

STARCHIP



Product Provider for Semiconductor Market

COMPANY

Company Values

A Foundation Based on Integrity

Our employees are guided by honesty, trust, and sincerity in all our actions.

A Commitment to Excellence

We continuously seek new approaches to innovate and create outstanding value, and instill excellence.

Partnership with Our Customers

We treat our customers as partners, because their success is critical to our success.

A Balanced, Motivated Workforce

StarChip® is committed to building a team-driven, passionate, challenging employee culture.

Building on Profitability

Our employees are actively engaged in building an industry leader that is financially healthy, as well as independent in its decisions.

Quality for the Life of Your Product

We build quality into every aspect of our business, and extend our commitment to long-term customer satisfaction.



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.

A Vision of Global Leadership

StarChip® is committed to becoming a powerful competitive force in the semiconductor industry, utilizing the most cost-effective business model—without compromising on performance and quality. We are focused on serving a global marketplace of customers who are developing applications that require advanced microcontroller or security technology. To achieve this vision, StarChip® is employing a “win-win” strategy that is designed to unlock benefits not only for our organization, but for our customers. StarChip® is making its vision a reality by:

- Creating outstanding value through partnerships with our customers
- Migrating to a highly agile, cost-effective “Product Provider” business model





How can we cooperate?

One of our products fits your requirements?



License Product and buy from Foundry



Your Product is not available for license?



Hand-in-hand Cost Analysis to determine best solution



StarChip® can provide better solution?



Product Development Partnership Agreement

Key Benefits

Customers can achieve better visibility and control over:

- Cost drivers and margin
- Logistics chain
- Product lifecycle (EOL, shrink)

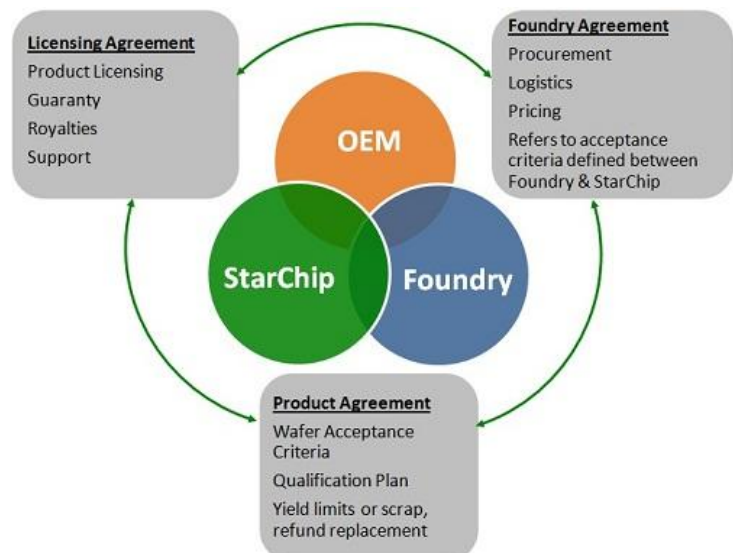
BUSINESS MODEL

Product Provider

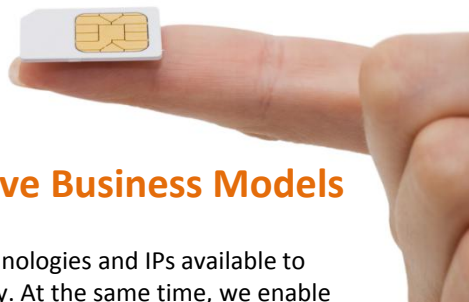
StarChip® has worked closely with customers, foundries, and backend subcontractors to reconfigure and improve the efficiency of the value chain. The result is reduced costs, greater business agility, and a higher profit margin for all participants. By redistributing tasks to align more closely with the current semiconductor market, we can better control cost drivers and achieve a competitive advantage—for ourselves and our customers.

This new “Product Provider” business model enables our customers to dramatically reduce costs by licensing products qualified for mass production from StarChip® and placing orders directly to the foundry.

Three-party Agreement



PRODUCTS



Advanced Technology, Innovative Business Models

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.

| 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 |

SCF Controllers Features:

- High-performance 32-bit core
- 25Mips @ 25MHz
- Advanced low power modes
- Fully flash-based ICs
- **Endurance** up to 400M cycles
- >25years data retention
- **TurboSecure** Uploading
- Secure lifecycle management

SCM Controllers Features:

- High-performance 32-bit core
- 20Mips @ 20MHz
- Advanced low power modes
- Fully flash-based ICs
- **Endurance** up to 2000M cycles
- >25years data retention
- From **-40°C and +105°C**
- **TurboSecure** Uploading
- Secure lifecycle management

Advanced, Rugged Designs for Robust Applications

The StarChip® SCM Controller Family is enhanced by E³ (ECUBE) proprietary mechanism 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.

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

SCF & SCM Cost Advantages

- 32-bit capability at 8-bit cost
- High-density flash memory
- Manufacturing Cost savings
- Direct purchase from foundries

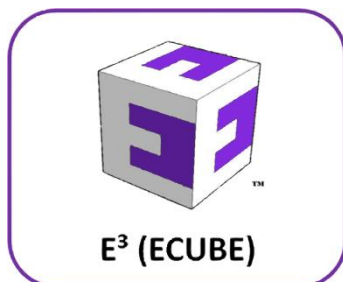


TECHNOLOGY

StarChip®'s proprietary E³ (ECUBE) -Endurance Enhancement Engine algorithm provides ultra-high endurance at low cost. E³ (ECUBE) provides global endurance management to overcome traditional flash endurance limitations:

- Support for up to 2 billion cycles
- Scalable and flexible
- Fully transparent to software
- Robust endurance for SIM and M2M applications

Ultra-High endurance at low cost



Unleashing the Benefits of Offshore Manufacturing

Manufacturing costs represent the largest share of chip production expenses. Low cost foundries, potentially saving millions of dollars. However, to fully realize the benefits of this strategy, offshore foundries must be supported by robust, secure lifecycle management technology that can protect products against IP hacking, counterfeit attempts, and gray market threats. StarChip®'s secure, advanced lifecycle management technology enables our customers to unlock the benefits of low cost, offshore manufacturing, without compromising on IP security.

The StarChip® TurboSecure Uploading System lets manufacturers enjoy significant cost savings in production time and costs for a variety of applications. This streamlined communications system has been designed to accelerate and secure software uploading in mass production environments. Enhancing ISO communication mechanisms enables us to perform 0.5Mbps programming for our products, including transmission and decryption..

Robust Security and Cost Savings



A New Vision of Security on Silicon

GAIA is a philosophy of treating the Earth as a living, self-healing organism. At StarChip®, we apply this self-regulating view to our security architecture, integrating robust security mechanisms directly into the chip. The result is comprehensive, in-depth protection against a broad range of security risks, to help safeguard critical data and minimize recovery time. GAIA is based 3pillars:

- Eliminating complex, hazardous analog protection
- Protecting against current and future threats
- Controlling costs

True Passion for Technology and Innovation

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