

I want to be able to verify signatures created by smart meters. Unfortunately, their signature algorithm doesn't use curve ALT_BN_128 but BrainpoolP256r1. I wrote [this verification algorithm](#) that requires an inversion, an addition of two curve points, and two scalar multiplications of curve points. The problem is especially the gas cost of the latter.

I wrote [a contract for these operations](#) where the scalar multiplication is implemented via a simple double-and-add algorithm. Unfortunately, a scalar multiplication using this method costs between 84'000 and 19'000'000 gas. Originally, I didn't want to write my own contract for that but the only Solidity implementation I was able to find was ECops.sol

by orbs-network

on Github. Scalar multiplication using this contract is much cheaper (about 623'000 gas), but then there's the minor disadvantage that the results are wrong.

Is there a better solidity implementation out there where I can just plug the right curve parameters in?

I have now posted this question on Ethereum SE too. I can't post a link to it because I'm only allowed two use two per post. But I used the same title, so if you google "stackexchange Cheap EC Operations on Unsupported Curves", it should pop up.