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CS 395, Code Review 1
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CPUTYPE.ASM

This code was part of a package that I wrote for an embedded microcontroller system. The code was intended to be hosted on a family of boards that could use any of about a half dozen different processor chips, each of which had different capabilities. In order for the code to be portable across the different machines, it was necessary to be able to dynamically identify what processor the code was running on.

Consequently, I had to do a bit of research into how to tell one processor from another without having any clear identifying signature. I did this by getting the spec sheets for each chip and scouring the information therein for any kind of operational differences that could be used to distinguish one chip from another. I found that many of the warnings given in the specs, along the lines of "Watch out, this works differently than previous models" were particularly of use, as I could then deliberately set up situations to identify which model I was on, through slightly different behavior.

So this routine was developed, to be run during POST (Power-On Self Test) which would return an identifier that would classify the processor as to which operational family it belonged to. Because of the intensively low-level nature of this analysis, it was necessary to write the routine in Assembly language, as a function callable from C, C++, Tcl, Objective-C or similar language families. Comments were added to the instructional lines to describe the behavior for any who were unfamiliar with assembly opcodes.

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