

## GICR\_TYPER, Redistributor Type Register

The GICR\_TYPER characteristics are:

### Purpose

Provides information about the configuration of this Redistributor.

### Configuration

A copy of this register is provided for each Redistributor.

### Attributes

GICR\_TYPER 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
Affinity_Value																														
PPI	num	VSGI	Comm	on	LPI	Aff	Processor	Number	RV	PEID	MPAM	DPGS	Last	Direct	LPI	Dirty	VLPIS													
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

#### Affinity\_Value, bits [63:32]

The identity of the PE associated with this Redistributor.

Bits [63:56] provide Aff3, the Affinity level 3 value for the Redistributor.

Bits [55:48] provide Aff2, the Affinity level 2 value for the Redistributor.

Bits [47:40] provide Aff1, the Affinity level 1 value for the Redistributor.

Bits [39:32] provide Aff0, the Affinity level 0 value for the Redistributor.

#### PPInum, bits [31:27]

When FEAT\_GICv3p1 is implemented:

The value derived from this field specifies the maximum PPI INTID that a GIC implementation can support. An implementation might not implement all PPIs up to this maximum.

<b>PPInum</b>	<b>Meaning</b>
0b00000	Maximum PPI INTID is 31.
0b00001	Maximum PPI INTID is 1087.
0b00010	Maximum PPI INTID is 1119.

All other values are reserved.

**Otherwise:**

Reserved, res0.

**VSGI, bit [26]**

**When FEAT\_GICv4p1 is implemented:**

Indicates whether vSGIs are supported.

<b>VSGI</b>	<b>Meaning</b>
0b0	Direct injection of SGIs not supported.
0b1	Direct injection of SGIs supported.

**Otherwise:**

Reserved, res0.

**CommonLPIAff, bits [25:24]**

Indicates the scope of the CommonLPIAff group.

<b>CommonLPIAff</b>	<b>Meaning</b>
0b00	All Redistributors are members of the same CommonLPIAff group.
0b01	All Redistributors with the same Aff3 value are members of the same CommonLPIAff group.
0b10	All Redistributors with the same Aff3.Aff2 value are members of the same CommonLPIAff group.

0b11	All Redistributors with the same Aff3.Aff2.Aff1 value are members of the same CommonLPIAff group.
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Redistributors in the same CommonLPIAff group must use the same copy of the LPI Configuration table, and if GICv4.1 is implemented the same copy of the vPE Configuration table.

### Processor\_Number, bits [23:8]

A unique identifier for the PE. When [GITS\\_TYPER](#).PTA == 0, an ITS uses this field to identify the interrupt target.

When affinity routing is disabled for a Security state, this field indicates which [GICD\\_ITARGETSR<n>](#) corresponds to this Redistributor.

### RVPEID, bit [7]

When FEAT\_GICv4p1 is implemented:

Indicates how the resident vPE is specified.

RVPEID	Meaning
0b0	<a href="#">GICR_VPENDBASER</a> records the address of the vPE's Virtual Pending Table.
0b1	<a href="#">GICR_VPENDBASER</a> records vPEID.

Otherwise:

Reserved, res0.

### MPAM, bit [6]

When FEAT\_GICv3p1 is implemented:

MPAM

MPAM	Meaning
0b0	MPAM not supported.
0b1	MPAM supported.

Otherwise:

Reserved, res0.

### DPGS, bit [5]

Sets support for [GICR\\_CTLR.DPG\\*](#) bits.

DPGS	Meaning
0b0	<a href="#">GICR_CTLR.DPG*</a> bits are not supported.
0b1	<a href="#">GICR_CTLR.DPG*</a> bits are supported.

### Last, bit [4]

Indicates whether this Redistributor is the highest-numbered Redistributor in a series of contiguous Redistributor pages.

Last	Meaning
0b0	This Redistributor is not the highest-numbered Redistributor in a series of contiguous Redistributor pages.
0b1	This Redistributor is the highest-numbered Redistributor in a series of contiguous Redistributor pages.

### DirectLPI, bit [3]

Indicates whether this Redistributor supports direct injection of LPIs.

DirectLPI	Meaning
0b0	This Redistributor does not support direct injection of LPIs. The <a href="#">GICR_SETLPIR</a> , <a href="#">GICR_CLRLPIR</a> , <a href="#">GICR_INVLPIR</a> , <a href="#">GICR_INVALIDLPIR</a> and <a href="#">GICR_SYNCR</a> registers are either not implemented, or have implementation defined purpose.
0b1	This Redistributor supports direct injection of LPIs. The <a href="#">GICR_SETLPIR</a> , <a href="#">GICR_CLRLPIR</a> , <a href="#">GICR_INVLPIR</a> , <a href="#">GICR_INVALIDLPIR</a> and <a href="#">GICR_SYNCR</a> registers are implemented.

### Dirty, bit [2]

Controls the functionality of [GICR\\_VPENDBASER.Dirty](#).

Dirty	Meaning
0b0	<a href="#">GICR_VPENDBASER.Dirty</a> is unknown when <a href="#">GICR_VPENDBASER.Valid</a> == 1.

0b1 [GICR\\_VPENDBASER](#).Dirty indicates when the Virtual Pending Table has been parsed when [GICR\\_VPENDBASER](#).Valid is written from 0 to 1.

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When GICR\_TYPER.VLPIS == 0, this field is res0.

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#### Note

In GICv4p1 implementations this field is res1.

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### VLPIS, bit [1]

Indicates whether the GIC implementation supports virtual LPIs and the direct injection of virtual LPIs.

VLPIS	Meaning
0b0	The implementation does not support virtual LPIs or the direct injection of virtual LPIs.
0b1	The implementation supports virtual LPIs and the direct injection of virtual LPIs.

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#### Note

In GICv3 implementations this field is res0.

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### PLPIS, bit [0]

Indicates whether the GIC implementation supports physical LPIs.

PLPIS	Meaning
0b0	The implementation does not support physical LPIs.
0b1	The implementation supports physical LPIs.

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## Accessing GICR\_TYPER

**GICR\_TYPER can be accessed through the memory-mapped interfaces:**

Component	Frame	Offset	Instance
GIC Redistributor	RD_base	0x0008	GICR_TYPER

Accesses on this interface are **RO**.

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