-DIMM) with a maximum of two DIMMs per channel Memory DDR3 data transfer rates of 1333 MT/s and 1600 MT/s. The Processor Graphics contains a refresh of the seventh-generation graphics core enabling substantial gains in performance and lower power consumption. Generation Intel Clear Video Technology HD Support could be an assortment of video playback and improvement options that improve the ending user's viewing experience

III. INFORMATION TABLE

Processor core	Ivy bridge
Processor clock speed	3.3GHz
Processor socket	LGA1155
No. of cores	2
Processor external bus	100MHz
Supported memory type	DDR2 1333/1600
Processor power rating (TDP)	55W
Processor process	22nm
Price	**Rs. 5,500**

Fig 3.1 (Features of Intel i3)

The Above table shows the specifications of Intel core i3 processor. As the table says, the processor core is *"Ivy Bridge"* and its clock speed is 3.3 Gigahertz (GHz). The processor Socket is of type, LGA1155. It's a Dual core Processor, meaning it has two processors. The External Bus is of 100 Megahertz (MHz). Intel core i3 supports DDR2 1333/1600 memory type and the Power Rating is about 55Watts (W).

IV. DIAGRAM

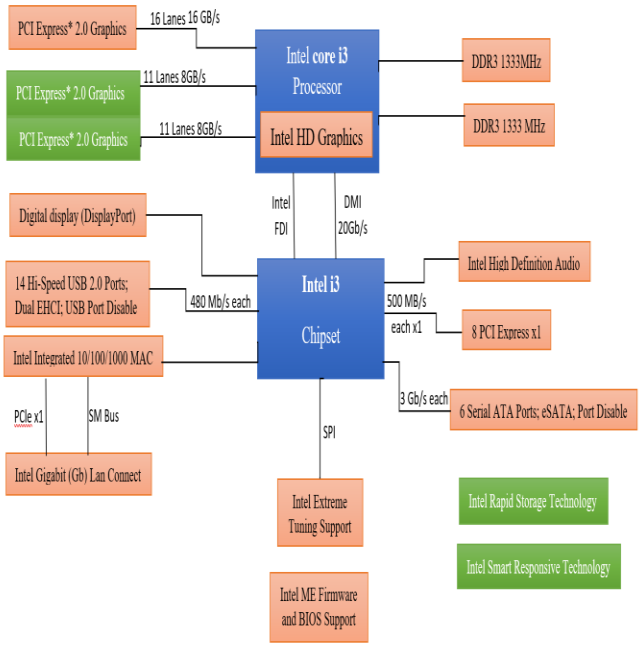


Fig. 4.1 (Block Diagram of Intel i3)

Fig 4.1 is a Basic functionality diagram of Intel's 3rd Generation Processors. In our case it is Intel core i3 Processor. As it is a dual core Processor, the two centre blue blocks represent the cores. One the actual processor and other is the processor's Chipset. The figures around the connection line represents the speed of respective functionalities. The small surrounding blocks are basically the peripheral outlets including, graphic outlet which is a PCI Express 2.0 version, HD display outlet, USB (Universal Serial Bus). The block diagram also shows Firmware for tuning support and different protocols carried out is also shown.

V. APPLICATION

Due to its poor Performance it has a smaller number of Application, some of which are listed below:

1. DDR2 1333 Memory support
2. The two-chip platform consist of a processor and platform controller hub and enables higher performance, easier validation, and improved x-y footprint.
3. Designed for desktop platforms.
4. Integrated display engine.
5. Processor graphics and an integrated memory controller.

VI. CONCLUSION

As according to the study, it was proved that this i3 3220 microprocessors was a let down from Intel. As compared to

its competitor AMD it did not perform as expected and was overtaken by the AMD Risen processor in that mid-range section. The let-down was due to its low speed and poor functionality which not usually expected from Intel. Still it is used in small systems which doesn't require a high-speed functioning.

VII. ANALYSIS

This is a great CPU at this price. It is great for general desktop use and web browsing etc.
It has integrated Intel HD graphics which can run some low-end games. But if you want to play high end games and want a powerful processor for intense work this is not the CPU for you.
The Core i3-3220 may be a decent performing CPU, but it is not cheap, especially when compared with some competition from AMD.
This is not a CPU for over clockers.

