WE WILL START AT 10:00 AM (CET)

SESEC VI Webinar 03:
China Semi-conductor Standardization

You are ***muted***

Use the ***Q&A or Chat Panel*** to submit your questions

Keep your questions ***short and concise***

Contact us: assistant@sesec.eu

Welcome to our website: https://sesec.eu/

Seconded European Standardization Expert in China (SESEC) Project

SESEC INTRODUCTION

Partners and Role

SESEC Partners

SESEC is a visibility project co-financed by five European partners

- **European Commission (EC)**-The executive body of the European Union; Responsible for proposing legislation, implementing decisions, upholding the treaties and day-to-day management of the EU; DG Grow is the main partner (80%)
- **European Free Trade Association (EFTA)-**Iceland, Liechtenstein, Norway and Switzerland; Intergovernmental organization set up for the promotion of free trade and economic integration to the benefit of its four Member States; None EU members;
- **CEN**-European Committee for Standardization
- **CENELEC**-European Committee for Electrotechnical Standardization
- **ETSI**-European Telecommunications Standards Institute

SESEC INTRODUCTION

A Project co-funded by EC, EFTA, CEN CENELEC & ETSI

- **Promote** European and International standards in China
- **Improve** contacts between Project Partners and different levels of the Chinese administration, industry and standardization bodies
- **Enhance** visibility and understanding of the European Standardization System (ESS) in China.
- **Gather** regulatory and standardization intelligence
- **Undertake** technical lobbying

Goals

- The SESEC initiative supports **EC policy** and **ESOs strategic objectives** in China.
- Our ultimate goal is the enhancement of **EU-China dialogue and cooperation** in the field of standardization.
- It is notably expected to support the Framework Cooperation Agreement in place **between the ESOs and SAC.**

Project’s Priorities

Priorities of SESEC

Horizontal：

- China Standards 2035
- Belt and Road Initiative
- Standardization Reform
- Institutional Changes in Chinese Government
- **Market Access (e.g CCC)**

Digital Transition

- IT in General
- Data
- Artificial Intelligence
- Quantum
- Industrial IoT
- 5G/6G

Green Transition:

- Energy Efficiency
- China RoHS
- Green Product Assessment
- Decarbonization
- New Energy （e.g. Hydrogen）
- Recycling

SESEC’ s English Website For European stakeholders

www.sesec.eu

Welcome to SESEC

The general objective has been to raise awareness on the European Standardization System, values and assets in China.

www.sesec.eu

SESEC V

China Standardisation Newsletter

July – August 2025

Seconded European Standardisation Expert in China

(SESEC)

China Semi-conductor Standardization

SESEC

May 2026

CONTENTS

01

Background

The Geopolitical Landscape From 2020: U.S.-China Tech Rivalry

- The global semiconductor industry lies at the heart of modern technologies
- U.S.-China tensions have disrupted the global semiconductor supply chain.
- The U.S. sees semiconductors as a chokepoint technology critical to maintaining its global leadership.
- In contrast, China views semiconductors as its Achilles' heel—an area where dependence on foreign firms could leave it vulnerable.

https://link.springer.com/chapter/10.1007/978-3-031-76169-0_4?utm_source=chatgpt.com

Geopolitical Impact:
How U.S. Export Controls Affect China’s Semiconductor Industry

- Cutting Off Access to Critical Technologies / Tools
- Licensing Regime + Presumption of Denial
- Expansion of End-Use / End-User Controls
- Crackdown on Indirect / Derived Pathways
- Blocking Human Capital / Knowledge Transfer
- Forcing Industry Chain Restructuring

China’s Strategic Response:

- Build a self-sufficient chip supply chain.
- Mitigate short-term supply disruptions.
- Accelerate innovation in critical technologies like AI chips and advanced packaging.

01

Semiconductor Policies/Subsidies: US, EU, China

Semiconductors are core components of electronic devices; their supply stability directly affects the industrial security and technological development of major economies.

