

# Ruggedized (2FF) Verizon IoT SIM



## Hardware Features

### Operating Characteristics

- Voltage:  
Class A, B, C (1.8 V – 5.0 V ±10%)
- Temperature Range:  
-40 to +85 °C (Voltage Class: A, B, C)  
-40 to +105 °C (Voltage Class: B, C)

### CPU

- 16-bit CPU core

### Memory

- 320 or 504 kB Flash
- 8 or 12 kB RAM
- Min. 500,000 erase/write cycles per page
- Up to 16.5 M erase/write cycles for one hot spot per sector (at 85 °C)
- 10 years data retention

### Serial I/O

- Hardware UART (conforms to ISO7816)

### Cryptography

- Symmetrical Cryptography DES/TDES, AES

### M2M

- Form factors: ID-1, 2FF (Standard SIM), 3FF (Micro SIM)
- Industrial qualification plan

## Software Features

### Key Features

- Release 8 LTE
- 2G / 3G / LTE / CDMA
- Milenage, CAVE, COMP128-1/2/3/4
- DPA-/SPA-resistant
- DES, AES, MD5, SHA 1/256-Hashing
- Java Card™: 2.2.2
- Java™ API:
  - UICC and USAT API (Rel6)
  - Smart de-fragmentation
  - Support of Integer
- GP / OTA: 2.2
- OTA Support:
  - OTA via SMS / HTTPs / BIP CAT-TP
  - Remote File Management
  - Remote Applet Management
- R-UIM / CSIM
- ISIM Rel8 / GBA
- EAP AKA / EAP SIM
- Enhanced Administrative Commands
- Enhanced Memory Management for 3rd party applications
- Intelligent Memory Management system to enhance erase/write cycles

### M2M enhancement

- GSMA eSIM Management
- QoS SIM Application
- M2M device detection & lock
- M2M SIM life time extension and monitoring



## Key Standard Compliance

### ETSI

- 101 220 ETSI numbering system for telecommunication application providers
- 102 127 Transport protocol for CAT applications Stage 2
- 102 221 UICC-Terminal interface; Physical and logical characteristics
- 102 222 Administrative commands for telecommunications applications
- 102 223 Card Application Toolkit (CAT)
- 102 225 Secured packet structure for UICC based applications
- 102 226 Remote APDU structure for UICC based applications
- 102 241 UICC Application Programming Interface (API) for Java Card
- 102 268 Test specification for UICC Application Programming Interface (API) for Java Card

### 3GPP

- 43.019 Subscriber Identity Module Application Programming Interface (SIM API) for Java Card Stage 2
- 51.011 Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface
- 51.013 Test specification for Subscriber Identity Module (SIM) Application Programming Interface (API) for Java Card
- 51.014 Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface
- 51.017 Subscriber Identity Module (SIM) conformance test specification
- 31.048 Security mechanisms for the (U)SIM application toolkit; Test specification
- 31.101 UICC-Terminal Interface; Physical and Logical Characteristics
- 31.102 Characteristics of the USIM Application
- 31.103 Characteristics of the IP Multimedia Services Identity Module (ISIM) application
- 31.111 USIM Application Toolkit (USAT)
- 31.115 Secured packet structure for (U)SIM Toolkit applications
- 31.116 Remote APDU Structure for (U)SIM Toolkit applications
- 31.122 USIM conformance test specification
- 31.130 (U)SIM API for Java Card
- 31.213 Test Specification: Application Programming Interface (API) for Java Card
- 31.900 SIM/USIM Internal and External Interworking Aspects
- 31.919 2G/3G Java Card
- API based applet interworking

### 3GPP2

- C.S0016-C Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards, Rev.C V2.0
- C.S0023-C Removable User Identity Module for Spread Spectrum Systems, Rev.C V2.0
- C.S0035 CDMA Card Application Toolkit (CCAT), Rev.A V1.0
- C.S0065-A CDMA2000 Application on UICC for Spread Spectrum Systems, Rev.A V1.0

### Sun/Oracle Specifications

- JCRE 2.1.1 Java Card 2.1.1 Runtime Environment (JCRE) Specification, Rev. 1.0
- JCRE 2.2.2 Runtime Environment Specification, Java Card Platform, V2.2.2
- JCVM 2.2.2 Virtual Machine Specification, Java Card Platform, V2.2.2
- JCAPI 2.2.2 Application Programming Interface, Java Card Platform, V2.2.2

### Global Platform Specifications

- GlobalPlatform Card Specification, V2.1.1
- GP 2.2 AmdB Remote Application Management over HTTP, Card Specification V2.2
- Amendment B, V1.1

All SIM specifications provided Glesecke+Devrient