

CNTV_CVAL, Counter-timer Virtual Timer CompareValue

The CNTV_CVAL characteristics are:

Purpose

Holds the 64-bit compare value for the virtual timer.

Configuration

It is implementation defined whether CNTV_CVAL is implemented in the Core power domain or in the Debug power domain.

For more information, see 'Power and reset domains for the system level implementation of the Generic Timer'.

Attributes

CNTV_CVAL 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
CompareValue																															
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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

CompareValue, bits [63:0]

Holds the virtual timer CompareValue.

When [CNTV_CTL](#).ENABLE is 1, the timer condition is met when ([CNTVCT](#) - CompareValue) is greater than or equal to zero. This means that CompareValue acts like a 64-bit upcounter timer. When the timer condition is met:

- [CNTV_CTL](#).ISTATUS is set to 1.
- An interrupt is generated if [CNTV_CTL](#).IMASK is 0.

When [CNTV_CTL](#).ENABLE is 0, the timer condition is not met, but [CNTVCT](#) continues to count.

The reset behavior of this field is:

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

Accessing CNTV_CVAL

CNTV_CVAL can be implemented in any implemented CNTBaseN frame that has virtual timer capability, and in the corresponding CNTEL0BaseN frame.

'CNTCTLBase status and control fields for the CNTBaseN and CNTEL0BaseN frames' describes the status fields that identify whether a CNTBaseN frame is implemented, and for an implemented frame:

- Whether the CNTBaseN frame has virtual timer capability.
- Whether the corresponding CNTEL0BaseN frame is implemented.
- For an implementation that recognizes two Security states, whether the CNTBaseN frame, and any corresponding CNTEL0BaseN frame, is accessible by Non-secure accesses.

For an implemented CNTBaseN frame that has virtual timer capability:

- CNTV_CVAL is accessible in that frame if the value of [CNTACR<n>.RWVT](#) is 1.
- Otherwise, the CNTV_CVAL address in that frame is RAZ/WI.

For an implemented CNTEL0BaseN frame:

- CNTV_CVAL is accessible in that frame if both:
 - CNTV_CVAL is accessible in the corresponding CNTBaseN frame:
 - The value of [CNTEL0ACR.EL0VTEN](#) is 1.
- Otherwise, the CNTV_CVAL address in that frame is RAZ/WI.

If the implementation supports 64-bit atomic accesses, then the CNTV_CVAL register must be accessible as an atomic 64-bit value.

CNTV_CVAL can be accessed through the memory-mapped interfaces:

Component	Frame	Offset	Instance	Range
Timer	CNTBaseN	0x030	CNTV_CVAL	31:0

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance	Range
Timer	CNTBaseN	0x034	CNTV_CVAL	63:32

Accesses on this interface are **RW**.

Component	Frame	Offset	Instance	Range
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Timer	CNTEL0BaseN	0x030	CNTV_CVAL	31:0
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Accesses on this interface are **RW**.

Component	Frame	Offset	Instance	Range
Timer	CNTEL0BaseN	0x034	CNTV_CVAL	63:32

Accesses on this interface are **RW**.

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