

## REV16

Reverse bytes in 16-bit halfwords reverses the byte order in each 16-bit halfword of a register.

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		
sf	1	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	Rn						Rd					
opc																																	

### 32-bit (sf == 0)

REV16 <Wd>, <Wn>

### 64-bit (sf == 1)

REV16 <Xd>, <Xn>

```
if opc == '11' && sf == '0' then UNDEFINED;
integer d = UInt(Rd);
integer n = UInt(Rn);
constant integer datasize = 32 << UInt(sf);
constant integer container_size = 8 << UInt(opc);
```

## Assembler Symbols

- <Wd> Is the 32-bit name of the general-purpose destination register, encoded in the "Rd" field.
- <Wn> Is the 32-bit name of the general-purpose source register, encoded in the "Rn" field.
- <Xd> Is the 64-bit name of the general-purpose destination register, encoded in the "Rd" field.
- <Xn> Is the 64-bit name of the general-purpose source register, encoded in the "Rn" field.

## Operation

```
bits(datasize) operand = X[n, datasize];
bits(datasize) result;
constant integer containers = datasize DIV container_size;
for c = 0 to containers-1
    bits(container_size) container = Elem[operand, c, container_size];
    Elem[result, c, container_size] = Reverse(container, 8);
X[d, datasize] = result;
```

**Operational information**

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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<a href="#">Base Instructions</a>	<a href="#">SIMD&amp;FP Instructions</a>	<a href="#">SVE Instructions</a>	<a href="#">SME Instructions</a>	<a href="#">Index by Encoding</a>
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