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## MPAMCFG\_MBW\_MIN, MPAM Memory Bandwidth Minimum Partition Configuration Register

The MPAMCFG\_MBW\_MIN characteristics are:

### Purpose

MPAMCFG\_MBW\_MIN is a 32-bit read/write register that controls the minimum fraction of memory bandwidth that the PARTID selected by [MPAMCFG\\_PART\\_SEL](#) is permitted to use.

MPAMCFG\_MBW\_MIN\_s controls the minimum bandwidth for the Secure PARTID selected by the Secure instance of [MPAMCFG\\_PART\\_SEL](#). MPAMCFG\_MBW\_MIN\_ns controls the minimum bandwidth for the Non-secure PARTID selected by the Non-secure instance of [MPAMCFG\\_PART\\_SEL](#). MPAMCFG\_MBW\_MIN\_rt controls the minimum bandwidth for the Root PARTID selected by the Root instance of [MPAMCFG\\_PART\\_SEL](#). MPAMCFG\_MBW\_MIN\_rl controls the minimum bandwidth for the Realm PARTID selected by the Realm instance of [MPAMCFG\\_PART\\_SEL](#).

A PARTID that has used less than MIN is given preferential access to bandwidth.

If [MPAMF\\_IDR](#).HAS\_RIS is 1, the control settings accessed are those of the resource instance currently selected by [MPAMCFG\\_PART\\_SEL](#).RIS and the PARTID selected by [MPAMCFG\\_PART\\_SEL](#).PARTID\_SEL.

### Configuration

This register is present only when FEAT\_MPAM is implemented, MPAMF\_IDR.HAS\_MBW\_PART == 1 and MPAMF\_MBW\_IDR.HAS\_MIN == 1. Otherwise, direct accesses to MPAMCFG\_MBW\_MIN are res0.

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

### Attributes

MPAMCFG\_MBW\_MIN 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
RES0																MIN															

### Bits [31:16]

Reserved, res0.

### MIN, bits [15:0]

Memory minimum bandwidth allocated to the partition selected by [MPAMCFG\\_PART\\_SEL](#). MIN is in fixed-point fraction format. The fraction represents the portion of the total memory bandwidth capacity through the controlled component that the PARTID is permitted to allocate.

The implemented width of the fixed-point fraction is given in [MPAMF\\_MBW\\_IDR.BWA\\_WD](#). Unimplemented bits are RAZ/WI. The implemented bits of the MIN field are always to the left of the field. For example, if  $BWA\_WD = 4$ , the implemented bits are `MPAMCFG_MBW_MIN[15:12]` and `MPAMCFG_MBW_MIN[11:0]` are unimplemented.

The fixed-point fraction MIN is less than 1. The implied binary point is between bits 15 and 16. This representation has as the largest fraction of the bandwidth that can be represented in an implementation with  $w$  implemented bits is 1.0 minus one half to the power  $w$ .

## Accessing MPAMCFG\_MBW\_MIN

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:

- `MPAMCFG_MBW_MIN_s` must only be accessible from the Secure MPAM feature page.
- `MPAMCFG_MBW_MIN_ns` must only be accessible from the Non-secure MPAM feature page.
- `MPAMCFG_MBW_MIN_rt` must only be accessible from the Root MPAM feature page.
- `MPAMCFG_MBW_MIN_rl` must only be accessible from the Realm MPAM feature page.

`MPAMCFG_MBW_MIN_s`, `MPAMCFG_MBW_MIN_ns`, `MPAMCFG_MBW_MIN_rt`, and `MPAMCFG_MBW_MIN_rl` must be separate registers:

- The Secure instance (`MPAMCFG_MBW_MIN_s`) accesses the memory minimum bandwidth partitioning used for Secure PARTIDs.

- The Non-secure instance (MPAMCFG\_MBW\_MIN\_ns) accesses the memory minimum bandwidth partitioning used for Non-secure PARTIDs.
- The Root instance (MPAMCFG\_MBW\_MIN\_rt) accesses the memory minimum bandwidth partitioning used for Root PARTIDs.
- The Realm instance (MPAMCFG\_MBW\_MIN\_rl) accesses the memory minimum bandwidth partitioning used for Realm PARTIDs.

When RIS is implemented, loads and stores to MPAMCFG\_MBW\_MIN access the memory minimum bandwidth partitioning configuration settings for the bandwidth resource instance selected by [MPAMCFG\\_PART\\_SEL](#).RIS and the PARTID selected by [MPAMCFG\\_PART\\_SEL](#).PARTID\_SEL.

When RIS is not implemented, loads and stores to MPAMCFG\_MBW\_MIN access the memory minimum bandwidth partitioning configuration settings for the PARTID selected by [MPAMCFG\\_PART\\_SEL](#).PARTID\_SEL.

When PARTID narrowing is implemented, loads and stores to MPAMCFG\_MBW\_MIN access the memory minimum bandwidth partitioning configuration settings for the internal PARTID selected by [MPAMCFG\\_PART\\_SEL](#).PARTID\_SEL, and [MPAMCFG\\_PART\\_SEL](#).INTERNAL must be 1.

When PARTID narrowing is not implemented, loads and stores to MPAMCFG\_MBW\_MIN access the memory minimum bandwidth partitioning configuration settings for the request PARTID selected by [MPAMCFG\\_PART\\_SEL](#).PARTID\_SEL, and [MPAMCFG\\_PART\\_SEL](#).INTERNAL must be 0.

**MPAMCFG\_MBW\_MIN can be accessed through the memory-mapped interfaces:**

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_s	0x0200	MPAMCFG_MBW_MIN_s

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_ns	0x0200	MPAMCFG_MBW_MIN_ns

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance
MPAM	MPAMF_BASE_rt	0x0200	MPAMCFG_MBW_MIN_rt

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

Component	Frame	Offset	Instance
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MPAM	MPAMF_BASE_r1	0x0200	MPAMCFG_MBW_MIN_r1
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When FEAT\_RME is implemented, accesses on this interface are **RW**.

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