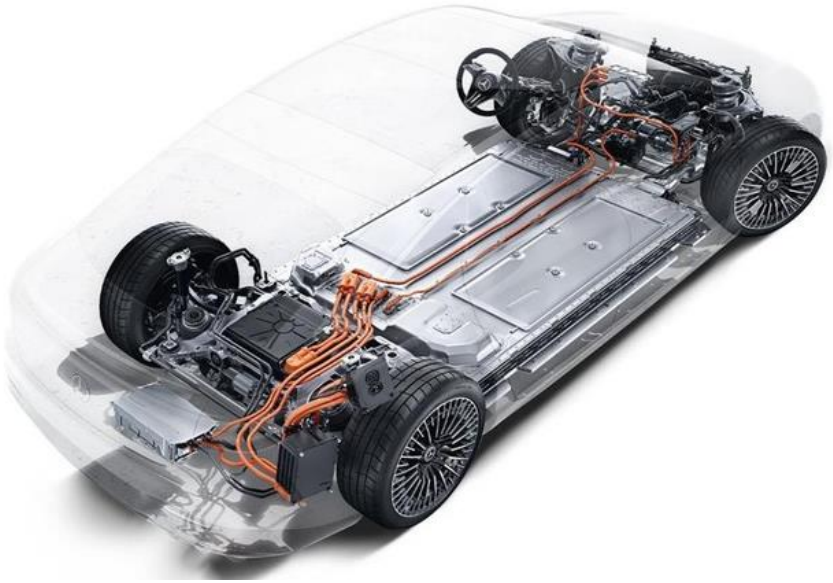
Automotive Hyper Processing Unit（HPU）

汽车级超限处理器

Flagchip Semiconductor Co., Ltd
苏州旗芯微半导体有限公司



旗芯微半导体
Flagchip as Flagship

关于旗芯微

苏州旗芯微半导体有限公司成立于2020年10月，主要从事汽车级高端处理器芯片的研发和销售，目标填补国内智能汽车控制器芯片领域空白，致力于发展成为中国汽车半导体领先厂商

- 原NXP核心IC设计团队,平均20+年半导体MCU行业设计经验
- 唯一拥有完整车规MCU 8/16/32 bits 开发能力的原生本土团队
- 设计团队项目经验涵盖 70+ 车用MCU型号，已规模出货超亿颗，并持续供货15年+，有完整的设计闭环积累
- 自有知识产权覆盖 存储电路，模拟电路，安全加密 及 功能安全 设计
- 目前员工120+, 研发占比80%
- 所有量产及在研项目, IP外购依赖率<10%, 关键多核通信总线设计， eNVM冗余设计, 模拟电路, 功能安全, RISC-V独立加密引擎, eFTU, 多芯集联SLA技术, 皆为自主开发并受专利保护

旗芯微车规MCU核心竞争力

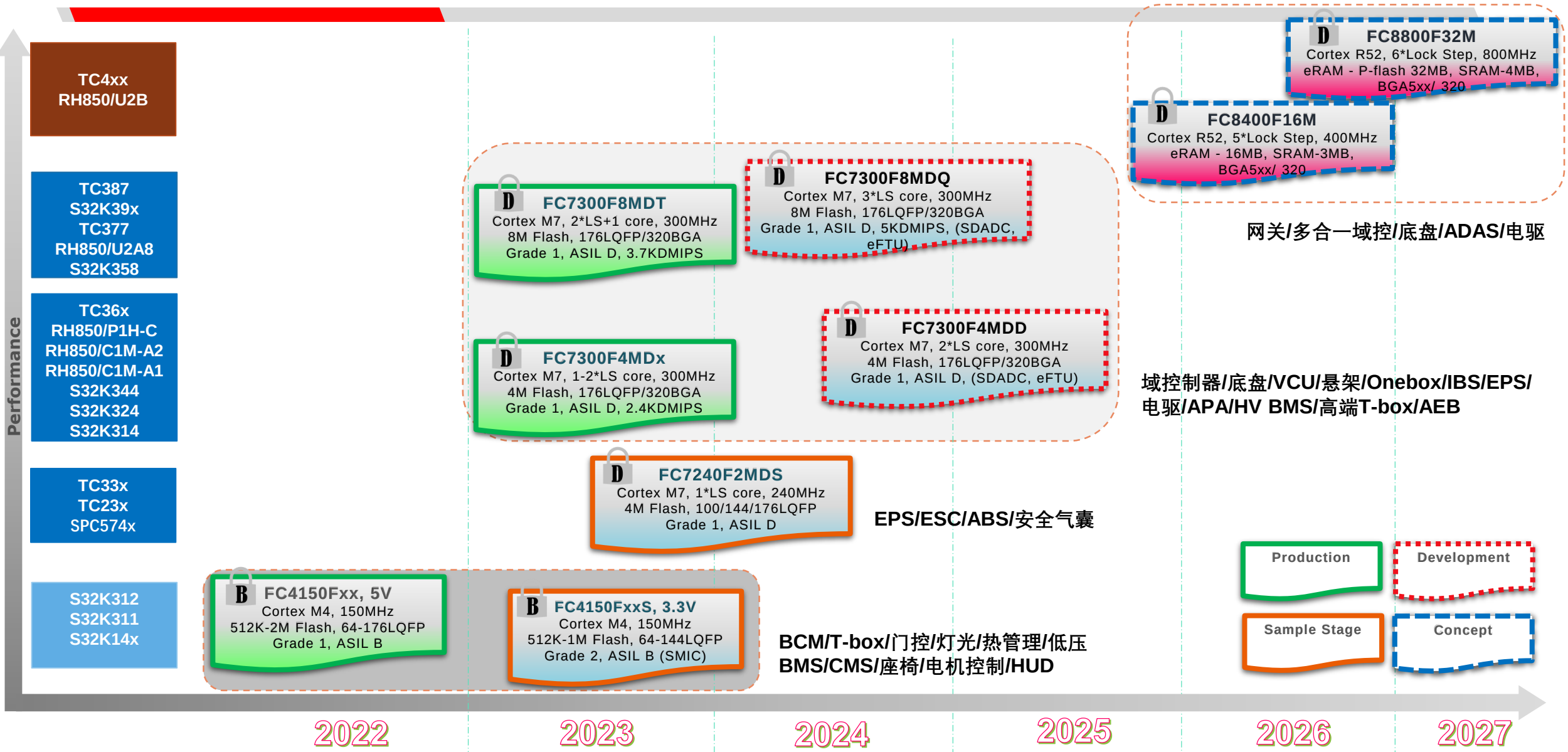
- 量产了3大产品系列，单个应用核（ASIL B/D）到多个应用核（ASIL D）,实现了车身控制及底盘、动力、悬架、域控等应用的全覆盖。解决了国产化应用瓶颈。
- 芯片量产上车超百万颗，85%的应用带功能安全软件系统运行。
- 第一家在UAES成功量产的国产化项目，BOSCH VDA 6.3体系认证。
- 国际Tier 1众多项目在研发和评估：采埃孚、安波福、纬湃、大陆、耐世特等。
- 国产芯片第一家进入安全气囊、双电驱、ZCU、Onebox、IBS等应用场景
- 成熟完善的生态系统，为客户项目快速落地提供保障。
- 车规芯片<1 PPM的品质交付能力

