

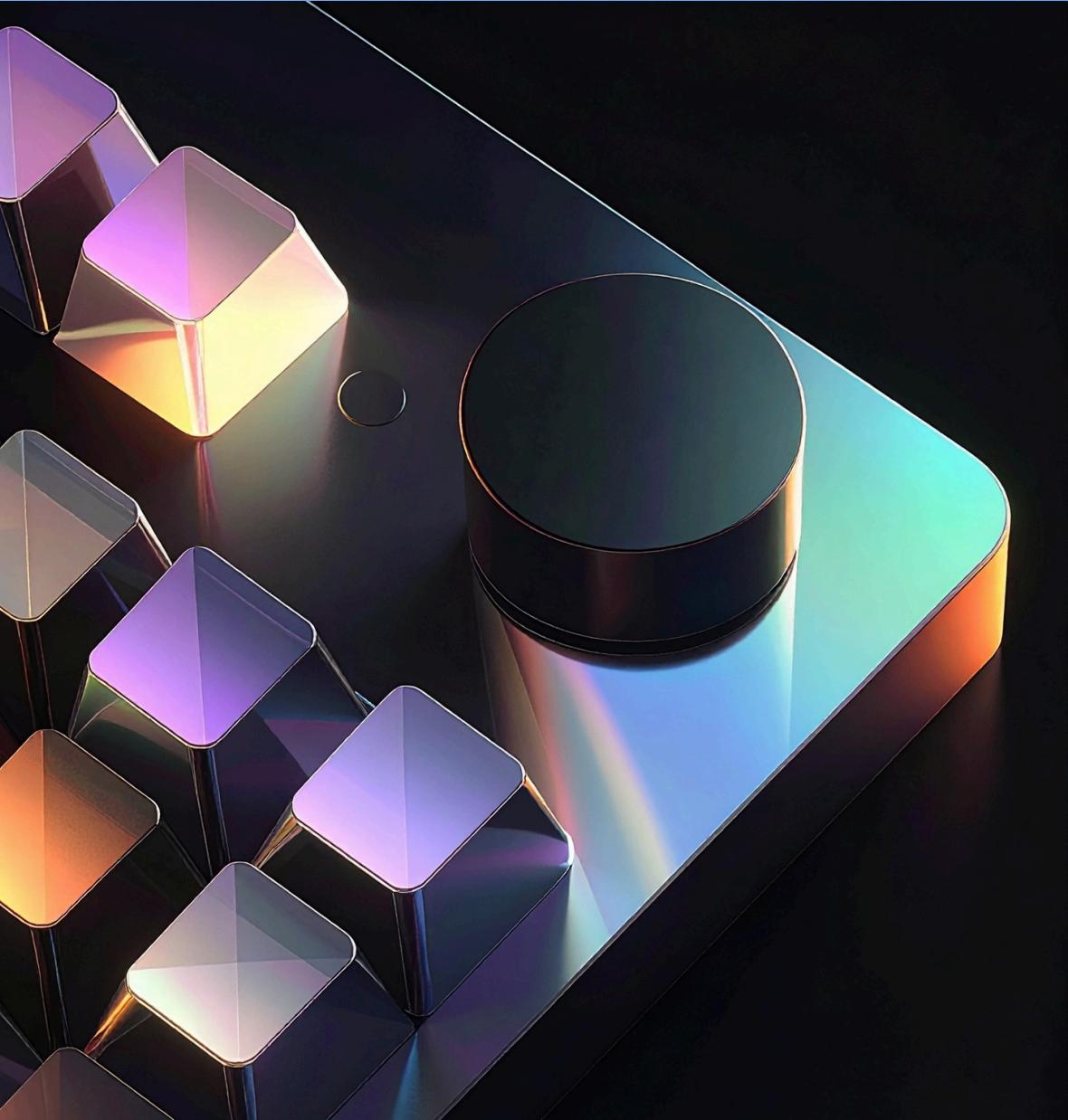
Performance Benchmarking

Group 28





In this presentation, we aim to compare four devices in the same category using three different benchmarking tools. We'll go over their specs, share our test results, and highlight which device offers the best performance for its cost.

