Thesis Report For Mid

CSE-0408 Summer 2021

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I. RESEARCH TOPIC

10TH Gen Intel Core™ i7-10700K Processor

II. ADVANTAGE

Intel's 10Th Generation Core CPU's offer all sorts of upgrade benefits, no matter what kinds of tasks you perform. They offer more threads, higher clocks, improved power efficiency and amazing gaming performance.

The Intel Comet Lake micro architecture launched in 2019 with low-power designs in the Comet Lake-U series for laptops and smaller computers, but now we've got our hands on the desktop-class counterparts that are positioned to take on AMD. The new mid-range performance king in Intel's 10Th Gen line-up is the Core i7-10700K, an 8-core CPU with 16 threads in total.

It's similar to the excellent Core i9-10900K, but comes at a lower price point and has two fewer cores. What's interesting, however, is how close these two Intel processors are in performance for gaming. The Core i7-10700K is touted as "the best gaming CPU" from Intel, but is it really that much better than the Core i9-10900k Intel Core i7-10700k has a plethora of SKUs available in the Comet Lake-S family of processors, better known as 10th Gen. These SKUs target different customers with Pentium and Celeron being among the lowest priced and performing CPUs, while Core i7 take crowns as among the best in the industry.

Here's what the different suffixes represent when looking at an Intel CPU to purchase:

K: Unlocked design with integrated graphics.

KF: Unlocked design without integrated graphics.

No suffix: Regular model with integrated graphics — no overclocking here.

F: Regular model without integrated graphics.

Going by this list with the Intel Core i7-10700K, we can see that it's an unlocked processor with integrated graphics. What makes Comet Lake-S so interesting is Intel has found itself in the same position AMD was in years back with its bulldozer series of processors. The only way forward is by adding more cores and threads.

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Intel's Core i7-10700K is a powerful mid-tier desktop processor, rocking eight cores and 16 threads. Accompanying these figures is a base frequency of 3.8GHz with the potential to boost up to 5GHz on all cores thanks to Turbo Boost 2.0. Intel is also using Turbo Boost Max 3.0 to allow the processor to run two cores at 5.1GHz, which is pretty impressive.

Intel Core i7-10700K has some seriously fast Core i9 processors, but if you're after something a little more affordable without sacrificing too much on performance, the Core i7-10700K is ready to handle most demanding tasks and gaming. It's fast, reliable, and efficient, but falls a little short compared to AMD's offerings.

The Good

Eight cores and 16 threads
Unlocked multiplier
Amazing gaming performance
Great at both single- and multi-core workloads
High clock and boost frequencies

III. Disadvantage

Unfortunately, there's no Thermal Velocity Boost (TVB), which is a fancy name for the algorithm that can push the CPU even further by running all cores at beyond Turbo Boost speeds in short bursts. This is what can provide Intel's platform with an edge over AMD, especially once you factor in overclocking, so it's a shame it's missing from the Core i7 range.

intel Core i7-10700K:
The Bad:

Incompatible with older motherboards
No PCIe 4.0
High power consumption
No cooler bundled in the box
No Thermal Velocity Boost

IV. Why this paper is unique

The Intel Core i7-10700K, like most modern processors, is extremely good. Gone are the days where you'd need to go with the highest-grade CPU to get the most out of your PC. Even a Core i3 or Core i5 will allow you to get plenty done. The Core i7-10700K is a serious processor for serious workloads.

It's a shame Intel was stuck with 14nm since we'd love to see what the company can do with a shrunk process comparable to AMD. Even though Intel has lagged behind AMD, the company isn't quite outand the Core i7-10700K is impressive, especially given it's handicapped by the 14nm architecture.

V. Experimental Result section explanation :

The boost in frequencies allows the Intel Core i7-10700K to outperform the Ryzen 7 3800X and even keep up with the Core i9-10900K for gaming and single-core workloads. While this isn't the most affordable processor, nor is it the most efficient or best in terms of performance-per-watt, it's a solid choice for those seeking an excellent desktop CPU.

VI. Features

chip-set: Intel Core™ i7-10700K Processor Memory: Max memory size 128GB Processor Graphics: Intel® UHD Graphics 630 Graphics Max Dynamic Frequency: 1.20 GHz Package Size: 37.5mm x 37.5mm

VII. Problem Statement

The 10Th Generation chip is not for all users in spite of its high speed. This is not much to support all tasks. The speed of encoding entirely depends on the software used and its compatibility.

VIII. Motivation of our Research

Our aim is to represent an advance and upgrade processor. It is useful as its objectives are best CPU around for gaming, excellent single and multi core performances. If you want an unlock part that easy to over-lock.

IX. Proposed Methodology

AMD rocked the boat with high-end processor so Intel's goal and hope the core i7-10700k can tempt customers with solid mid-tier performance.

X. Evaluation of Effectiveness

If we evaluate and compare with core i9–10900k. It's similar to that but comes at a lower price point and has two fewer cores. Whats interesting, however this is best gaming CPU. IT is a powerful mid-tier desktop processor rocking eight cores and 16 threads.

XI. Importance of our Research

Technologies are now-a-days our daily needs. So it's importance is beyond explanation. Processor are the core of technology. Our research topic 10Th gen core i7-10700k processor is latest and advanced.

XII. Future work

The Core i7-10700K 3.8 GHz Eight-Core LGA 1200 Processor from Intel has a base clock speed of 3.8 GHz and comes with features such as Intel Optane Memory support, Intel vPro technology, Intel Boot Guard, Intel VT-d virtualization technology for directed I/O, and Intel Hyper-Threading technology. With Intel Turbo Max 3.0, the maximum turbo frequency this processor can achieve is 5.13 GHz.
Additionally, this processor features 8 cores with 16 threads in an LGA 1200 socket, has 16MB of cache memory, and 16 PCIe lanes. Having 8 cores allows the processor to run multiple programs simultaneously without slowing down the system, while the 16 threads allow a basic ordered sequence of instructions to be passed through or processed by a single CPU core. Our aim is to represent an advanced and upgraded processor Technologies are now-a-days our daily needs. So its importance is beyond explanation. Processors are the core of technology. Our aim is to look forward and research more about advanced and latest processors.

XIII. Scope and Limitation

As we know there are a good number of scope of our research topic. We are gonna discus one of those. It has so much advance technology like it is Intel optane memory supported. It has turbo boost technology, also it has Intel vpro platform eligibility. though it's limitations are few, we are discussing tose too. It has no thermal velocity boost. No transnational synchronizal extension.