

USB Legacy support

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Also known as "USB Keyboard" or "USB Mouse support" in the BIOS Setup is a feature that allows one to use the USB mouse and keyboard as if they were their classic PS/2 counterparts. This means one can use an USB keyboard to type in LILO for example.

It has several drawbacks, though:

1. On some machines, the emulated PS/2 mouse takes over even when no USB mouse is present and a real PS/2 mouse is present. In that case the extra features (wheel, extra buttons, touchpad mode) of the real PS/2 mouse may not be available.
2. If CONFIG_HIGHMEM64G is enabled, the PS/2 mouse emulation can cause system crashes, because the SMM BIOS is not expecting to be in PAE mode. The Intel E7505 is a typical machine where this happens.
3. If AMD64 64-bit mode is enabled, again system crashes often happen, because the SMM BIOS isn't expecting the CPU to be in 64-bit mode. The BIOS manufacturers only test with Windows, and Windows doesn't do 64-bit yet.

Solutions:

Problem 1)

can be solved by loading the USB drivers prior to loading the PS/2 mouse driver. Since the PS/2 mouse driver is in 2.6 compiled into the kernel unconditionally, this means the USB drivers need to be compiled-in, too.

Problem 2)

can currently only be solved by either disabling HIGHMEM64G in the kernel config or USB Legacy support in the BIOS. A BIOS update could help, but so far no such update exists.

Problem 3)

is usually fixed by a BIOS update. Check the board manufacturers web site. If an update is not available, disable USB Legacy support in the BIOS. If this alone doesn't help, try also adding `idle=poll` on the kernel command line. The BIOS may be entering the SMM on the HLT instruction as well.