MSMON_CSU_CAPTURE, MPAM Cache Storage Usage Monitor Capture Register

The MSMON CSU CAPTURE characteristics are:

Purpose

MSMON_CSU_CAPTURE is a 32-bit read/write register that accesses the captured <u>MSMON_CSU</u> monitor instance selected by <u>MSMON_CFG_MON_SEL</u>.

MSMON_CSU_CAPTURE_s is the Secure cache storage usage monitor capture instance selected by the Secure instance of MSMON_CSU_CAPTURE_ns is the Nonsecure cache storage usage monitor capture instance selected by the Non-secure instance of MSMON_CFG_MON_SEL.

MSMON_CSU_CAPTURE_rt is a Root cache storage usage monitor capture instance selected by the Root instance of MSMON_CFG_MON_SEL. MSMON_CSU_CAPTURE_rl is a Realm cache storage usage monitor capture instance selected by the Realm instance of MSMON_CSU_CAPTURE_rl is a Realm cache storage usage monitor capture instance selected by the Realm instance of MSMON_CFG_MON_SEL.

If <u>MPAMF_IDR</u>.HAS_RIS is 1, the monitor instance capture register accessed is for the resource instance currently selected by <u>MSMON_CFG_MON_SEL</u>.RIS and the monitor instance of that resource instance selected by <u>MSMON_CFG_MON_SEL</u>.MON_SEL.

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_CAPTURE == 1. Otherwise, direct accesses to MSMON_CSU_CAPTURE are res0.

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

Attributes

MSMON_CSU_CAPTURE is a 32-bit register.

Field descriptions

31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

NRDY

VALUE

NRDY, bit [31]

Not Ready. Indicates whether the captured monitor value has possibly inaccurate data.

NRDY	Meaning
0b0	The captured monitor instance was ready and the
	MSMON_CSU_CAPTURE.VALUE field is accurate.
0b1	The captured monitor instance was not ready and the contents of the
	MSMON_CSU_CAPTURE.VALUE
	field might be inaccurate or otherwise not represent the
	actual cache storage usage.

VALUE, bits [30:0]

Captured cache storage usage measurement if MSMON_CSU_CAPTURE.NRDY is 0. Invalid if MSMON_CSU_CAPTURE.NRDY is 1.

VALUE is the captured cache storage usage measurement in bytes meeting the criteria set in <u>MSMON_CFG_CSU_FLT</u> and <u>MSMON_CFG_CSU_CTL</u> for the monitor instance selected by <u>MSMON_CFG_MON_SEL</u>.

Accessing MSMON_CSU_CAPTURE

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_CAPTURE_s must only be accessible from the Secure MPAM feature page.
- MSMON_CSU_CAPTURE_ns must only be accessible from the Nonsecure MPAM feature page.
- MSMON_CSU_CAPTURE_rt must only be accessible from the Root MPAM feature page.
- MSMON_CSU_CAPTURE_rl must only be accessible from the Realm MPAM feature page.

MSMON_CSU_CAPTURE_s, MSMON_CSU_CAPTURE_ns, MSMON_CSU_CAPTURE_rt, and MSMON_CSU_CAPTURE_rl must be separate registers:

• The Secure instance (MSMON_CSU_CAPTURE_s) accesses the captured cache storage usage monitor used for Secure PARTIDs.

- The Non-secure instance (MSMON_CSU_CAPTURE_ns) accesses the captured cache storage usage monitor used for Non-secure PARTIDs.
- The Root instance (MSMON_CSU_CAPTURE_rt) accesses the captured cache storage usage monitor used for Root PARTIDs.
- The Realm instance (MSMON_CSU_CAPTURE_rl) accesses the captured cache storage usage monitor used for Realm PARTIDs.

When RIS is implemented, reads and writes to MSMON_CSU_CAPTURE access the monitor instance for the cache resource instance selected by MSMON_CFG_MON_SEL.RIS and the cache storage usage monitor instance selected by MSMON CFG MON SEL.MON SEL.

When RIS is not implemented, reads and writes to MSMON_CSU_CAPTURE access the monitor instance for the cache storage usage monitor instance selected by MSMON_CFG_MON_SEL.MON_SEL.

MSMON_CSU_CAPTURE can be accessed through the memory-mapped interfaces:

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_s	0x0848	MSMON_CSU_CAPTURE_s

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_ns	0x0848	MSMON_CSU_CAPTURE_ns

Accesses on this interface are RW.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rt	0x0848	MSMON_CSU_CAPTURE_rt

When FEAT RME is implemented, accesses on this interface are **RW**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rl	0x0848	MSMON_CSU_CAPTURE_rl

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

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