V2X ECDSA in TSM

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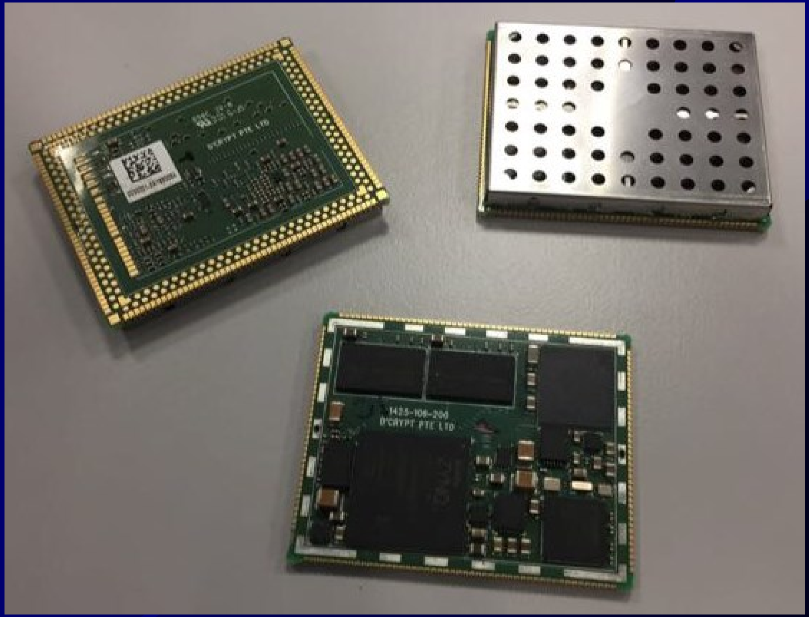
TSM

Trusted Security Module

- Consist of a SoC-FPGA and eHSM (*d'Cryptor SC*)
  - SoC-FPGA handles application processing and connectivity
  - *d'Cryptor SC* handles cryptographic processing.



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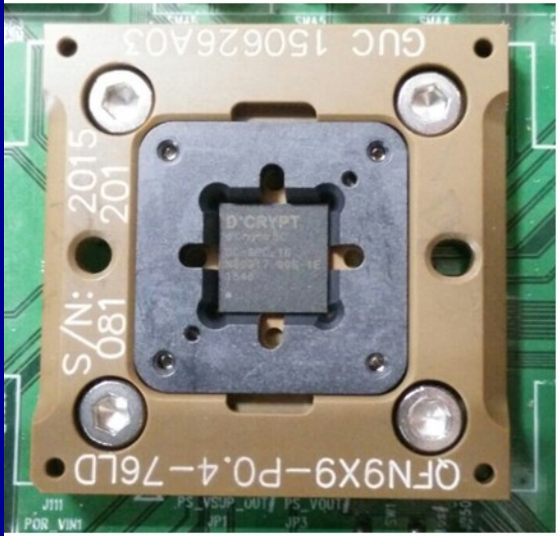
d’Cryptor SC

