Base

Insert vector element from general-purpose register. This instruction copies the contents of the source general-purpose register to the specified vector element in the destination SIMD&FP register.

This instruction can insert data into individual elements within a SIMD&FP register without clearing the remaining bits to zero.

Depending on the settings in the CPACR EL1, CPTR EL2, and CPTR EL3 registers, and the current Security state and Exception level, an attempt to execute the instruction might be trapped.

This instruction is used by the alias MOV (from general).

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
0 1	0	0	1	1	1	0	0	0	0	imm5	0	0	0	1	1	1			Rn					Rd		

```
INS <Vd>.<Ts>[<index>], <R><n>
```

```
integer d = UInt(Rd);
integer n = UInt(Rn);
constant integer size = LowestSetBit(imm5);
if size > 3 then UNDEFINED;
constant integer index = UInt(imm5<4:size+1>);
constant integer esize = 8 << size;</pre>
```

## **Assembler Symbols**

<Vd>

Is the name of the SIMD&FP destination register, encoded in the "Rd" field.

<Ts>

Is an element size specifier, encoded in "imm5":

imm5	<ts></ts>
x0000	RESERVED
xxxx1	В
xxx10	Н
xx100	S
x1000	D

<index>

Is the element index encoded in "imm5":

imm5	<index></index>
x0000	RESERVED
xxxx1	imm5<4:1>
xxx10	imm5<4:2>
xx100	imm5<4:3>
x1000	imm5<4>

<R>

Is the width specifier for the general-purpose source register, encoded in "imm5":

<r></r>
RESERVED
W
W
W
X

<n>

Is the number [0-30] of the general-purpose source register or ZR (31), encoded in the "Rn" field.

## **Operation**

```
CheckFPAdvSIMDEnabled64();
bits(esize) element = X[n, esize];
bits(128) result;

result = Y[d, 128];
Elem[result, index, esize] = element;
Y[d, 128] = result;
```

## **Operational information**

If PSTATE.DIT is 1:

- The execution time of this instruction is independent of:
  - The values of the data supplied in any of its registers.
  - The values of the NZCV flags.
- The response of this instruction to asynchronous exceptions does not vary based on:
  - The values of the data supplied in any of its registers.
  - The values of the NZCV flags.

<u>Base</u>	SIMD&FP	<u>SVE</u>	<u>SME</u>	Index by
<u>Instructions</u>	<u>Instructions</u>	<u>Instructions</u>	<u>Instructions</u>	<b>Encoding</b>

 $Internal\ version\ only: is a\ v33.64,\ AdvSIMD\ v29.12,\ pseudocode\ no\_diffs\_2023\_09\_RC2,\ sve\ v2023-06\_rel\ ;\ Build\ timestamp:\ 2023-09-18T17:56$ 

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