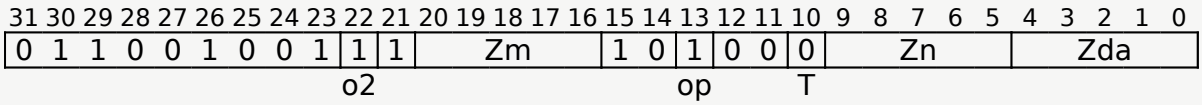
BFMLSLB (vectors)

BFloat16 floating-point multiply-subtract long from single-precision (bottom)

This BFloat16 floating-point multiply-subtract long instruction widens the even-numbered BFloat16 elements in the first source vector and the corresponding elements in the second source vector to single-precision format and then destructively multiplies and subtracts these values without intermediate rounding from the single-precision elements of the destination vector that overlap with the corresponding BFloat16 elements in the source vectors. This instruction is unpredicated.

SVE2
(FEAT_SVE2p1)



BFMLSLB <Zda>.S, <Zn>.H, <Zm>.H

```
if !HaveSME2() && !HaveSVE2p1() then UNDEFINED;
integer n = UInt(Zn);
integer m = UInt(Zm);
integer da = UInt(Zda);
boolean op1_neg = TRUE;
```

Assembler Symbols

<Zda>	Is the name of the third source and destination scalable vector register, encoded in the "Zda" field.
<Zn>	Is the name of the first source scalable vector register, encoded in the "Zn" field.
<Zm>	Is the name of the second source scalable vector register, encoded in the "Zm" field.

Operation

```
CheckSVEEnabled();
constant integer VL = CurrentVL;
constant integer PL = VL DIV 8;
constant integer elements = VL DIV 32;
bits(VL) operand1 = Z[n, VL];
bits(VL) operand2 = Z[m, VL];
bits(VL) operand3 = Z[da, VL];
bits(VL) result;

for e = 0 to elements-1
```

```
        bits(16) element1 = Elem[operand1, 2 * e + 0, 16];
        bits(16) element2 = Elem[operand2, 2 * e + 0, 16];
        bits(32) element3 = Elem[operand3, e, 32];
        if op1_neg then element1 = BFNeg(element1);
        Elem[result, e, 32] = BFMulAddH(element3, element1, element2, FPCR[

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

Operational information

This instruction might be immediately preceded in program order by a MOVPRFX instruction. The MOVPRFX instruction must conform to all of the following requirements, otherwise the behavior of the MOVPRFX and this instruction is unpredictable:

- The MOVPRFX instruction must be unpredicated.
- The MOVPRFX instruction must specify the same destination register as this instruction.
- The destination register must not refer to architectural register state referenced by any other source operand register of this instruction.

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