DBGCLAIMCLR_EL1, Debug CLAIM Tag Clear Register

The DBGCLAIMCLR_EL1 characteristics are:

Purpose

Used by software to read the values of the CLAIM tag bits, and to clear CLAIM tag bits to 0.

The architecture does not define any functionality for the CLAIM tag bits.

Note

CLAIM tags are typically used for communication between the debugger and target software.

Used in conjunction with the DBGCLAIMSET_EL1 register.

Configuration

AArch64 System register DBGCLAIMCLR_EL1 bits [31:0] are architecturally mapped to AArch32 System register DBGCLAIMCLR[31:0].

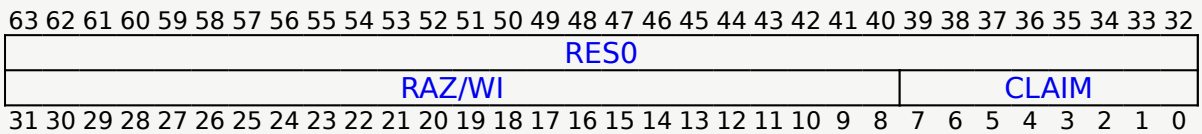
AArch64 System register DBGCLAIMCLR_EL1 bits [31:0] are architecturally mapped to External register DBGCLAIMCLR_EL1[31:0].

An implementation must include eight CLAIM tag bits.

Attributes

DBGCLAIMCLR_EL1 is a 64-bit register.

Field descriptions



Bits [63:32]

Reserved, res0.

Bits [31:8]

Reserved, RAZ/WI.

CLAIM, bits [7:0]

Read or clear CLAIM tag bits. Reading this field returns the current value of the CLAIM tag bits.

Writing a 1 to one of these bits clears the corresponding CLAIM tag bit to 0. This is an indirect write to the CLAIM tag bits. A single write operation can clear multiple CLAIM tag bits to 0.

Writing 0 to one of these bits has no effect.

The reset behavior of this field is:

- On a Cold reset, this field resets to `0`.

Accessing DBGCLAIMCLR_EL1

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

MRS <Xt>, DBGCLAIMCLR_EL1

op0	op1	CRn	CRm	op2
0b10	0b000	0b0111	0b1001	0b110

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.TDA == '1' then
        UNDEFINED;
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT) && (!HaveEL(EL3) ||
SCR_EL3.FGTEn == '1') && HDFGRTR_EL2.DBGCLAIM == '1'
then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && MDCR_EL2.<TDE,TDA> != '00'
then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
        if Halted() && EDSCR.SDD == '1' then
```

```
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] = DBGCLAIMCLR_EL1;
elsif PSTATE.EL == EL2 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.TDA == '1' then
        UNDEFINED;
    elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] = DBGCLAIMCLR_EL1;
elsif PSTATE.EL == EL3 then
    X[t, 64] = DBGCLAIMCLR_EL1;
```

MSR DBGCLAIMCLR_EL1, <Xt>

op0	op1	CRn	CRm	op2
0b10	0b000	0b0111	0b1001	0b110

```
if PSTATE.EL == EL0 then
    UNDEFINED;
elsif PSTATE.EL == EL1 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.TDA == '1' then
        UNDEFINED;
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT) && (!HaveEL(EL3) ||
SCR_EL3.FGTEn == '1') && HDFGWTR_EL2.DBGCLAIM == '1'
then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && MDCR_EL2.<TDE,TDA> != '00'
then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        DBGCLAIMCLR_EL1 = 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.TDA == '1' then
        UNDEFINED;
    elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
```

```
            if Halted() && EDSCR.SDD == '1' then
                UNDEFINED;
            else
                AArch64.SystemAccessTrap(EL3, 0x18);
        else
            DBGCLAIMCLR_EL1 = X[t, 64];
    elsif PSTATE.EL == EL3 then
        DBGCLAIMCLR_EL1 = X[t, 64];
```

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