TRCEVENTCTL0R, Event Control 0 Register

The TRCEVENTCTL0R characteristics are:

Purpose

Controls the generation of ETEEvents.

Configuration

External register TRCEVENTCTL0R bits [31:0] are architecturally mapped to AArch64 System register TRCEVENTCTL0R[31:0].

This register is present only when FEAT_ETE is implemented, FEAT_TRC_EXT is implemented and TRCIDR4.NUMRSPAIR != 0b0000. Otherwise, direct accesses to TRCEVENTCTL0R are res0.

Attributes

TRCEVENTCTL0R 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
EVENT3_TYPE	RES0	EVENT3_SEL	EVENT2_TYPE	RES0	EVENT2_SEL	EVENT1_TYPE	RES0	EVENT1_SEL	EVE

EVENT3_TYPE, bit [31]
When TRCIDR4.NUMRSPAIR != 0b0000 and UInt(TRCIDR0.NUMEVENT) >= 3:

Chooses the type of Resource Selector.

EVENT3_TYPE	Meaning
0b0	A single Resource Selector. TRCEVENTCTL0R.EVENT3.SEL[4:0] selects the single Resource Selector, from 0-31, used to activate the resource event.

| 0b1 | A Boolean-combined pair of Resource Selectors. TRCEVENTCTL0R.EVENT3.SEL[3:0] selects the Resource Selector pair, from 0-15, that has a Boolean function that is applied to it whose output is used to activate the resource event. TRCEVENTCTL0R.EVENT3.SEL[4] is res0. |

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

Bits [30:29]

Reserved, res0.

EVENT3_SEL, bits [28:24]
When TRCIDR4.NUMRSPAIR != 0b0000 and UInt(TRCIDR0.NUMEVENT) >= 3:

Defines the selected Resource Selector or pair of Resource Selectors. TRCEVENTCTL0R.EVENT3.TYPE controls whether TRCEVENTCTL0R.EVENT3.SEL is the index of a single Resource Selector, or the index of a pair of Resource Selectors.

If an unimplemented Resource Selector is selected using this field, the behavior of the resource event is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

Selecting Resource Selector pair 0 using this field is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

When any of the selected resource events occurs and TRCEVENTCTL1R.INSTEN[3] == 1, then Event element 3 is generated in the instruction trace element stream.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

EVENT2_TYPE, bit [23]
When TRCIDR4.NUMRSPAIR != 0b0000 and UInt(TRCIDR0.NUMEVENT) >= 2:

Chooses the type of Resource Selector.

EVENT2_TYPE	Meaning
0b0	A single Resource Selector. TRCEVENTCTL0R.EVENT2.SEL[4:0] selects the single Resource Selector, from 0-31, used to activate the resource event.
0b1	A Boolean-combined pair of Resource Selectors. TRCEVENTCTL0R.EVENT2.SEL[3:0] selects the Resource Selector pair, from 0-15, that has a Boolean function that is applied to it whose output is used to activate the resource event. TRCEVENTCTL0R.EVENT2.SEL[4] is res0.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

Bits [22:21]

Reserved, res0.

EVENT2_SEL, bits [20:16]
When TRCIDR4.NUMRSPAIR != 0b0000 and UInt(TRCIDR0.NUMEVENT) >= 2:

Defines the selected Resource Selector or pair of Resource Selectors. TRCEVENTCTL0R.EVENT2.TYPE controls whether TRCEVENTCTL0R.EVENT2.SEL is the index of a single Resource Selector, or the index of a pair of Resource Selectors.

If an unimplemented Resource Selector is selected using this field, the behavior of the resource event is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

Selecting Resource Selector pair 0 using this field is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

When any of the selected resource events occurs and TRCEVENTCTL1R.INSTEN[2] == 1, then Event element 2 is generated in the instruction trace element stream.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

EVENT1_TYPE, bit [15]
When TRCIDR4.NUMRSPAIR != 0b0000 and UInt(TRCIDR0.NUMEVENT) >= 1:

Chooses the type of Resource Selector.

EVENT1_TYPE	Meaning
0b0	A single Resource Selector. TRCEVENTCTL0R.EVENT1.SEL[4:0] selects the single Resource Selector, from 0-31, used to activate the resource event.
0b1	A Boolean-combined pair of Resource Selectors. TRCEVENTCTL0R.EVENT1.SEL[3:0] selects the Resource Selector pair, from 0-15, that has a Boolean function that is applied to it whose output is used to activate the resource event. TRCEVENTCTL0R.EVENT1.SEL[4] is res0.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

Bits [14:13]

Reserved, res0.

EVENT1_SEL, bits [12:8]
When TRCIDR4.NUMRSPAIR != 0b0000 and UInt(TRCIDR0.NUMEVENT) >= 1:

Defines the selected Resource Selector or pair of Resource Selectors. TRCEVENTCTL0R.EVENT1.TYPE controls whether TRCEVENTCTL0R.EVENT1.SEL is the index of a single Resource Selector, or the index of a pair of Resource Selectors.

If an unimplemented Resource Selector is selected using this field, the behavior of the resource event is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

Selecting Resource Selector pair 0 using this field is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

When any of the selected resource events occurs and TRCEVENTCTL1R.INSTEN[1] == 1, then Event element 1 is generated in the instruction trace element stream.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

EVENT0_TYPE, bit [7]
When TRCIDR4.NUMRSPAIR != 0b0000:

Chooses the type of Resource Selector.

EVENT0_TYPE	Meaning
0b0	A single Resource Selector. TRCEVENTCTL0R.EVENT0.SEL[4:0] selects the single Resource Selector, from 0-31, used to activate the resource event.

0b1	A Boolean-combined pair of Resource Selectors. TRCEVENTCTL0R.EVENT0.SEL[3:0] selects the Resource Selector pair, from 0-15, that has a Boolean function that is applied to it whose output is used to activate the resource event. TRCEVENTCTL0R.EVENT0.SEL[4] is res0.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

Bits [6:5]

Reserved, res0.

EVENT0_SEL, bits [4:0]
When TRCIDR4.NUMRSPAIR != 0b0000:

Defines the selected Resource Selector or pair of Resource Selectors. TRCEVENTCTL0R.EVENT0.TYPE controls whether TRCEVENTCTL0R.EVENT0.SEL is the index of a single Resource Selector, or the index of a pair of Resource Selectors.

If an unimplemented Resource Selector is selected using this field, the behavior of the resource event is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

Selecting Resource Selector pair 0 using this field is unpredictable, and the resource event might fire or might not fire when the resources are not in the Paused state.

When any of the selected resource events occurs and TRCEVENTCTL1R.INSTEN[0] == 1, then Event element 0 is generated in the instruction trace element stream.

The reset behavior of this field is:

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

Otherwise:

Reserved, res0.

Accessing TRCEVENTCTL0R

Must be programmed if implemented.

Writes are constrained unpredictable if the trace unit is not in the Idle state.

TRCEVENTCTL0R can be accessed through the external debug interface:

Component	Offset	Instance
ETE	0x020	TRCEVENTCTL0R

This interface is accessible as follows:

- When OSLockStatus(), or !AllowExternalTraceAccess() or !IsTraceCorePowered(), accesses to this register generate an error response.
- Otherwise, accesses to this register are **RW**.