



ST54

NFC and eSE/eSIM combo solutions



A trusted reference solution for connectivity and advanced security in the Android ecosystem

Referenced by all platform providers, the ST54 is a single-die convergence solution combining an NFC controller, an embedded secure element (eSE) and/or an embedded SIM (eSIM).

The ST54 is Android Ready SE compliant and supports MIFARE® and FeliCa® technologies, making it ideal for various contactless applications.

The new generation of ST54 is now quantum-resistant, thanks to its PQC hardware accelerator supporting the ML-KEM (FIPS-203) and ML-DSA (FIPS-204) algorithms.

KEY FEATURES

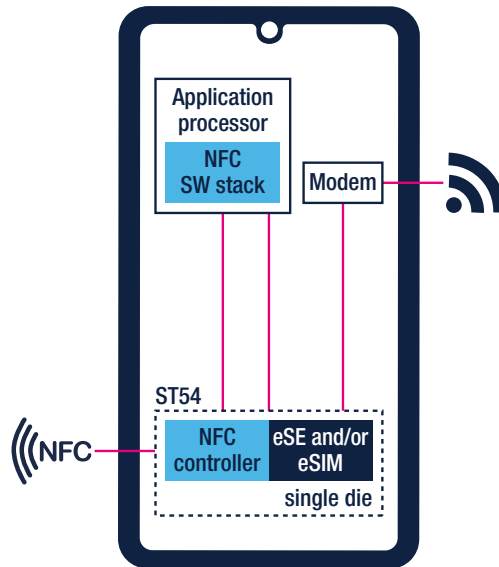
- 32-bit Arm® Cortex® M35P CPU
- EMVCo and Common Criteria EAL6+ certified
- Interoperability: MIFARE®, FeliCa®, China Transit
- High output power and active load modulation to maximize performance in NFC reader and card emulation modes
- Stable card emulation performance regardless of the phone's state, thanks to in-frame synchronization
- PQC-ready solution integrating hardware accelerator supporting ML-KEM & ML-DSA algorithms
- Optimized low-power modes for

battery saving

- eSIM supporting Multiple Enabled Profiles
- Secure ranging support in connection with an external UWB sub-system

KEY APPLICATIONS

- Secure connectivity (eSIM)
- Mobile payment
- Transit ticketing
- Access control
- Mobile ID
- NFC charging
- Digital car key



Complete development ecosystem for secure solutions

These reference starter kits provide all the necessary software and hardware reference design to help original equipment manufacturers (OEMs) easily integrate secure payment, NFC or multi-application services in their devices as well as evaluate and test the full NFC functionality.

- The hardware reference design for ST54 provides the schematics, layout and reference antenna matching.
- The ST21NFC/ST54 Software package includes:
 - NFC Explorer tool allowing Firmware update, Device configuration and the validation and demonstration of capabilities through the usage of basic scenarios.
 - Software modules to ease the integration on Android, Windows10 and STM32.

For more information, please contact our sales office.



ST54L (ST54LL900D15DEMO)

Product portfolio

Part number	Type	Interfaces	eSE memory	NFC modes	RF protocol	Key features	Package
ST54J/K	NFC controller + eSE/eSIM	I2C, ISO7816, SWP, SPI	2 Mbytes Flash memory	Card emulation, reader, P2P	ISO/IEC 14443A/B ISO/IEC 18092 ISO/IEC 15693	Arm Cortex® M35P CC EAL6+, EMVCo, MIFARE®, FeliCa® eSIM with MEP support UWB chip interface	81-pin WLCSP
ST54L	NFC controller + eSE/eSIM	I2C, ISO7816, SWP, SPI	3.3 Mbytes Flash memory	Card emulation, reader, P2P	ISO/IEC 14443A/B ISO/IEC 18092 ISO/IEC 15693	Arm Cortex® M35P CC EAL6+, EMVCo, MIFARE®, FeliCa® eSIM with MEP support UWB chip interface	90-pin WLCSP
ST54M	NFC controller + eSE/eSIM	I3C/I2C, ISO7816, SWP, SPI, GPIO	up to 4.5 Mbytes Flash memory	Card emulation, reader, P2P	ISO/IEC 14443A/B, ISO/IEC 18092, ISO 15693, NFC Forum Type 1 to 5 tags	Arm Cortex® M35P 200MHz, CC EAL5+/EAL6+, EMVCo, MIFARE®, FeliCa® PQC HW accelerator for ML-KEM/ML-DSA, eSIM with MEP support, UWB chip interface, Integrated DC/DC with 3W output power	90-pin WLCSP



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