

# ICH\_ELRSR\_EL2, Interrupt Controller Empty List Register Status Register

The ICH\_ELRSR\_EL2 characteristics are:

## Purpose

These registers can be used to locate a usable List register when the hypervisor is delivering an interrupt to a VM.

## Configuration

AArch64 System register ICH\_ELRSR\_EL2 bits [31:0] are architecturally mapped to AArch32 System register [ICH\\_ELRSR\[31:0\]](#).

This register is present only when FEAT\_GICv3 is implemented and (EL2 is implemented or EL3 is implemented). Otherwise, direct accesses to ICH\_ELRSR\_EL2 are undefined.

If EL2 is not implemented, this register is res0 from EL3.

This register has no effect if EL2 is not enabled in the current Security state.

## Attributes

ICH\_ELRSR\_EL2 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	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
																RES0																															
RES0																Status15	Status14	Status13	Status12	Status11	Status10	Status9	Status8	Status7	Status6	Status5	Status4	Status3	Status2	Status1	Status0																
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 [63:16]

Reserved, res0.

### Status<n>, bit [n], for n = 15 to 0

Status bit for List register <n>, [ICH\\_LR<n>\\_EL2](#):

Status<n>	Meaning
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0b0	List register <a href="#">ICH_LR&lt;n&gt;_EL2</a> , if implemented, contains a valid interrupt. Using this List register can result in overwriting a valid interrupt.
0b1	List register <a href="#">ICH_LR&lt;n&gt;_EL2</a> does not contain a valid interrupt. The List register is empty and can be used without overwriting a valid interrupt or losing an EOI maintenance interrupt.

For any List register <n>, the corresponding status bit is set to 1 if [ICH\\_LR<n>\\_EL2](#).State is 0b00 and either [ICH\\_LR<n>\\_EL2](#).HW is 1 or [ICH\\_LR<n>\\_EL2](#).EOI (bit [41]) is 0.

Otherwise the status bit takes the value 0.

## Accessing ICH\_ELRSR\_EL2

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

### MRS <Xt>, ICH\_ELRSR\_EL2

op0	op1	CRn	CRm	op2
0b11	0b100	0b1100	0b1011	0b101

```

if PSTATE.EL == EL0 then
    UNDEFINED;
elseif PSTATE.EL == EL1 then
    if EL2Enabled() && HCR_EL2.NV == '1' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    else
        UNDEFINED;
elseif PSTATE.EL == EL2 then
    if ICC_SRE_EL2.SRE == '0' then
        AArch64.SystemAccessTrap(EL2, 0x18);
    else
        X[t, 64] = ICH_ELRSR_EL2;
elseif PSTATE.EL == EL3 then
    if ICC_SRE_EL3.SRE == '0' then
        AArch64.SystemAccessTrap(EL3, 0x18);
    else
        X[t, 64] = ICH_ELRSR_EL2;

```

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