Dimension	United States	European Union	China
Policy objective	Expand domestic advanced node capacity; control outflows of advanced technology to certain foreign entities	Strengthen design, manufacturing, and packaging capabilities; reduce supply chain dependence on external sources	Increase domestic manufacturing capacity; reduce external technology dependence
Core policy instruments	**CHIPS and Science Act (2022)** subsidies; Section 232 tariffs (25%); export controls on advanced computing chips and manufacturing equipment	**European Chips Act 1.0/2.0** (Mobilizing €43bn+ public + private investment)	**Tax incentives** (e.g.10-year exemption for IC manufacturers with ≤28nm line width and ≥15 years of operation); **National IC Industry Investment Fund (the "Big Fund")**
Funding scale	US$52.7 billion in public subsidies (CHIPS Act)	More than €43 billion (public + private)	The total size of Big Fund" reached approximately RMB 342.8 billion, equivalent to around €43 -44 billion
Key characteristic	Combines subsidies and restrictions; focuses on domestic capacity expansion and technology outflow controls	Shifts from R&D funding to direct manufacturing intervention; focuses on automotive, power semiconductors and other areas of strength	Leverages domestic market demand to drive technology iteration; primarily incentive-based

All three economies have elevated semiconductors to a national strategic level, but differ in policy objectives, instruments, and resource allocation. ** Can not get the actually number

02

China’s Semiconductor Policies

China Semiconductor and Integrated Circuit Policies(2010–2025)

- ***2011*** *Notice of the State Council on Issuing Several Policies to Further Encourage the Development of the Software Industry and the Integrated Circuit Industry (State Council Document [2011] No. 4)*
- ***2014 National IC Industry Development Promotion Outline:*** *- establishes the "Big Fund" and strengthenes collaboration across design, manufacturing, packaging, testing, equipment, and materials*
- ***2015*** *Made in China 2025: Integrated circuits identified as a key sector, emphasizing breakthroughs in core technologies and coordination across the industry chain.*
- ***2016*** *Notice on Issues Concerning the Preferential Corporate Income Tax Policies for Software and Integrated Circuit Industries Caishui [2016] No. 49: Standardized the preferential corporate income tax conditions and filing mechanisms for IC/software enterprises.*
- ***2018*** *Notice on Issues Concerning Corporate Income Tax Policies for Integrated Circuit Production Enterprises Caishui [2018] No. 27: Specified tax incentive periods for 130nm/65nm production lines and supported the construction of new lines.*

China Semiconductor and Integrated Circuit Policies(2020–2021)

- a wave of concentrated policy measures, intensified investments

2020, “*Several Policies for Promoting the High-Quality Development of the Integrated Circuit Industry and the Software Industry in the New Era*” State *Council* [2020] No. 8

Served as the overarching framework for the IC industry in the new era, with systematic upgrades across eight areas including fiscal and taxation, investment and financing, R&D, and talent.

2020, *Announcement on Enterprise Income Tax Policies for Promoting the High-Quality Development of the Integrated Circuit Industry and the Software Industry*

Caishui No. 45

Clarified tax exemption + halved collection policies for enterprises producing <28nm, ≤65nm, and ≤130nm chips.

2021, *Action Plan for the Development of the Basic Electronic Components Industry 2021-2023 MIIT*

Aimed to strengthen and complete the supply chain and increase the localization rate of electronic components.

2021, *14th Five-Year Plan for the Deep Integration of Informatization and Industrialization*, *14th Five-Year Plan for Smart Manufacturing Development Plan*, and *14th Five-Year Plan for National Informatization Plan*:

Incorporated ICs into smart manufacturing and strategic science and technology frameworks.

China Semiconductor and Integrated Circuit Policies(2023–2025)

- **2023, *Notice on Requirements for Preparing the List of Integrated Circuit Enterprises or Projects and Software Enterprises Eligible for Preferential Tax Policies in*** *2023* NDRC High-Tech [2023] No. 287: Implemented catalog management for preferential tax policies, ensuring continuity.

- **2023, MIIT/MOF *Action Plan for Stabilizing Growth in the Electronic Information Manufacturing Industry***: Integrated key IC segments into stabilization and supply chain resilience measures.

- **2024, MIIT Implementation Guidelines for Key Special Projects**: Supported breakthroughs in critical IC technologies, equipment, and materials.

- **2025, MIIT/NDRC *Implementation Plan for the Digital Transformation of the Electronic Information Manufacturing Industry***: Promoted digitalization of production processes, supply chain collaboration, and enhancement of industry chain governance capacity.

2026 and beyond - Semi-conductor in China 15th Five Year Plan

1. Semiconductors as a Strategic Priority

- ICs consistently identified as critical to economic growth, innovation, and national security.

2. Focus on Technological Self-Reliance

- Increasing emphasis on overcoming “chokepoint” technologies such as EDA, advanced manufacturing, AI chips, and semiconductor equipment.