Single Chip Level-4 Cryptographic Core for TSM



d’Cryptor SC in a test-socket

9×9mm QFN package

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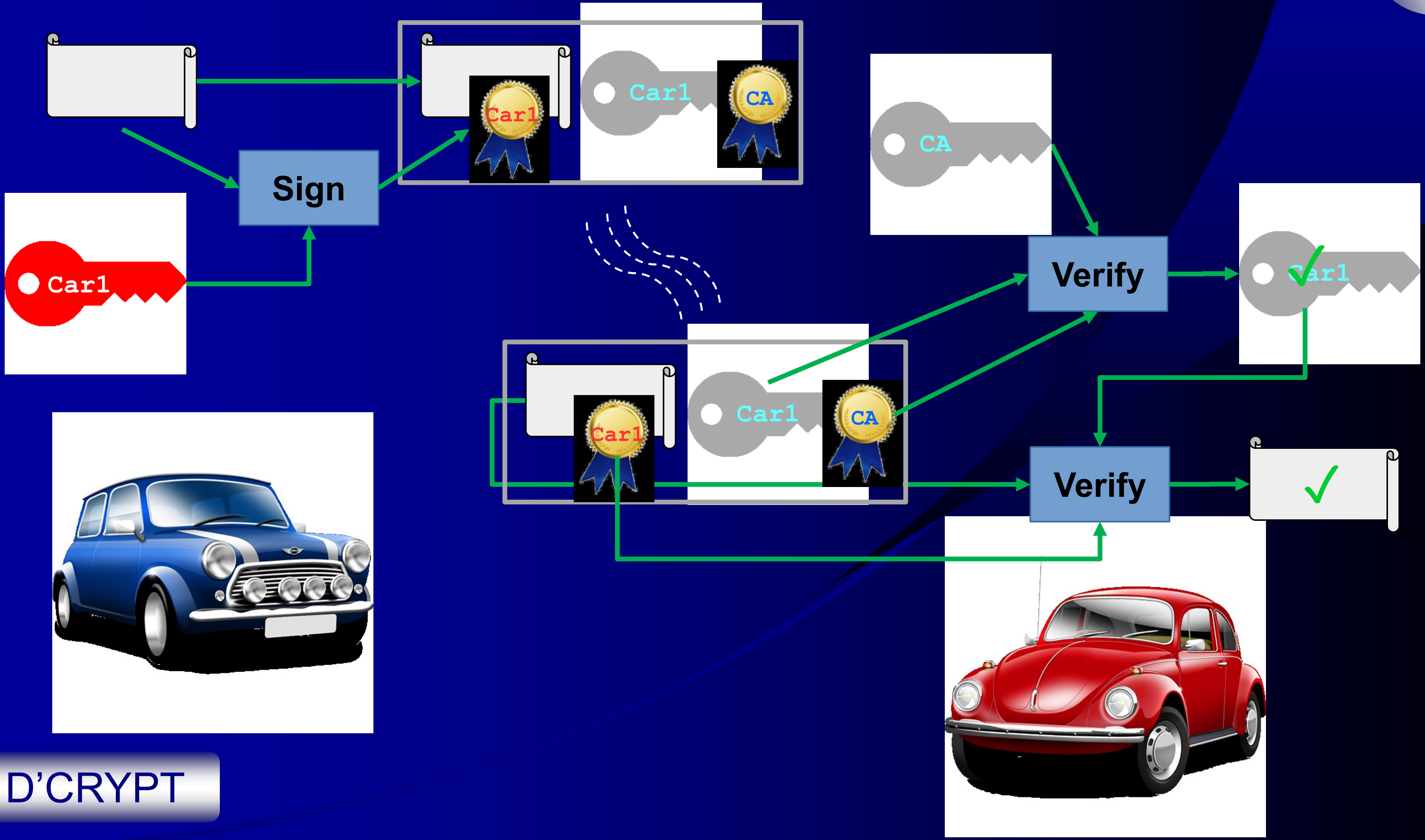
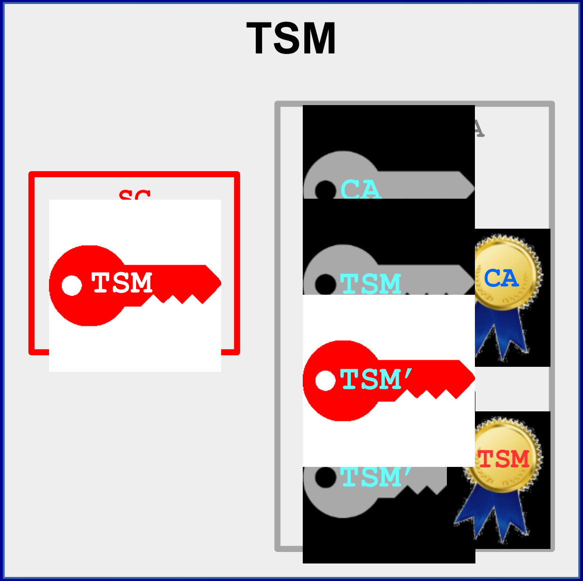
V2V Message Authentication

