

SIM Platforms

For individual solutions and open standards



Giesecke & Devrient
Creating Confidence.



STARSIM[®] Product Line Overview

The successful STARSIM[®] platform opens up a wide range of possibilities for applications.

Regardless of the mobile network (GSM, CDMA, or TDMA), the operating system can be adapted to the individual requirements of network operators. Customers can therefore use the available memory for their specific requirements, making STARSIM[®] a very cost-efficient platform.

The available memory is effectively utilized, thanks to optimized memory management. Over the Air (OTA) capabilities and add-ons further enhance the SIM. STARSIM[®] also boasts all relevant aspects of hardware and software security.

**STARSIM[®]
Atlas 90 nm**

Chip platform

Customer memory	16 to 128 KB
Flash	96 / 130 / 136 / 176 KB
ROM	–
RAM	2 / 3 / 4 / 4 KB
Voltage range	1.8* / 3 / 5 V
3GPP release status	Rel. 5

Mask components

SIM browser	
- WIB	Optional
- S@T	Optional
WIB plug-ins	Optional
OTASS [®]	Optional
OTA v2 / v3	Optional
RFM ¹	●
R-UIM	Optional
Celltick	Optional

● = available – = not available

¹RFM = Remote File Management

* not for Atlas 130 90 nm

SkySIM® Product Line Overview

SkySIM® is G&D's SIM card platform for the Java Card™ market.

Its flexibility allows network operators to adapt it quickly and cheaply to their requirements, regardless of the mobile network (GSM, UMTS, CDMA, TDMA, LTE). The SkySIM® card has a Flash memory and corresponds to the important ETSI / 3GPP standard.

Regardless of the mobile network (GSM, UMTS, CDMA, TDMA or LTE), the operating system can be adapted to the individual requirements of network operators.

	SkySIM® Avior	SkySIM® Argo
Chip platform		
Customer memory	64 / 128 / 256 KB	64 – 128 KB
Flash	256 / 320 / 420 / 560 KB	256 / 296 / 320 / 344 / 360 / 400 KB
ROM	–	–
RAM	9 / 9 / 9 / 12 KB	9 / 9 / 9 / 9 / 9 / 12 KB
Voltage range	1.8 / 3 / 5 V	1.8 / 3 / 5 V
Crypto coprocessor	–	–
3GPP release status	Rel. 6	Rel. 6
GSM / 3G functionality		
(U)SAT commands	●	●
UICC	●	●
USIM	●	●
3G phonebook	●	●
Mask components		
SIM browser		
- WIB	WIB 1.3 / 2.0	WIB 1.3 / 2.0
- S@T	S@T	S@T
WIB plug-ins	●	●
OTASS®	4.5	4.5
RFM ¹	●	●
RAM ²	●	●
WIM	–	–
R-UIM	●	●
CSIM	●	●
ISIM	●	●
Java Card™ functionality		
Java Card™	2.2.1	2.2.1
GlobalPlatform	GP/OTA	GP/OTA

● = available – = not available

¹RFM = Remote File Management

²RAM = Remote Applet Management

ProxSIM® Product Line Overview

ProxSIM® Libra	ProxSIM® Lynx	ProxSIM® Taurus
SIM with standardized NFC interface (SWP/HCI) ¹	SIM with standardized NFC interface (SWP/HCI)	Certified SIM with standardized NFC interface (SWP/HCI)

Chip platform			
Customer memory	128 to 320 KB	128 to 256 KB	128 to 320 KB
Flash	768 KB	660 KB	768 KB
ROM	–	–	–
RAM	50 KB	24 KB	20 KB
Voltage range	1.8 / 3 / 5 V	1.8 / 3 / 5 V	1.8 / 3 / 5 V
Crypto coprocessor	Optional	Optional	Optional
High-speed capabilities	–	–	–
3GPP release status	Rel. 6	Rel. 6	Rel. 6

GSM/3G functionality			
(U)SAT commands	●	●	●
USIM	●	●	●
3G phonebook	●	●	●

Mask components			
SIM browser:			
- WIB	Optional	Optional	Optional
- S@T	Optional	Optional	Optional
WIB plug-ins	Optional	Optional	Optional
OTASS®	5.0	5.0	5.0
RFM ³ / RAM ⁴	● / ●	● / ●	● / ●
ISIM	●	●	●
Smart Card Web Server (SCWS)	Optional	Optional	Optional

Java Card™ functionality			
Java Card™	2.2.2	2.2.2	2.2.2
- Cryptographic API	●	●	●
- Cryptographic functions	●	●	●
- Support of Integer for Java™	●	●	●
Smart defragmentation	●	●	●
GlobalPlatform	GP 2.1.1 / 2.2	GP 2.1.1 / 2.2	GP 2.1.1 / 2.2

Contactless features			
NFC interface	SWP ¹ / HCI ⁵	SWP ¹ / HCI ⁵	SWP ¹ / HCI ⁵
Contactless protocols:			
- ISO 14443 Type A / 14443 Type B	● / ●	● / ●	● / ●
- Automatic detection	●	●	●
- MIFARE™ compatibility	–	Optional	–

● = available – = not available

¹SWP = Single Wire Protocol

²HSP = High Speed Protocol

³RFM = Remote File Management

⁴RAM = Remote Applet Management

⁵HCI = Host Controller Interface

Certificates			
VISA® Type Approval	–	–	●
MasterCard® Type Approval	–	–	●
CC EAL4+ (Common Criteria)	–	–	●

SkySIM® CX Product Line Overview

Markets are converging, resulting in new requirements for SIM card platforms.