3. Building a Complete Domestic Ecosystem

- Strengthening the full supply chain:
  Design → Manufacturing → Packaging & Testing → Equipment → Materials.

4. Standardization and Localization

- Development of indigenous standards through SAC/TC599 and automotive chip standard systems to support localization and supply chain security.

5. Integration with National Digital Strategy

- Semiconductors increasingly linked with AI, EVs, intelligent manufacturing, cloud computing, and digital infrastructure development.

China’s Strategic Response - Observation

China’s Semiconductor and Integrated Circuit Policies (2010–2026)

- **“Master Framework – Special Programs – Supporting Measures” Structure**
  The *2014 Outline* and the *2020 State Council Document [2020] No. 8* - Master Framework. Subsequent measures centered around preferential tax policies (2016/2018/2020), the *Basic Electronic Components Action Plan* (2021), and initiatives such as *Smart Manufacturing / Integration of Informatization and Industrialization* (2021) and etc., forming complementary and operational tools.

- **Shift from “Quantity Catch-up” to “Chain Resilience”**
  Policy documents from 2021–2025 place greater emphasis on **tackling chokepoints, strengthening foundational “building blocks”** (components, materials, equipment), and advancing smart manufacturing and digital transformation. Policy objectives have shifted from capacity expansion toward improving quality, enhancing resilience, and addressing structural weaknesses.

National IC Fund-"Capital-Driven" Semiconductor Strategy

What is the National IC Fund?

The National IC Fund (“Big Fund”)is China's most important investment vehicle for the semiconductor industry. It is not a government grant, but a **state-guided, market-oriented industrial investment fund** — pursuing both national strategic goals and investment returns.

Three Phases: Continuously Expanding Scale

Phase	Launch Date	Registered Capital	Investment Focus
Phase I	2014	~RMB 138.7 billion	Focus on **manufacturing** (~67%), with design, packaging & testing, equipment, materials
Phase II	2019	~RMB 200 billion	Manufacturing focus, strengthening **equipment and materials**
Phase III	2024	**RMB 344 billion**	Full industrial chain, focusing on advanced manufacturing, AI chips, memory chips, etc.

Latest Development

According to Shanghai Securities News (May 6, 2026):

- National IC Fund is in talks to lead DeepSeek's first financing round
- Reported valuation: **~$45 billion** (yet to be confirmed)
- If completed: Fund's first investment in an AI foundation model company
- Implication: Accelerates domestic computing power adaptation and chip co-optimization

Note: Financing still under discussion. Final details await official confirmation.

Policy-Driven Chip Demand

Policy mechanisms translate national semiconductor strategy into sector-specific chip demand.

Sector	Policy Document	Chip Demand	Demand Driver
Automotive	Automotive Industry Stable Growth Work Plan (2025-2026)	Accelerate breakthroughs in key technologies: **automotive chips**, operating systems, AI, solid-state batteries	Encouragement
AI / Computing	Electronics Info Manufacturing Stable Growth Action Plan (2025-2026)	Support basic research in **AI chips, advanced memory, 3D heterogeneous integrated chips**	Encouragement
Xinchuang (IT Localization)	SASAC Document No. 79 (2022)	**Chips for central state-owned enterprises**-require 100% substitution of IT systems with domestic alternatives by 2027, covering finance, energy, telecommunications, transportation, and other critical sectors.	**Mandate** (100% replacement by 2027)

03

China Semiconductor Standardization

- Standardization to support localization and Self-Resillence

03

China’s Semiconductor Standardization Policy Framework

China has established a comprehensive standardization policy framework spanning long-term strategy, sector-specific systems, and application-driven standards.

I. Top-Level Strategic Documents

Document	Issuing Authority	Date	Key Content
New Industry Standardization Leading Engineering Implementation Plan (2023-2035)	MIIT + 3 other ministries	Aug 2023	**Full industrial chain coverage**: IC materials, equipment & components, design tools, interface specifications, packaging & testing, advanced memory, processors, AI chips, automotive chips, consumer electronics chips
Action Plan for Informatization Standardization (2024-2027)	CAC + SAMR + MIIT	May 2024	**Key standards development**: Advanced computing chips, new memory chips; application standards for AI chips, automotive chips, consumer electronics chips

