

Why did Windows 95 run the timer at 55ms?

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The story behind the 55ms timer tick rate goes all the way back to the original IBM PC BIOS. The original IBM PC used a 1.19MHz crystal, and 65536 cycles at 1.19MHz equals approximately 55ms. (More accurately, it was more like 1.19318MHz and 54.92ms.)

But that just pushes the question to another level. Why 1.19...MHz, then?

With that clock rate, 2^{16} ticks equals approximately 3600 seconds, which is one hour. (If you do the math it's more like 3599.59 seconds.) [Update: 4pm, change 2^{32} to 2^{16} ; what was I thinking?]

What's so special about one hour?

The BIOS checked once an hour to see whether the clock has crossed midnight. When it did, it needed to increment the date. Making the hourly check happen precisely when a 16-bit tick count overflowed saved a few valuable bytes in the BIOS.

Another reason for the 1.19MHz clock speed was that it was exactly one quarter of the original CPU speed, namely 4.77MHz, which was in turn $4/3$ times the NTSC color burst frequency of 3.5MHz. Recall that back in these days, personal computers sent their video output to a television set. Monitors were for the rich kids. Using a timer related to the video output signal saved a few dollars on the motherboard.

[Calvin Hsia has another view of the story behind the 4.77MHz clock.](#)

(Penny-pinching was very common at this time. [The Apple \]\[had its own share of penny-saving hijinks.](#))

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