To optimize the benefits for our customers, G&D has developed a new operating system, based on Java. Developed from SkySIM®, SkySIM® CX expands the product portfolio with new technologies such as NFC, LTE, and SCWS, and will also allow current and upcoming technologies to be integrated. SkySIM® CX is able to combine Near Field Communication, a contactless data transmission standard, with SWP, SCWS and USB high-speed interfaces.

SkySIM® CX
Scorpius

Type of product

USB	Optional
Voltage range	1.8 / 3 / 5 V
Form factor	SIM plug-in (ISO 7816)
3GPP release status	Rel. 8/LTE

Chip platform

CPU core	ARM SC100
Internal Flash memory (NOR)	320 KB to 768 KB
Static RAM (SRAM)	9 to 20 KB
Crypto coprocessor	Optional

GSM / 3G functionality

(U)SAT commands	●
USIM	●
3G phonebook	●

Mask components

OTASS [®]	5.0
RFM ¹ / RAM ²	●
Smart Card Web Server	●

Java Card™ functionality

Java Card™	3.0.1 classic
- Cryptographic API	●
- Cryptographic functions	●
- Support of Integer for Java™	●
Smart defragmentation	●
GlobalPlatform	GP 2.2

Flash memory

8 / 16 / 128 – 1024 MB	Optional
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Features

- Mass storage device	Optional
- USB common device class (CDC)	CDC Ethernet / EEM ³
- FTP	●
- Security protocol	TLS

Contactless features

NFC interface	SWP ⁴ / HCI ⁵
Contactless protocols:	
- ISO 14443 Type A / 14443 Type B	● / ●
- Automatic detection	●
- MIFARE™ compatibility	-

● = available – = not available

¹RFM = Remote File Management

²RAM = Remote Applet Management

³EEM = Ethernet Emulation Mode

⁴SWP = Single Wire Protocol

⁵HCI = Host Controller Interface

M2M Product Line Overview

The area of mobile communications also includes machines that communicate with each other independently.

For this, flexible and highly robust SIM cards are sought after, particularly for demanding environments such as in vehicles. G&D offers solutions which are heat- and cold-resistant, as well as water- and vibration-resistant. In addition to 3GPP (U)SIM functions, the use of Java-based SkySIM® and SkySIM® CX operating systems means that up-to-date software functions can also be used.

	UniverSIM® M2M Zaniah 64 SMD	SkySIM® M2M Argo SMD	SkySIM® M2M Argo Plug
Type of product			
Form factor	SON-8 (formerly known as VQFN8)	SON-8 (formerly known as VQFN8)	Plug-in
PIN layout	Legacy	Legacy/ETSI MFF2	N/A
Laser marking	ICCID	ICCID	ICCID
Packing solution	Tape and reel	Tape and reel	ID-1 or plug-in only packing solution
Specific moisture handling process	Handling according to JEDEC-STD-033	Handling according to JEDEC-STD-033	–
Chip platform			
Customer memory	64 KB	64 KB	64 KB
ROM	384 KB	–	–
EEPROM	64 KB	320 KB	320 KB
RAM	8 KB	8 KB	8 KB
Crypto coprocessor	1024 bit	–	–
Temperature range	-25°C to 85°C	-40°C to 105°C	-40°C to 105°C
Voltage range	1.8 / 3 / 5 V	1.8 / 3 / 5 V	1.8 / 3 V
GSM/3G, mask functionality			
3GPP release status	Rel. 5	Rel. 6	Rel. 6
UICC	●	●	●
USIM/ISIM	● / ●	● / ●	● / ●
3G phonebook	●	●	●
WIB/WIB plug-ins	WIB 1.3 / ●	Optional	Optional
S@T	–	Optional	Optional
OTASS®	4.1	4.5	4.5
RFM/RAM	● / ●	● / ●	● / ●
Java Card™ functionality			
Java Card™	2.2	2.2.1	2.2.1
- Cryptographic API	●	●	●
- Cryptographic functions	●	●	●
- Support of Integer for Java™	●	●	●
Smart defragmentation	●	●	●
GlobalPlatform	OP 2.0.1' / 2.1	GP/OTA	GP/OTA
M2M features			
HW EEPROM e/w cycles	Min. 500,000 @25°C	Min. 500,000 @25°C	Min. 500,000 @25°C
EEPROM wear leveling mechanism	–	Max. 16.5 million cycles per 1 hot spot/sector	Max. 16.5 million cycles per 1 hot spot/sector
HW EEPROM data retention	Min. 13 years @25°C	Min. 10 years @25°C	Min. 10 years @25°C
Applications, e.g., IMEI block, dual IMSI, Auto roaming, Network monitoring, etc.	Java applets	Java applets	Java applets

● = available

– = not available

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