

Comparing CPUs

macOS Monterey

Version 12.7.5

Mac mini (Late 2014)

Processor 2.6 GHz Dual-Core Intel Core i5

Memory 8 GB 1600 MHz DDR3

Startup Disk Macintosh HD

Graphics Intel Iris 1536 MB

Serial Number

System Report

Software Update

Model Name:	Mac mini
Model Identifier:	Macmini7,1
Processor Name:	Intel Core i5
Processor Speed:	2.6 GHz
Number of Processors:	1
Total Number of Cores:	2
L2 Cache (per Core):	256 KB
L3 Cache:	3 MB
Memory:	8 GB

Here's my 2024 computer setup

What can you tell about the processor speed?

What could I do to increase the processor speed of my machine?

Think:

- clock
- cores
- cache size

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Not on syllabus info:

There are 3 levels of cache:

- L1: fastest, smallest, most expensive, closest to CPU
- L2: slower, bigger, cheaper
- L3: slowest, biggest, cheapest, furthest from CPU

The CPU does have a L1 cache. It's probably 32 KB per core

Here's my setup next to the one my wife uses. Which has the better CPU performance?

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iMac

21.5-inch, 2017

Processor 2.3 GHz Dual-Core Intel Core i5

Graphics Intel Iris Plus Graphics 640 1536 MB

Memory 8 GB 2133 MHz DDR4

Startup disk Macintosh HD

Serial number

macOS Ventura 13.6.7

Model Name:	iMac
Model Identifier:	iMac18,1
Processor Name:	Dual-Core Intel Core i5
Processor Speed:	2.3 GHz
Number of Processors:	1
Total Number of Cores:	2
L2 Cache (per Core):	256 KB
L3 Cache:	4 MB
Hyper-Threading Technology:	Enabled
Memory:	8 GB

Comparing CPUs

Both of these machines are quite old. By buying a more modern machine I could certainly increase performance.

I'd likely get:

- 3.49Ghz clock speed
- 8 cores (4 processing cores, 4 efficiency cores)
- cache size: 16MB

But is the cost of the upgrade to performance worthwhile for me?

CPU Performance

Who needs a high-end technical spec?

“developers, film editors, true 4K graphic manipulation, sys admins who want to run full lab environments at home that they can snapshot easily”

“high-end graphics and other needs”

“3D modelling and a bit of rendering are mainly what I need computing power for. I've got a fairly decent graphics card”