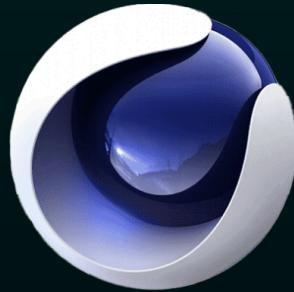


Benchmarking Tools We Used



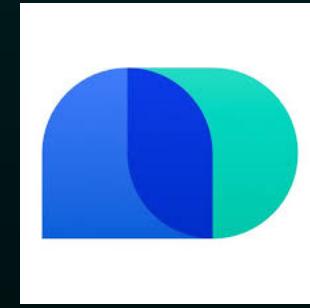
Geekbench

Geekbench measures CPU and GPU performance using real-world tests and gives easy-to-compare single-core and multi-core scores.



Cinebench

Cinebench tests a device's CPU and GPU by rendering complex 3D scenes, giving a clear idea of real-world performance in creative and graphical tasks.



Novabench

Novabench runs quick tests on the CPU, GPU, memory and storage to give an overall performance score for easy comparison.



Why These Tools?

1

Broad Coverage

Together, they test CPU, GPU, memory and storage performance.

2

Cross-Platform

All three work on multiple operating systems and architectures, making comparisons easier.

3

Consistent Results

They give reliable, easy-to-compare scores across different devices.

ASUS Vivobook S15



- Intel Core i7-1165G7
- NVIDIA GeForce MX350 (dedicated) + Intel Iris Xe Graphics (integrated)
- 8GB LPDDR4
- Microsoft Windows 11 Home
- 5 - 7 hours battery life
- LKR 360,000

ASUS Vivobook 16



- AMD Ryzen 7 7730U
- AMD Radeon Graphics (integrated)
- 16GB LPDDR4
- Microsoft Windows 11 Home
- Up to 10 hours battery life
- LKR 220,000

Apple Macbook Air 13"



- Apple M3 8-Core
- Apple M3 10-Core (integrated)
- 16GB LPDDR5
- macOS Sequoia
- 15 - 18 hours battery life
- LKR 344,900

ROG Zephyrus G14



- AMD Ryzen 9 7940HS
- NVIDIA GeForce RTX 4070 (dedicated) + AMD Radeon 780M (integrated)
- 16GB LPDDR5
- Microsoft Windows 11 Home
- 5 - 7 hours battery life
- LKR 940,000

Benchmarking Methodology

1 Device Selection

We chose three devices from the same category to ensure a fair comparison.

2 Benchmark Setup

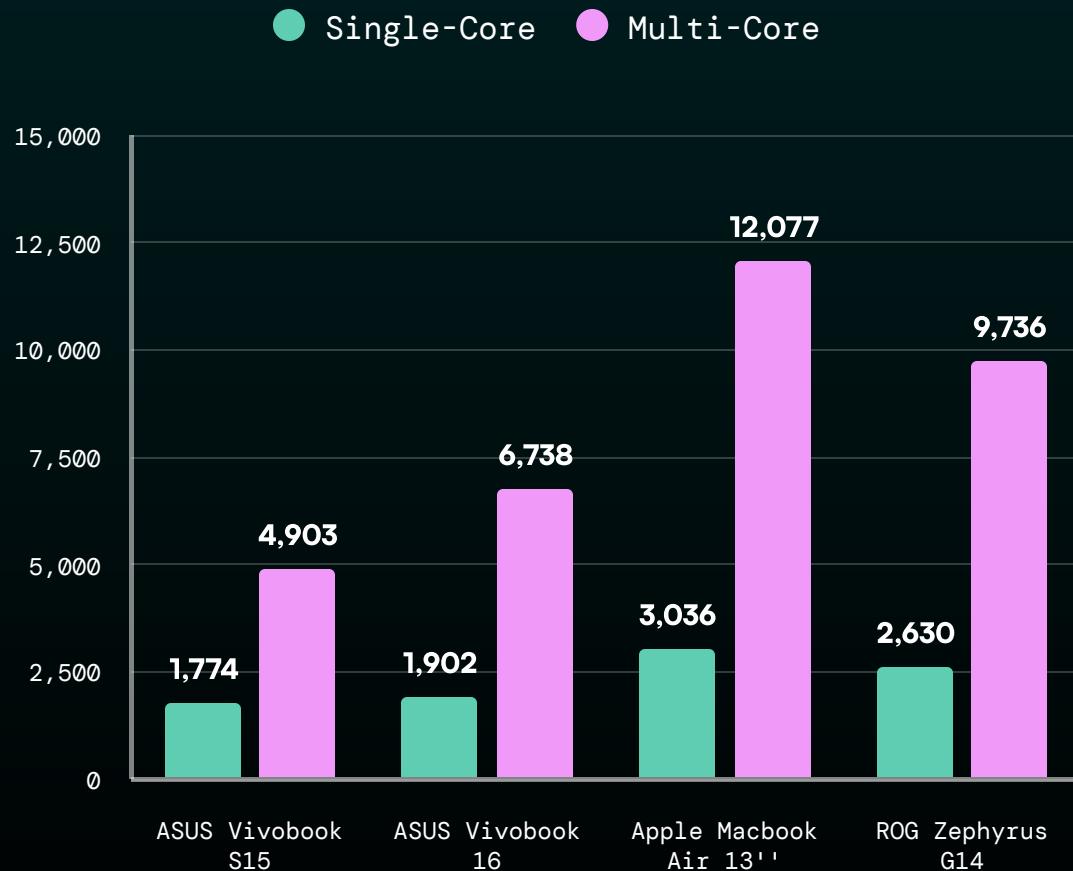
Each tool was installed and run under similar conditions without background tasks.