高性能	高功能安全	高信息安全	高可靠性
• 高主频、多应用内核 • 内核总线计算性能的架构和设计能力	• 功能安全ASIL-D产品的设计能力 • 功能安全ASIL-D的流程能力	• 信息安全EVITA FULL产品的设计能力 • 信息安全ISO21434的流程能力	• 高可靠性产品的生产测试开发能力 • 零缺陷的生产制造管控能力

旗芯微技术壁垒

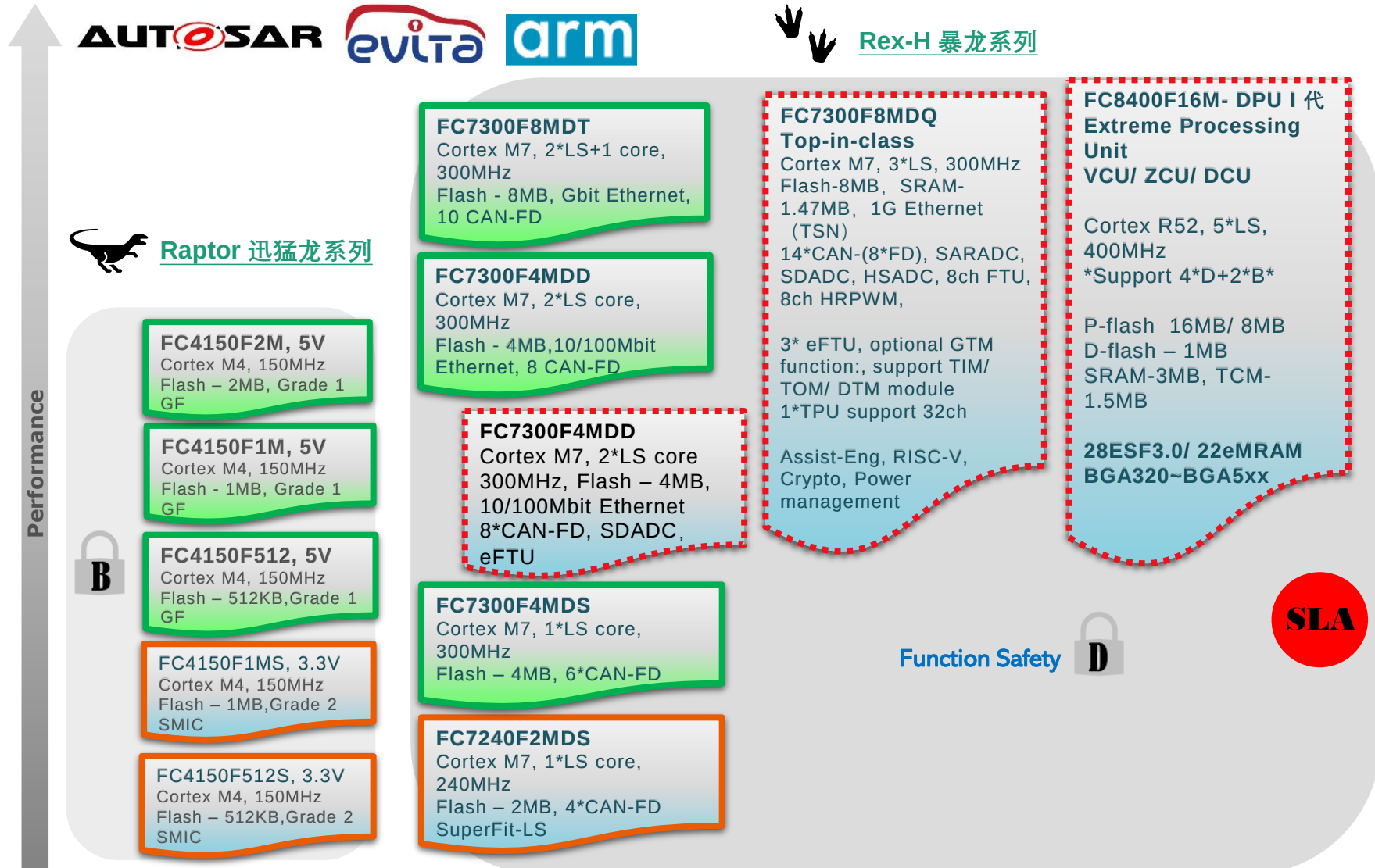
- 原NXP核心IC设计团队,平均20+年半导体MCU行业设计经验，国内唯一完整的车规MCU 芯片设计团队
- 多年功能安全（ASIL B/D）研发及量产经验
- 自主研发信息安全模块，达到Evita Full最高等级
- IP外购依赖率<10%, 关键多核通信总线设计， eNVM冗余设计, 模拟电路, 功能安全, RISC-V独立加密引擎, eFTU, 多芯集联SLA技术, 皆为自主开发并受专利保护
- 多年6sigma设计流程实施经验，高标准的测试验证coverage方法学
- 在16nm，22nm，28nm芯片制程上，皆有产品研发量产历史经验积累
- 产品测试和质量团队拥有15年以上的车规零缺陷产品开发经验，基于IATF16949/ISO9001的零缺陷管理流程， 车规芯片<1 PPM的品质交付能力
- 自有30+人的软件研发团队，部分成员来自国际Tier 1，具有多年实际项目经验，保证软件生态的完善配套

