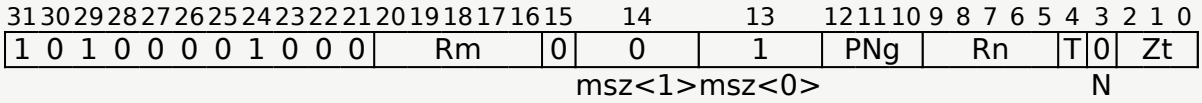
LD1H (scalar plus scalar, strided registers)

Contiguous load of halfwords to multiple strided vectors (scalar index)

Contiguous load of unsigned halfwords to elements of two or four strided vector registers from the memory address generated by a 64-bit scalar base and scalar index which is added to the base address. After each element access the index value is incremented, but the index register is not updated. Inactive elements will not cause a read from Device memory or signal a fault, and are set to zero in the destination vector.
It has encodings from 2 classes: Two registers and Four registers

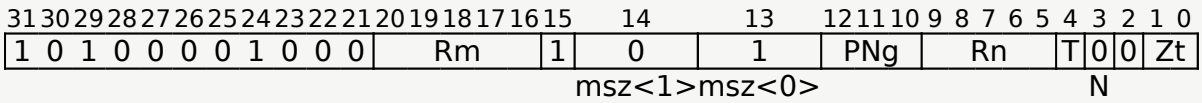
Two registers
(FEAT_SME2)



LD1H { <Zt1>.H, <Zt2>.H }, <PNg>/Z, [<Xn|SP>, <Xm>, LSL #1]

```
if !HaveSME2() then UNDEFINED;
integer n = UInt(Rn);
integer m = UInt(Rm);
integer g = UInt('1':PNg);
constant integer nreg = 2;
integer tstride = 8;
integer t = UInt(T:'0':Zt);
constant integer esize = 16;
```

Four registers
(FEAT_SME2)



LD1H { <Zt1>.H, <Zt2>.H, <Zt3>.H, <Zt4>.H }, <PNg>/Z, [<Xn|SP>, <Xm>

```
if !HaveSME2() then UNDEFINED;
integer n = UInt(Rn);
integer m = UInt(Rm);
integer g = UInt('1':PNg);
constant integer nreg = 4;
integer tstride = 4;
integer t = UInt(T:'00':Zt);
constant integer esize = 16;
```

Assembler Symbols

<Zt1>	For the two registers variant: is the name of the first scalable vector register Z0-Z7 or Z16-Z23 to be transferred, encoded as "T:'0':Zt". For the four registers variant: is the name of the first scalable vector register Z0-Z3 or Z16-Z19 to be transferred, encoded as "T:'00':Zt".
<Zt2>	For the two registers variant: is the name of the second scalable vector register Z8-Z15 or Z24-Z31 to be transferred, encoded as "T:'1':Zt". For the four registers variant: is the name of the second scalable vector register Z4-Z7 or Z20-Z23 to be transferred, encoded as "T:'01':Zt".
<Zt3>	Is the name of the third scalable vector register Z8-Z11 or Z24-Z27 to be transferred, encoded as "T:'10':Zt".
<Zt4>	Is the name of the fourth scalable vector register Z12-Z15 or Z28-Z31 to be transferred, encoded as "T:'11':Zt".
<PNg>	Is the name of the governing scalable predicate register PN8-PN15, with predicate-as-counter encoding, encoded in the "PNg" field.
<Xn|SP>	Is the 64-bit name of the general-purpose base register or stack pointer, encoded in the "Rn" field.
<Xm>	Is the 64-bit name of the general-purpose offset register, encoded in the "Rm" field.

Operation

```
CheckStreamingSVEEnabled();
constant integer VL = CurrentVL;
constant integer PL = VL DIV 8;
constant integer elements = VL DIV esize;
constant integer mbytes = esize DIV 8;
bits(64) offset;
bits(64) base;
bits(PL) pred = P[g, PL];
bits(PL * nreg) mask = CounterToPredicate(pred<15:0>, PL * nreg);
array [0..3] of bits(VL) values;
boolean contiguous = TRUE;
boolean nontemporal = FALSE;
boolean tagchecked = TRUE;
AccessDescriptor accdesc = CreateAccDescSVE(MemOp_LOAD, nontemporal, co

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];
```

```
    offset = X[m, 64];

for r = 0 to nreg-1
    for e = 0 to elements-1
        if ActivePredicateElement(mask, r * elements + e, esize) then
            bits(64) addr = base + (UInt(offset) + r * elements + e) * m
            Elem[values[r], e, esize] = Mem[addr, mbytes, accdesc];
        else
            Elem[values[r], e, esize] = Zeros(esize);

for r = 0 to nreg-1
    Z[t, VL] = values[r];
    t = t + tstride;
```

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.

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