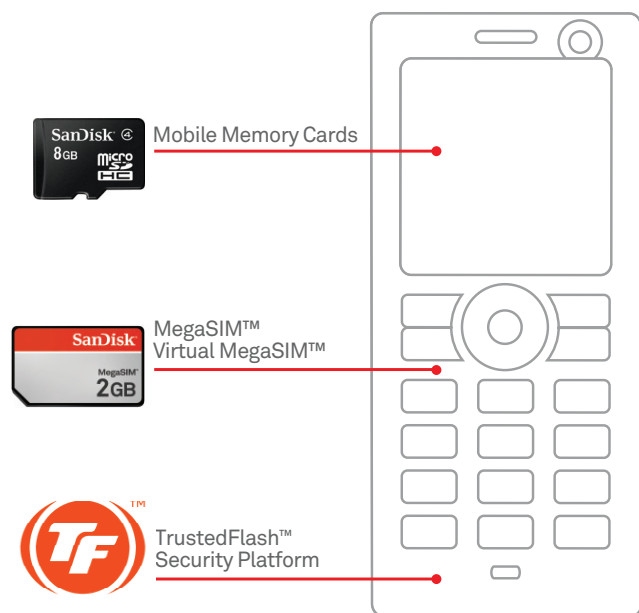


# SanDisk® Family of SIM Solutions



## Smart, Secure Storage Solutions for Mobile Network Operators

Services provided over mobile networks are proliferating to encompass an ever-widening sphere of activities. Whether critical applications, popular entertainment services, confidential transactions or online purchases, mobile services have become a way of life.

SanDisk offers a world of SIM solutions for growing mobile industries. In addition to providing reliable and secure storage for mobile handsets, our high-capacity MegaSIM™, SanDisk Virtual MegaSIM™ solution and standard SIM/USIM cards enable mobile network operators (MNOs) to deliver compelling, revenue-generating applications and services to delight existing customers and extend their subscriber base.

## SanDisk High-Capacity MegaSIM™ Card



### Empowering MNOs to Generate New Revenues

SanDisk high-capacity, high-performance MegaSIM leverages our flash IP

and expertise with our field-proven smart card technology. As a vertically integrated supplier with our own FAB and our own secure, SIM manufacturing facility, our expertise benefits all stages of MegaSIM manufacturing to ensure product excellence.

MegaSIM implements independent processing power, supports high-speed interfaces and provides high-capacity flash storage. It is the ideal operator-provisioned, controlled and managed storage solution, while also providing ample storage capacity for subscriber-generated content. In addition to these major advantages, it offers:

- Flexible support for security-enabled applications
- Backward-compatibility with existing platforms
- Scalability to satisfy subscribers' current and future storage needs
- Portability, enabling subscribers to transfer content and service agreements from their old handsets to their new ones, from work to their personal handsets

These capabilities empower MNOs to deliver compelling new applications and services to their subscribers to differentiate their network-based offerings, helping them to increase their average revenue per user (ARPU). Whether through pre-loaded content and applications activated by the operator, full PIM functionality, personal storage of user-generated content or the ability to customize services based on subscriber tastes and habits, MegaSIM enables a wide range of business opportunities.

## SanDisk Virtual MegaSIM™ Technology



### Extending the Functionality of the Standard SIM Card

The TrustedFlash™ security platform, created by SanDisk and with the backing of mobile industry leaders, provides protection and portability for data, content and applications using flash memory. SanDisk Virtual MegaSIM achieves MegaSIM functionality by combining a TrustedFlash-enabled removable memory card with a standard, release 6 SIM card. It supports a range of business models that enable MNOs to generate new revenues by binding the content and applications on the memory card to the SIM card, which is under MNO management and control.

This unique platform offers other major advantages to MNOs who are interested in implementing advanced business models based on high-capacity memory:

- Compatible with most existing handset hardware, ideal for any handset equipped with an SD compatible card slot and TrustedFlash™ security platform support
- Ability to get to market sooner with profitable, MegaSIM-like use cases, with a migration path to full MegaSIM support
- Offer subscribers a flexible solution, with easy upgrade to higher capacity memory

## SanDisk SIM/USIM Card

### Meeting a Broad Range of SIM Needs

SanDisk has the market covered with a complete SIM card product portfolio. Our SIM/USIM card, based on our field-proven operating system, gives subscribers quick and easy access to many applications and value-added services. Using our advanced flash technology, the SanDisk SIM family is continuously evolving to support the latest mobile telephony standards and 3GPP/ETSI specifications.

### Enabling a World of Advanced Services, Content and Applications

Our range of SIM offerings opens up a world of possibilities for MNOs, enabling them to delight their current subscriber base and captivate new subscribers with premium services, applications and content. Now MNOs have the high-capacity flash memory, high performance and security to:

- Control and deliver applications and services to their users.
- Support over-the-air (OTA) end-to-end content distribution.
- Manage critical network resources securely and efficiently through advanced applications.
- Support handset personalization and customization with personalized user interfaces and operator-provisioned services such as the IP address, ring tones, wallpaper.
- Provide location-based applications, such as a map data base.
- Make the home/office PC environment portable.
- Provide customer care, such as voice or text off-line help, that can be either proactive or reactive.
- Provide the infrastructure for a range of smartcard web server-based applications, such as large phone books, handset personalization and branding campaigns.
- Support advanced mobile TV use cases, such as PVR and time-shifting.

## SanDisk SIM Family

### Family Features

- Support for STK/USAT /43.019
- OTA/23.048, WIM, ISM, WIB micro browser
- Compliant with the last versions of corresponding specifications from ETSI and 3GPP

### SIM and USIM Cards

- Capacities (KB)<sup>1</sup>
  - SIM only: 8, 16, 32
  - SIM and USIM: 64, 128, 256
- Fulfills GSM operator basic needs

### SIM/USIM Functionality

- Supports STK/USAT J+™/43.019
- OTA/23.048
- USAT interpreter micro browser
- Cryptography, compliant with the latest versions of corresponding specifications from ETSI and 3GPP
- Smartcard web server

### MegaSIM Cards

#### Highlights

- Available as a SIM card, a USIM card or a combined SIM+USIM card
- Capacity: up to 2GB NAND flash<sup>1</sup>
- CPU: high performance, 32-bit ARM SC100 with advanced Memory Protection Unit
- Dual interfaces: ISO and MMC or USB

### Power

- Input voltage
  - Class B: 2.7V to 3.3V
  - Class C: 1.8V
- Maximum power consumption
  - Operation: 11 ma
  - Standby: 450µA
  - Enters standby when inactivity detected on the MMC and ISO lines

### Memory

- EEPROM: 1MB<sup>1</sup> of storage for legacy SIM services. Future version to support configurable size, according to MNO needs
- Flash storage: from 128MB up to 2GB

### Interfaces

- ISO interface: fully compatible with ISO 7816 and 3GPP standards
- MMC interface:
  - Compliant with MMC 4.1
  - Clock rate: up to 26 MHz
- USB interface
  - Compliant with ETSI TS 102 600
  - Supported classes: Mass Storage, EEM and ICCD<sup>2</sup>

### Security

- Integrated hardware security features protect against penetration and side channel attacks

<sup>1</sup> 1 Kilobyte (KB) = 1000 bytes, 1 megabyte (MB) = 1 million bytes, 1 gigabyte (GB) = 1 billion bytes. Some capacity not available for data storage.

<sup>2</sup> Future feature