Product Portfolio



旗芯微半导体
Flagchip as Flagship

Product Roadmap



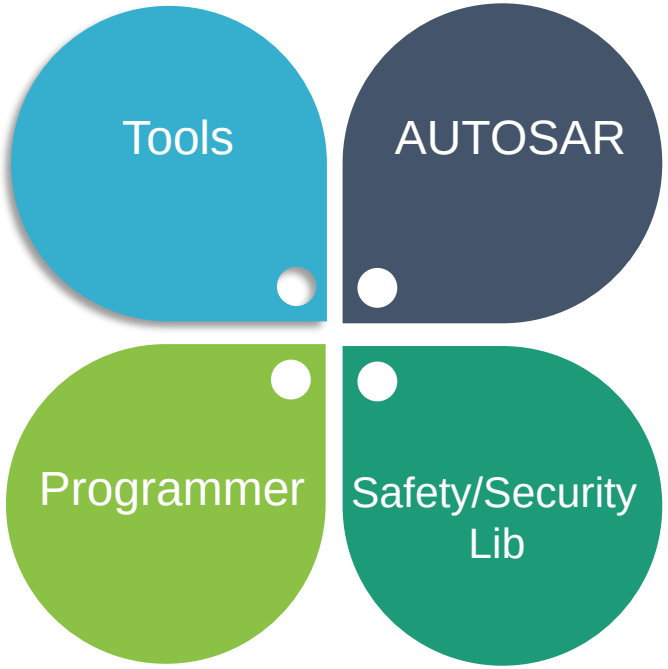
Production | Sample Stage | Development | Concept

旗芯微半导体 Flagchip as Flagship

Ecosystem

Tools

- 多个主流 IDE 支持：IAR，HighTec，GHS，Keil
- Flagchip IDE



AUTOSAR

- Flagchip MCAL
- ETAS，Vector，Siemens，EB
- 恒润EAS，东软睿驰，普华

调试器/烧录器

- Jlink (Segger)
- Multilink/Cyclone Probes (PEmicro)
- Lauterbach，iSystem
- 力捷丰，西尔特
- PLS/UDE(Arm version license)

功能、信息安全库

- 知从科技
- ETAS，东软睿驰
- 恒润，普华

FC4150 Advanced Features

- **高达150MHz主频，全电压全温度范围**
  - 440 DMIPS高算力
  - 热管理应用中，单芯片可以支持3个20KHz FOC电机控制，MCU负载率小于62%。性价比最优的热管理解决方案
- **6个CAN口，Enhanced FIFO**
  - Enhanced FIFO：通讯数据无丢包，保证了实时性
  - 6个CAN口：满足了小网关、VCU、T/P-Box对于多CAN口的需求