3 Data Analysis

Results were compared to identify performance trends and bottlenecks.

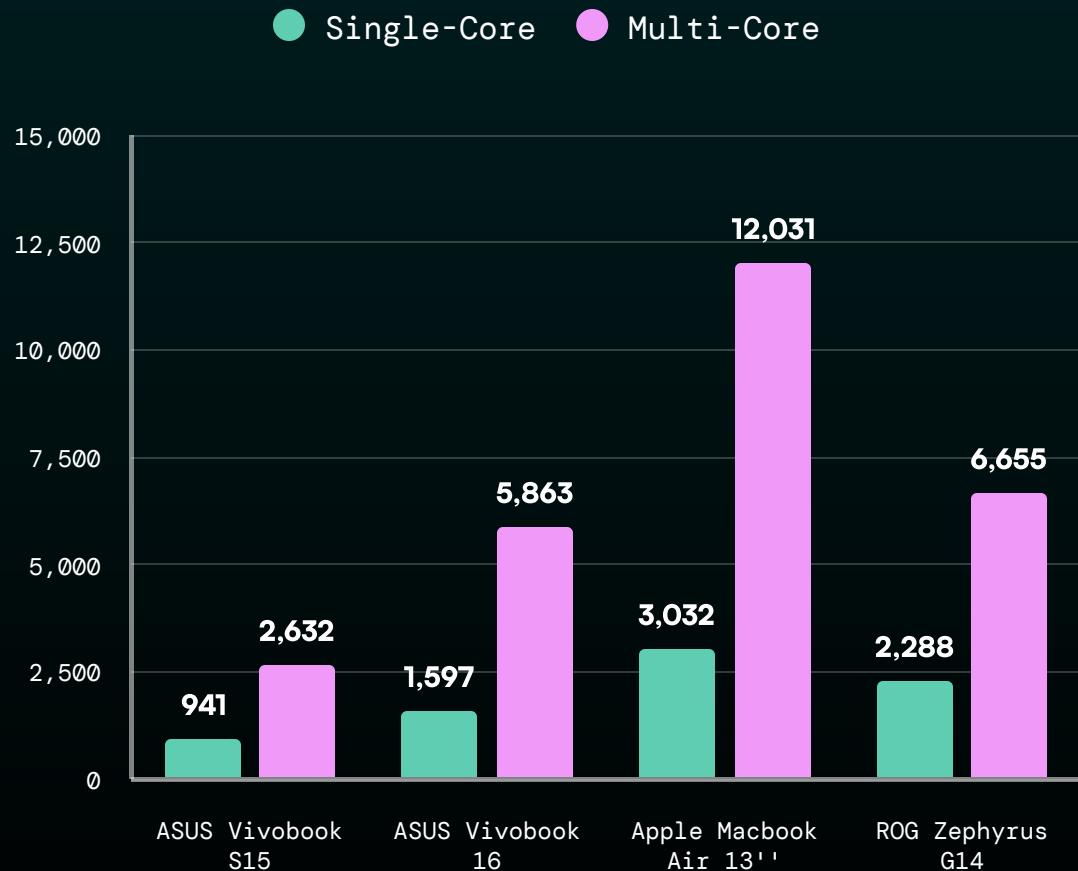


Geekbench (Plugged In)



