

# Motorola MPC555

## Errata Sheet

# ES200 Evaluation Board MPC555 V1.2





# Errata Sheet

**Product:** ES200 - Evaluationboard MPC555 V1.2  
**Date:** 23.09.99  
**Revision:** 1.0

## Errata Summary

|               |  |
|---------------|--|
| EVB555_Flash1 | Initialization of the external flash required before accessing external memory |
| EVB555_Flash2 | External flash device works not reliable, if external bus speed exceeds 30MHz  |
|               |  |

## Detailed Errata Description

**EVB555\_Flash1:** Initialization of the external flash required before accessing external memory

**Description:** The flash device (TMS28F033) has a volatile configuration word. The default value, which is present after power up, is not matching the MPC555 bus interface. The major problem is that the flash device is active, even if the corresponding chip select is not active. This means, that the flash drives out data, when the MPC555 reads from SRAM or any other device connected to the external bus.

**Workaround:** The configuration word of the flash device has to be set to a appropriate value before accessing external memory on the EVB555. Setting the configuration word to 0x7B will ensure, that the flash works fine with the MPC555 and is only activated by the assigned chip select signal. The configuration has to be done while running with an external bus speed that must not exceed 30 MHz.

The sequence to change the configuration word consists of 3 successive write accesses to the first address of the flash device.

Example for configuration sequence (assuming external flash address range starts at address 0x0):

|                                  |   |
|----------------------------------|---|
| <i>write 0x96 to address 0x0</i> | --> enter mode for setting configuration word |
| <i>write 0x7B to address 0x0</i> | --> write configuration word value            |
| <i>write 0xFF to address 0x0</i> | --> return to read mode (normal operation)    |

Additional information:

- ETAS Application Note "Programming the external Flash on the EVB555 with Trace32" (AN\_EVB1)
- Data sheet TMS28F033





**EVB555\_Flash2:** External flash device works not reliable, if bus speed exceeds 30MHz

Description: The bus speed must not be higher than 30MHz, if the external Flash should be used. At higher bus speeds the flash might drive out wrong data. This effect is often concentrated on a small number of data words in the flash memory and very difficult to find in a complex application.

Workaround: There are 3 possible system configurations with different advantages and drawbacks:

a) Fast access to the external flash memory

The internal speed of the MPC555 and the external bus speed are set to 30MHz. This is the fastest way to read code from the external flash device. The calculation power is reduced according to the internal speed.

b) Maximum calculation power and access to the external flash possible

The internal speed is set to 40MHz and the external bus is configured to run with half of the internal speed (20MHz). This configuration will be suitable, if calculation power is important and the external memory is used for code or data, where access time is not critical.

c) Maximum system performance but external flash not usable

The internal speed and external bus speed are set to 40 MHz. The external flash can not be used in this configuration. This configuration enables maximum calculation power and fast access to the external SRAM.

**Attention:** Even if not used, a suitable configuration word has to be set in the external flash device, while the external bus still runs with 30 MHz or less. Otherwise the flash may interfere accesses to other external devices like the SRAM (See also Flash1-Erratum).

Additional information:

- ETAS Application Note "Programming the external Flash on the EVB555 with Trace32" (AN\_EVB1)
- Motorola: MPC555 User's Manual