- **OSPI，支持DDR模式**
  - 驱动多达64x32点阵的LED
  - 高频率图像动态刷新

- **支持丰富的加密算法，包括国密**
  - 完善的HSM功能
  - 无需外挂国密芯片，节省bom

Competitor:
NXP S32K14x

FC4150 Target Application Matrix

	Door 车门控制	Seat 座椅控制	Window 车窗	PTG 电动尾门	TMS 热管理	Ambient lighting 氛围灯	OBC 车载充电机	Motor control 电机控制	Pbox 定位盒子	Airbag 安全气囊	HVAC 通风与空气调节	Tbox 电信模块	CMS 电子后视镜	48V BMS 48V电池管理系统
F4150F512	√	√	√	√			√	√		√	√		√	√
F4150F1M	√	√	√	√		√	√	√	√			√	√	√
F4150F2M	√	√	√	√	√	√	√	√	√			√		√

HVAC

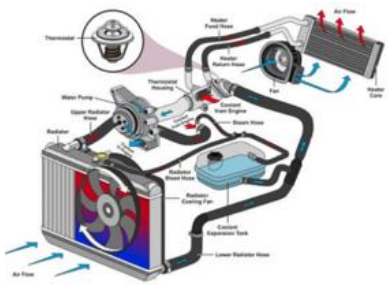
Lighting

BMS 12/48V

PLG

Seat

E-Shifter



TMS

T-Box

IVI-MCU

HUD

CMS

FC4150量产车型

阿维塔12 HALO屏 FC4150F2M

极氪X 门控制器 FC4150F1M

领克08 门控制器 FC4150F1M

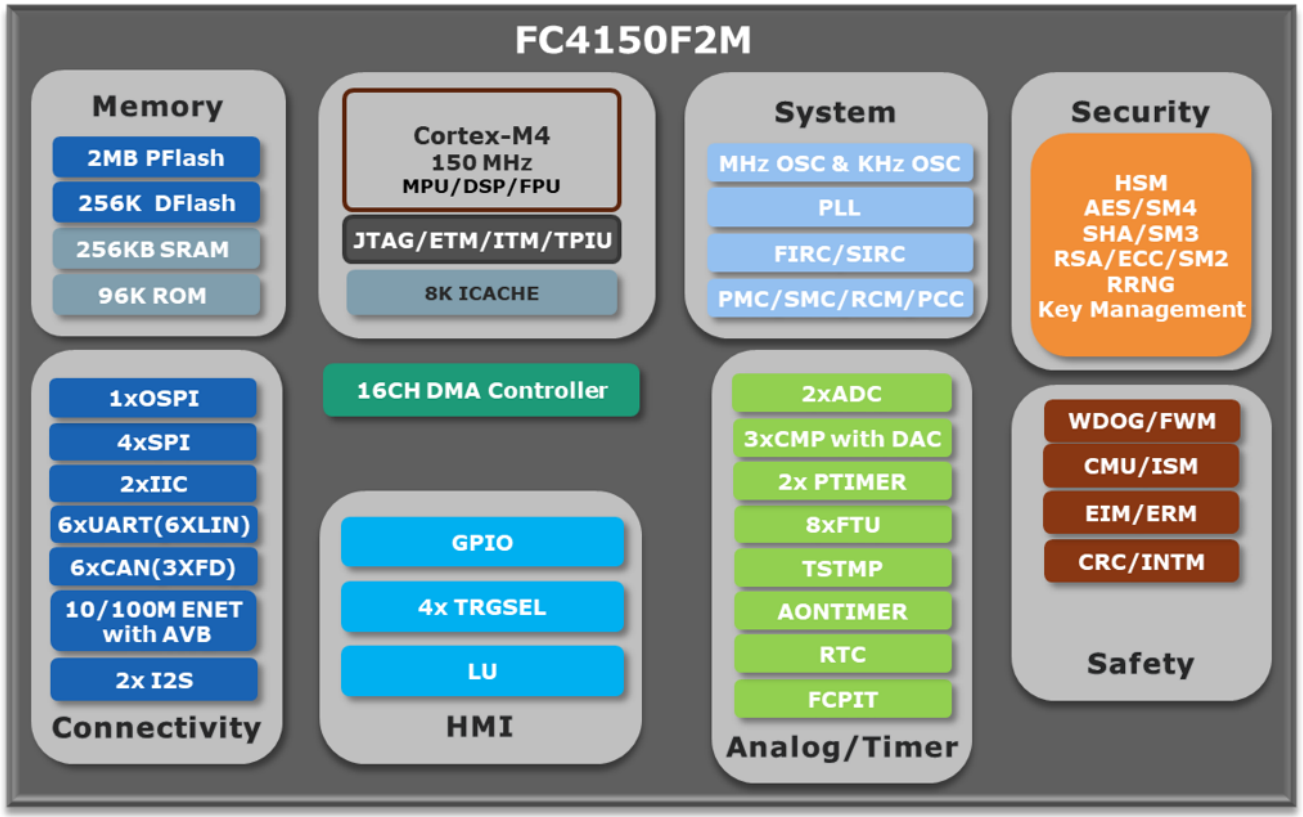
星越L 门控制器 FC4150F1M

极氪001 BCM FC4150F1M

极氪007 BCM FC4150F1M

