Global Scientific JOURNALS

GSJ: Volume 6, Issue 10, October 2018, Online: ISSN 2320-9186
www.globalscientificjournal.com

IMPLEMENTATION IN RECENT TRENDS OF CPU/GPU/APU FRAMEWORK IN AMD PROCESSOR

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Abstract—

The main objective of this paper to analyse the central processing unit (CPU) is designed to handle complex tasks, such as time slicing, virtual machine emulation, complex control flows and branching, security, etc. In contrast, graphical processing unites (GPUs) only do one thing well. They handle billions of repetitive low level tasks. Originally designed for the rendering of triangles in 3D graphics, they have thousands of arithmetic logic units (ALUs) compared with traditional CPUs that commonly have only 4 or 8. Many types of scientific algorithms spend most of their time doing just what GPUs are good for: performing billions of repetitive arithmetic operations.

Keywords : Heterogeneous Clusters; GPU Programming; In-memory Cluster Computing; AMD Processor

1. INTRODUCTION

The CPU can be considered the brain of your PC[1]. It has a hand in pretty much all tasks and calculations carried out from all hardware, making it essential to your device's health and performance. Most modern PC CPUs employ multiple cores to handle multiple tasks at once, and overall performance is measured in gigahertz (GHz). For example, if a CPU has a base clock speed of 2.4GHz, it should be able to process up to 2.4 billion instructions in a second.

CPU

When it comes to CPU manufacturers, you'll likely hear about Intel and Advanced Micro Devices (AMD)[2]. Both create products that can run Windows, and, especially now that AMD has Ryzen, there's a shrinking gap between the two companies when it comes to price and performance.

Performance does vary quite widely across all CPUs from both manufacturers, offering up plenty of options when it comes to price and power consumption. You can find a low-performance CPU that's great for word processing, web browsing, and battery life, while you can also find a high-performance CPU that will absolutely shred anything you throw at it but will also suck up power like a vacuum in comparison.

GPU

A Graphics Processing Unit (GPU) is a special purpose processor, optimized for calculations commonly (and repeatedly) required for Computer Graphics SIMD operations[3].

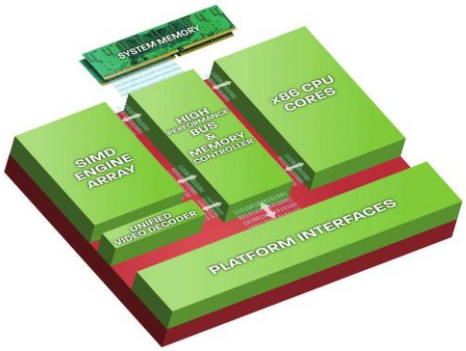
The GPU in your PC is essentially responsible for what you see displayed on the monitor(s) connected to your PC. There are typically two types of GPU: integrated and dedicated (also called discrete). Integrated GPUs share space with the CPU's chipset, while dedicated GPU's are a separate piece of hardware connected to a separate bus.

A GPU is designed to focus on big jobs that require a lot of power. Intensive gaming, VR, and video editing are all tasks associated with GPUs, thanks to the high number of cores available. While the CPU is the captain of your PC's team, the GPU can be considered the grunt, ready to

accept the most strenuous jobs.Like the CPU, we've written a lot about graphics cards.

APU

Both the CPU and GPU in the same spot allows them to work more efficiently for increased processing power. Likewise, having the GPU and CPU integrated is usually more energy efficient than having a CPU and a separate, dedicated GPU. Many modern APUs are powerful enough for non-intensive gaming; however, an APU will almost always be trumped by a modern dedicated GPU[4].



The first APU, using codename Llano, was announced by AMD back in 2011, but the project had been in the works since about 2006. If you're wondering where Intel stands in all this, most of their CPUs also employ integrated graphics. For example, the Intel Core-i7-8700K, commonly paired with a powerful dedicated GPU, does have Intel UHD Graphics 630 built right in. The term APU, however, isn't used by Intel, likely due to the heavy connection with AMD.

2. EXISTING SYSTEM

AMD says that these new chips pack up to three time the CPU performance, 2.3 times the GPU performance, and consume up to 58 percent less power. In terms of the competition, AMD claims its Ryzen 7 2700U can achieve up to three times the performance of the Intel Core i7 8550U on 3DMark. Similarly, AMD is claiming its Ryzen 5 2500U can achieve twice the performance of the Intel Core i5 7200U in 3DMark, but have to wait for independent benchmarks to have a complete picture[4].

3. PROPOSED SYSTEM

AMD systems powered by its Ryzen 7 and Ryzen 5 mobile processors will be available "in the coming weeks" from partners like Acer, HP, and Lenovo. More systems are expected from Dell and other manufacturers in 2018

4. IMPLEMENTATION OF AMD PROCESSOR

AMD's new Ryzen notebook chips pack Radeon Vega graphic[5].

AMD has announced the latest chips designed for ultrathin notebooks. Two graphics arichitectures are

- Ryzen CPU
- Vega graphics

architectures on a single accelerated processing unit (APU), AMD claims that the two new chips are the "world's fastest" processors for ultrathin notebooks.

The new lineup is made up of the Ryzen 7 2700U and the Ryzen 5 2500U. In terms of specs, AMD says that the top-end Ryzen 7 is equipped with four cores, eight threads, and 10 Vega compute units, all running at 2.2GHz base and 3.8GHz boost. The Ryzen 5 chip, on the other hand, packs four cores, eight threads, and eight Vega compute units, running at 2.0GHz base and 3.6GHz boost.

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5. CONCLUSION

In this paper we present DAMB, an end-to-end framework that process streamed data on a heterogeneous cluster of CPUs and GPUs in real-time and visualizes the result[5].Ryzen is AMD'S first foray into CPU's

6. REFERENCES

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