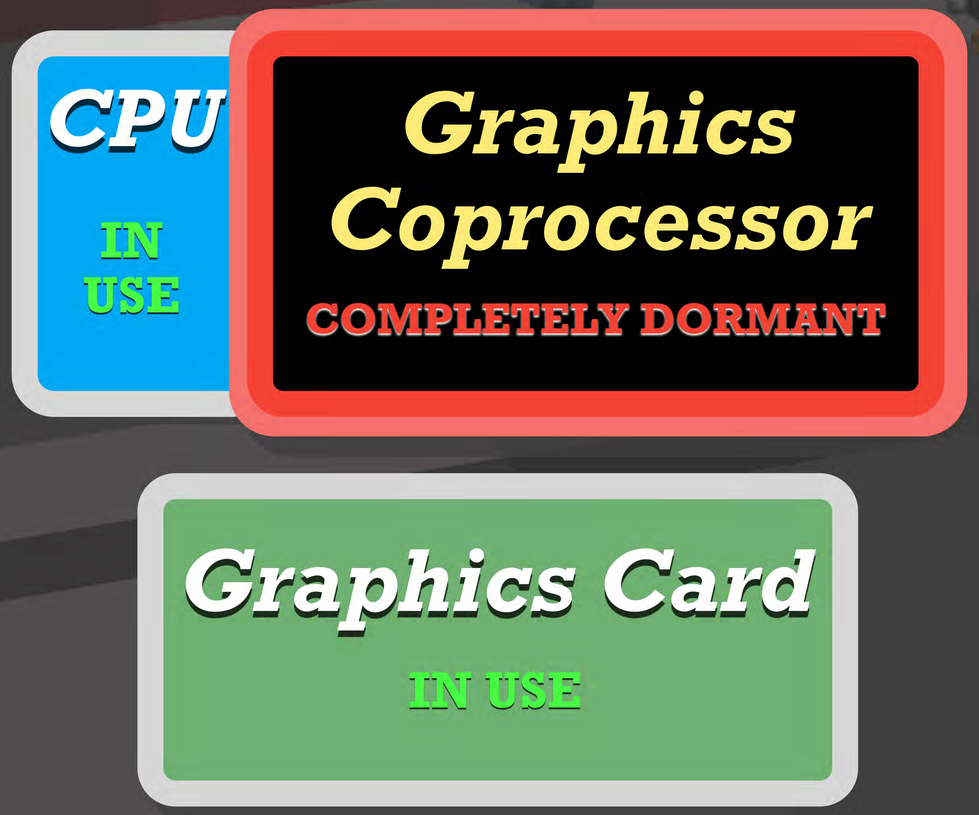
AI RUN DIFFERENTLY

Use the Graphics Coprocessor?

PC video games normally use the CPU and Graphics card (GPU) to do all their computing. ***But what happened to the CPU's graphics coprocessor which every PC can use?*** *It just sits there whilst playing games. Why not use that too? More computing power!*

Using the Graphics Coprocessor for AI

AI is very taxing performancewise. Every single game tick, lots of calcutions occur for AI. This strains the CPU which they're usually done on, so other aspects of the game suffer. I tried writing AI in ***OpenCL*** *for the Graphics Coprocessor to run alongside a game which used the CPU and GPU as a proof of concept and* ***it worked fully.*** *This has* ***never been done before to my knowledge.***



Summary

There's a piece of Hardware in all PCs that's rarely used if the PC has a graphics card; I used it for AI and freed up the CPU. Now all games can do more with the CPU.

→ Better performance in games.

The Benefits

The CPU can be fully used for non-AI tasks, and the entire graphics coprocessor can be used for AI. This means ***more complex environment calculations*** *are possible for example, with* ***less performance impact****, and also* ***more complex and numerous AI agents*** *are possible.*

The Drawback

≈185μs ***(0.19ms)*** *necessary overhead per tick. (Tested on Intel Core i7-4790S @ 3.2GHz & 8GB RAM, variable per processor type)*

Who can use it?

All PC game developers. *Every desktop PC has a graphics coprocessor, and those with graphics cards have the entire thing available to use.* ***All games*** *can use this to better their performance, and particularly games which use AI, which I've found runs very well on the graphics coprocessor.*

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