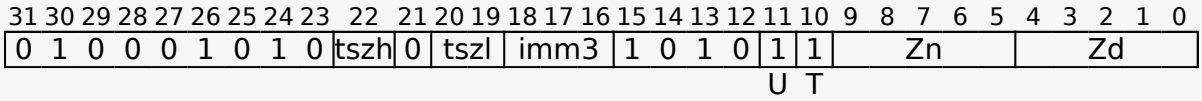
USHLLT

Unsigned shift left long by immediate (top)

Shift left by immediate each odd-numbered unsigned element of the source vector, and place the results in the overlapping double-width elements of the destination vector. The immediate shift amount is an unsigned value in the range 0 to number of bits per element minus 1. This instruction is unpredicated.




```
USHLLT <Zd>.<T>, <Zn>.<Tb>, #<const>
```

```
if !HaveSVE2() && !HaveSME() then UNDEFINED;
bits(3) tsize = tszh:tszl;
if tsize == '000' then UNDEFINED;
constant integer esize = 8 << HighestSetBit(tsize);
integer n = UInt(Zn);
integer d = UInt(Zd);
integer shift = UInt(tsize:imm3) - esize;
```

Assembler Symbols

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

<T> Is the size specifier, encoded in “tszh:tszl”:

tszh	tszl	<T>
0	00	RESERVED
0	01	H
0	1x	S
1	xx	D

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

<Tb> Is the size specifier, encoded in “tszh:tszl”:

tszh	tszl	<Tb>
0	00	RESERVED
0	01	B
0	1x	H
1	xx	S

<const>	Is the immediate shift amount, in the range 0 to number of bits per element minus 1, encoded in "tszh:tszl:imm3".

Operation

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

for e = 0 to elements-1
    bits(esize) element = Elem[operand, 2*e + 1, esize];
    integer shifted_value = UInt(element) << shift;
    Elem[result, e, 2*esize] = shifted_value<2*esize-1:0>;

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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