

BRBSRCINJ_EL1, Branch Record Buffer Source Address Injection Register

The BRBSRCINJ_EL1 characteristics are:

Purpose

The source address of a Branch record for injection.

Configuration

This register is present only when FEAT_BRBE is implemented. Otherwise, direct accesses to BRBSRCINJ_EL1 are undefined.

Attributes

BRBSRCINJ_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
ADDRESS																															
ADDRESS																															
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

ADDRESS, bits [63:0]

Source virtual address of the Branch record.

When a direct write occurs with a value with ADDRESS bits [63:P] being other than all zeroes or all ones, an unknown value which is not all zeroes or all ones is written to bits [63:P]. P is defined as the virtual address size supported by the PE, as returned by `DebugAddrTop()`. The value in bits [P-1:0] are the value written.

When a direct write occurs with a value with ADDRESS bits [63:P] being all zeroes or all ones, the written value is written to bits [63:0], and a read of the register returns the written value.

The reset behavior of this field is:

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

Accessing this field has the following behavior:

- Access is **RES0** if any of the following are true:
 - BRBINFINJ_EL1.VALID == 0b00
 - BRBINFINJ_EL1.VALID == 0b01
- Otherwise, access to this field is **RW**.

Accessing BRBSRCINJ_EL1

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

MRS <Xt>, BRBSRCINJ_EL1

op0	op1	CRn	CRm	op2
0b10	0b001	0b1001	0b0001	0b001

```
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.SBRBE != '11' &&
    SCR_EL3.NS == '0' then
        UNDEFINED;
    elsif Halted() && HaveEL(EL3) && EDSCR.SDD ==
    '1' && boolean IMPLEMENTATION_DEFINED "EL3 trap
    priority when SDD == '1'" && MDCR_EL3.SBRBE == 'x0'
    && SCR_EL3.NS == '1' then
        UNDEFINED;
    elsif EL2Enabled() &&
    IsFeatureImplemented(FEAT_FGT) && (!HaveEL(EL3) ||
    SCR_EL3.FGTEn == '1') && HDFGRTR_EL2.nBRBDATA == '0'
    then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.SBRBE != '11' &&
    SCR_EL3.NS == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
        elsif HaveEL(EL3) && MDCR_EL3.SBRBE == 'x0' &&
    SCR_EL3.NS == '1' then
            if Halted() && EDSCR.SDD == '1' then
                UNDEFINED;
            else
                AArch64.SystemAccessTrap(EL3, 0x18);
            else
                X[t, 64] = BRBSRCINJ_EL1;
    elsif PSTATE.EL == EL2 then
        if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
        && boolean IMPLEMENTATION_DEFINED "EL3 trap priority
        when SDD == '1'" && MDCR_EL3.SBRBE != '11' &&
```



```

        elsif HaveEL(EL3) && MDCR_EL3.SBRBE == 'x0' &&
SCR_EL3.NS == '1' then
            if Halted() && EDSCR.SDD == '1' then
                UNDEFINED;
            else
                AArch64.SystemAccessTrap(EL3, 0x18);
            else
                BRBSRCINJ_EL1 = 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.SBRBE != '11' &&
SCR_EL3.NS == '0' then
        UNDEFINED;
    elsif Halted() && HaveEL(EL3) && EDSCR.SDD ==
'1' && boolean IMPLEMENTATION_DEFINED "EL3 trap
priority when SDD == '1'" && MDCR_EL3.SBRBE == 'x0'
&& SCR_EL3.NS == '1' then
        UNDEFINED;
    elsif HaveEL(EL3) && MDCR_EL3.SBRBE != '11' &&
SCR_EL3.NS == '0' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.SBRBE == 'x0' &&
SCR_EL3.NS == '1' then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        BRBSRCINJ_EL1 = X[t, 64];
elseif PSTATE.EL == EL3 then
    BRBSRCINJ_EL1 = X[t, 64];

```

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