Ryzen 5 (3600, 1600, 1600X) Review

Faizan Shaikh[1*], Salman Khan[2], Shaibaz Ansari[3], Shakila Shaikh[4], Shiburaj Pappu[5]

[1,2,3]Dept. of Computer Science, Rizvi College of Engineering, Mumbai, India
[4,5]Dept. of Computational Sciences, Rizvi College of Engineering, Mumbai, India

Corresponding Author: shaikhfaizan.sf412@gmail.com

Abstract— In July 7 2019, AMD launched Ryzen 5 3600 processor. This processor was launched to provide better all-round performances like gaming, multitasking, exceptional speed etc. and intention of hitting market by lower price as compare to other processor companies. For example, its competitive processor intel-5 9600k is expensive as compare to ryzen 5 3600.

Keywords— Ryzen 5 (3600, 1600 & 1600X)

I. INTRODUCTION

Ryzen 5 3600 is a computer processor introduced by AMD in July 7 2019. It is a 64-bit hexa-core high-end performance x86 desktop microprocessor, Fabricated on TSMC's 7 nm process based on the Zen 2 microarchitecture.

This processor operates at 3.6 GHz with a TDP of 65 W and a Boost frequency of up to 4.2 GHz. The 3600 supports up to 128 GiB of dual-channel DDR4-3200 memory. Release price of this processor was $199 i.e. about Rs.15000 . But today the price has increased upto 17,000 Rs. in India. This contains of 6 cores and 12 threads, also base clock of 3.8GHz and max boost clock of   4.4 GHz. It is very powerful processor and competitve with intel. It is highly recommended for Heavy application use like gaming stuffs.
The initial specimen of AMD Ryzen CPUs offered 8 cores and 16 threads and superiority when it came to the price-tag. The second pushed things even further, with the Ryzen-powered Thread-ripper 2 rocking a staggering 32 cores and 64 threads. With the third iteration of Ryzen well on the way, we figured now would be a great time to take stock and run the numbers.This potential tactical approach also made it pretty easy to compare AMD's Ryzen chips against the competition. The Ryzen 3 was an entry-level alternative to the Intel i3, the Ryzen 5 was a mainstream counterpart to the Intel i5.

The extra processor cores offered by Ryzen compared to Intel's Kaby and Coffee Lake CPUs means that certain tasks will run MUCH faster.

II. METHODOLOGY

The original Ryzen models did lack performance in lightly threaded tasks, including some game titles. With the Ryzen 5

2600, though, AMD is looking to shake up the mid-range Rs. 15,000 CPU market and once again offer the best value all-round CPU in a six-core package

[1]In this paper we have examined the hardware-centric approaches of exploiting instruction level parallelism (ILP) used in the Ryzen 5 3600 family of processors. The Ryzen 1600 is also a very popular processor which means that experience is impeccable. Due to shorter travel distance between adjacent components, cache storages and primary storage delivery speed becomes smaller. The goal of this paper is to develop a better understanding of the concept of instruction level parallelism (ILP) and to explore the methods used to exploit ILP in Ryzen 3000 family of processors.

[2]In this paper we determined that Ryzen family is the first series using ultra Micro architecture and with faster and multicore technology. The road of 1600X started with the dispite of Net burst architecture. These methods are unit supported the Penryn producing process the corporate introduced last year. *The 1600x could be a fully new design that is way quicker and additional economical than the Core a pair of couple.* This processor is ideal for computer 3D gaming and content creating applications. 3000 series are at the high end of the product line Engineers and scientists can expect to see processing performance gains as well as increases in memory and data turnout once comparison this microarchitecture to previous microarchitectures.

[3]In this paper we studied that the processor supports several advanced technologies: execute disable bit, X86 technology, enhanced Intel speed step technology, Intel virtualization technology, Intel turbo boost technology and hyper- threading technology. Ryzen 5 desktop processor

extreme edition series are multi-core processors based on 12nm process technology. The 1600 processors have been designed to help Intel create different versions that means 8-core processors, 6-channel memory and larger cache processors. Over-clocking in the Ryzen 5 processors is also seems to be easier. Overclocking is that the method of forcing the pc part to run at higher clock rate it had been designed to extend the performance of the computers.

III. RESULTS AND DISCUSSION

Table: 3.1: Attributes

Vendor :	Authentic AMD
Processor name (BIOS) :	AMD Ryzen 5 3600 6-Core Processor
Cores :	6
Logical Processors :	12
Processor type:	Original OEM Processor
Socket :	AM4

