



**Arithmetic Instructions**

- The processor executes these instructions using unsigned integer arithmetic with wrap-around semantics.

add	\$rd	\$rs1	\$rs2
sub	\$rd	\$rs1	\$rs2
mult	\$rd	\$rs1	\$rs2
div	\$rd	\$rs1	\$rs2
remu	\$rd	\$rs1	\$rs2

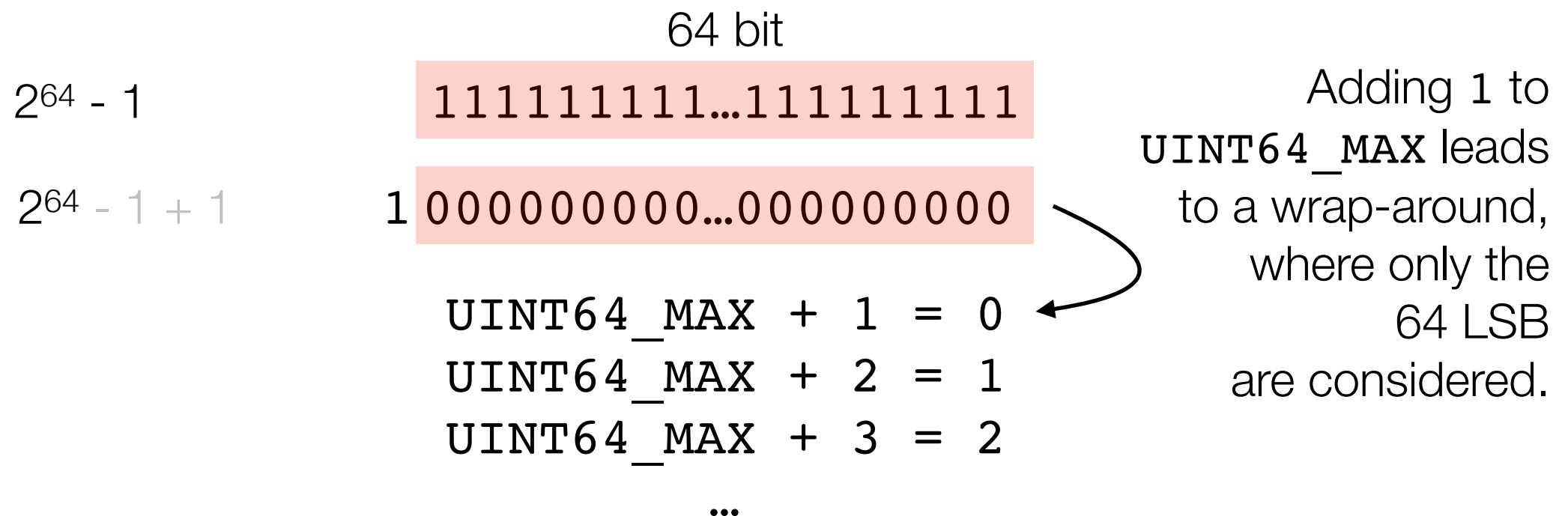


$$\text{\$rd} = \text{\$rs1} +, -, *, /, \% \text{\$rs2}$$



# Wrap-around Semantics

- Cause of unbelievably expensive bugs, e.g. the Ariane 5 Flight 501.
- $2^{64} - 1$  is the largest value that can be represented by 64 bits. In selfie this value is denoted `UINT64_MAX`.





# Arithmetic Instructions

add	\$rd	\$rs1	\$rs2
sub	\$rd	\$rs1	\$rs2
mult	\$rd	\$rs1	\$rs2
div	\$rd	\$rs1	\$rs2
remu	\$rd	\$rs1	\$rs2

`$rd = $rs1 +, -, *, / , % $rs2`

- The processor executes these instructions using unsigned integer arithmetic with wrap-around semantics.