MSMON_CSU_OFSR, MPAM CSU Monitor Overflow Status Register

The MSMON_CSU_OFSR characteristics are:

Purpose

MSMON_CSU_OFSR is a 32-bit read-only register that shows bitmap of CSU monitor instance overflow status for a contiguous group of 32 monitor instances.

MSMON_CSU_OFSR_s gives a bitmap of pending CSU overflow status for 32 Secure CSU monitor instances. MSMON_CSU_OFSR_ns gives a bitmap of pending CSU overflow status for 32 Non-secure CSU monitor instances. MSMON_CSU_OFSR_rt gives a bitmap of pending CSU overflow status for 32 Root CSU monitor instances. MSMON_CSU_OFSR_rl gives a bitmap of pending CSU overflow status for 32 Realm CSU monitor instances.

Configuration

This register is present only when FEAT_MPAM is implemented, MPAMF_IDR.HAS_MSMON == 1, MPAMF_MSMON_IDR.MSMON_CSU == 1 and MPAMF_CSUMON_IDR.HAS_OFSR == 1. Otherwise, direct accesses to MSMON_CSU_OFSR are res0.

The power and reset domain of each MSC component is specific to that component.

Attributes

MSMON_CSU_OFSR is a 32-bit register.

Field descriptions

31	30	29	28	27	26	25	24	23	22	
OFPND31	OFPND30	OFPND29	OFPND28	OFPND27	OFPND26	OFPND25	OFPND24	OFPND23	OFPND22	OFP

OFPND<i>, bit [i], for i = 31 to 0

Overflow status bitmap for CSU monitor instances. The RIS and the contiguous range of CSU monitor instances are set in MSMON_CFG_MON_SEL. i of 0 corresponds to the CSU monitor instance MSMON_CFG_MON_SEL.MON_SEL & `0xFFE0`.

OFPND<i>	Meaning
0b0	CSU monitor instance (MSMON_CFG_MON_SEL.MON_SEL & 0xFFE0 + i) does not have a pending overflow.
0b1	CSU monitor instance (MSMON_CFG_MON_SEL.MON_SEL & 0xFFE0 + i) has a pending overflow.

After reading MSMON_OFLOW_SR to determine that a CSU monitor instance has a pending overflow and which RIS values have pending overflows, an interrupt service routine could poll groups of 32 monitor instances in a RIS for pending monitors by reading this bitmap and incrementing MSMON_CFG_MON_SEL.MON_SEL by 32.

Accessing MSMON_CSU_OFSR

This register is within the MPAM feature page memory frames.

In a system that supports Secure, Non-secure, Root, and Realm memory maps, there must be MPAM feature pages in all four address maps:

- MSMON_CSU_OFSR_s must only be accessible from the Secure MPAM feature page.
- MSMON_CSU_OFSR_ns must only be accessible from the Non-secure MPAM feature page.
- MSMON_CSU_OFSR_rt must only be accessible from the Root MPAM feature page.
- MSMON_CSU_OFSR_rl must only be accessible from the Realm MPAM feature page.

MSMON_CSU_OFSR_s, MSMON_CSU_OFSR_ns, MSMON_CSU_OFSR_rt, and MSMON_CSU_OFSR_rl must be separate registers:

- The Secure instance (MSMON_CSU_OFSR_s) accesses the CSU monitor overflow status bitmap used for Secure PARTIDs.
- The Non-secure instance (MSMON_CSU_OFSR_ns) accesses the CSU monitor overflow status bitmap used for Non-secure PARTIDs.
- The Root instance (MSMON_CSU_OFSR_rt) accesses the CSU monitor overflow status bitmap used for Root PARTIDs.
- The Realm instance (MSMON_CSU_OFSR_rl) accesses the CSU monitor overflow status bitmap used for Realm PARTIDs.

MSMON_CSU_OFSR can be accessed through the memory-mapped interfaces:

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_s	0x0858	MSMON_CSU_OFSR_s

Accesses on this interface are **RO**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_ns	0x0858	MSMON_CSU_OFSR_ns

Accesses on this interface are **RO**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rt	0x0858	MSMON_CSU_OFSR_rt

When FEAT_RME is implemented, accesses on this interface are **RO**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rl	0x0858	MSMON_CSU_OFSR_rl

When FEAT_RME is implemented, accesses on this interface are **RO**.

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