DAIF, Interrupt Mask Bits

The DAIF characteristics are:

Purpose

Allows access to the interrupt mask bits.

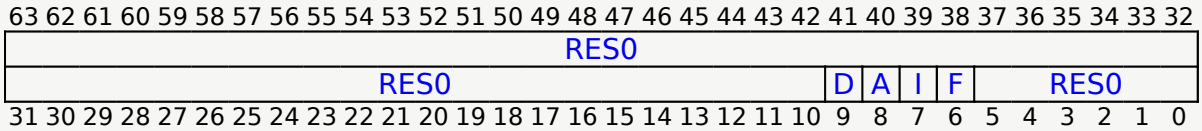
Configuration

There are no configuration notes.

Attributes

DAIF is a 64-bit register.

Field descriptions



Bits [63:10]

Reserved, res0.

D, bit [9]

Process state D mask.

D	Meaning
0b0	Watchpoint, Breakpoint, and Software Step exceptions targeted at the current Exception level are not masked.
0b1	Watchpoint, Breakpoint, and Software Step exceptions targeted at the current Exception level are masked.

When the target Exception level of the debug exception is higher than the current Exception level, the exception is not masked by this bit.

The reset behavior of this field is:

- On a Warm reset, this field resets to `1`.

A, bit [8]

SError interrupt mask bit.

A	Meaning
`0b0`	Exception not masked.
`0b1`	Exception masked.

The reset behavior of this field is:

- On a Warm reset, this field resets to `1`.

I, bit [7]

IRQ mask bit.

I	Meaning
`0b0`	Exception not masked.
`0b1`	Exception masked.

The reset behavior of this field is:

- On a Warm reset, this field resets to `1`.

F, bit [6]

FIQ mask bit.

F	Meaning
`0b0`	Exception not masked.
`0b1`	Exception masked.

The reset behavior of this field is:

- On a Warm reset, this field resets to `1`.

Bits [5:0]

Reserved, res0.

Accessing DAIF

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

MRS <Xt>, DAIF

op0	op1	CRn	CRm	op2
0b11	0b011	0b0100	0b0010	0b001

```
if PSTATE.EL == EL0 then
    if (EL2Enabled() && HCR_EL2.<E2H,TGE> == '11')
|| SCTLR_EL1.UMA == '0' then
        if EL2Enabled() && HCR_EL2.TGE == '1' then
            AArch64.SystemAccessTrap(EL2, 0x18);
        else
            AArch64.SystemAccessTrap(EL1, 0x18);
    else
        X[t, 64] =
Zeros(54):PSTATE.<D,A,I,F>:Zeros(6);
elsif PSTATE.EL == EL1 then
    X[t, 64] = Zeros(54):PSTATE.<D,A,I,F>:Zeros(6);
elsif PSTATE.EL == EL2 then
    X[t, 64] = Zeros(54):PSTATE.<D,A,I,F>:Zeros(6);
elsif PSTATE.EL == EL3 then
    X[t, 64] = Zeros(54):PSTATE.<D,A,I,F>:Zeros(6);
```

MSR DAIF, <Xt>

op0	op1	CRn	CRm	op2
0b11	0b011	0b0100	0b0010	0b001

```
if PSTATE.EL == EL0 then
    if (EL2Enabled() && HCR_EL2.<E2H,TGE> == '11')
|| SCTLR_EL1.UMA == '0' then
        if EL2Enabled() && HCR_EL2.TGE == '1' then
            AArch64.SystemAccessTrap(EL2, 0x18);
        else
            AArch64.SystemAccessTrap(EL1, 0x18);
    else
        PSTATE.<D,A,I,F> = X[t, 64]<9:6>;
elsif PSTATE.EL == EL1 then
    PSTATE.<D,A,I,F> = X[t, 64]<9:6>;
elsif PSTATE.EL == EL2 then
    PSTATE.<D,A,I,F> = X[t, 64]<9:6>;
elsif PSTATE.EL == EL3 then
    PSTATE.<D,A,I,F> = X[t, 64]<9:6>;
```

MSR DAIFSet, #<imm>

op0	op1	CRn	op2
0b00	0b011	0b0100	0b110

MSR DAIFClr, #<imm>

op0	op1	CRn	op2
0b00	0b011	0b0100	0b111

28/03/2023 16:01; 72747e43966d6b97dcbd230a1b3f0421d1ea3d94