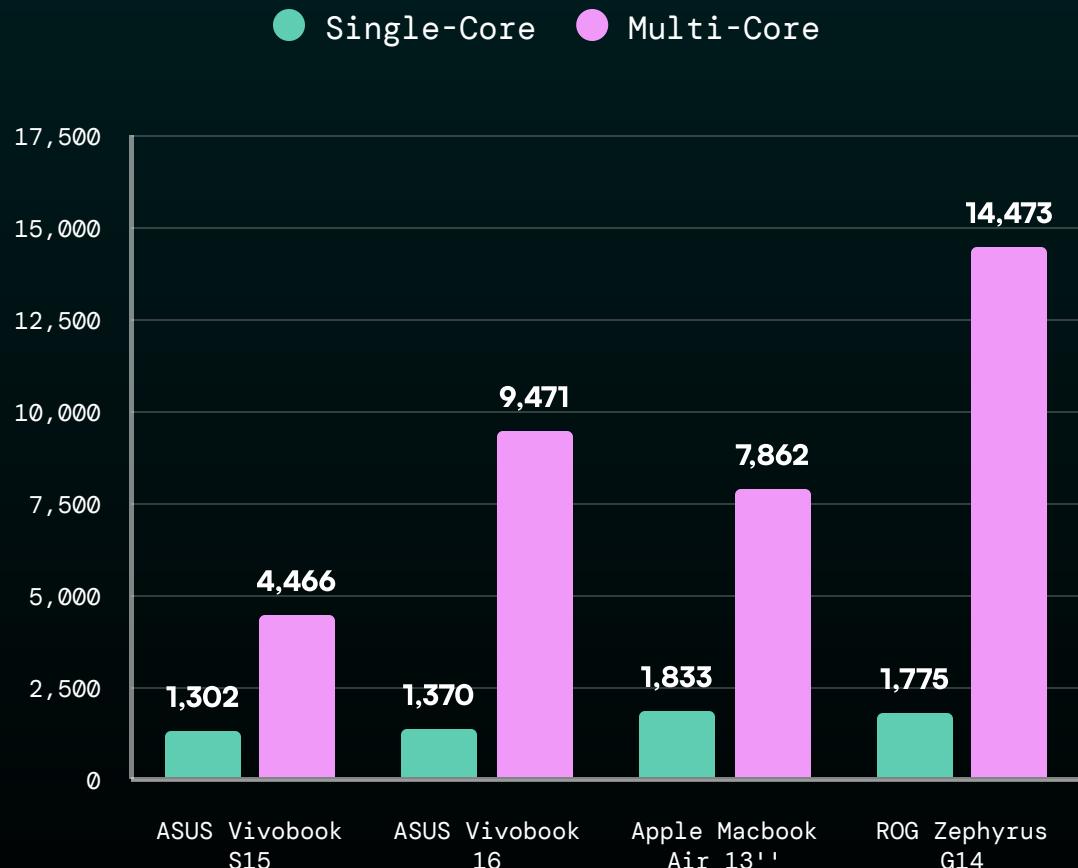
The Macbook leads in both single-core and multi-core performance, followed by the Zephyrus which performed the best among the x86-64 laptops. The two Vivobooks scored lower overall.