03 China’s Semiconductor Standardization Policy Framework

II. Sector-Specific Standard Systems

Document	**Key Content**
National ICV Standards System Construction Guide (2023 Edition) (MIIT + SAC, July 2023)	• **Strategic Positioning**: ICV as the global innovation hotspot and future development battleground • **Targets**: 2025: 100 standards (incl. high-performance computing chips); 2030: 140 standards • **Standard Coverage**: Includes automotive chip sub-category: safety chips, computing chips (performance requirements & test methods)
National Automotive Chip Standards System Construction Guide (MIIT, Jan 2024)	• **Strategic Positioning**: Automotive chips are the core components and foundation for industry transformation • **Targets**: 30 standards by 2025; 70 standards by 2030 • **Standard Coverage**: 10 chip categories: control, compute, sensing, communication, memory, security, power, driver, PMIC, others
National AI Industry Comprehensive Standards System Construction Guide (2024 Edition) (MIIT + CAC + NDRC + SAC, July 2024)	• **Strategic Positioning**: AI is a foundational and strategic technology leading a new round of technological revolution and industrial transformation • **Targets**: By 2026: 50+ Chinese standards (including **smart chip** standards); 20+ international standards • **Standard Coverage**: **Smart chips** (architecture, instruction set, programming interface, test requirements), **Software-hardware co-design** (chip-framework adaptation, task scheduling, collaborative performance), **Smart sensors**, **System software** (operator libraries, chip runtime libraries)

03

China’s Semiconductor Standardization Technical Committees

Core Technical Committees (TC)		
TCs	**Scope**	**Role**
SAC/TC599 (Integrated Circuits)	Full IC chain: design, manufacturing, packaging, testing, equipment, IP cores, MEMS	Core
SAC/TC203 (Semiconductor Equipment & Materials)	Semiconductor equipment, materials, packaging materials	Equipment & Materials
SAC/TC78 (Semi-conductor Devices)	Discrete devices	Discrete Devices
SAC/TC47 (Printed Circuits)	Printed circuits, surface mount technology (SMT), interconnection technology	Printed circuit boards (PCB) & Interconnection
Other TCs Related to Semi-conductor		
SAC/TC114/SC34 (ICV) and **SC29** (Automotive Electronics EMC)	Automotive chip security, ICV chip standards	Automotive Chips
SAC/TC28/SC42 (AI-IT)	AI heterogeneous chips, AI chip standards	AI Chips
SAC/TC260 (Cybersecurity)	IC card chip security, chip information security	Chip Security

03

SAC/TC599 – Overview and Organizational Structure

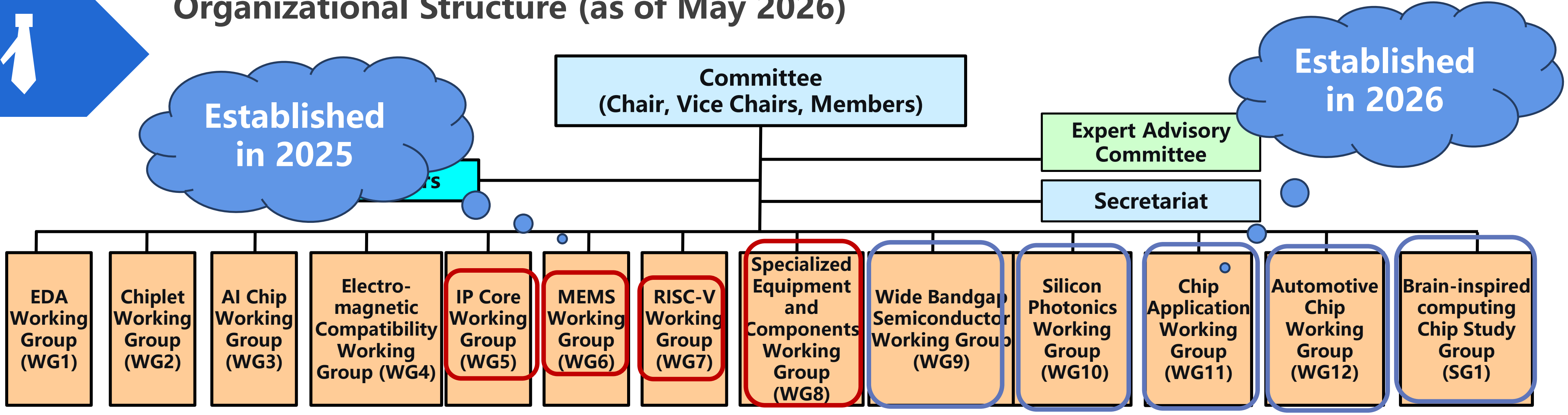
Basic Information

Established: November 2022 (Approved by SAMR)
Secretariat: China Electronics Standardization Institute (CESI)
Membership: 57 committee members + 172 observers + 700+ working group members, **including foreign firms such as Infineon, Siemens, and Qualcomm.**
International Alignment: Mirrors IEC/TC47 subcommittees: SC47A (ICs), SC47D (Semiconductor Devices Packaging), SC47F (MEMS)

