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Use of the Lock Bit on Modular Microcontrollers with FLASH EEPROM

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General Information

The LOCK bit in the FEEMCR register is used to prevent software from writing the base address registers of the FLASH EEPROM modules.

That is all that the LOCK bit does. The LOCK bit does not prevent the software from programming, erasing, or reprogramming any FLASH EEPROM cell.

Shadow Bits

To restate, regardless of the state of the LOCK bit, the software can program to the FLASH EEPROM array or any registers formed from FLASH EEPROM cells, such as the shadow registers.

Guidelines

To understand why the LOCK bit is present, the user must understand how the shadow bits work.



These are guidelines:

1. Upon the release of reset, the contents of the shadow registers are written into the actual registers being shadowed. If the shadow registers have not been programmed, all of the bits will be at logic 1. Thus, when the device is reset, all of the actual registers will be written to \$FFFF.
2. The shadow registers can be programmed at any time. Programming the shadow registers does not affect the actual registers until the device encounters a subsequent reset. When a reset does occur, the new contents of the shadow registers are written into the actual registers.
3. If the LOCK bit is set, the actual base address registers cannot be modified. In other words, the base address of the internal FLASH EEPROM modules cannot be changed under software control. To change the actual base address registers, the shadow registers must be reprogrammed and the device must encounter a reset.
4. If the LOCK bit is clear, the actual base address registers can be written by the CPU at any time.

The LOCK bit was incorporated for one purpose only: to prevent user software or run away software from reprogramming the base address registers for the EEPROM modules.

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