Geekbench (On Battery)



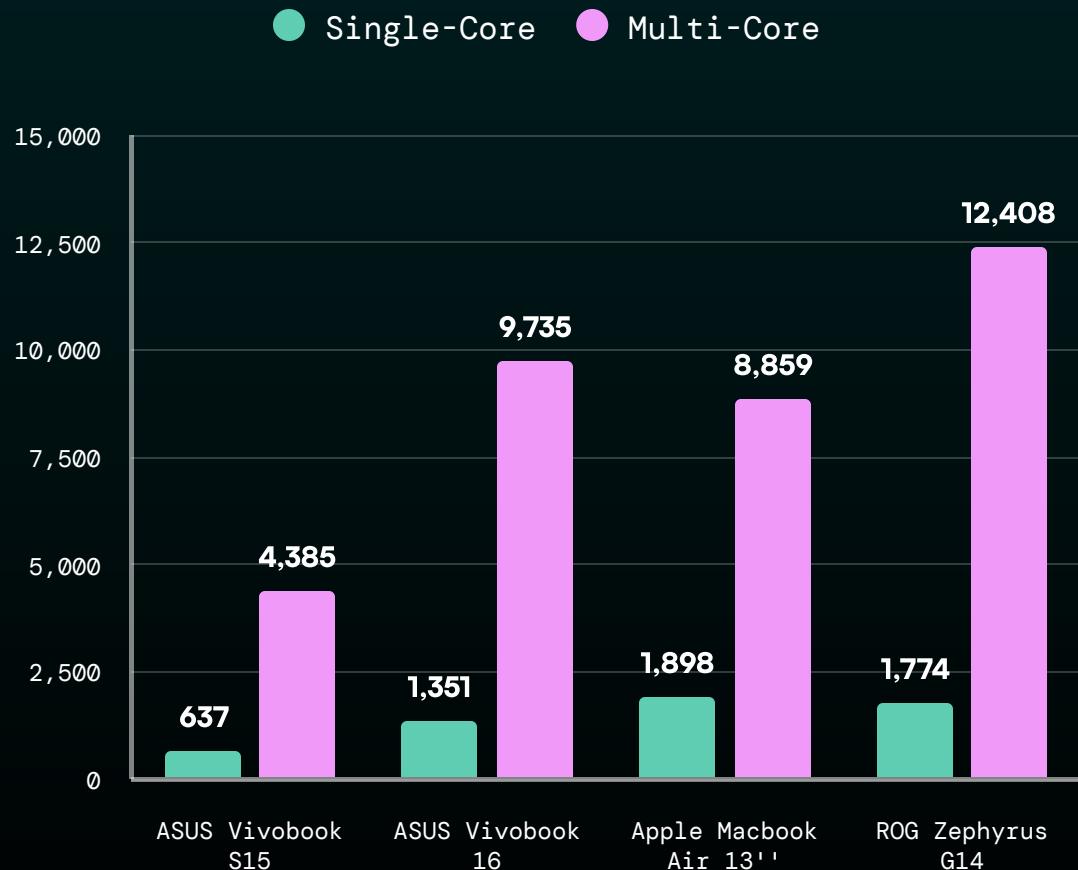
On battery, the Macbook still performs the best with almost no drop in scores, showing great power efficiency. The Zephyrus still holds second place but with a significant drop in performance when on battery.

Cinebench(Plugged In)