Scope

Responsible for integrated circuit equipment, semiconductor integrated circuits, film integrated and hybrid film integrated circuits, microwave integrated circuits, circuit modules, integrated circuit chips and intellectual property modules (IP cores), and integrated circuit micro-electromechanical systems (MEMS) — covering the design, production, and application of the above products

Organizational Structure (as of May 2026)



Established in 2025

Committee
(Chair, Vice Chairs, Members)

rs

Expert Advisory Committee

Secretariat

Established in 2026

EDA Working Group (WG1)
Chiplet Working Group (WG2)
AI Chip Working Group (WG3)
Electro-magnetic Compatibility Working Group (WG4)
IP Core Working Group (WG5)
MEMS Working Group (WG6)
RISC-V Working Group (WG7)
Specialized Equipment and Components Working Group (WG8)
Wide Bandgap Semiconductor Working Group (WG9)
Silicon Photonics Working Group (WG10)
Chip Application Working Group (WG11)
Automotive Chip Working Group (WG12)
Brain-inspired computing Chip Study Group (SG1)

03

SAC/TC599 – Standards Progress and Key Priorities

【Standards Overview (as of May 2026)】

Category	Count / Content
Published National Standards	**158** national standards (147 currently effective + 11 soon to be implemented) covering **advanced packaging** (including Chiplet/3D integration), electromagnetic compatibility (EMC), microwave/RF circuits, memory and data converters, power management, IP core and design, MEMS sensors, and fundamental testing & reliability
Standards Under Development	**63** (13 under drafting + 50 under approval) covering chiplet testing, automotive chip reliability, emerging computing chips (CPU/GPU/DPU), EDA tools, RISC-V, and brain-inspired computing
New Guiding Documents (Apr 2026)	**9** – covering automotive chips, packaging thermal testing, brain-inspired chips, etc.
International Standards	**Published 12 led by China** (6 under development) (as of the end of 2025);

【Key Developments (2025-2026)】

- **Aug 2025:** Released **five critical national standards for chiplet interconnection interfaces (GB/T 46280.1-2025 ~ GB/T 46280.5-2025),** including Part 1: General Principles; Part 2: Protocol layer technical requirements; Part 3: Data link layer technical requirements; Part 4: Physical layer technical requirements based on 2D package and Part 5: Physical layer technical requirements based on 2.5D package
- **April 2026**: Released **China's first RISC-V full-stack testing tool** (led by CESI, in collaboration with Shandong University, Alibaba DAMO Academy, etc.), covering ISA verification, firmware verification, system compatibility, performance benchmark, and scenario applications (AI inference, autonomous driving, etc.)
- **May 2026**: Issued **official call for 2026 AI chip standard proposals**, targeting full AI chip industry chain standards (common fundamentals, hardware, software stack, key technologies, application scenarios)

03

Overview of the SAC/TC203, TC78 & TC47

SAC/TC203 – Semiconductor Equipment and Materials

- **Scope**: Semiconductor equipment, electronic gases, semiconductor materials, packaging, microlithography
- **Secretariat**: China Electronics Standardization Institute (CESI)
- **Subcommittees**: SC1 (Electronic Gases), SC2 (Semiconductor Materials), SC3 (Packaging), SC4 (Microlithography)
- **Standards**: **363** national standards published (349 current, 14 upcoming) + **50** under development
- **Key Focus**: Electronic gases (bulk, specialty, rare gases) and wide-bandgap materials (SiC, GaN, Ga_2O_3)

SAC/TC78 – Semiconductor Devices

- **Scope:** Discrete devices (diodes, transistors, power devices, optoelectronics, sensors)
- **Secretariat:** China Electronics Technology Group Corporation (CETC) – 13th Research Institute
- **Subcommittee:** SC1 (Discrete Semiconductor Devices) – aligned with IEC/SC47E (Discrete Semiconductor Devices)
- **Mirror organization:** IEC/TC47 (Semiconductor Devices)
- **Standards: 119** national standards published (77 current, 42 upcoming) + **61** under development
- **Key Focus:** SiC/GaN power device reliability, flexible electronics, sensors
- **Role:** Established in 1986; has focused on discrete devices since **IC standardization moved to TC599 in 2022**

