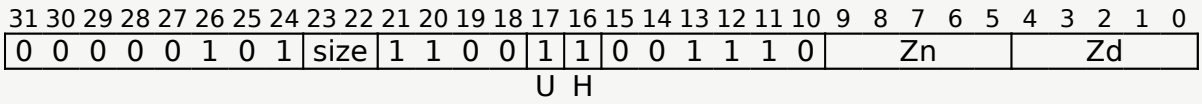
UUNPKHI, UUNPKLO

Unsigned unpack and extend half of vector

Unpack elements from the lowest or highest half of the source vector and then zero-extend them to place in elements of twice their size within the destination vector. This instruction is unpredicated.
It has encodings from 2 classes: High half and Low half

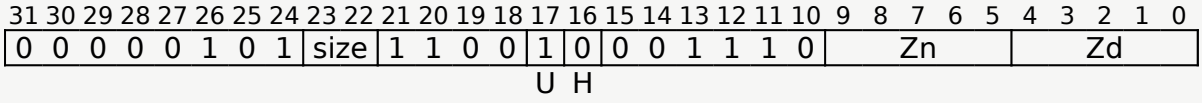
High half



UUNPKHI <Zd>.<T>, <Zn>.<Tb>

```
if !HaveSVE() && !HaveSME() then UNDEFINED;
if size == '00' then UNDEFINED;
constant integer esize = 8 << UInt(size);
integer n = UInt(Zn);
integer d = UInt(Zd);
boolean unsigned = TRUE;
boolean hi = TRUE;
```

Low half



UUNPKLO <Zd>.<T>, <Zn>.<Tb>

```
if !HaveSVE() && !HaveSME() then UNDEFINED;
if size == '00' then UNDEFINED;
constant integer esize = 8 << UInt(size);
integer n = UInt(Zn);
integer d = UInt(Zd);
boolean unsigned = TRUE;
boolean hi = FALSE;
```

Assembler Symbols

<Zd>	Is the name of the destination scalable vector register, encoded in the "Zd" field.

<T>

Is the size specifier, encoded in “size”:

size	<T>
00	RESERVED
01	H
10	S
11	D

<Zn>

Is the name of the source scalable vector register, encoded in the "Zn" field.

<Tb>

Is the size specifier, encoded in “size”:

size	<Tb>
00	RESERVED
01	B
10	H
11	S

Operation

```
CheckSVEEnabled();
constant integer VL = CurrentVL;
constant integer PL = VL DIV 8;
constant integer elements = VL DIV esize;
constant integer hsize = esize DIV 2;
bits(VL) operand = Z[n, VL];
bits(VL) result;

for e = 0 to elements-1
    bits(hsize) element = if hi then Elem[operand, e + elements, hsize]
    Elem[result, e, esize] = Extend(element, esize, unsigned);

Z[d, VL] = result;
```

Operational information

If FEAT_SVE2 is implemented or FEAT_SME is implemented, then 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.

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