

UMULH

Unsigned Multiply High multiplies two 64-bit register values, and writes bits[127:64] of the 128-bit result to the 64-bit destination 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
1	0	0	1	1	0	1	1	1	1	0	Rm			0	(1)	(1)	(1)	(1)	(1)	Rn			Rd								
U										Ra																					

UMULH <Xd>, <Xn>, <Xm>

```
integer d = UInt(Rd);  
integer n = UInt(Rn);  
integer m = UInt(Rm);
```

Assembler Symbols

- <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 first general-purpose source register holding the multiplicand, encoded in the "Rn" field.
- <Xm> Is the 64-bit name of the second general-purpose source register holding the multiplier, encoded in the "Rm" field.

Operation

```
bits(64) operand1 = X[n, 64];  
bits(64) operand2 = X[m, 64];  
  
integer result;  
  
result = Int(operand1, TRUE) * Int(operand2, TRUE);  
  
X[d, 64] = result<127:64>;
```

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.

Internal version only: isa v33.64, AdvSIMD v29.12, pseudocode
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