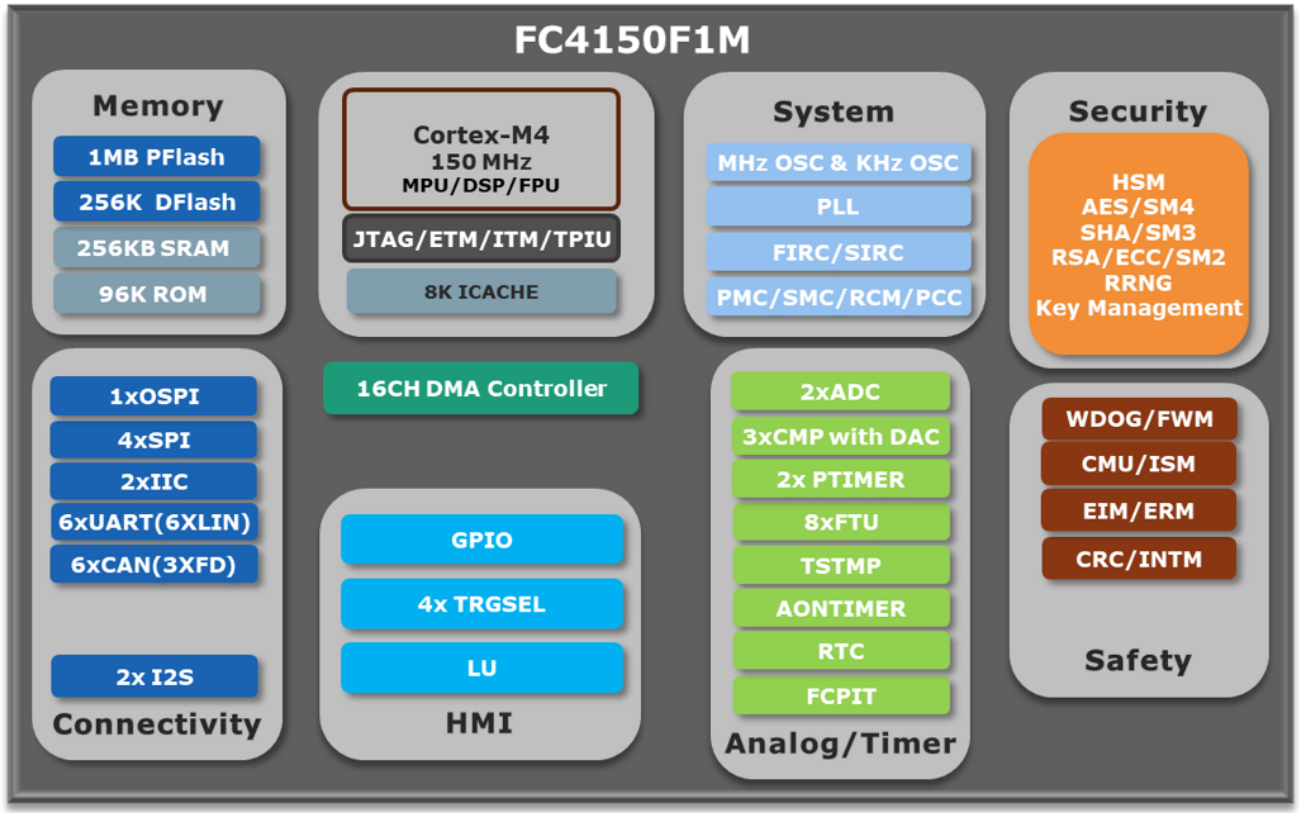
FC4150F2M Family – ISO26262 ASIL-B

- **High Performance**
  - Cortex M4 up to 150MHz with FPU/DSP
  - 8kB Cache
- **Large memory**
  - 2MB P-Flash + **256K D-Flash**
  - 256K SRAM
- **Key Peripherals**
  - **10/100 Mbit Ethernet with AVB**
  - 6 FlexCAN (3 with CAN-FD support, option)
    - Enhanced FIFO
  - 4xSPI, **1xOSPI**, 2xI2C
  - 6 UART (6 with LIN support)
  - 2xADC, 12-bit, up to 32-ch per module
  - 3xCMP with internal 8-bit DAC
  - **8xFTU** (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-B
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9
  - Random Number Generator Module (RNGM) and Pseudo Number generator
  - Key Management
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 100/144/LQFP, LQFP-EP176



