

IT'S NOT ABOUT UNIVERSITY BUT ENERGY EFFICIENCY OF CPU AND GPU DIVERSITY

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INTRODUCTION

- The Technological advance in semiconductor area has meant great demand in high performance, low power consumption and high reliability of many core systems.
- Many core systems are system with multiple CPU and GPU cores. Although applications can be distributed evenly to the available cores there is a lot to be done as to make the system energy efficient.
- Maintaining good power and performance trade offs means that battery based systems such as computer, and mobiles phones can run longer. It is known that a lot has been done from the hardware side to minimise energy consumption but this project focus on software side to achieve the same purpose.

AIMS

- To investigate the power and performance trade-offs on CPU and GPU cores.
- To monitor tasks distribution on the System and study effects on performance.
- Estimate performance under different constraints.

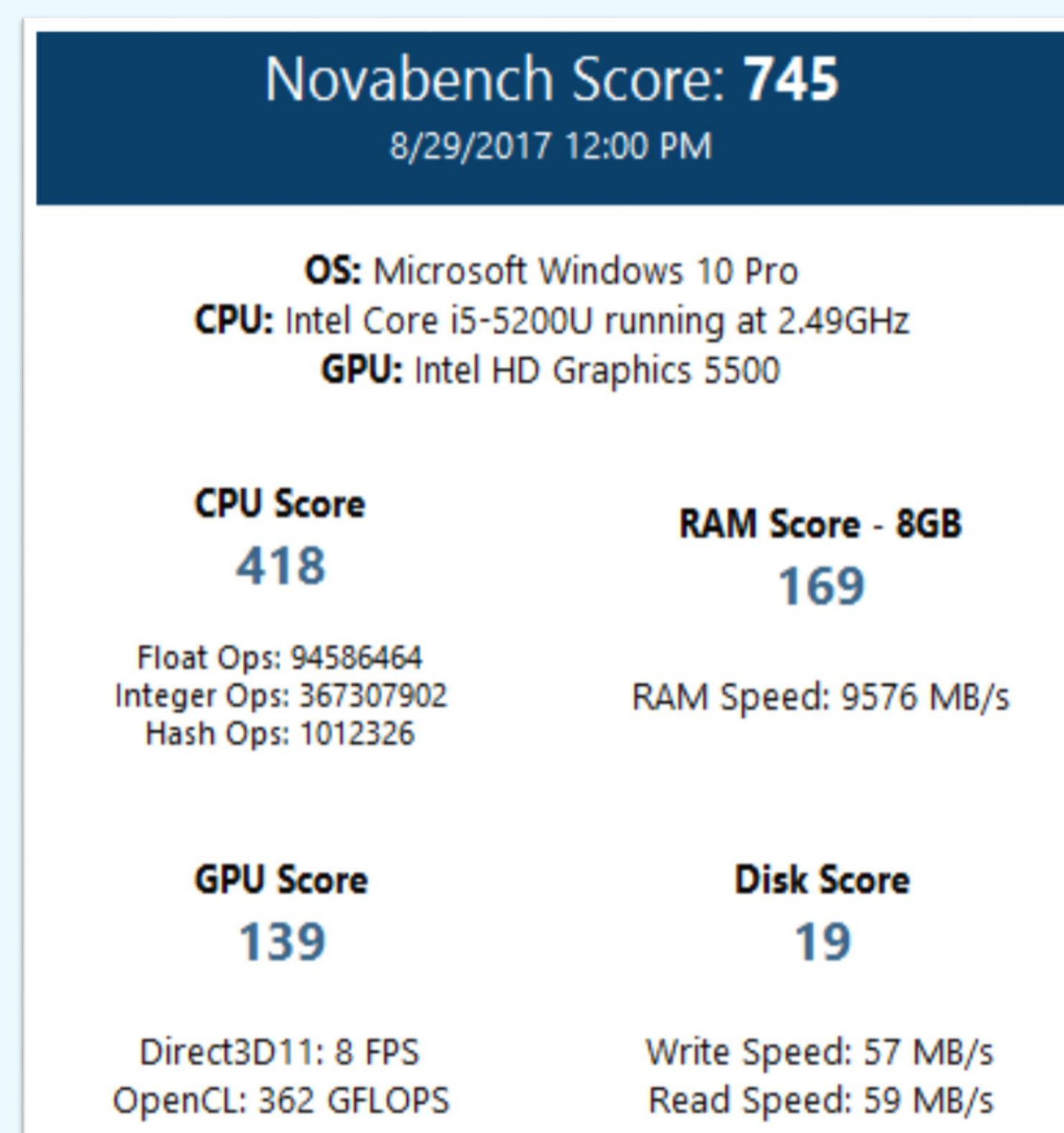
PLATFORM

- **OS:** Microsoft Windows 10 Pro
- **CPU:** Intel Core i5-5200U running at 2.49GHz
- **GPU:** Intel HD Graphics 5500

