

GITS_CBASER, ITS Command Queue Descriptor

The GITS_CBASER characteristics are:

Purpose

Specifies the base address and size of the ITS command queue.

Configuration

Bits [63:32] and bits [31:0] are accessible separately.

Attributes

GITS_CBASER is a 64-bit register.

Field descriptions

63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
Valid	RES0	InnerCache	RES0	OuterCache	RES0	Physical Address																									
Physical Address																					Shareability	Size									
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

Valid, bit [63]

Indicates whether software has allocated memory for the command queue:

Valid	Meaning
0b0	No memory is allocated for the command queue.
0b1	Memory is allocated to the command queue.

The reset behavior of this field is:

- On a GIC reset, this field resets to 0.

Bit [62]

Reserved, res0.

InnerCache, bits [61:59]

Indicates the Inner Cacheability attributes of accesses to the command queue. The possible values of this field are:

InnerCache	Meaning
0b000	Device-nGnRnE.
0b001	Normal Inner Non-cacheable.
0b010	Normal Inner Cacheable Read-allocate, Write-through.
0b011	Normal Inner Cacheable Read-allocate, Write-back.
0b100	Normal Inner Cacheable Write-allocate, Write-through.
0b101	Normal Inner Cacheable Write-allocate, Write-back.
0b110	Normal Inner Cacheable Read-allocate, Write-allocate, Write-through.
0b111	Normal Inner Cacheable Read-allocate, Write-allocate, Write-back.

The reset behavior of this field is:

- On a GIC reset, this field resets to an architecturally unknown value.

Bits [58:56]

Reserved, res0.

OuterCache, bits [55:53]

Indicates the Outer Cacheability attributes of accesses to the command queue. The possible values of this field are:

OuterCache	Meaning
0b000	Memory type defined in InnerCache field. For Normal memory, Outer Cacheability is the same as Inner Cacheability.
0b001	Normal Outer Non-cacheable.

0b010	Normal Outer Cacheable Read-allocate, Write- through.
0b011	Normal Outer Cacheable Read-allocate, Write-back.
0b100	Normal Outer Cacheable Write-allocate, Write- through.
0b101	Normal Outer Cacheable Write-allocate, Write- back.
0b110	Normal Outer Cacheable Read-allocate, Write- allocate, Write-through.
0b111	Normal Outer Cacheable Read-allocate, Write- allocate, Write-back.

It is implementation defined whether this field has a fixed value or can be programmed by software. Implementing this field with a fixed value is deprecated.

The reset behavior of this field is:

- On a GIC reset, this field resets to an architecturally unknown value.

Bit [52]

Reserved, res0.

Physical_Address, bits [51:12]

Bits [51:12] of the base physical address of the command queue. Bits [11:0] of the base address are 0.

In implementations supporting fewer than 52 bits of physical address, unimplemented upper bits are res0.

If bits [15:12] are not all zeros, behavior is a constrained unpredictable choice:

- Bits [15:12] are treated as if all the bits are zero. The value read back from those bits is either the value written or zero.
- The result of the calculation of an address for a command queue read can be corrupted.

The reset behavior of this field is:

- On a GIC reset, this field resets to an architecturally unknown value.

Shareability, bits [11:10]

Indicates the Shareability attributes of accesses to the command queue. The possible values of this field are:

Shareability	Meaning
0b00	Non-shareable.
0b01	Inner Shareable.
0b10	Outer Shareable.
0b11	Reserved. Treated as 0b00.

It is implementation defined whether this field has a fixed value or can be programmed by software. Implementing this field with a fixed value is deprecated.

The reset behavior of this field is:

- On a GIC reset, this field resets to an architecturally unknown value.

Bits [9:8]

Reserved, res0.

Size, bits [7:0]

The number of 4KB pages of physical memory allocated to the command queue, minus one.

The reset behavior of this field is:

- On a GIC reset, this field resets to an architecturally unknown value.

The command queue is a circular buffer and wraps at Physical Address [47:0] + (4096 * (Size + 1)).

Note

When this register is successfully written, the value of [GITS_CREADR](#) is set to zero.

Accessing GITS_CBASER

When [GITS_CTLR.Enabled](#) == 1 or [GITS_CTLR.Quiescent](#) == 0, writing this register is unpredictable.

GITS_CBASER can be accessed through the memory-mapped interfaces:

Component	Offset	Instance
GIC ITS control	0x0080	GITS_CBASER

Accesses on this interface are **RW**.

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