Ryzen 5 3rdgeneration (3600) by ADM, is powerful processor which is capable of performing heavy task with ease, and also it is good for gamings due its efficiency and consistency. It gives very smooth performance while even playing high graphics games like Pubg ,Battlefield V,Assassin's Creed etc. Actually it gives better performance in low price as compare to intel's processor 9600K where intel's 9600K price is around 20000 rupees and above.
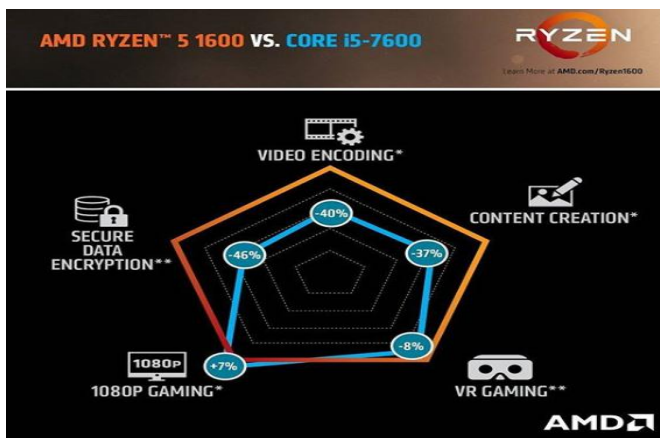

Fig: 3.1: Ryzen 5 1600 vs Intel Core i5

AMD's Ryzen 5 3600 is one of five new processors based on the latest Zen 2 7nm Microarchitecture , this one is 6 – core, 12 threaded processor at $199 (15000 inr) and succeeds the

zen+ ryzen 5 2600 by improving upon it by 18% in terms of average effective speed and 12% in terms of overclocked performance.

The Ryzen 3600 processors all include coolers and although they will be launched alongside the new mainstream X570 chipset which is PCIe 4.0 enabled, they are backwards compatible with 400 and even the 300 series motherboards. At $198 USD, the 3600 offers reasonable value for workstation users.
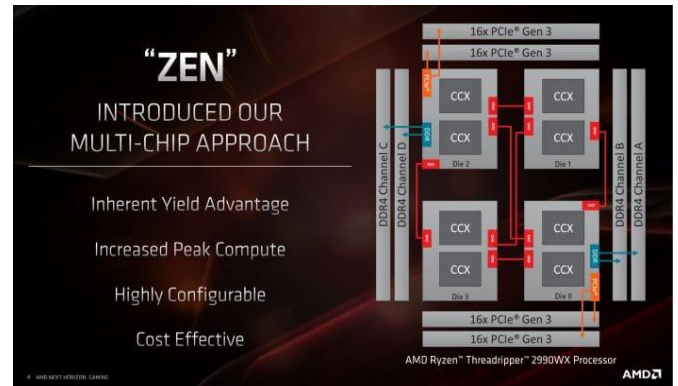

Fig: 3.2: Ryzen 5 architecture

IV. CONCLUSION AND FUTURE SCOPE

AMD's Ryzen 5 3rd gen (3600) along with the 1600 series are the processor which has 6 cores and 12 threads (64-bit). It is concluded that the performance of this processor is very better along with speed and consistency, which makes it killer at this price range.

Its competitive processor – intel's 9600K is also good but when it comes to multi-threaded workloads it is lacking when compared to AMD's 3600 processor. The ADM's Ryzen 5 (3600) was utterly dominant in every single multi-threaded test and reaffirms the dominance of its predecessors as one of the best all-rounders out there.

In the fight of the Ryzen 5 3600 and Core i5-9600K, the AMD CPU wins and by a big margin overall. Also the price of ADM processor is less as compare to intel processor.
AMD's Ryzen 5 3600 is one of five new processors based on the latest Zen 2 7nm Microarchitecture , this one is 6 – core, 12 threaded processor at $199 (15000 inr) and succeeds the zen+ ryzen 5 2600 by improving upon it by 18% in terms of average effective speed and 12% in terms of overclocked performance.

The Ryzen 5 3600 is in competition with Intel's hex-core i5-9600K, ADM continues to push the multi-core performance of envelope: benchmark shows that Ryzen 5 3600 has a 27% overclocked 64-core advantage over the 9600K but that the

i5-9600K leads by 14% on single, quad and hex core workloads which translates to 14% higher fps for gamers.

REFERENCES

[1]. https://www.techpowerup.com/257763/amd-ryzen-5-3500-a-6-core-processor

[2]. https://www.amd.com

[3]. https://www.hardwarebbq.com/amd-ryzen-3000-cpus-do-not-reach-its-advertised-boost-clocks-der8auer/

[4]. https://en.wikichip.org

[5]. https://seekingalpha.com/article/4137737-impact-analysis-amd-drops-ryzen-cpu-prices-30-percent

[6]. https://cpu.userbenchmark.com

[7]. https://www.forbes.com

[8]. 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

[9]. 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

[10]. 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

[11]. 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

[12]. 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

[13]. 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

[14]. 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

Authors Profile

Mr. Faizan Shaikh is pursuing Bachelors in Computer Science & Engineering from Rizvi college of Engineering which is affliated withthe Mumbai University.

Mr. Salman Khan is pursuing Bachelors in Computer Science & Engineering from Rizvi college of Engineering which is affliated with the Mumbai University.

Mr. Shaibaz Ansari is pursuing Bachelors in Computer Science & Engineering from Rizvi college of Engineering which is affliated with the Mumbai University.