

CBNZ

Compare and Branch on Nonzero compares the value in a register with zero, and conditionally branches to a label at a PC-relative offset if the comparison is not equal. It provides a hint that this is not a subroutine call or return. This instruction does not affect the condition flags.

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		0	1	1	0	1	0	1	imm19																		Rt				
op																															

32-bit (sf == 0)

CBNZ <Wt>, <label>

64-bit (sf == 1)

CBNZ <Xt>, <label>

```
integer t = UInt(Rt);
constant integer datasize = 32 << UInt(sf);
bits(64) offset = SignExtend(imm19:'00', 64);
```

Assembler Symbols

- <Wt> Is the 32-bit name of the general-purpose register to be tested, encoded in the "Rt" field.
- <Xt> Is the 64-bit name of the general-purpose register to be tested, encoded in the "Rt" field.
- <label> Is the program label to be conditionally branched to. Its offset from the address of this instruction, in the range +/-1MB, is encoded as "imm19" times 4.

Operation

```
bits(datasize) operand1 = X[t, datasize];
if IsZero(operand1) == FALSE then
    BranchTo(PC64 + offset, BranchType_DIR, TRUE);
else
    BranchNotTaken(BranchType_DIR, TRUE);
```

