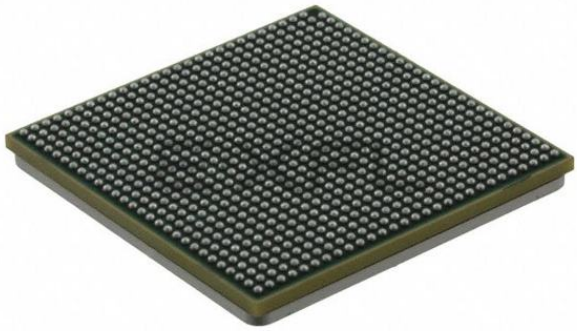

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Understanding Embedded - Microprocessors

Embedded microprocessors are specialized computing chips designed to perform specific tasks within an embedded system. Unlike general-purpose microprocessors found in personal computers, embedded microprocessors are tailored for dedicated functions within larger systems, offering optimized performance, efficiency, and reliability. These microprocessors are integral to the operation of countless electronic devices, providing the computational power necessary for controlling processes, handling data, and managing communications.

Applications of Embedded - Microprocessors

Embedded microprocessors are utilized across a broad spectrum of applications, making them indispensable in

Details	
Product Status	Obsolete
Core Processor	PowerPC e500
Number of Cores/Bus Width	1 Core, 32-Bit
Speed	1.0GHz
Co-Processors/DSP	-
RAM Controllers	DDR2, DDR3
Graphics Acceleration	No
Display & Interface Controllers	-
Ethernet	10/100/1000Mbps (2)
SATA	SATA 3Gbps (2)
USB	USB 2.0 (3)
Voltage - I/O	1.8V, 2.5V, 3.3V
Operating Temperature	0°C ~ 90°C (TA)
Security Features	-
Package / Case	783-BBGA, FCBGA
Supplier Device Package	783-FCPBGA (29x29)
Purchase URL	https://www.e-xfl.com/pro/item?MUrl=&PartUrl=mpc8536avtaqg

A-008312 Duplicate Interrupt Possible with Edge-Triggered Interrupts

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Errata Description

Title:

Duplicate edge-triggered interrupt after priority re-arbitration.

Description:

There is an occurrence of duplicate interrupt when an edge-triggered interrupt higher in priority comes closely to any other enabled interrupts. The following is the sequence of events that leads to the duplicate edge-triggered interrupt::

- 1. An active interrupt is waiting for acknowledgement
- 2. An edge-triggered interrupt of higher priority triggers closely to the lower priority interrupt just when it is acknowledged
- 3. The higher priority edge-triggered interrupt supersedes and fires a new interrupt to the core
- 4. The core acknowledges the higher priority interrupt without clearing the pending state and finishes the interrupt service routine with EOI
- 5. A duplicate of the higher priority edge-triggered interrupt is triggered because of the uncleared pending state

Impact:

Enabling any edge-triggered interrupts higher in priority than other enabled interrupts may lead to the duplicate edge-triggered interrupt. This includes edge-triggered IRQs, global timers and IPI.

Workaround:

Chose one of the following workarounds based on the interrupt type:

- Configure the higher priority interrupts as level-sensitive only
  a. In case of IRQs this can be configured in the Vector/Priority Register.
  b. It is not an option for global timers or IPI.
- Any enabled edge-triggered interrupts must be no higher in priority than the other enabled interrupts.

Resolution:

No plan to fix

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