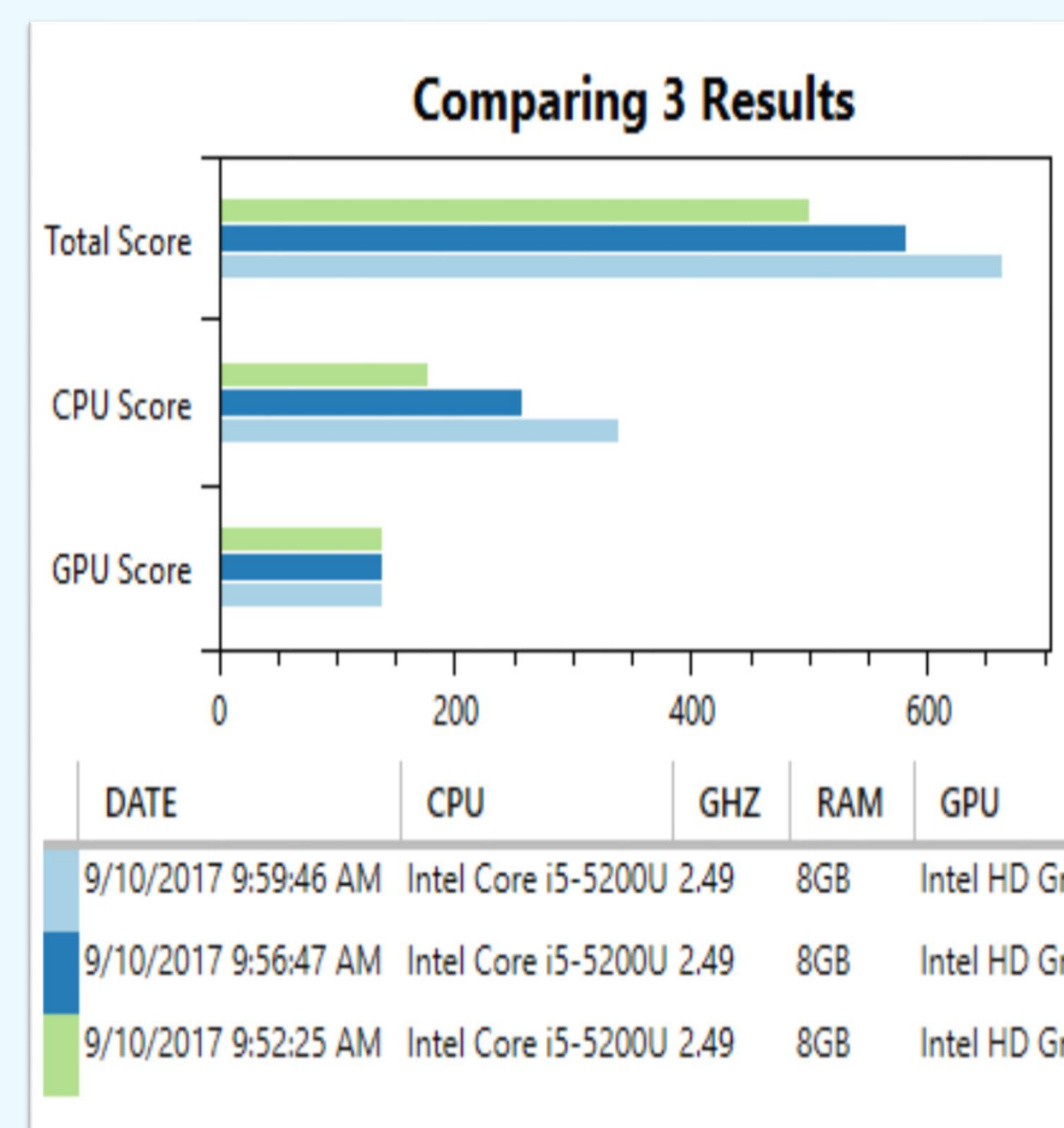


Photo by Mollie Hopper

RESULTS



Results from Novabench when test run on four available cores.



Comparison of tests with targeted CPU cores:1.2 and 3 cores.

METHODS

Firstly, we benchmarked the platform which has 4 processor cores by using Novabench suit .The Suit offers 4 different tests as listed below:

- CPU test
- GPU test
- RAM test
- Disk test

The test were run all at once.

Secondly, the application was run with targeted CPU cores to see the impact on the overall performance. So the scores comprise tests within one core, two, three and four cores.

FUTURE PLANS

DISCUSSION

If you think of computing as a football player trying to score a goal you will realise that it does no matter how well he kicks the ball off if he cannot score the goal it is effort wasting. Three important points can be seen from the results:

1. The more CPU core available for an application the higher the performance and more stable the system.
2. When tasks are distributed on targeted CPU cores it does not affect GPU performance.
3. Task distributed evenly across the platform means power is not wasted.

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