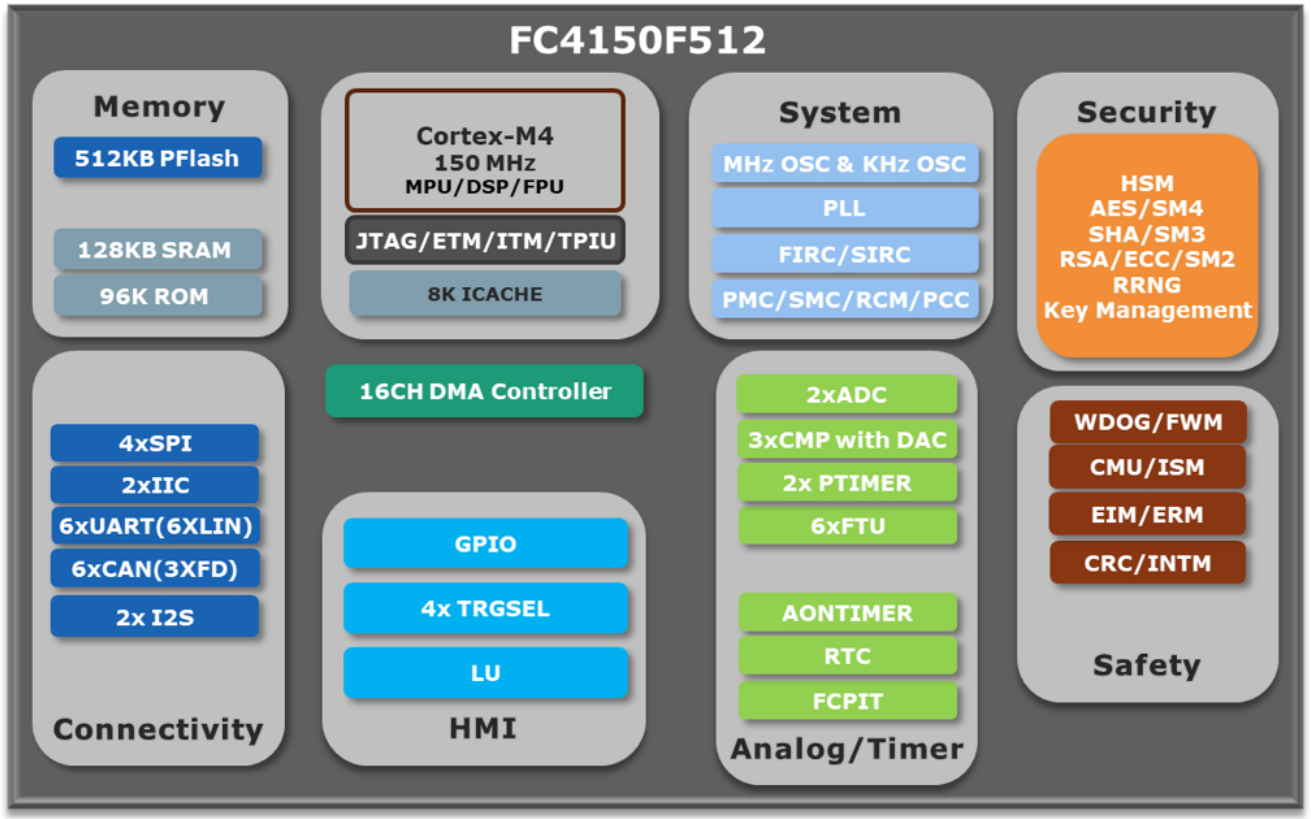
FC4150F1MxxA Family – ISO26262 ASIL-B

- **High Performance**
  - Cortex M4 up to 150MHz with FPU/DSP
  - 8kB Cache
- **Large memory**
  - 1MB P-Flash + **256K D-Flash**
  - 256K SRAM
- **Key Peripherals**
  - 6 FlexCAN (3 with CAN-FD support, option)
    - Enhanced FIFO
  - 4xSPI, **1xOSPI**, 2xI2C
  - 6 UART (6 with LIN support)
  - 2xADC, 12-bit, up to 32-ch per module
  - 3xCMP with internal 8-bit DAC
  - 8xFTU (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-B
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9
  - Random Number Generator Module (RNGM) and Pseudo Number generator
  - Key Management
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 100/144/LQFP