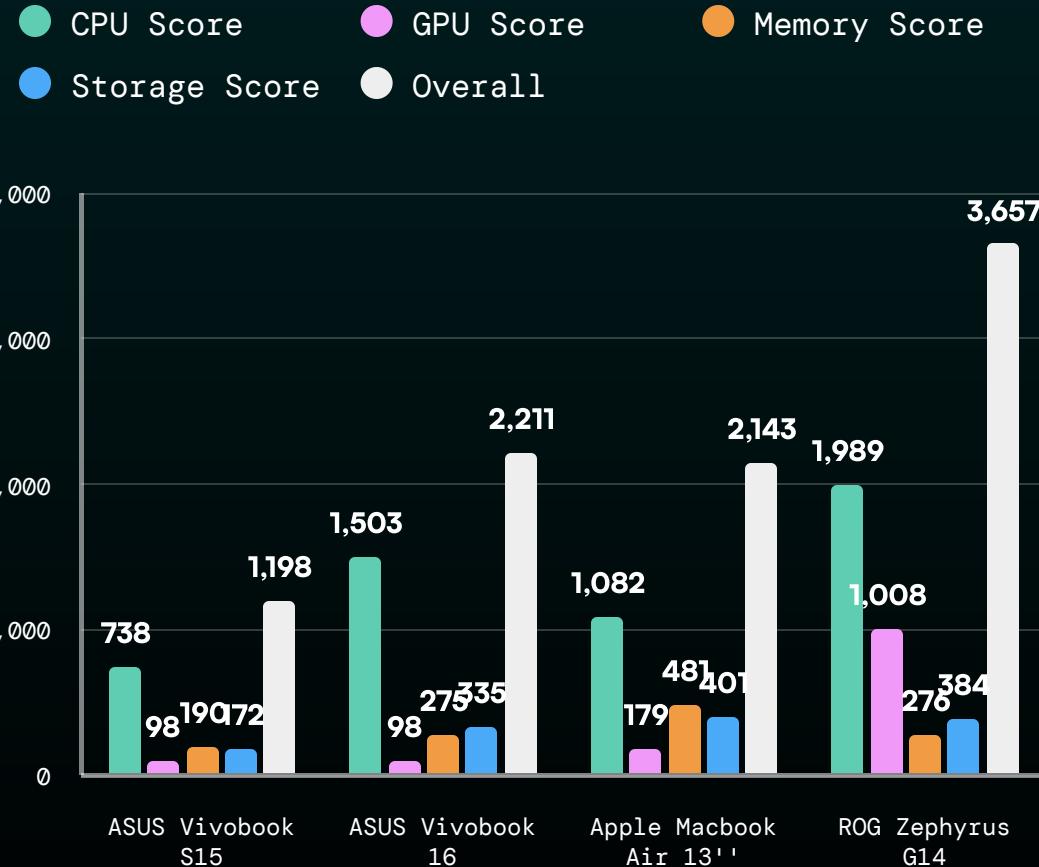
When plugged in, the Zephyrus delivers the highest Cinebench score, showing its strong multi-core performance for heavy rendering tasks. The Macbook performed the best in single-core workloads. The interesting thing is that one of the Vivobooks surpassed the Macbook in multi-core performance.

Cinebench(On Battery)



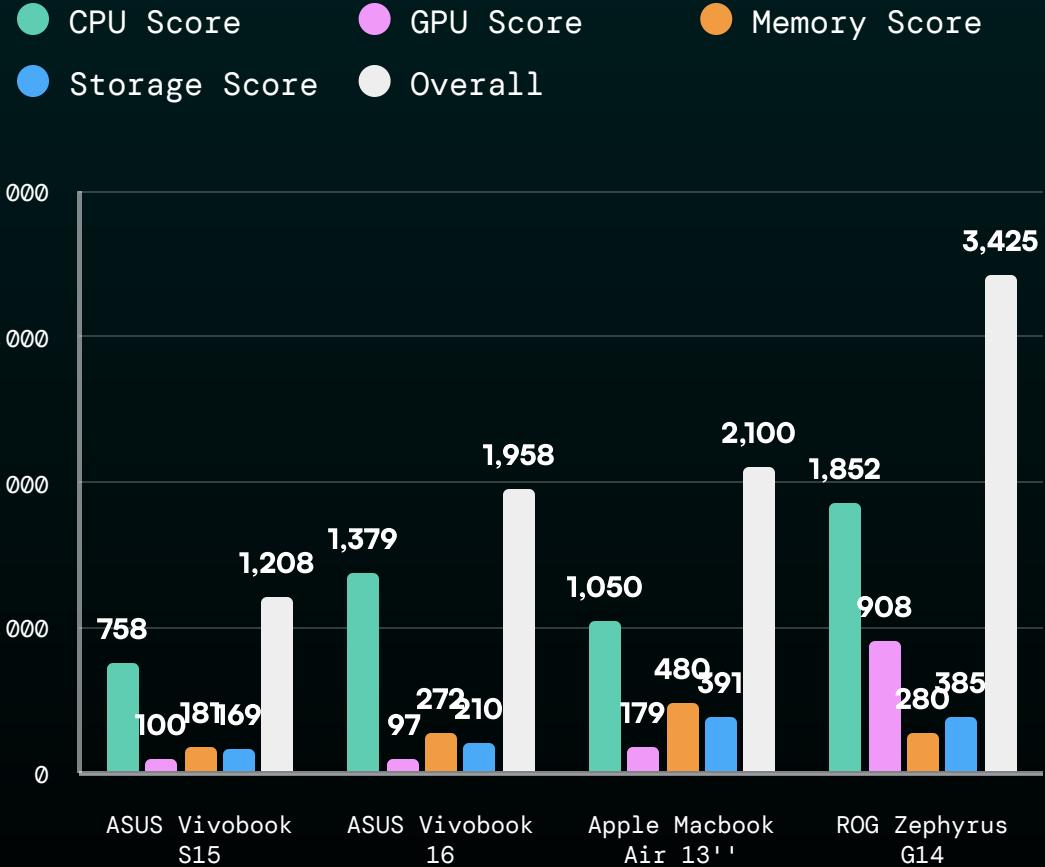
On battery, the Macbook actually performs slightly better, showing how efficient its chip is even without external power. The Zephyrus still leads overall, while the Vivobooks show mixed results with lower scores compared to both.