SAC/TC47 – Printed Circuits

Scope: Printed circuits, surface mount technology (SMT), interconnection technology

Secretariat: CESI

Mirror organization: IEC/TC91

Standards: **63** national standards published (58 current, 5 upcoming) + **40** under development

Key Coverage: Rigid PCBs, flexible PCBs, high-density interconnect (HDI) boards, embedded substrates, PCB assemblies, IC packaging interface (GB/T 43863)

03 SAC/TC114 SC29&34 – Automotive Chip Standards System

TC114 has established a comprehensive automotive chip standards system covering functional safety, cybersecurity, product specifications, and environmental reliability.

Published Standards

- ➢ **National Standard**: GB/T 34590.11-2022 – Road vehicles – Functional safety – Part 11: Guidelines on application to semiconductors (functional safety)
- ➢ **Sector Standards (QC/T):**
- QC/T 1278-2026 – Technical requirements and testing methods of driving automation computing chip for vehicle
- QC/T 1277-2026 – Technical requirements and testing methods for vehicle security chip
- QC/T 1270-2026 – Electronic toll collection—On board unit integrated circuits Technical requirements and measurement methods
- QC/T 1265-2025 – Technical Requirements and Test Methods of Power Drive Chip for Electric Vehicles
- QC/T 1264-2025 – Technical Requirements and Testing Methods for Analog Front End chip of Battery Management System in Electric Vehicles

Key Standards Under Development

- ➢ 20250941-T-339 Technical specifications of cybersecurity for vehicle chip (Managed by SC34 and under review)
- ➢ 20243426-T-339 General specification for environment and reliability of automobile chips (Managed by SC29 and under review)
- ➢ **20+ automotive chip sector standards covering control, communication, sensing, Ethernet PHY, SerDes, etc.**

Chip Coverage

Computing chips · Control chips · Communication chips (Controller Area Network / Local Interconnect Network / Ethernet / cellular / direct) · Security chips · Power chips · Sensing chips (LiDAR / infrared thermal) · Battery management system analog front-end chips · Serializer/deserializer chips

03

China’s Automotive Chip Certification and Review System

I. Launch: Version 1.0 (October 17, 2024)

- Significance: China’ s first authoritative independent quality standard system for automotive chips
- Achievement: Filled the gap in domestic automotive chip quality certification
- Output: First batch of certified domestic automotive chip enterprises announced

II. Upgrade: Version 2.0 (November 18, 2025)

- **Driver**: Version 1.0, as a general framework, could no longer meet the needs of fast chip iteration and scenario-based applications
- **Structure**: 9 modules, 60 indicators
- **Coverage**: 5 vehicle domains, 10 chip categories
- **Key improvement**: Systematic, standardized, and institutionalized certification — enabling precise evaluation for specialized and customized applications

Simultaneously launched:

- **Technical expert pool** – covering system review, supply chain management, chip design, functional safety, EMC, cybersecurity; with dynamic evaluation and entry/exit mechanism
- **Certification digital platform** – enabling closed-loop management: Data → Certification → Application → Traceability

III. Version 2.0 Results (as of November 2025)

✓ 20 million+ certified chips deployed in vehicles
✓ RMB 10 billion+ output value generated
✓ 3 months average time-to-market reduction for OEMs

03

TC28 SC42 – AI Chip-related Standardization

TC28 complements TC599 (IC) by advancing AI hardware, software interfaces, and performance evaluation standards.

SC42 – AI Subcommittee (Chips & Systems WG)

The working group focuses on AI chip hardware (accelerators, cards, servers) and its essential software stack (operator libraries, compilers, runtime libraries) — the two inseparable halves of AI chip standardization.

