MOV (vector to tile, four registers)

Move four vector registers to four ZA tile slices

The instruction operates on four consecutive horizontal or vertical slices within a named ZA tile of the specified element size.

The consecutive slice numbers within the tile are selected starting from the sum of the slice index register and immediate offset, modulo the number of such elements in a vector. The immediate offset is a multiple of 4 in the range 0 to the number of elements in a 128-bit vector segment minus 4.

This instruction is unpredicated.

This is an alias of MOVA (vector to tile, four registers). This means:

- The encodings in this description are named to match the encodings of MOVA (vector to tile, four registers).
- The description of MOVA (vector to tile, four registers) gives the operational pseudocode, any constrained unpredictable behavior, and any operational information for this instruction.

It has encodings from 4 classes: 8-bit , 16-bit , 32-bit and 64-bit

8-bit

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	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	V	Rs		0	0	1	Zn			0	0	0	0	0	off2	
								size<1>	size<0>																						

```
MOV ZA0<HV>.B[<Ws>, <offs1>:<offs4>], { <Zn1>.B-<Zn4>.B }
```

is equivalent to

```
MOVA ZA0<HV>.B[<Ws>, <offs1>:<offs4>], { <Zn1>.B-<Zn4>.B }
```

and is always the preferred disassembly.

16-bit

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	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	V	Rs		0	0	1	Zn			0	0	0	0	0	ZAd	o1
								size<1>	size<0>																						

```
MOV <ZAd><HV>.H[<Ws>, <offs1>:<offs4>], { <Zn1>.H-<Zn4>.H }
```

is equivalent to

```
MOVA <ZAd><HV>.H[<Ws>, <offs1>:<offs4>], { <Zn1>.H-<Zn4>.H }
```

and is always the preferred disassembly.

32-bit

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 1	0 0 0 0 0 0	1	0	0 0	0 1 0 0	V	Rs	0 0 1	Zn	0 0 0	0	0	ZAd
		size<1>	size<0>										

```
MOV <ZAd><HV>.S[<Ws>, <offs1>:<offs4>], { <Zn1>.S-<Zn4>.S }
```

is equivalent to

```
MOVA <ZAd><HV>.S[<Ws>, <offs1>:<offs4>], { <Zn1>.S-<Zn4>.S }
```

and is always the preferred disassembly.

64-bit

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 1	0 0 0 0 0 0	1	1	0 0 0 1 0 0	V	Rs	0 0 1	Zn	0 0 0	0	ZAd
		size<1>	size<0>								

```
MOV <ZAd><HV>.D[<Ws>, <offs1>:<offs4>], { <Zn1>.D-<Zn4>.D }
```

is equivalent to

```
MOVA <ZAd><HV>.D[<Ws>, <offs1>:<offs4>], { <Zn1>.D-<Zn4>.D }
```

and is always the preferred disassembly.

Assembler Symbols

<ZAd>

For the 16-bit variant: is the name of the ZA tile ZA0-ZA1 to be accessed, encoded in the "ZAd" field.

For the 32-bit variant: is the name of the ZA tile ZA0-ZA3 to be accessed, encoded in the "ZAd" field.

For the 64-bit variant: is the name of the ZA tile ZA0-ZA7 to be accessed, encoded in the "ZAd" field.

<HV>

Is the horizontal or vertical slice indicator, encoded in “V”:

V	<HV>
0	H
1	V

<Ws>

Is the 32-bit name of the slice index register W12-W15, encoded in the "Rs" field.

<offs1>

For the 8-bit variant: is the slice index offset, pointing to first of four consecutive slices, encoded as "off2" field times 4.

For the 16-bit variant: is the slice index offset, pointing to first of four consecutive slices, encoded as "o1" field times 4.

For the 32-bit and 64-bit variant: is the slice index offset, pointing to first of four consecutive slices, with implicit value 0.

<offs4>

For the 8-bit variant: is the slice index offset, pointing to last of four consecutive slices, encoded as "off2" field times 4 plus 3.

For the 16-bit variant: is the slice index offset, pointing to last of four consecutive slices, encoded as "o1" field times 4 plus 3.

For the 32-bit and 64-bit variant: is the slice index offset, pointing to last of four consecutive slices, with implicit value 3.

<Zn1>

Is the name of the first scalable vector register of a multi-vector sequence, encoded as "Zn" times 4.

<Zn4>

Is the name of the fourth scalable vector register of a multi-vector sequence, encoded as "Zn" times 4 plus 3.

Operation

The description of MOVA (vector to tile, four registers) gives the operational pseudocode for this instruction.

Operational information

If FEAT_SVE2 is implemented or FEAT_SME is implemented, then if PSTATE.DIT is 1:

- The execution time of this instruction is independent of:
    - The values of the data supplied in any of its registers.
    - The values of the NZCV flags.
- The response of this instruction to asynchronous exceptions does not vary based on:
    - The values of the data supplied in any of its registers.
    - The values of the NZCV flags.

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