

Fujitsu Microelectronics Europe
Functional Limitation Report

32-BIT MICROCONTROLLER **MB91460 SERIES**

FUNCTIONAL LIMITATION
EXTERNAL INTERRUPT
2006-11-27



Revision History

Date	Issue
2006-11-27	V1.0, initial version

This document contains 8 pages.

Abbreviations:

FME Fujitsu Microelectronics Europe GmbH
MCU Microcontroller

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**Fujitsu does not bear any warranty in the case this handling note
is not fully observed.**

1 Problem Description

A problem was found in the external interrupt logic on 32-bit MCUs of the MB91460 series. Under certain conditions external interrupt events can get lost. This problem is called 'external interrupt black out problem'.

2 Problem Conditions

Problem occurs if the following conditions are met:

- MCU is waking up from STOP mode by either external interrupt trigger or internal RTC interrupt trigger
- Additionally one or more external interrupt events are applied to the MCU between the first wake up trigger and the internal feed-in of clocks to the external interrupt module

3 Affected Devices

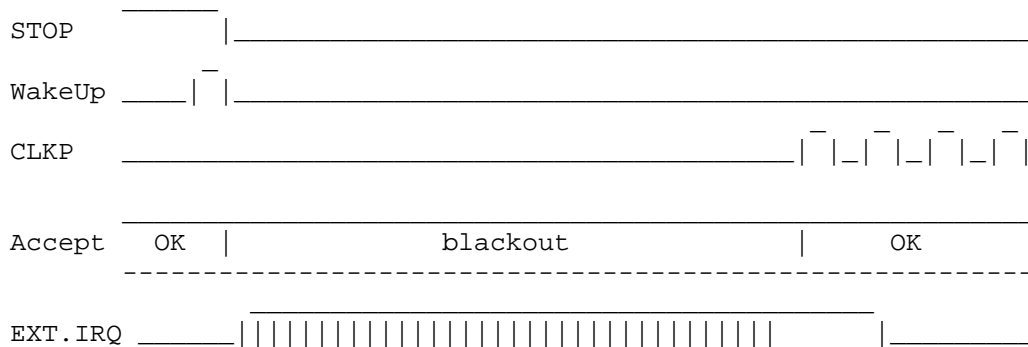
The following devices are affected:

- MB91F464AA
- MB91F465KA
- MB91F467DA
- MB91F469GA
- MB91V460A

4 Root Cause

The problem occurs in the in the following constellation:

- MCU is waking up from STOP mode by either external interrupt trigger or internal RTC interrupt trigger (WakeUp)
- Oscillation stabilisation wait time is elapsing before internal clocks (CLKP) are feed-in to the external interrupt module
- The time frame between wake up trigger and the internal feed-in of clocks is called 'black out time'
- If one or more external interrupt events are supplied in the 'black out time' they neither set the related interrupt request flag nor start the interrupt processing (i.e. they are not accepted)
- The duration of the 'black out time' is depending on the selected oscillation stabilisation wait time (STCR_OS0, STCR_OS1) plus a fixed part of about 80us (for internal processing and regulator start up).



5 Workaround

- The application uses only one interrupt source (either RTC or external interrupt) as wake up trigger
- The external interrupt signal needs to be long enough (in case of level) to be active after the black out time
- The external interrupt signal needs to be elongated by appropriate external circuitry (e.g. monoflop) in case of short pulse

6 Corrective action by Fujitsu

Fujitsu has corrected this problem by a redesign of selected devices.

Redesigns are scheduled as follows:

- MB91F464AA (fixed from date code 0644-K00, K01, K02 on)
 - ES Mid/November 2006
 - CS End/March 2007
 - AEC-Q100/PPAP End/April 2007

- MB91F465KA (fixed from date code t.b.d. on)
 - ES t.b.d.
 - CS End/March 2007
 - AEC-Q100/PPAP End/April 2007

- MB91F467DA (fixed from date code 0642-Z07 on)
 - ES End/November 2006
 - CS End/February 2007
 - AEC-Q100/PPAP Mid/March 2007

- MB91F469GA (fixed from date code 0643-Z02 on)
 - ES End/November 2006
 - CS Mid/March 2007
 - AEC-Q100/PPAP Mid/July 2007

- MB91V460
 - Not planned yet