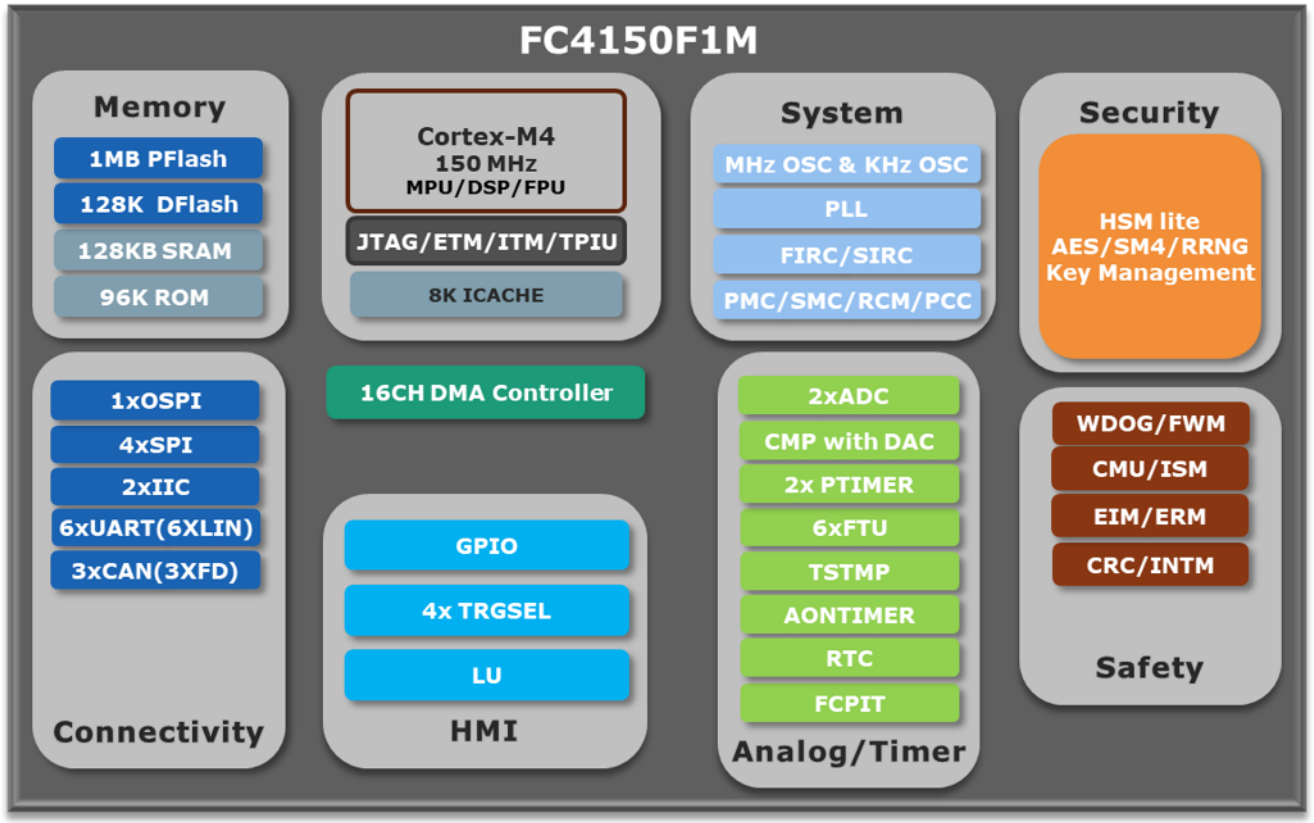
FC4150F512 Family – ISO26262 ASIL-B

- **High Performance**
  - Cortex M4 up to 150MHz with FPU/DSP
  - 8kB Cache
- **Large memory**
  - 512K P-Flash (Dual bank)
  - 128K SRAM
- **Key Peripherals**
  - 6 FlexCAN (3 with CAN-FD support, option)
    - Enhanced FIFO
  - 4xSPI, 2xI2C
  - 6 UART (6 with LIN support)
  - 2xADC, 12-bit, up to 32-ch per module
  - 3xCMP with internal 8-bit DAC
  - 6xFTU (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-B
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9
  - Random Number Generator Module (RNGM) and Pseudo Number generator
  - Key Management
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 64/100/144LQFP



FC4150F1MxxB Family – ISO26262 ASIL-B

- **High Performance**
  - Cortex M4 up to 150MHz with FPU/DSP
  - 8kB Cache
- **Large memory**
  - 1MB P-Flash (Dual bank) + **128K D-Flash**
  - 128K SRAM
- **Key Peripherals**
  - 3 FlexCAN (3 with CAN-FD support, option)
    - Enhanced FIFO
  - 4xSPI, **1xOSPI**, 2xI2C
  - 6 UART (6 with LIN support)
  - 2xADC, 12-bit, up to 24-ch per module
  - CMP with internal 8-bit DAC
  - 6xFTU (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-B
  - HSM lite : AES/SM4/RRNG
  - Key Management, **security boot**
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 64/100/144/LQFP



Raptor-FC4000 Family Sku's

	FC4150F512S	FC4150F1MS	FC4150F512	FC4150F1M	FC4150F2M	FC4150F1MxxB
Core	Cortex-M4F150MHz	Cortex-M4F150MHz	Cortex-M4F150MHz	Cortex-M4F150MHz	Cortex-M4F150MHz	Cortex-M4F150MHz
Memory	RAM-128KB Code Flash-512KB Data Flash-128KB	RAM-128KB Code Flash-1MB Data Flash-128KB	RAM-128KB Code Flash-512KB Data Flash-Config up to 16KB	RAM-256KB Code Flash-1MB Data Flash- 256KB	RAM-256KB Code Flash-2MB Data Flash- 256KB	RAM-128KB Code Flash-1MB Data Flash- 128KB
Clock	FIRC96/PLL/SIRC12/SIRC32K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32K/OSC40M/SOSC32K
Power	Input power_**3.3V** PowerConsum._37.5 mA	Input power_**3.3V** PowerConsum._37.5 mA	Input power_3~5.5V PowerConsum._37.5 mA	Input power_3~5.5V PowerConsum._40m A	Input power_3~5.5V PowerConsum._40m A	Input power_3~5.5V PowerConsum._40mA
Peripheral	Digital I/Os x85, ADC-2x32ch/12bit, LINx3, SPIx3, DMAx16, CAN(FD)x3(1), Watchdog, Cordic,	Digital I/Os x124, ADC-2x32ch/12bit, LINx3, SPIx3, DMAx16, CAN(FD)x3(1), Watchdog, Cordic	Digital I/Os x124, ADC-2x32ch/12bit, LINx6, SPIx4, DMAx16, CAN(FD)x6(3), Watchdog	Digital I/Os x124, ADC-2x32ch/12bit, LINx6, SPIx4, DMAx16, CAN(FD)x6(3), OSPI , Watchdog,	Digital I/Os x151, ADC-2x32ch/12bit, LINx6, SPIx4, DMAx16, CAN(FD)x6(3), OSPI Ethernet 10/100 x1 , Watchdog,	Digital I/Os x124, ADC-2x32ch/12bit, LINx6, SPIx4, DMAx16, CAN(FD)x3(3), OSPI , Watchdog,
Security	HSM	HSM	HSM	HSM	HSM	HSM lite
Safety	ECC, vol & clk monitors	ECC, vol & clk monitors	ECC, vol & clk monitors	ECC, vol & clk monitors	ECC, vol & clk monitors	ECC, vol & clk monitors
Package	LQFP-64/100	LQFP-64/100/144	LQFP-64/100/144	LQFP-100/144	LQFP-100/144/176	LQFP-64/100/144