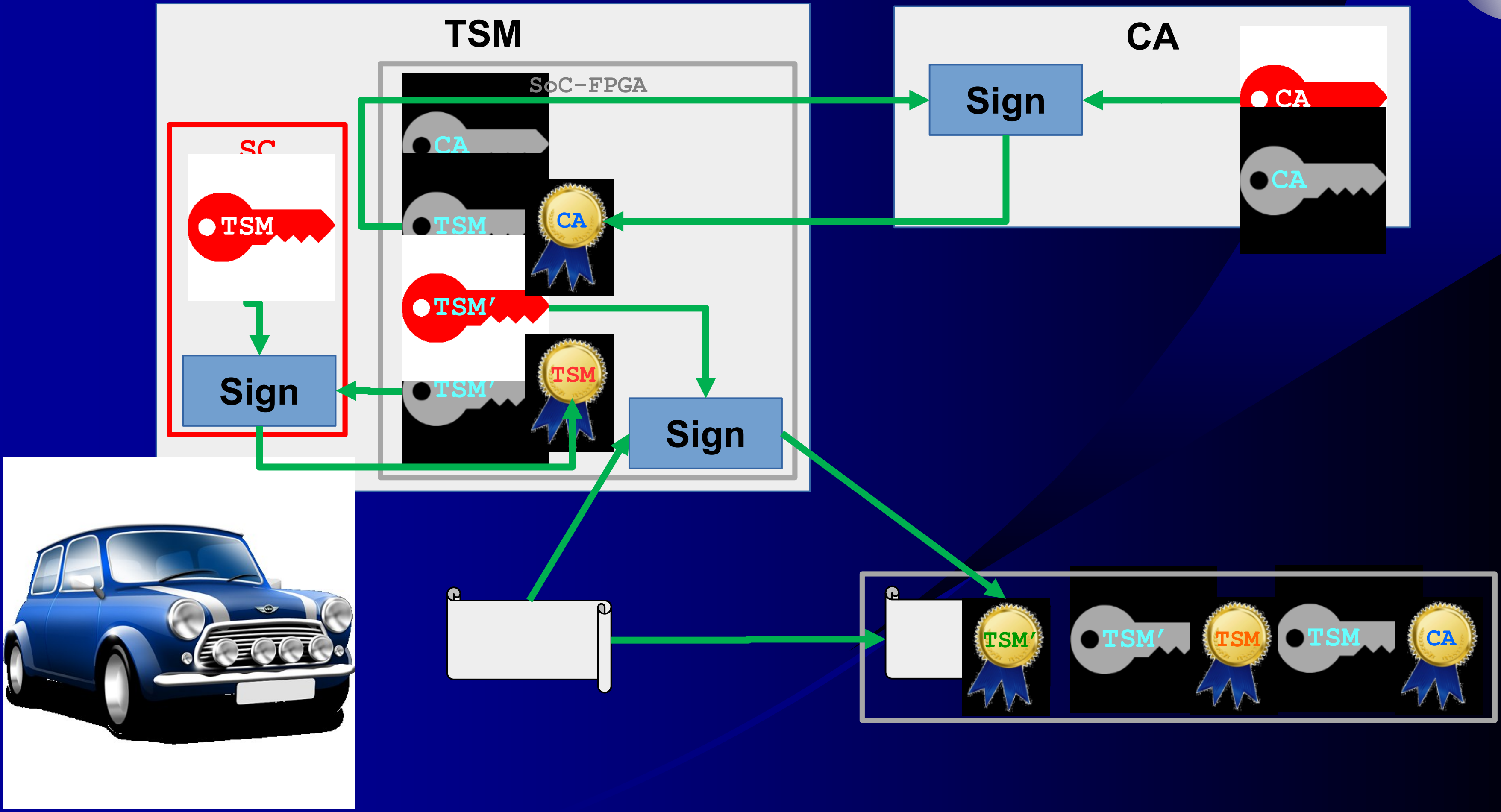


V2X ECDSA Requirement

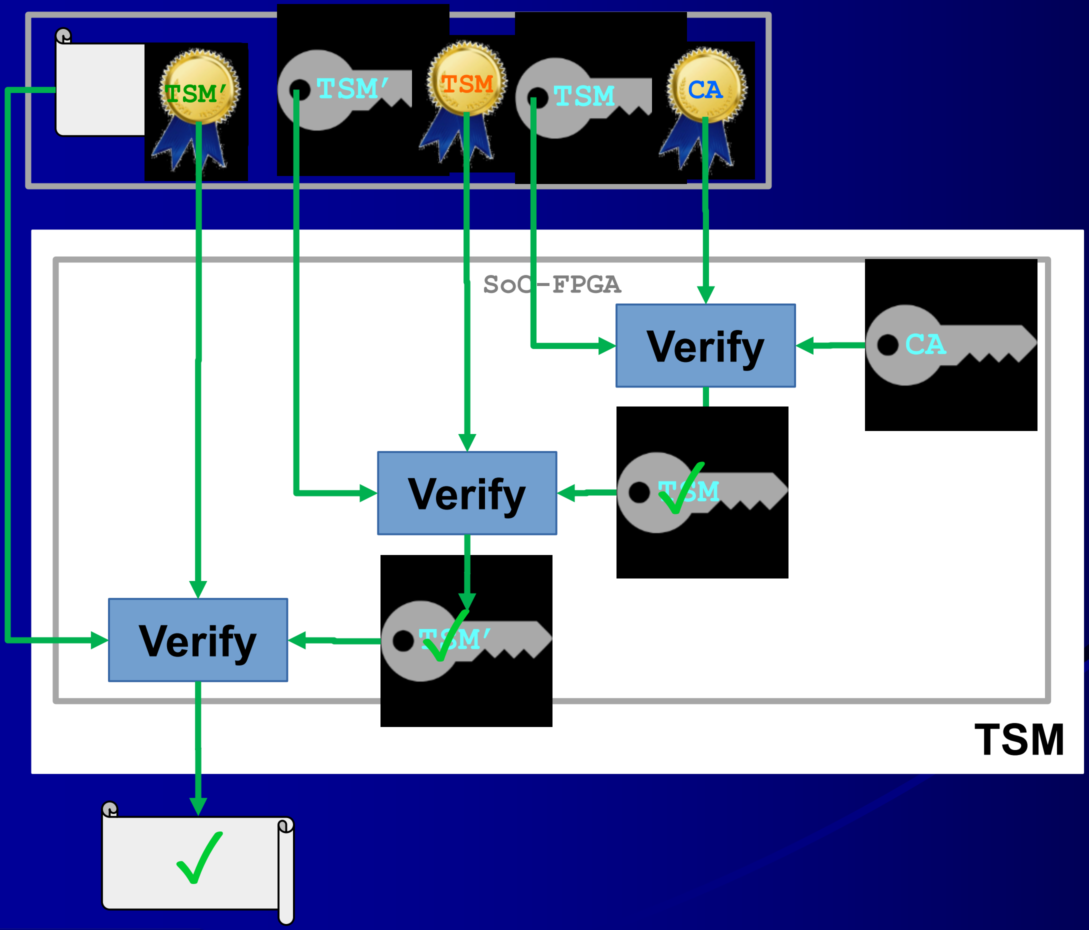


- 20 TX/sec → 20 signs/sec
- 200 RX/sec → 400 verifies/sec
- SC is not able to process at such high rate.
- ECDSA signing and verification move into FPGA fabric using ephemeral key-pair.
  - Additional key-pair brings verification to 600 verifies/sec

Signing with Ephemeral Key



Verifying with Ephemeral Key



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