Mask Set Errata 4

68HC912B32 8-Bit Microcontroller Unit

INTRODUCTION

This mask set errata provides information pertaining to the byte data link controller (BDLC) applicable to these 68HC912B32 MCU mask set devices:

- 4J54E
- 3J54E
- 0J54E
- 0J64Y
- 9H91F
- 3H91F
- 1H91F

MCU DEVICE MASK SET IDENTIFICATION

The mask set is identified by a 5-character code consisting of a version number, a letter, two numerical digits, and a letter, for example 3J74Y. Slight variations to the mask set identification code may result in an altered version number, for example 4J74Y.

MCU DEVICE DATE CODES

Device markings indicate the week of manufacture and the mask set used. The data is coded as four numerical digits where the first two digits indicate the year and the last two digits indicate the work week. For instance, the date code “9915” indicates the 15th week of the year 1999.

When contacting a Motorola representative for assistance, please have the MCU device mask set and date code information available.

MSE Published Date: 3/15/01

MCU DEVICE PART NUMBER PREFIXES

Some MCU samples and devices are marked with an SC or XC prefix. An SC prefix denotes special/custom device. An XC prefix denotes that the device is tested but is not fully characterized or qualified over the full range of normal manufacturing process variations. After full characterization and qualification, devices will be marked with the MC prefix.

BDLC 300 µs IFS ISSUE

If two messages are received at 300 µs interframe separation (IFS) (+/– µs, as measured at the RX pin), the second message's start-of-frame (SOF) symbol generates an invalid symbol interrupt. This invalid symbol interrupt results in the second message being lost and, therefore, unavailable to the application software. This is the result of a race condition within the BDLC where it is changing states in its receive state machine at the same time a transition occurs on the RX pin (beginning of the SOF symbol of the second message).

Work-arounds

1. Ensure that no nodes on the J1850 network will transmit a message at 300 µs IFS separation from another message. Be certain that physical layer error is taken into account when calculating this case, as temperature changes and ground shifts can shift the timing seen at the RX pin of the microcontroller. Motorola silicon implementations of J1850 have not been shown to retransmit any faster than 320 µs, and are, therefore, not likely to cause this behavior.
2. Design messaging and application software to properly handle loss of messages in the system. This is safe programming practice in any case and will protect the integrity of the system in the event of a lost message.

Additional mask set erratas can be found on the World Wide Web at http://mcu.motsps.com/documentation.