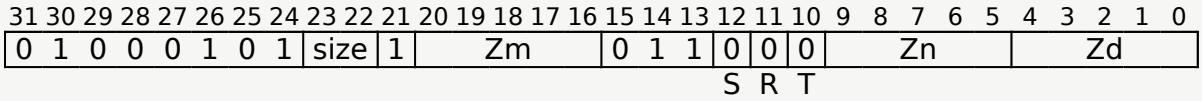
ADDHNB

Add narrow high part (bottom)

Add each vector element of the first source vector to the corresponding vector element of the second source vector, and place the most significant half of the result in the even-numbered half-width destination elements, while setting the odd-numbered elements to zero. This instruction is unpredicated.



ADDHNB <Zd>.<T>, <Zn>.<Tb>, <Zm>.<Tb>

```
if !HaveSVE2() && !HaveSME() then UNDEFINED;
if size == '00' then UNDEFINED;
constant integer esize = 8 << UInt(size);
integer n = UInt(Zn);
integer m = UInt(Zm);
integer d = UInt(Zd);
```

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	B
10	H
11	S

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

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

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

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

Operation

```
CheckSVEEnabled();
constant integer VL = CurrentVL;
constant integer elements = VL DIV esize;
bits(VL) operand1 = Z[n, VL];
bits(VL) operand2 = Z[m, VL];
bits(VL) result;
constant integer halfesize = esize DIV 2;

for e = 0 to elements-1
    integer element1 = UInt(Elem[operand1, e, esize]);
    integer element2 = UInt(Elem[operand2, e, esize]);
    integer res = (element1 + element2) >> halfesize;
    Elem[result, 2*e + 0, halfesize] = res<halfesize-1:0>;
    Elem[result, 2*e + 1, halfesize] = Zeros(halfesize);

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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