ACTLR_EL2, Auxiliary Control Register (EL2)

The ACTLR_EL2 characteristics are:

Purpose

Provides implementation defined configuration and control options for EL2.

Note

Arm recommends the contents of this register are updated to apply to EL0 when HCR_EL2. {E2H, TGE} is {1, 1}, gaining configuration and control fields from the ACTLR_EL1. This avoids the need for software to manage the contents of these register when switching between a Guest OS and a Host OS.

Configuration

AArch64 System register ACTLR_EL2 bits [31:0] are architecturally mapped to AArch32 System register HACTLR[31:0].

AArch64 System register ACTLR_EL2 bits [63:32] are architecturally mapped to AArch32 System register HACTLR2[31:0].

If EL2 is not implemented, this register is res0 from EL3.

This register has no effect if EL2 is not enabled in the current Security state.

Attributes

ACTLR_EL2 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.

The reset behavior of this field is:

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

Accessing ACTLR_EL2

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

MRS <Xt>, ACTLR_EL2

op0	op1	CRn	CRm	op2
0b11	0b100	0b0001	0b0000	0b001

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    if EL2Enabled() && HCR_EL2.NV == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    else
        UNDEFINED;
elsif PSTATE.EL == EL2 then
    X[t, 64] = ACTLR_EL2;
elsif PSTATE.EL == EL3 then
    X[t, 64] = ACTLR_EL2;
```

MSR ACTLR_EL2, <Xt>

op0	op1	CRn	CRm	op2
0b11	0b100	0b0001	0b0000	0b001

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    if EL2Enabled() && HCR_EL2.NV == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    else
        UNDEFINED;
elsif PSTATE.EL == EL2 then
    ACTLR_EL2 = X[t, 64];
```

```
elsif PSTATE.EL == EL3 then
    ACTLR_EL2 = X[t, 64];
```

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