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External Registers

# DBGCLAIMSET\_EL1, Debug CLAIM Tag Set Register

The DBGCLAIMSET EL1 characteristics are:

# **Purpose**

Used by software to set the CLAIM tag bits to 1.

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 **DBGCLAIMCLR EL1** register.

# **Configuration**

AArch64 System register DBGCLAIMSET\_EL1 bits [31:0] are architecturally mapped to AArch32 System register DBGCLAIMSET[31:0].

AArch64 System register DBGCLAIMSET\_EL1 bits [31:0] are architecturally mapped to External register <u>DBGCLAIMSET\_EL1[31:0]</u>.

An implementation must include eight CLAIM tag bits.

## **Attributes**

DBGCLAIMSET EL1 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

03 02 01 00 33 30 37 30 33 31 33 32 31 30 13 10 17 10 13 11 13 12 11 10	33 30 37 30 33 31 33 32			
DECO				
RESU				
$R\Delta 7/M$	CL AIM			
TAZ/WI				
31 30 20 29 27 26 25 24 23 22 21 20 10 19 17 16 15 14 13 12 11 10 0 9	7 6 5 4 2 2 1 0			

#### Bits [63:32]

Reserved, res0.

#### Bits [31:8]

Reserved, RAZ/WI.

### CLAIM, bits [7:0]

Set CLAIM tag bits.

This field is RAO.

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

Writing 0 to one of these bits has no effect.

# Accessing DBGCLAIMSET\_EL1

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

# MRS <Xt>, DBGCLAIMSET EL1

op0	op1	CRn	CRm	op2
0b10	0b000	0b0111	0b1000	0b110

```
if PSTATE.EL == ELO 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'
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && MDCR_EL2.<TDE,TDA> != '00'
        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] = DBGCLAIMSET\_EL1;
elsif PSTATE.EL == EL2 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
```

# MSR DBGCLAIMSET\_EL1, <Xt>

op0	op1	CRn	CRm	op2
0b10	0b000	0b0111	0b1000	0b110

```
if PSTATE.EL == ELO 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
        DBGCLAIMSET 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
        DBGCLAIMSET EL1 = X[t, 64];
elsif PSTATE.EL == EL3 then
    DBGCLAIMSET EL1 = X[t, 64];
```

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