FSUB (immediate)

Floating-point subtract immediate (predicated)

Subtract an immediate from each active floating-point element of the source vector, and destructively place the results in the corresponding elements of the source vector. The immediate may take the value +0.5 or +1.0 only. Inactive elements in the destination vector register remain unmodified.

31	30	29	28	27	26	25	24	23 22	21	20	19	18	17	16	15	14	13	12	11 10 9	8	7	6	5	4	3 2 1 0
0	1	1	0	0	1	0	1	size	0	1	1	0	0	1	1	0	0		Pg	0	0	0	0	i1	Zdn

FSUB **<Zdn>.<T>**, **<Pg>**/M, **<Zdn>.<T>**, **<const>**

```
if !HaveSVE() && !HaveSME() then UNDEFINED;
if size == '00' then UNDEFINED;
constant integer esize = 8 << UInt(size);
integer g = UInt(Pg);
integer dn = UInt(Zdn);
bits(esize) imm = if i1 == '0' then FPPointFive('0', esize) else FPOne(
```

Assembler Symbols

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

<T>

Is the size specifier, encoded in "size":

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

<Pg>   Is the name of the governing scalable predicate register P0-P7, encoded in the "Pg" field.

<const>

Is the floating-point immediate value, encoded in "i1":

i1	<const>
0	#0.5
1	#1.0

Operation

```
CheckSVEEnabled();
constant integer VL = CurrentVL;
constant integer PL = VL DIV 8;
```

```
    constant integer elements = VL DIV esize;
    bits(PL) mask = P[g, PL];
    bits(VL) operand1 = Z[dn, VL];
    bits(VL) result;

    for e = 0 to elements-1
        bits(esize) element1 = Elem[operand1, e, esize];
        if ActivePredicateElement(mask, e, esize) then
            Elem[result, e, esize] = FPSub(element1, imm, FPCR[]);
        else
            Elem[result, e, esize] = element1;

    Z[dn, 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, or be predicated
  using the same governing predicate register and source element
  size as this instruction.
- 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.