

BIOS Mussings

By Akov Miles

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To: Info-IBMPC at MIT-MC
Re: BIOS Musings

You may be interested in a history of where this BIOS came from, and how it arrived in its present form. A heavily patched, partially-functionally BIOS (with no copyright statement, or other visible indication of origin) was supplied with my IBM-PC/xt compatible 10 MHz motherboard. In order to get my motherboard to function correctly, in other words, to work with the parity interrupt enabled and to operate with the NEC "V20", it was necessary to disassemble and thoroughly go thru this "anonymous" bios, which was hinted as supplied by Taiwan, while limping along on a name brand bios, as supplied on my previous motherboard by a different vendor.

In the course of this disassembly, aided by comparison with the published IBM-PC/xt listings, it became apparent that the synchronization on horizontal retrace in the video INT 10h service was the root cause of the failure to operate with the NEC "V20", and that correcting it to correspond with logic (as in IBM's bios) caused the glitch to disappear. I am unable to account as to why several name brand BIOS brands (excluding IBM's) had similar glitches - maybe they they were produced from similar source code, although this seems unlikely. In any case, as evidenced by DEBUG, some of these name-brand BIOS were full of machine-level patches - did the vendor ever bother to reassemble and optimize the source code.

The code that I examined was full of recursive INT(errupt) instructions, which did not to contribute to screaming fast BIOS. Therefore, the assembly code was rearranged so as to eliminate some of the unnecessary CALL, JMP, and especially INT instructions, as the optimization proceeded with the later releases. The bios is (c)Anonymous, because there was no indication of the original authors...

ps: While playing around with my 10 MHz motherboard, I encountered an unusual program called HELPME.COM, which ran at a higher pitch than normal. Since this program behaved normally on other (8 MHz) turbo motherboards, my curiosity was aroused. This eventually led me to discover that the 10 MHz motherboard was refreshed in hardware by channel 1 of the 8253 timer ic, and that this channel appeared to be counting down from an unusually fast oscillator. Maybe this could cause problems with other programs...