DBGDTRTX_EL0, Debug Data Transfer Register, Transmit

The DBGDTRTX_EL0 characteristics are:

Purpose

Transfers data from the PE to an external debugger. For example, it is used by a debug target to transfer data to the debugger. See DBGDTR_EL0 for additional architectural mappings. It is a component of the Debug Communication Channel.

Configuration

AArch64 System register DBGDTRTX_EL0 bits [31:0] are architecturally mapped to AArch32 System register DBGDTRTXint[31:0].

AArch64 System register DBGDTRTX_EL0 bits [31:0] are architecturally mapped to External register DBGDTRTX_EL0[31:0].

Attributes

DBGDTRTX_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
RES0
Return DTRTX
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

Bits [63:32]

Reserved, res0.

Bits [31:0]

Return DTRTX.

Writes to this register:

- If TXfull is set to 1, set DTRRX and DTRTX to unknown.

- If TXfull is set to 0, update the value in DTRTX.

After the write, TXfull is set to 1.

For the full behavior of the Debug Communications Channel, see 'The Debug Communication Channel and Instruction Transfer Register'.

The reset behavior of this field is:

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

Accessing DBGDTRTX_EL0

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

MSR DBGDTRTX_EL0, <Xt>

op0	op1	CRn	CRm	op2
0b10	0b011	0b0000	0b0101	0b000

```
if Halted() then
    DBGDTRTX_EL0 = X[t, 64];
elsif PSTATE.EL == EL0 then
    if MDSCR_EL1.TDCC == '1' then
        if EL2Enabled() && HCR_EL2.TGE == '1' then
            AArch64.SystemAccessTrap(EL2, 0x18);
        else
            AArch64.SystemAccessTrap(EL1, 0x18);
    elsif EL2Enabled() && MDCR_EL2.TDCC == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && (HCR_EL2.TGE == '1' ||
MDCR_EL2.<TDE,TDA> != '00') then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDCC == '1' then
        AArch64.SystemAccessTrap(EL3, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
        AArch64.SystemAccessTrap(EL3, 0x18);
    else
        DBGDTRTX_EL0 = X[t, 64];
elsif PSTATE.EL == EL1 then
    if EL2Enabled() && MDCR_EL2.TDCC == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && MDCR_EL2.<TDE,TDA> != '00'
then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDCC == '1' then
        AArch64.SystemAccessTrap(EL3, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
        AArch64.SystemAccessTrap(EL3, 0x18);
    else
        DBGDTRTX_EL0 = X[t, 64];
elsif PSTATE.EL == EL2 then
    if HaveEL(EL3) && MDCR_EL3.TDCC == '1' then
```

```
            AArch64.SystemAccessTrap(EL3, 0x18);
        elsif HaveEL(EL3) && MDCR_EL3.TDA == '1' then
            AArch64.SystemAccessTrap(EL3, 0x18);
        else
            DBGDTRTX_EL0 = X[t, 64];
    elsif PSTATE.EL == EL3 then
        DBGDTRTX_EL0 = X[t, 64];
```

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