Novabench(Plugged In)



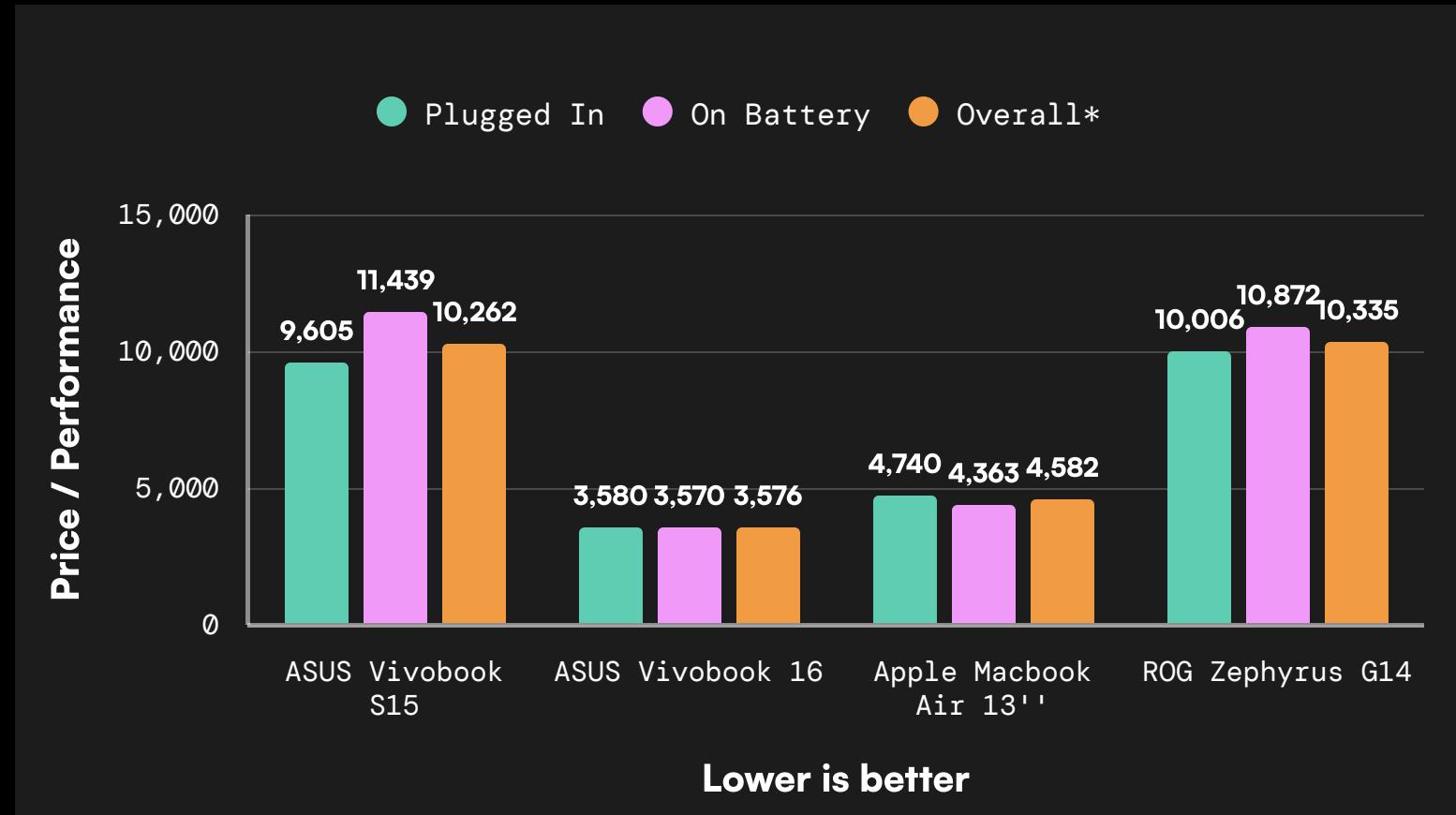
When plugged in, the Zephyrus scored the highest overall, with strong CPU and GPU results. The Macbook performed the best in memory and storage tests, while the Vivobooks lagged behind in all categories.

