SQABS

Signed saturating absolute value

Compute the absolute value of the signed integer in each active element of the source vector, and place the results in the corresponding elements of the destination vector. Each result element is saturated to the N-bit element's signed integer range $-2^{(N-1)}$ to $(2^{(N-1)})-1$. 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	0	0	0	1	0	0	size		0	0	1	0	0	0	1	0	1		Pg				Zn					Zd		

Q

```
SQABS <Zd>.<T>, <Pg>/M, <Zn>.<T>
```

```
if !HaveSVE2() && !HaveSME() then UNDEFINED;
constant integer esize = 8 << UInt(size);
integer g = UInt(Pg);
integer n = UInt(Zn);
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	B
01	H
10	S
11	D

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

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

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) operand = if AnyActiveElement(mask, esize) then Z[n, VL] else
```

```
bits(VL) result = Z[d, VL];

for e = 0 to elements-1
    if ActivePredicateElement(mask, e, esize) then
        integer element = SInt(Elem[operand, e, esize]);
        element = Abs(element);
        Elem[result, e, esize] = SignedSat(element, esize);

Z[d, 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.