

SPMEVFILTR<n>_EL0, System Performance Monitors Event Filter Control Register, n = 0 - 63

The SPMEVFILTR<n>_EL0 characteristics are:

Purpose

With [SPMEVTYPER<n>_EL0](#) and [SPMEVFILT2R<n>_EL0](#), configures when event counter [SPMEVCNTR<n>_EL0](#) in System PMU <s> increments.

The contents of this register are implementation defined. For more information, see [SPMEVTYPER<n>_EL0](#).

Configuration

This register is present only when FEAT_SPMU is implemented. Otherwise, direct accesses to SPMEVFILTR<n>_EL0 are undefined.

Attributes

SPMEVFILTR<n>_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	37	36	35	34	33	32
IMPLEMENTATION DEFINED																															
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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

IMPLEMENTATION DEFINED, bits [63:0]

implementation defined.

Accessing SPMEVFILTR<n>_EL0

To access SPMEVFILTR<n>_EL0 for System PMU <s>, set [SPMSELR_EL0](#).SYSPMUSEL to s and [SPMSELR_EL0](#).BANK to n[5:4].

SPMEVFILTR<n>_EL0 reads-as-zero and ignores writes if event counter <n> is not implemented by System PMU <s>.

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

MRS <Xt>, SPMEVFILTR<m>_EL0 ; Where m = 0-15

op0	op1	CRn	CRm	op2
0b10	0b011	0b1110	0b010:m[3]	m[2:0]

```

integer m = UInt(CRm<0>:op2<2:0>);

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;
    elseif EL2Enabled() && HCR_EL2.<E2H,TGE> != '11'
    && IsFeatureImplemented(FEAT_FGT2) && HaveEL(EL3) &&
    SCR_EL3.FGTEn2 == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elseif EL2Enabled() && HCR_EL2.<E2H,TGE> != '11'
    && IsFeatureImplemented(FEAT_FGT2) &&
    HDFGRTR2_EL2.nSPMEVTYPErN_EL0 == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elseif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] =
        SPMEVFILTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
        (UInt(SPMSELR_EL0.BANK) * 16) + m];
    elseif 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;
        elseif EL2Enabled() &&
        IsFeatureImplemented(FEAT_FGT2) && HaveEL(EL3) &&
        SCR_EL3.FGTEn2 == '0' then
            AArch64.SystemAccessTrap(EL2, 0x18);
        elseif EL2Enabled() &&
        IsFeatureImplemented(FEAT_FGT2) &&
        HDFGRTR2_EL2.nSPMEVTYPErN_EL0 == '0' then
            AArch64.SystemAccessTrap(EL2, 0x18);
        elseif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
            if Halted() && EDSCR.SDD == '1' then
                UNDEFINED;
            else
                AArch64.SystemAccessTrap(EL3, 0x18);
        else
            X[t, 64] =
            SPMEVFILTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
            (UInt(SPMSELR_EL0.BANK) * 16) + m];
    elseif 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] =
SPMEVFILTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
    (UInt(SPMSELR_EL0.BANK) * 16) + m];
    elsif PSTATE.EL == EL3 then
        X[t, 64] =
SPMEVFILTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
    (UInt(SPMSELR_EL0.BANK) * 16) + m];

```

MSR SPMEVFILTR<m>_EL0, <Xt> ; Where m = 0-15

op0	op1	CRn	CRm	op2
0b10	0b011	0b1110	0b010:m[3]	m[2:0]

```

integer m = UInt(CRm<0>:op2<2:0>);

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.nSPMEVTYPErN_EL0 == '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
        SPMEVFILTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
    (UInt(SPMSELR_EL0.BANK) * 16) + m] = 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);
elseif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT2) &&
HDFGWTR2_EL2.nSPMEVTYPEr_n_EL0 == '0' then
    AArch64.SystemAccessTrap(EL2, 0x18);
elseif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
    if Halted() && EDSCR.SDD == '1' then
        UNDEFINED;
    else
        AArch64.SystemAccessTrap(EL3, 0x18);
    else
        SPMEVFLTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
        (UInt(SPMSELR_EL0.BANK) * 16) + m] = X[t, 64];
elseif 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;
    elseif HaveEL(EL3) && MDCR_EL3.EnPM2 == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
        else
            SPMEVFLTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
            (UInt(SPMSELR_EL0.BANK) * 16) + m] = X[t, 64];
elseif PSTATE.EL == EL3 then
    SPMEVFLTR_EL0[UInt(SPMSELR_EL0.SYSPMUSEL),
    (UInt(SPMSELR_EL0.BANK) * 16) + m] = X[t, 64];

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