

CAN settings with typical values from MCP2515 datasheet section 5.3 page 43.

MCP2515: (Page 44+45 MCP2515 datasheet)

CNF1 = 0b0000 0011 = 0x03

Baudrate prescaler:

BRP = 0b00 0011 = 3

$T_Q = 2 * (BRP + 1) / F_{osc} = 2 * (3 + 1) / 16\text{MHz} = 500\text{ns}$

Re-sync jump with:

SJW = 0b00 = 0

$t_{sjw} = t_{csc} * (SJW + 1) = 500\text{ns} * 1 = 500\text{nS}$

CNF2 = 0b1011 0001 = 0xB1

BTLMODE = 1 (PS2 is set by PHSEG2x)

SAM = 0 (one sample point)

Phase 1:

PHSEG1x = 0b110 = 6

$t_{phs1} = T_Q * (1 + PHSEG1x) = 500\text{ns} * 7 = 3.5\mu\text{s}$

Programming time seg:

PRSEGx = 0b001 = 1

$t_{prs} = T_Q * (1 + PRSEGx) = 500\text{ns} * 2 = 1\mu\text{s}$

CNF3 = 0b0000 0101 = 0x05

SOF = 0 (don't care CLKEN = 0)

WAKFIL = 0 (Wake_up filter disabled)

Phase 2:

PHSEG1x = 0b101 = 5

$t_{phs2} = T_Q * (1 + PHSEG2x) = 500\text{ns} * 6 = 3\mu\text{s}$

ATSAM (Page 1223 in datasheet)

Baudrate register:

$CAN_BR = 0b0010\ 1001\ 0000\ 0001\ 0110\ 0101 = 0x290165$

Baudrate prescaler:

$BRP = 0b0010\ 1001 = 41$

$t_{csc} = (BRP+1)/MCK = (41+1)/85MHz = 500ns$

Re-sync jump with:

$SJW = 0b0000 = 0$

$t_{sjw} = t_{csc} * (SJW+1) = 500ns * 1 = 500ns$

Programming time seg:

$PROPAG = 0b0001 = 1$

$t_{prs} = t_{csc} * (1+PROPAG) = 500ns * 2 = 1\mu s$

Phase 2:

$PHASE2 = 0b0101 = 5$

$t_{phs2} = t_{csc} * (1+PHASE2) = 500ns * 6 = 3\mu s$

Phase 1:

$PHASE1 = 0b0110 = 6$

$t_{phs1} = t_{csc} * (1+PHASE1) = 500ns * 7 = 3.5\mu s$