SC42 AI chip-related standards (as of May 2026)

1. GB/T 45280-2025 Artificial intelligence—Unified interfaces for heterogeneous artificial intelligence accelerating units
2. GB/T 42018-2022 Information technology—Artificial intelligence—Platform computing resource specification
3. GB/T 45401.1-2025 Artificial intelligence—Scheduling and cooperation for computing devices—Part 1: Virtualization and scheduling
4. GB/T 45401.2-2025 Artificial intelligence—Scheduling and cooperation for computing devices—Part 2: Framework for distributed computing
5. GB/T 46345-2025 Artificial intelligence—Interface of deep learning compiler
6. GB/T 46069.1-2025 Artificial intelligence—Operator interface—Part 1: Basic mathematical classes
7. GB/T 46069.2-2025 Artificial intelligence—Operator interface—Part 2: Neural network classes
8. GB/T 46346-2025 Artificial intelligence—Computing center—Computing capacity assessment
9. GB/T 45087-2024 Artificial intelligence—Performance testing methods for server systems
10. GB/T 45079-2024 Artificial intelligence—Technical specification for deep learning framework adaption to multi-hardware platform

In Apr 2026, SC42 Chips and Systems WG & Intelligent Computing WG were jointly developing 10 national standards related to AI chip standards:

- **Chip software stack** – unified parallel programming model, communication library, deep learning compiler, operator interface, software-hardware inference optimization
- **System and cluster** – large model all-in-one server, computing center management platform, super node, heterogeneous mixed training and mixed inference specifications

AI Chip Benchmarking System: "Quest" National Standard Benchmark System 3.0 (Released by CESI in Dec 2025)

- Coverage: AI chips, servers, large language models, intelligent agents, embodied AI, smart terminals, security – full industry chain
- New Capabilities: Embodied AI benchmark, intelligent agent benchmark, smart terminal benchmark

03

TC260 – Semiconductor-Related Security Standards

TC260’s semiconductor-related standards focus on chip-level security, specifying security requirements, cryptographic functions, and attack resistance for IC card chips and physically unclonable functions (PUF).

Published Standards

- GB/T 22186-2026 Cybersecurity technology—Security specifications for IC card chip with CPU (To be implemented on Nov. 1, 2026)
- GB/T 20276-2016 Cybersecurity technology—Security specifications for embedded software in IC card with CPU
- GB/T 36950-2018 Information security technology—Security technical requirements of smart card (EAL4+)
- GB/T 31507-2015 Information security technology—General testing guide for security of smart card

Standards Under Development

- 20257058-T-469 Cybersecurity technology—Security specifications for embedded software in IC card with CPU (under drafting and to replace the GB/T 20276-2016)
- 20261184-T-469 Cybersecurity technology—Physically unclonable function security specification (Call for comment)

SUMMARY

Summary

I. Policy Evolution

- Spans from 2010 to 15th Five-Year Plans
- Latest direction: **"Extraordinary breakthroughs"** across the full industrial chain, focusing on high-end chips, equipment, and materials
- National IC Fund Phase III underway; recent discussions to invest in AI foundation model companies (e.g., DeepSeek)

II. Key Policy Mechanisms

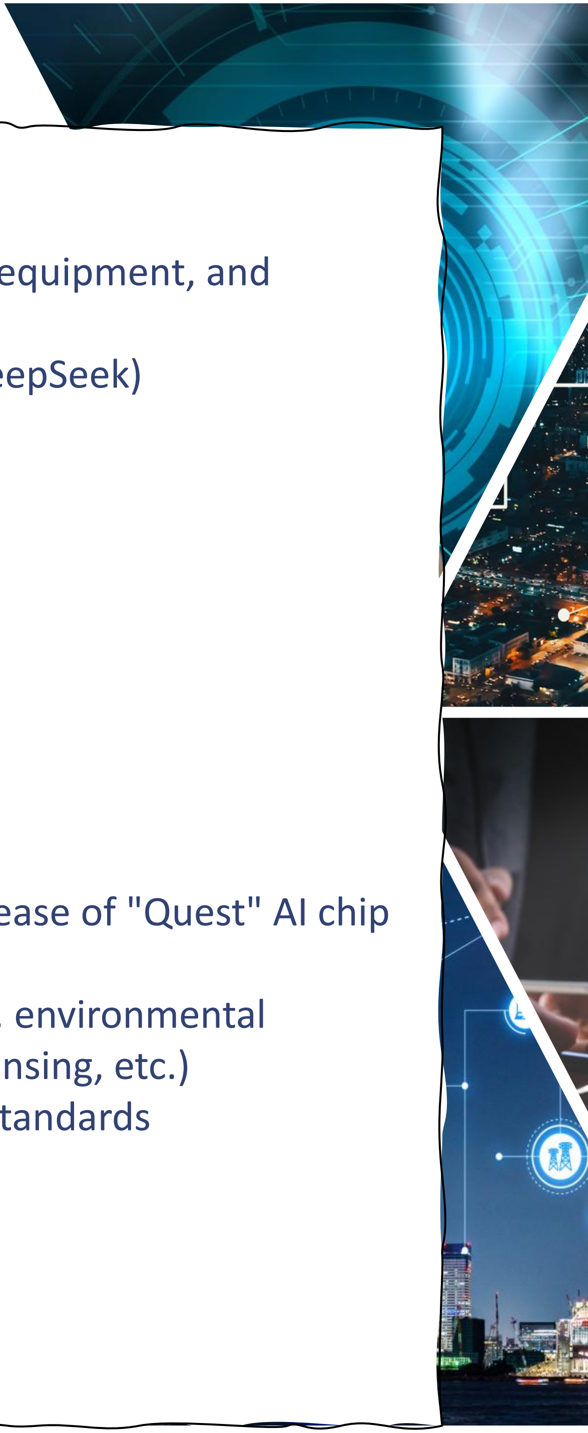
- 2014 National IC Industry Development Promotion Outline
- 2020: "Policies for Promoting High-Quality Development of IC and Software Industries in the New Era"
- Parallel advancement of downstream application policies and standards system building to shape rules

