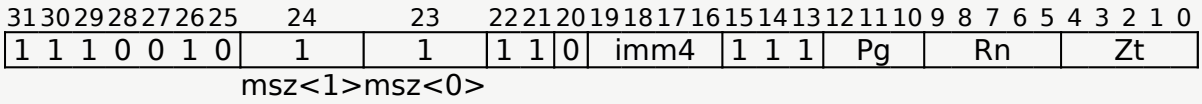
ST1D (scalar plus immediate, single register)

Contiguous store doublewords from vector (immediate index)

Contiguous store of doublewords from elements of a vector register to the memory address generated by a 64-bit scalar base and immediate index in the range -8 to 7 which is multiplied by the vector's in-memory size, irrespective of predication, and added to the base address. Inactive elements are not written to memory.

It has encodings from 2 classes: SVE and SVE2

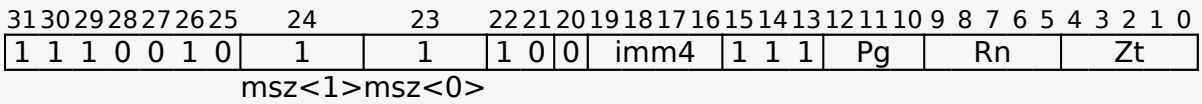
SVE



ST1D { <Zt>.D }, <Pg>, [<Xn|SP>{, #<imm>, MUL VL}]

```
if !HaveSVE() && !HaveSME() then UNDEFINED;
integer t = UInt(Zt);
integer n = UInt(Rn);
integer g = UInt(Pg);
constant integer esize = 64;
constant integer msize = 64;
integer offset = SInt(imm4);
```

SVE2
(FEAT_SVE2p1)



ST1D { <Zt>.Q }, <Pg>, [<Xn|SP>{, #<imm>, MUL VL}]

```
if !HaveSVE2p1() then UNDEFINED;
integer t = UInt(Zt);
integer n = UInt(Rn);
integer g = UInt(Pg);
constant integer esize = 128;
constant integer msize = 64;
integer offset = SInt(imm4);
```

Assembler Symbols

<Zt>	Is the name of the scalable vector register to be transferred, encoded in the "Zt" field.
<Pg>	Is the name of the governing scalable predicate register P0-P7, encoded in the "Pg" 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 -8 to 7, defaulting to 0, encoded in the "imm4" field.

Operation

```
if esize < 128 then CheckSVEEnabled(); else CheckNonStreamingSVEEnabled
constant integer VL = CurrentVL;
constant integer PL = VL DIV 8;
constant integer elements = VL DIV esize;
bits(64) base;
bits(PL) mask = P[g, PL];
bits(VL) src;
constant integer mbytes = msize DIV 8;
boolean contiguous = TRUE;
boolean nontemporal = FALSE;
boolean tagchecked = n != 31;
AccessDescriptor accdesc = CreateAccDescSVE(MemOp_STORE, nontemporal, c

if !AnyActiveElement(mask, esize) then
    if n == 31 && ConstrainUnpredictableBool(Unpredictable_CHECKSPNONEA
        CheckSPAlignment();
else
    if n == 31 then CheckSPAlignment();
    base = if n == 31 then SP[] else X[n, 64];
    src = Z[t, VL];

for e = 0 to elements-1
    if ActivePredicateElement(mask, e, esize) then
        integer eoff = (offset * elements) + e;
        bits(64) addr = base + eoff * mbytes;
        Mem[addr, mbytes, accdesc] = Elem[src, e, esize]<msize-1:0>;
```

Operational information

If PSTATE.DIT is 1, the timing of this instruction is insensitive to the value of the data being loaded or stored when its governing predicate register contains the same value for each execution.

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