Flash-memory-based secure microcontroller compliant with the Calypso® Light Application (CLAP) specifications

Features

- 80 nm Flash memory technology
- Transport application certifications:
  - Calypso Light Application (CLAP)
  - Smart Ticketing Alliance in accordance with the CEN/TS 16794 standard

Platform

- Native operating system
- Single CLAP ticketing application

Hardware

- ST31 product based on a 32-bit Arm® SecurCore® SC000™ RISC core
- Advanced 80 nm Flash technology
- Best-in-class RF performance
- Common Criteria evaluation assurance level EAL5+

Standard

- Calypso® standard compliant with the Calypso Light Application (CLAP) specifications

Applications

- Automatic fare collection
- Public transportation
- Access control
- Ticketing payment
- City services and events
- Leisure parks and stadiums
- Corporate cards and student cards

Product status link
CD21-Flash-CLAP

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For further information contact your local STMicroelectronics sales office.

www.st.com

1   Description

The CD21-Flash-CLAP device is a cost-effective, contactless secure microcontroller based on a 32-bit Arm®
SecurCore® SC000™ RISC core. It is specifically designed for public transport applications, in that it provides
a high level of security, high speed transactions and easy evolution capability for transport and multi-service
applications.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

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1.1   High security features

The security of the CD21-Flash-CLAP device is managed with various access modes: Pin, Session, Always, and
Never.

The cryptographic certificate of the device controls the access to file modifications. The reader (using its built-in
SAM) and the card compute this certificate during the transaction, using triple data encryption standard (TDES)
encryption.

The CD21-Flash-CLAP device implements the Calypso automatic recovery mechanism, which ensures that when
data are modified in the card during a secure session, either all the modifications are completed successfully or
the data are not modified at all.

1.2   Memory organization

The user memory of the CD21-Flash-CLAP has the following functionality:

*   Classic file structure or reference file structure
*   Data organized in files in accordance with ISO/IEC 7816-4
*   E-ticketing compliant with the EN 1545 standard data model

1.3   Certifications

The CD21-Flash-CLAP device is based on a hardware chip that has the Common Criteria EAL5+ certification.
The device itself is certified as a Calypso Portable Object (PO) compliant with the Calypso Light Application
specifications.

The CD21-Flash-CLAP device has also obtained the Smart Ticketing Alliance (STA) CEN/TS 16794 certification.

1.4   Delivery forms

The CD21-Flash-CLAP device is delivered as sawn wafers.
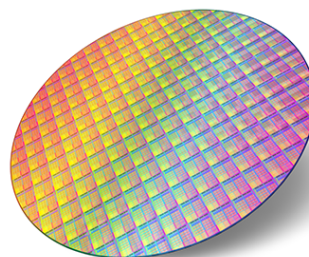
Sawn wafer

Revision history

Table 1. Document revision history

Date	Version	Changes
16-Feb-2021	1	Initial release.

IMPORTANT NOTICE – PLEASE READ CAREFULLY