III. Comprehensive Standards System

- **Chip Interconnect**: Release of five national standards for chiplet interconnection interfaces
- **RISC-V**: Launch of China's first full-stack RISC-V testing tool
- **AI Chips**: 2026 call for standards across the entire AI chip chain; SC42 driving hardware + software stack; Release of "Quest" AI chip benchmark system 3.0
- **Automotive Chips**: TC114 established a complete standards system covering functional safety, cybersecurity, environmental reliability; covers 20+ sector standards under development (computing, control, communication, security, sensing, etc.)
- **Security Chips**: TC260 issued CPU IC card security specification (GB/T 22186-2026); advancing PUF security standards

IV. Strategic Implications

- China is shifting from "technology catch-up" to "rule-setting"
- Standardization has become a key enabler for policy implementation and industrial self-sufficiency
- AI chips and automotive chips are the top two standardization priorities



Strategic Trend of China Semi-conductor standards

1. China’s Semiconductor Standards Are Still Developing

- Most Chinese semiconductor standards are not yet globally dominant or highly influential.
- China is waiting for “extraordinary breakthroughs” in core technologies to strengthen its standards leadership.

2. **Gradual Divergence from EU/U.S.-Led Frameworks**

- Increasing trend toward developing standards that differ from:
  EU/U.S.-led technical ecosystems; then ISO / IEC international standards
- Driven by geopolitical tensions, export controls, and supply chain security concerns.

3. Rise of Indigenous Standards in Strategic Technologies

Focus areas include:

- AI chips
- Automotive chips
- RISC-V
- Chiplets
- Data security
- “Secure & controllable” ICT systems

→

These standards increasingly reflect:

- China’s industrial policies
- Localization requirements
- Cybersecurity priorities
- Supply chain resilience goals
- Domestic technology architectures

4 China will likely continue a dual-track approach:

- Alignment with international standards where beneficial
- Development of indigenous standards in strategic technologies

→ **Potential emergence of more parallel semiconductor standard ecosystems globally.**

Recommendations for EU Stakeholders

1. Reassess compliance and market access strategies

- China is shifting from "technology catch-up" to "rule-setting" with accelerated standardization (e.g., chiplet interfaces, RISC-V testing, AI chip benchmarking).
- Action: Monitor SAC, TC599, TC114, TC260, SC42 for draft standards and public consultations; engage early in feedback or pre-compliance reviews.

2. Combine technology cooperation with standardization engagement

- China still remains open to collaborative innovation. Foreign companies can participate via joint labs, technology licensing, or joint standard proposals.
- Priority areas: AI chip software stack interfaces, automotive chip functional safety / cybersecurity, RISC-V toolchains.

3. Adapt to the "domestic substitution" paradigm

- Policies and national funds increasingly favor the full local semiconductor chain (equipment, materials, high-end chips, AI compute).
- Action: Identify your company's irreplaceable strengths (e.g., differentiation, high reliability, advanced packaging, EDA tools) and focus on areas where China still depends on or complements foreign technology.

4. Prioritize application-driven standards with fast implementation

- Automotive, AI servers, industrial IoT, and security chips have the most explicit and rapidly adopted standards.
- Action: Design for standard conformity early and participate in pilot programs (e.g., Quest AI chip benchmark, automotive chip certification).

Thank You