LDR (vector)

Load vector register

Load a vector register from a memory address generated by a 64-bit scalar base, plus an immediate offset in the range -256 to 255 which is multiplied by the current vector register size in bytes. This instruction is unpredicated.

The load is performed as contiguous byte accesses, with no endian conversion and no guarantee of single-copy atomicity larger than a byte. However, if alignment is checked, then the base register must be aligned to 16 bytes.

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
1	0	0	0	0	1	0	1	1	0	imm9h						0	1	0	imm9l			Rn					Zt				

```
LDR <Zt>, [<Xn|SP>{, #<imm>, MUL VL}]
```

```
if !HaveSVE() && !HaveSME() then UNDEFINED;
integer t = UInt(Zt);
integer n = UInt(Rn);
integer imm = SInt(imm9h:imm9l);
```

Assembler Symbols

<Zt>	Is the name of the scalable vector register to be transferred, encoded in the "Zt" field.
<Xn|SP>	Is the 64-bit name of the general-purpose base register or stack pointer, encoded in the "Rn" field.
<imm>	Is the optional signed immediate vector offset, in the range -256 to 255, defaulting to 0, encoded in the "imm9h:imm9l" fields.

Operation

```
CheckSVEEnabled();
constant integer VL = CurrentVL;
constant integer PL = VL DIV 8;
constant integer elements = VL DIV 8;
bits(64) base;
integer offset = imm * elements;
bits(VL) result;
boolean contiguous = TRUE;
boolean nontemporal = FALSE;
boolean tagchecked = n != 31;
AccessDescriptor accdesc = CreateAccDescSVE(MemOp_LOAD, nontemporal, co

if n == 31 then
    CheckSPAlignment();
    base = SP[];
```

```
else
    base = X[n, 64];

boolean aligned = IsAligned(base + offset, 16);

if !aligned && AlignmentEnforced() then
    AArch64.Abort(base + offset, AlignmentFault(accdesc));

for e = 0 to elements-1
    Elem[result, e, 8] = AArch64.MemSingle[base + offset, 1, accdesc, al
    offset = offset + 1;

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

Operational information

If FEAT_SVE2 is implemented or FEAT_SME is implemented, then if PSTATE.DIT is 1, the timing of this instruction is insensitive to the value of the data being loaded or stored.