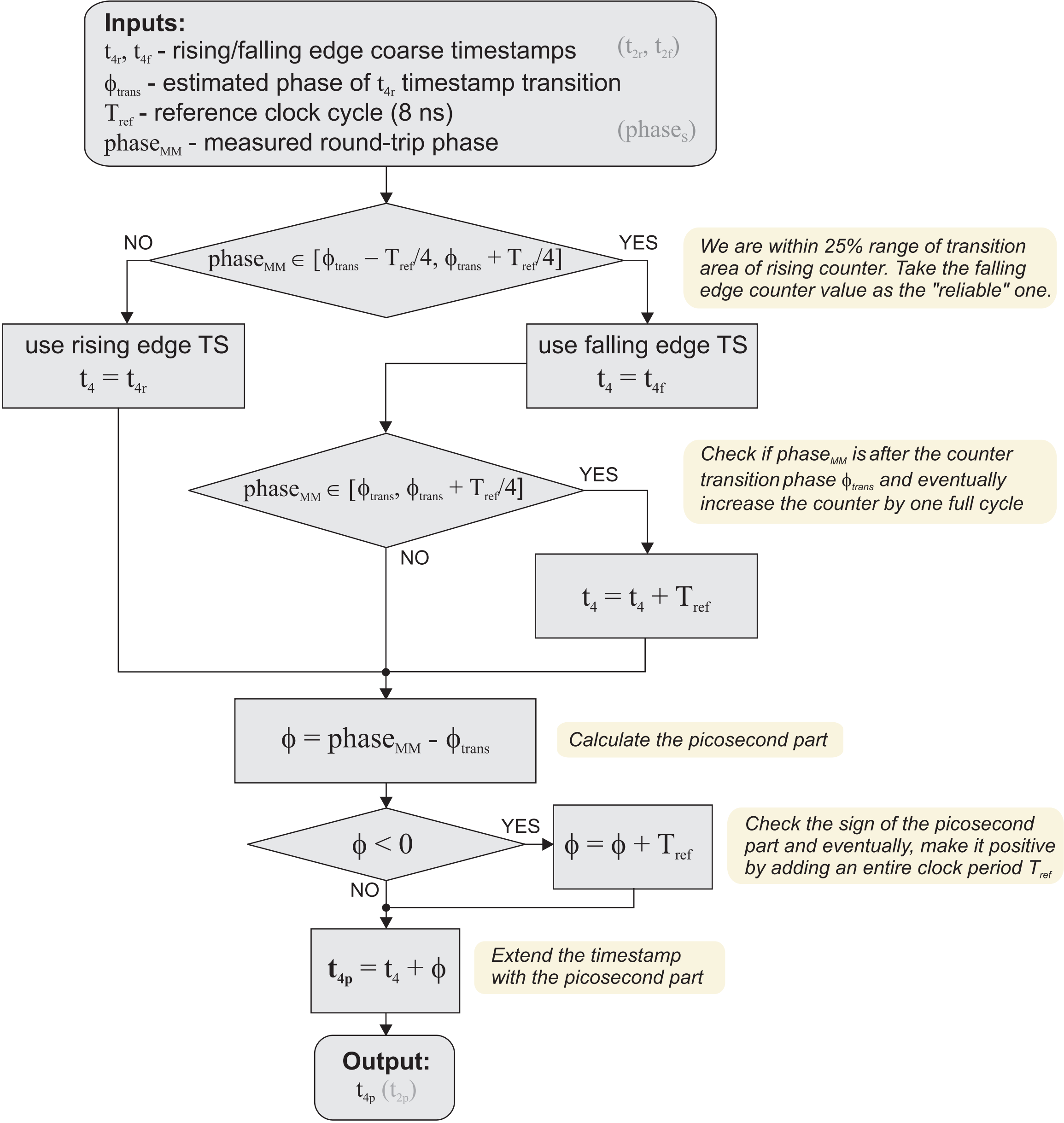
Inputs:
t4r, t4f - rising/falling edge coarse timestamps (t2r, t2f)
ϕtrans - estimated phase of t4r timestamp transition
Tref - reference clock cycle (8 ns)
phaseMM - measured round-trip phase (phaseS)
NO
YES
phaseMM ∈ [ϕtrans − Tref/4, ϕtrans + Tref/4]
We are within 25% range of transition area of rising counter. Take the falling edge counter value as the "reliable" one.
use rising edge TS
t4 = t4r
use falling edge TS
t4 = t4f
phaseMM ∈ [ϕtrans, ϕtrans + Tref/4]
YES
NO
Check if phaseMM is after the counter transition phase ϕtrans and eventually increase the counter by one full cycle
t4 = t4 + Tref
ϕ = phaseMM - ϕtrans
Calculate the picosecond part
ϕ < 0
YES
NO
ϕ = ϕ + Tref
Check the sign of the picosecond part and eventually, make it positive by adding an entire clock period Tref
t4p = t4 + ϕ
Extend the timestamp with the picosecond part
Output:
t4p (t2p)