Novabench(On Battery)



On battery, the Zephyrus still leads with the highest score overall, showing strong CPU and GPU performance without external power. The Macbook remains stable with minimal performance drop across all tests.

Price to Performance



The Vivobook 16 offers the best overall price-to-performance.

The Macbook Air maintains strong efficiency even on battery.

The Zephyrus G14 delivers higher performance but at a higher cost.

*weights given to plugged in/on battery : 0.6/0.4



Observations and Anomalies

Some of the on battery scores were higher than plugged in, especially on the Macbook Air.

This shows Apple's power management and thermal control maintain strong performance even without external power.

The Zephyrus G14 showed a mild drop, which is typical for gaming laptops with CPU and GPU power limits set on battery.

The Vivobooks had the biggest decrease, showing standard power saving throttling.

These results show that performance scaling varies by architecture and battery optimization strategy.

Summary of Devices

Apple Macbook Air 13"

The Macbook Air performed consistently well both plugged in and on battery, showing the efficiency of its ARM architecture. It balances great performance with excellent energy efficiency.

ASUS Vivobook 16

The Vivobook 16 offered the best price-to-performance overall. It's not the fastest, but it gives the most performance per rupee spent, making it the best value choice. Its results were consistent across all benchmarks, though lower overall.

ROG Zephyrus G14

The Zephyrus had the best raw performance when plugged in, especially in Cinebench and Novabench. But on battery, its performance dropped a bit - which should be expected for a gaming laptop with high power demands. It's the strongest in power but less efficient on battery.

ASUS Vivobook S15

The Vivobook S15 showed the lowest performance across all benchmarks. It's suitable for lighter workloads, but not ideal for more demanding tasks.

Recommendations

- **ROG Zephyrus G14**

Best plugged-in performance (Cinebench/Novabench). Great for gaming, rendering, Blender, Unreal.

- **Apple Macbook Air 13"**

Strong CPU (Geekbench) with excellent battery efficiency. Ideal for coding, photo/video editing with all day portability.

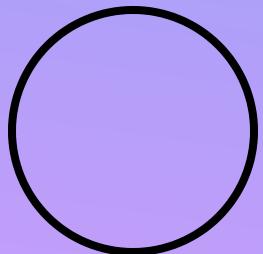
- **ASUS Vivobook 16**

Best price-to-performance overall. Great for office apps, browsing, coursework and light editing.

- **ASUS Vivobook S15**

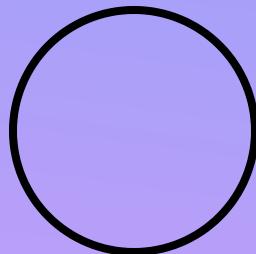
Lower cost and performance, fine for docs, email, media and light multitasking.

Our Team



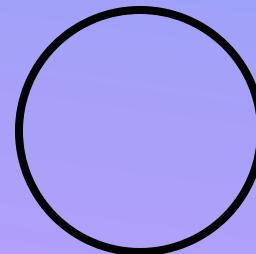
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Running benchmarks
Preparing report



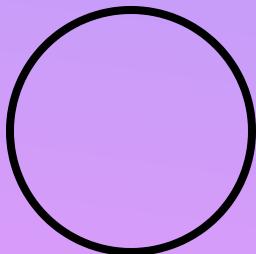
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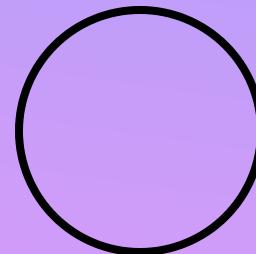
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Running benchmarks
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Thank you.