SPMOVSCLR_EL0, System Performance Monitors Overflow Flag Status Clear Register

The SPMOVSCLR_EL0 characteristics are:

Purpose

Clears the state of overflow bits for event counters in System PMU <s>.

Configuration

This register is present only when FEAT_SPMU is implemented. Otherwise, direct accesses to SPMOVSCLR_EL0 are undefined.

Attributes

SPMOVSCLR_EL0 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
P63	P62	P61	P60	P59	P58	P57	P56	P55	P54	P53	P52	P51	P50	P49	P48	P47	P46	P45	P44	P43	P42	P41	P40	P39	P3
P31	P30	P29	P28	P27	P26	P25	P24	P23	P22	P21	P20	P19	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6
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

P<m>, bit [m], for m = 63 to 0

Event counter <m> unsigned overflow bit clear.

P<m>	Meaning
0b0	Event counter <m> has not overflowed.
0b1	Event counter <m> has overflowed.

The reset behavior of this field is:

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

Accessing this field has the following behavior:

- When event counter <m> is not implemented by System PMU <s>, access to this field is **RAZ/WI**.
- Otherwise, access to this field is **W1C**.

Accessing SPMOVSCLR_EL0

To access SPMOVSCLR_EL0 for System PMU <s>, set SPMSELR_EL0.SYSPMUSEL to s.

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

MRS <Xt>, SPMOVSCLR_EL0

op0	op1	CRn	CRm	op2
0b10	0b011	0b1001	0b1100	0b011

```
if PSTATE.EL == EL0 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.EnPM2 == '0' then
        UNDEFINED;
    elsif EL2Enabled() && HCR_EL2.<E2H,TGE> != '11'
&& IsFeatureImplemented(FEAT_FGT2) && HaveEL(EL3) &&
SCR_EL3.FGTEn2 == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && HCR_EL2.<E2H,TGE> != '11'
&& IsFeatureImplemented(FEAT_FGT2) &&
HDFGRTR2_EL2.nSPMOVS == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] =
SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)];
elsif PSTATE.EL == EL1 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.EnPM2 == '0' then
        UNDEFINED;
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT2) && HaveEL(EL3) &&
SCR_EL3.FGTEn2 == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT2) &&
HDFGRTR2_EL2.nSPMOVS == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
```

```
        X[t, 64] =
SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)];
elsif PSTATE.EL == EL2 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.EnPM2 == '0' then
        UNDEFINED;
    elsif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] =
SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)];
elsif PSTATE.EL == EL3 then
    X[t, 64] =
SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)];
```

MSR SPMOVSCLR_EL0, <Xt>

op0	op1	CRn	CRm	op2
0b10	0b011	0b1001	0b1100	0b011

```
if PSTATE.EL == EL0 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.EnPM2 == '0' then
        UNDEFINED;
    elsif EL2Enabled() && HCR_EL2.<E2H,TGE> != '11'
&& IsFeatureImplemented(FEAT_FGT2) && HaveEL(EL3) &&
SCR_EL3.FGTEn2 == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && HCR_EL2.<E2H,TGE> != '11'
&& IsFeatureImplemented(FEAT_FGT2) &&
HDFGWTR2_EL2.nSPMOVS == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)] =
X[t, 64];
elsif PSTATE.EL == EL1 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.EnPM2 == '0' then
        UNDEFINED;
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT2) && HaveEL(EL3) &&
SCR_EL3.FGTEn2 == '0' then
```

```
            AArch64.SystemAccessTrap(EL2, 0x18);
        elsif EL2Enabled() &&
    IsFeatureImplemented(FEAT_FGT2) &&
    HDFGWTR2_EL2.nSPMOVS == '0' then
            AArch64.SystemAccessTrap(EL2, 0x18);
        elsif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
            if Halted() && EDSCR.SDD == '1' then
                UNDEFINED;
            else
                AArch64.SystemAccessTrap(EL3, 0x18);
        else
            SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)] =
    X[t, 64];
    elsif PSTATE.EL == EL2 then
        if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
    && boolean IMPLEMENTATION_DEFINED "EL3 trap priority
    when SDD == '1'" && MDCR_EL3.EnPM2 == '0' then
            UNDEFINED;
        elsif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
            if Halted() && EDSCR.SDD == '1' then
                UNDEFINED;
            else
                AArch64.SystemAccessTrap(EL3, 0x18);
        else
            SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)] =
    X[t, 64];
    elsif PSTATE.EL == EL3 then
        SPMOVSCLR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL)] =
    X[t, 64];
```

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