REFERENCES

[1]. *Tiwari, R. Sam and S. Shaikh, "Analysis and prediction of churn customers for telecommunication industry,"* 2017 International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), *Palladam, 2017, pp. 218-222. doi: 10.1109/I-SMAC.2017.8058343*

[2]. *S. Navadia, P. Yadav, J. Thomas and S. Shaikh, "Weather prediction: A novel approach for measuring and analyzing weather data,"* 2017 International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), *Palladam, 2017, pp. 414-417. doi: 10.1109/I-SMAC.2017.8058382*

[3]. *S. Shaikh, S. Rathi and P. Janrao, "IRuSL: Image Recommendation Using Semantic Link,"* 2016 8th International Conference on Computational Intelligence and Communication Networks (CICN), *Tehri, 2016, pp. 305-308. doi: 10.1109/CICN.2016.66*

[4]. *S. Shaikh, S. Rathi and P. Janrao, "Recommendation System in E-Commerce Websites: A Graph Based Approached,"* 2017 IEEE 7th International Advance Computing Conference (IACC), *Hyderabad, 2017, pp. 931-934. doi: 10.1109/IACC.2017.0189*

[5]. *A. Fasiku, Ayodeji Ireti, B. Olawale, Jimoh Babatunde, C. Abiola Oluwatoyin B., "*Comparison of Intel Single-Core and Intel Dual-Core Processor Performance*", International Journal of Scientific Research in Computer Science and Engineering, Vol.1, Issue.1, pp.1-9, 2013*

[6]. *M. Sora, J. Talukdhar, S. Majumder, P.H Talukdhar, U.Sharmah, "*Word level detection of Galo and Adi language using acoustical cues*", International Journal of Scientific Research in Computer Science and Engineering, Vol.1, Issue.1, pp.10-13, 2013*

[7]. *Manish Mishra, Piyush Shukla, Rajeev Pandey, "*Assessment on different tools used for Simulation of routing for Low power and lossy Networks (RPL)*", International Journal of Scientific Research in Network Security and Communication, Vol.7, Issue.4, pp.26-32, 2019*

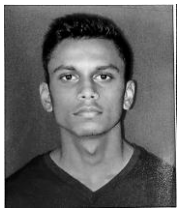
[8]. *Rohan Yadav, "A BRIEF OVERVIEW OF I3 PROCESSOR" 2014 http://ijirt.org/master/publishedpaper/IJIRT100180_PAPER.pdf*

[9]. *Arpit, "INTEL I3 PROCESSOR" https://www.slideshare.net/arpit2u1/intel-i3-processor*

[10]. *"3rd GEN CORE DESKTOP VOL-1 DATASHEET" www.Intel.in/Intel/Devices*

Authors Profile

Khan Vaqui Ahmed Tanveer Ahmed ,is currently pursuaing the Degree of Bachelors in Enginneering (B.E) under Computer Department from Rizvi College of Engineering. He is currently in T.E and semester Vth. This review Paper was under the influence of a Group Assignment from the College. The Assignment was for "Microprocessor" subject given by the subject teacher, Prof. Shakila Shaikh. Vaqui has been Certified in an NPTEL course for "Discrete Mathematics" subject under "Elite" category. He also Had done a "28 hour" course in "Android App Development" using "Java" and on "Android Studio" platform. He's been certfied for the same.



Saqib Hussain Iqbal Shaikh, is currently pursuaing the Degree of Bachelors in Enginneering (B.E) under Computer Department from Rizvi College of Engineering. He is currently in T.E and semester Vth. This review Paper was under the influence of a Group Assignment from the College. The Assignment was for "Microprocessor" subject given by the subject teacher, Prof. Shakila Shaikh. Saqib has been Certified in an NPTEL course for "Discrete Mathematics" subject under "Elite" category.

Shakila sheikh Asst professor in Rizvi college of Engineering .Area of interest are big data analytics, data mining, networking and security.

