SCXTNUM_EL3, EL3 Read/Write Software Context Number

The SCXTNUM_EL3 characteristics are:

Purpose

Provides a number that can be used to separate out different context numbers with the EL3 exception level, for the purpose of protecting against side-channels using branch prediction and similar resources.

Configuration

This register is present only when EL3 is implemented and (FEAT_CSV2_2 is implemented or FEAT_CSV2_1p2 is implemented). Otherwise, direct accesses to SCXTNUM_EL3 are undefined.

Attributes

SCXTNUM_EL3 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
Software Context Number
Software Context Number
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

Bits [63:0]

Software Context Number. A number to identify the context within the EL3 exception level.

The reset behavior of this field is:

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

Accessing SCXTNUM_EL3

Accesses to this register use the following encodings in the System register encoding space:

MRS <Xt>, SCXTNUM_EL3

op0	op1	CRn	CRm	op2
0b11	0b110	0b1101	0b0000	0b111

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    UNDEFINED;
elsif PSTATE.EL == EL2 then
    UNDEFINED;
elsif PSTATE.EL == EL3 then
    X[t, 64] = SCXTNUM_EL3;
```

MSR SCXTNUM_EL3, <Xt>

op0	op1	CRn	CRm	op2
0b11	0b110	0b1101	0b0000	0b111

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    UNDEFINED;
elsif PSTATE.EL == EL2 then
    UNDEFINED;
elsif PSTATE.EL == EL3 then
    SCXTNUM_EL3 = X[t, 64];
```


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