
MSMON_CFG_MBWU_FLT, MPAM Memory System Monitor Configure Memory Bandwidth Usage Monitor Filter Register

The MSMON_CFG_MBWU_FLT characteristics are:

Purpose

Controls PARTID and PMG to measure or count in the MBWU monitor selected by [MSMON_CFG_MON_SEL](#).

MSMON_CFG_MBWU_FLT_s sets filter conditions for the Secure memory bandwidth usage monitor instance selected by the Secure instance of [MSMON_CFG_MON_SEL](#). MSMON_CFG_MBWU_CTL_ns sets filter conditions for the Non-secure memory bandwidth usage monitor instance selected by the Non-secure instance of [MSMON_CFG_MON_SEL](#). MSMON_CFG_CSU_FLT_rt sets the filter conditions for the Root PARTID selected by the Root instance of [MSMON_CFG_MON_SEL](#). MSMON_CFG_CSU_FLT_rl sets the filter conditions for the Realm PARTID selected by the Realm instance of [MSMON_CFG_MON_SEL](#).

If [MPAMF_IDR](#).HAS_RIS is 1, the monitor instance filter configuration accessed is for the resource instance currently selected by [MSMON_CFG_MON_SEL](#).RIS and the monitor instance of that resource instance selected by [MSMON_CFG_MON_SEL](#).MON_SEL.

Configuration

This register is present only when FEAT_MPAM is implemented, MPAMF_IDR.HAS_MSMON == 1 and MPAMF_MSMON_IDR.MSMON_MBWU == 1. Otherwise, direct accesses to MSMON_CFG_MBWU_FLT are res0.

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

Attributes

MSMON_CFG_MBWU_FLT is a 32-bit register.

Field descriptions

When FEAT_MPAMv0p1 is implemented or FEAT_MPAMv1p1 is implemented:

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
RWBW		RES0						PMG									PARTID														

RW filtering.

RWBW, bits [31:30]

When MPAMF_MBWUMON_IDR.HAS_RWBW == 1:

Read/write bandwidth filter. Configures the selected monitor instance to count all bandwidth, only read bandwidth or only write bandwidth.

RWBW	Meaning
0b00	Monitor instance counts read bandwidth and write bandwidth.
0b01	Monitor instance counts write bandwidth only.
0b10	Monitor instance counts read bandwidth only.
0b11	Reserved.

Otherwise:

Reserved, res0.

Bits [29:24]

Reserved, res0.

PMG, bits [23:16]

Performance monitoring group to filter memory bandwidth usage monitoring.

If [MSMON_CFG_MBWU_CTL.MATCH_PMG](#) == 0, this field is not used to match memory bandwidth to a PMG and the contents of this field is ignored.

If [MSMON_CFG_MBWU_CTL.MATCH_PMG](#) == 1, the monitor selected by [MSMON_CFG_MON_SEL](#) measures or counts memory bandwidth labeled with PMG equal to this field.

PARTID, bits [15:0]

Partition ID to filter memory bandwidth usage monitoring.

If [MSMON_CFG_MBWU_CTL.MATCH_PARTID](#) == 0, this field is not used to match memory bandwidth to a PARTID and the contents of this field is ignored.

If [MSMON_CFG_MBWU_CTL.MATCH_PARTID](#) == 1, the monitor selected by [MSMON_CFG_MON_SEL](#) measures or counts memory bandwidth labeled with PARTID equal to this field.

Otherwise:

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
RES0								PMG								PARTID															

Bits [31:24]

Reserved, res0.

PMG, bits [23:16]

Performance monitoring group to filter memory bandwidth usage monitoring.

If [MSMON_CFG_MBWU_CTL.MATCH_PMG](#) == 0, this field is not used to match memory bandwidth to a PMG and the contents of this field is ignored.

If [MSMON_CFG_MBWU_CTL.MATCH_PMG](#) == 1, the monitor selected by [MSMON_CFG_MON_SEL](#) measures or counts memory bandwidth labeled with PMG equal to this field.

PARTID, bits [15:0]

Partition ID to filter memory bandwidth usage monitoring.

If [MSMON_CFG_MBWU_CTL.MATCH_PARTID](#) == 0, this field is not used to match memory bandwidth to a PARTID and the contents of this field is ignored.

If [MSMON_CFG_MBWU_CTL.MATCH_PARTID](#) == 1, the monitor selected by [MSMON_CFG_MON_SEL](#) measures or counts memory bandwidth labeled with PARTID equal to this field.

Accessing MSMON_CFG_MBWU_FLT

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_CFG_MBWU_FLT_s` must only be accessible from the Secure MPAM feature page.
- `MSMON_CFG_MBWU_FLT_ns` must only be accessible from the Non-secure MPAM feature page.
- `MSMON_CFG_MBWU_FLT_rt` must only be accessible from the Root MPAM feature page.
- `MSMON_CFG_MBWU_FLT_rl` must only be accessible from the Realm MPAM feature page.

`MSMON_CFG_MBWU_FLT_s`, `MSMON_CFG_MBWU_FLT_ns`, `MSMON_CFG_MBWU_FLT_rt`, and `MSMON_CFG_MBWU_FLT_rl` must be separate registers:

- The Secure instance (`MSMON_CFG_MBWU_FLT_s`) accesses the PARTID and PMG matching for a memory bandwidth usage monitor used for Secure PARTIDs.
- The Non-secure instance (`MSMON_CFG_MBWU_FLT_ns`) accesses the PARTID and PMG matching for a memory bandwidth usage monitor used for Non-secure PARTIDs.
- The Root instance (`MSMON_CFG_MBWU_FLT_rt`) accesses the PARTID and PMG matching for a memory bandwidth usage monitor used for Root PARTIDs.
- The Realm instance (`MSMON_CFG_MBWU_FLT_rl`) accesses the PARTID and PMG matching for a memory bandwidth usage monitor used for Realm PARTIDs.

When RIS is implemented, loads and stores to `MSMON_CFG_MBWU_FLT` access the monitor configuration settings for the bandwidth resource instance selected by [`MSMON_CFG_MON_SEL`](#).RIS and the memory bandwidth usage monitor instance selected by [`MSMON_CFG_MON_SEL`](#).MON_SEL.

When RIS is not implemented, loads and stores to `MSMON_CFG_MBWU_FLT` access the monitor configuration settings for the memory bandwidth usage monitor instance selected by [`MSMON_CFG_MON_SEL`](#).MON_SEL.

`MSMON_CFG_MBWU_FLT` can be accessed through the memory-mapped interfaces:

Component	Frame	Offset	Instance
MPAM	<code>MPAMF_BASE_s</code>	<code>0x0820</code>	<code>MSMON_CFG_MBWU_FLT_s</code>

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance
MPAM	<code>MPAMF_BASE_ns</code>	<code>0x0820</code>	<code>MSMON_CFG_MBWU_FLT_ns</code>

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rt	0x0820	MSMON_CFG_MBWU_FLT_rt

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

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rl	0x0820	MSMON_CFG_MBWU_FLT_rl

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

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