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About StarChip®

StarChip® is a dynamic semiconductor company that enables customers to directly benefit from its unique, optimized value chain system. We design and qualify products for mass production, then license our solutions for purchase directly by our customers through qualified foundries and test houses.

StarChip® products are based on state-of-the art, flash-based 32-bit architectures. They are designed to offer maximum integration, providing support for embedded, innovative security technologies, analog functionality, and connectivity and control interfaces. The result is a flexible set of solutions that can easily meet the requirements of a wide variety of markets, including smart card and security, consumer, automotive, and industrial applications.

STARCHIP
PRODUCT PROVIDER FOR SEMICONDUCTOR MARKET

SIM Controllers For Mobile Communication and M2M



With over 15 years' experience in the Smart Card ICs, StarChip® Management made sure to select the best technologies and IPs to design the most cost effective ICs without compromising on performance and quality.

www.starchip-ic.com

TODAY'S CHALLENGE

VERY COST EFFECTIVE SIM CONTROLLERS

The SIM market is one of the world's largest in terms of volume. Customers in this competitive marketplace demand highly effective SIM controllers, as well as short lead times and maximum reliability. Meeting this challenging combination of demands requires innovative business and technical approaches that can control costs, without compromising performance.

StarChip® carefully selects the most advanced technologies and IPs available to optimize the design of its SCF SIM Controller Family. At the same time, we enable customers to benefit from a more cost-effective value chain by purchasing finished products directly from the most competitive foundries.

Customers can [license](#) all products from StarChip®, then purchase silicon and backend manufacturing directly from our foundry partners.

SCF SIM CONTROLLERS FAMILY FEATURES

- High-performance 32-bit core Cortus APS3s
- Advance RISC architecture
- 25Mips @ 25MHz across a broad spectrum of temperatures
- Advance Low power modes
- Fully Flash-based ICs, code and data with SST SuperFlash
- E³ (ECUBE) -Endurance Enhancement Engine: up 400M cycles
- Robust Data retention (>25years)
- TurboSecure Uploading: 0.5Mbits/Sec including transmission and decryption
- SecureLifecycle management: High resistance to cloning with locked functionality and exhaustive traceability



SCM M2M CONTROLLERS

The StarChip® SCM Controller Family is based on SST Super-Flash technology, enhanced by E³ (ECUBE) proprietary mechanisms to deliver a powerful combination of flexibility and best-in-class endurance. SCM controllers feature a robust design suitable for harsh environments from -40°C to +105°C. They provide extended performance up to 2 billion cycles, and can be delivered in wafer form, sawed dice on frame, or DFN8 packages.

SIM & M2M CONTROLLERS OFFER

Target	SIM						M2M	
Product Name	SCF320G	SCF328G	SCF335G	SCF384G	SCF392G	SCF399G	SCM288G	SCM320G
Flash	320 Kbyte	328 Kbyte	335 Kbyte	384 Kbyte	392 Kbyte	399 Kbyte	288Kbyte	320 Kbyte
RAM	10 Kbyte	10 Kbyte	10 Kbyte	14 Kbyte	14 Kbyte	14 Kbyte	9.5Kbyte	13 Kbyte
Frequency	25 MHz	25 MHz	25 MHz	25 MHz	25 MHz	25 MHz	20 MHz	20 MHz
CPU	32-bit	32-bit	32-bit	32-bit	32-bit	32-bit	32-bit	32-bit
Mips	25 Mips	25 Mips	25 Mips	25 Mips	25 Mips	25 Mips	20 Mips	20 Mips
UICC Class	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C	A/B/C
ESD	> 4kV	> 4kV	> 4kV	> 4kV	> 4kV	> 4kV	> 4kV	> 4kV
ISO7816	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz	8 cycle / ETU @ 5Mhz
Code Flash	256 Kbyte	256 Kbyte	256 Kbyte	256 Kbyte	256 Kbyte	256 Kbyte	256 Kbyte	256 Kbyte
Data Flash	64 Kbyte	72 Kbyte	79 Kbyte	128 Kbyte	136 Kbyte	143 Kbyte	32 Kbyte	64 Kbyte
Data Page	128 Byte	128 Byte	128 Byte	128 Byte	128 Byte	128 Byte	128 Byte	128 Byte
Code Page	2048 Byte	2048 Byte	2048 Byte	2048 Byte	2048 Byte	2048 Byte	2048 Byte	2048 Byte
Prog Time	4 <-> 16µs / Byte	4 <-> 16µs / Byte	4 <-> 16µs / Byte	4 <-> 16µs / Byte	4 <-> 16µs / Byte	4 <-> 16µs / Byte	4 <-> 16µs / Byte	4 <-> 16µs / Byte
Erase Time / Page	0.5 <-> 2ms	0.5 <-> 2ms	0.5 <-> 2ms	0.5 <-> 2ms	0.5 <-> 2ms	0.5 <-> 2ms	0.5 <-> 2ms	0.5 <-> 2ms
NOP	128	128	128	128	128	128	128	128
Endurance (Preliminary)	400 Mcycle	200 Mcycle	500 Kcycle / page (Min)	400 Mcycle	200 Mcycle	500 Kcycle / page (Min)	1000 Mcycle	2000 Mcycle
Data Retention	> 25 years	> 25 years	> 25 years	> 25 years	> 25 years	> 25 years	> 25 years	> 25 years
RNG	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DES / AES	SW	SW	SW	SW	SW	SW	SW	SW
Power Mgmt	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OTP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operating Temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-40°C to +105°C	-40°C to +105°C

Kcycle = KiloCycle = 1000 cycles, Mcycle = MegaCycle = 1 000 000 cycles

QUALITY

We build quality into every aspect of our business, and extend our commitment to long-term customer satisfaction through a broad array of support services. StarChip® is proud to offer an IC expert team that is fully dedicated to supporting our customers throughout the entire product lifecycle.

SCF FAMILY COST ADVANTAGES

- Smallest 32bit Core: CORTUS APS3s
 - ➔ Native 32bit capability at 8-bit cost
- SST Embedded NOR Flash
 - ➔ High Density Memory
- Rapid software uploading in manufacturing
 - ➔ Cost savings
- Direct purchase from foundries
 - ➔ Savings through reduced-cost value chain