

SPSel, Stack Pointer Select

The SPSel characteristics are:

Purpose

Allows the Stack Pointer to be selected between SP_EL0 and SP_ELx.

Configuration

There are no configuration notes.

Attributes

SPSel 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
RES0																															
RES0																															SP
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 [63:1]

Reserved, res0.

SP, bit [0]

Stack pointer to use. Possible values of this bit are:

SP	Meaning
0b0	Use SP_EL0 at all Exception levels.
0b1	Use SP_ELx for Exception level ELx. When FEAT_NMI is implemented and SCTLR_ELx.SPINTMASK is 1, if execution is at ELx, an IRQ or FIQ interrupt that is targeted to ELx is masked regardless of any denotation of Superpriority.

The reset behavior of this field is:

- On a Warm reset, this field resets to 1.

Accessing SPSEL

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

MRS <Xt>, SPSEL

op0	op1	CRn	CRm	op2
0b11	0b000	0b0100	0b0010	0b000

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    X[t, 64] = Zeros(63):PSTATE.SP;
elsif PSTATE.EL == EL2 then
    X[t, 64] = Zeros(63):PSTATE.SP;
elsif PSTATE.EL == EL3 then
    X[t, 64] = Zeros(63):PSTATE.SP;
```

MSR SPSEL, <Xt>

op0	op1	CRn	CRm	op2
0b11	0b000	0b0100	0b0010	0b000

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    PSTATE.SP = X[t, 64]<0>;
elsif PSTATE.EL == EL2 then
    PSTATE.SP = X[t, 64]<0>;
elsif PSTATE.EL == EL3 then
    PSTATE.SP = X[t, 64]<0>;
```

MSR SPSEL, #<imm>

op0	op1	CRn	op2
0b00	0b000	0b0100	0b101

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