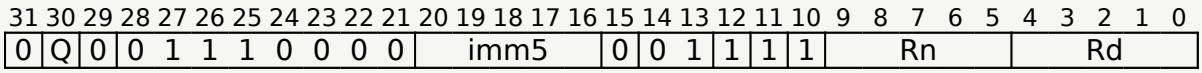
UMOV

Unsigned Move vector element to general-purpose register. This instruction reads the unsigned integer from the source SIMD&FP register, zero-extends it to form a 32-bit or 64-bit value, and writes the result to the destination general-purpose register.

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 (to general).



32-bit (Q == 0)

```
UMOV <Wd>, <Vn>.<Ts>[<index>]
```

64-bit (Q == 1 && imm5 == x1000)

```
UMOV <Xd>, <Vn>.<Ts>[<index>]
```

```
integer d = UInt(Rd);
integer n = UInt(Rn);
constant integer size = LowestSetBit(imm5);
if size > 3 then UNDEFINED;
constant integer esize = 8 << size;
constant integer datasize = 32 << UInt(Q);
if datasize == 64 && esize < 64 then UNDEFINED;
if datasize == 32 && esize >= 64 then UNDEFINED;
constant integer index = UInt(imm5<4:size+1>);
constant integer idxdsize = 64 << UInt(imm5<4>);
```

Assembler Symbols

<Wd>	Is the 32-bit name of the general-purpose destination register, encoded in the "Rd" field.
<Xd>	Is the 64-bit name of the general-purpose destination register, encoded in the "Rd" field.
<Vn>	Is the name of the SIMD&FP source register, encoded in the "Rn" field.

<Ts>

For the 32-bit variant: is an element size specifier, encoded in “imm5”:

imm5	<Ts>
xx000	RESERVED
xxxx1	B
xxx10	H
xx100	S

For the 64-bit variant: is an element size specifier, encoded in “imm5”:

imm5	<Ts>
x0000	RESERVED
xxxx1	RESERVED
xxx10	RESERVED
xx100	RESERVED
x1000	D

<index>

For the 32-bit variant: is the element index encoded in “imm5”:

imm5	<index>
xx000	RESERVED
xxxx1	imm5<4:1>
xxx10	imm5<4:2>
xx100	imm5<4:3>

For the 64-bit variant: is the element index encoded in "imm5<4>".

Alias Conditions

Alias	Is preferred when
MOV (to general)	`imm5 == 'x1000'`
MOV (to general)	`imm5 == 'xx100'`

Operation

```
if index == 0 then
    CheckFPEnabled64();
else
    CheckFPAdvSIMDEnabled64();
bits(idxdsize) operand = V[n, idxdsize];

X[d, datasize] = ZeroExtend(Elem[operand, index, esize], datasize);
```

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.

Internal version only: isa v33.64, AdvSIMD v29.12, pseudocode no_diffs_2023_09_RC2, sve v2023-06_rel ; Build timestamp: 2023-09-18T17:56