OSDLR_EL1, OS Double Lock Register

The OSDLR_EL1 characteristics are:

Purpose

Used to control the OS Double Lock.

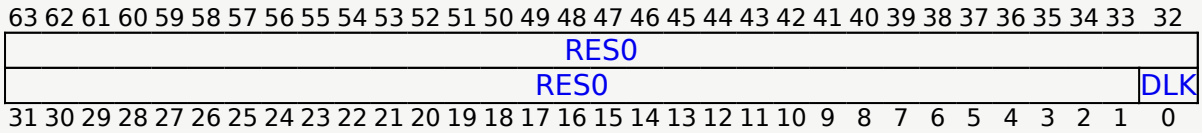
Configuration

AArch64 System register OSDLR_EL1 bits [31:0] are architecturally mapped to AArch32 System register DBGOSDLR[31:0].

Attributes

OSDLR_EL1 is a 64-bit register.

Field descriptions



Bits [63:1]

Reserved, res0.

DLK, bit [0]
When FEAT_DoubleLock is implemented:

OS Double Lock control bit.

DLK	Meaning
0b0	OS Double Lock unlocked.
0b1	OS Double Lock locked, if DBGPRCR_EL1.CORENPDRQ (Core no powerdown request) bit is set to 0 and the PE is in Non-debug state.

The reset behavior of this field is:

- On a Warm reset, this field resets to 0.

Otherwise:

Reserved, RAZ/WI.

Accessing OSDLR_EL1

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

MRS <Xt>, OSDLR_EL1

op0	op1	CRn	CRm	op2
0b10	0b000	0b0001	0b0011	0b100

```
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.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        UNDEFINED;
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT) && (!HaveEL(EL3) ||
SCR_EL3.FGTEn == '1') &&
IsFeatureImplemented(FEAT_DoubleLock) &&
HDFGRTR_EL2.OSDLR_EL1 == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && MDCR_EL2.<TDE,TDOSA> !=
'00' && (IsFeatureImplemented(FEAT_DoubleLock) ||
boolean IMPLEMENTATION_DEFINED "Trapped by
MDCR_EL2.TDOSA") then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] = OSDLR_EL1;
elsif PSTATE.EL == EL2 then
    if Halted() && HaveEL(EL3) && EDSCR.SDD == '1'
&& boolean IMPLEMENTATION_DEFINED "EL3 trap priority
when SDD == '1'" && MDCR_EL3.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
```

```
        UNDEFINED;
    elsif HaveEL(EL3) && MDCR_EL3.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] = OSDLR_EL1;
elsif PSTATE.EL == EL3 then
    X[t, 64] = OSDLR_EL1;
```

MSR OSDLR_EL1, <Xt>

op0	op1	CRn	CRm	op2
0b10	0b000	0b0001	0b0011	0b100

```
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.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        UNDEFINED;
    elsif EL2Enabled() &&
IsFeatureImplemented(FEAT_FGT) && (!HaveEL(EL3) ||
SCR_EL3.FGTEn == '1') &&
IsFeatureImplemented(FEAT_DoubleLock) &&
HDFGWTR_EL2.OSDLR_EL1 == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif EL2Enabled() && MDCR_EL2.<TDE,TDOSA> !=
'00' && (IsFeatureImplemented(FEAT_DoubleLock) ||
boolean IMPLEMENTATION_DEFINED "Trapped by
MDCR_EL2.TDOSA") then
        AArch64.SystemAccessTrap(EL2, 0x18);
    elsif HaveEL(EL3) && MDCR_EL3.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        OSDLR_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.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        UNDEFINED;
    elsif HaveEL(EL3) && MDCR_EL3.TDOSA == '1' &&
(IsFeatureImplemented(FEAT_DoubleLock) || boolean
IMPLEMENTATION_DEFINED "Trapped by MDCR_EL3.TDOSA")
then
        if Halted() && EDSCR.SDD == '1' then
            UNDEFINED;
        else
            AArch64.SystemAccessTrap(EL3, 0x18);
    else
        OSDLR_EL1 = X[t, 64];
elsif PSTATE.EL == EL3 then
    OSDLR_EL1 = X[t, 64];
```

28/03/2023 16:02; 72747e43966d6b97dcbd230a1b3f0421d1ea3d94