

Re: MSP430 in-circuit firmware upgrade question

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Weiyang Zhou wrote:

- > *I am trying to implement the in-circuit firmware upgrade feature on a*
- > *MSP430148 based system. The firmware consists of a boot loader and*
- > *application. boot loader will be able to receive new application firmware*
- > *over UART and program it into the flash to replace the older application.*
- >
- > *I have a few questions related to this:*
- > *1. Can the boot loader program flash while executing in flash? Or does it*
- > *have to be copied to RAM first?*

While you are programming the flash, it can't execute from it, so it automatically executes marching on the spot until the write is finished. So you have two choices: copy your loader to RAM, or turn off all interrupts while actually writing.

- > *2. Both of my boot loader and application need to communicate over UART, how*
- > *do I change the interrupt handler at run time?*

Just a flag to steer to the appropriate routine from the interrupt. Or make the interrupt vector table point to a table of pointers (in RAM) to the appropriate routine.

- > *4. When build the application firmware for field upgrade, what link output*
- > *format should I choose that's good for download and flash programming?*

Something with checking would probably be better than the Texas .txt format. Perhaps add a CRC to each block.

- > *5. When the system goes to production, how do I get a complete flash image*
- > *so we can program it on MSP430 chips before populate it on the board?*

Don't. All the flash MSP430s have a built in serial bootloader, for the cost of 4 extra pins on the board (tx, rx, reset, gnd). Or use the JTAG if serial is too slow.

Paul Burke