Competitor:
NXP S32K14x

FC7300 Advanced Features

- **高达300MHz主频，高带宽BUS**
  - 3.7K DMIPS高算力 (单应用核1.2K+)
  - 极高的实时性：数据管理、多任务运行、核间通讯、电机算法处理等
- **全面支持 1Gbps Ethernet TSN协议**
  - 并且支持功能安全ASIL B等级
- **丰富的时钟源选择**
  - 16 ~ 48 MHz Fast Oscillator (FOSC) with up to 50 MHz DC：HV BMS应用中需要40MHz FOSC输入，FC7300上限48MHz，更能提供稳定保障
- **高达248个GPIO**
  - 方便与ADAS、智能座舱SoC芯片进行信号交互，减少外扩芯片，节省bom
- **FC7300提供8路SENT标准接口，适用底盘类应用**
- **支持丰富的加密算法，包括国密**
  - 完善的HSM功能, Evita Full
  - 无需外挂国密芯片，节省bom
  - 加密位数更长，更强的加密功能（AES128/192/256 ; SHA1/224/256/384/512; RSA2048/3072/4096 ECC224/256/384/521;）

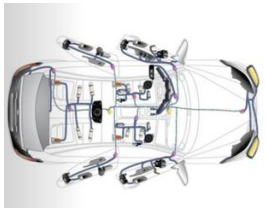
Competitor:
Infineon TC377/TC36x/TC33x/TC23x

Renesas RH850/U2A/C1M-A2/P1M-C

NXP
S32K358 S32K386 S32K344 S32K324 SPC57XXX

ST SPC58NXX
SemiDrive E34XX

FC7300应用领域

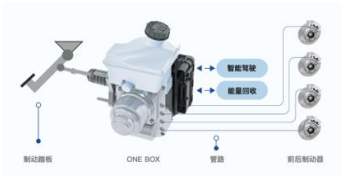


DCU/ZCU

- ASIL D, Evita Full, SM2/3/4/9
- Multi core with 300MHz
- Plenty of GPIO/PWM/ADC
- Up to 8M Flash, 1472K RAM
- 1 Gbit Ethernet with TSN
- 8 CANFD + 6 CAN (or 10 CANFD)

Onebox/EHB

- ASIL D, Evita Full, SM2/3/4/9
- Multi core with 300MHz
- Plenty of GPIO/PWM/ADC
- SENT, MSC
- 8 CANFD + 6 CAN (or 10 CANFD)



FC7300
ASIL D

Traction Invertor

- ASIL D, Evita Full, SM2/3/4/9
- Multi core with 300MHz
- Plenty PWM/ADC, SDADC
- 128K DTCM
- eFTU, HRPWM

HV BMS

- ASIL D, Evita Full, SM2/3/4/9
- Multi core with 300MHz
- Plenty PWM/ADC

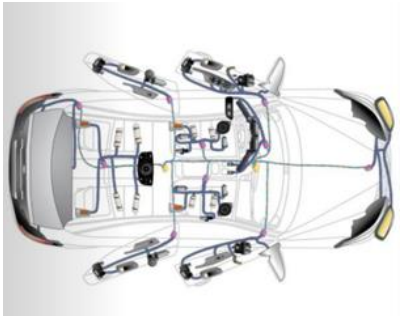
Target Application Matrix

	Motor control 电机控制	800V BMS 800V电池管理系统	Chassis Domain 底盘域控	ADAS Domain 智驾域控	ADAS others 智驾其他	Body-Zonal 车身区域控	OneBox 集成式电液线性制动	Suspension 悬挂系统	ESC 车身稳定系统	EPS 电子助力转向	APA 自动泊车	ABS 刹车防抱死
F7300F8MDT		√	√	√	√	√	√	√			√	
F7300F4MDD	√	√	√	√	√	√	√	√	√	√	√	
F7300F4MDS	√				√			√	√	√		√
F7240F2MDS	√				√				√	√		√

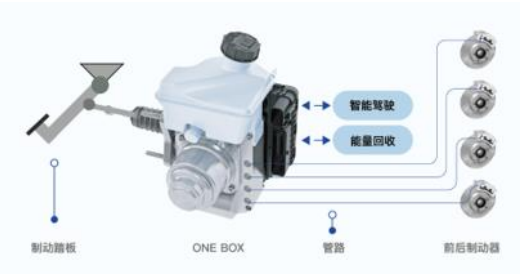
HV BMS

Chasiss-Domain

Safety MCU
AVP/APA/AEB



BDCU/ZCU

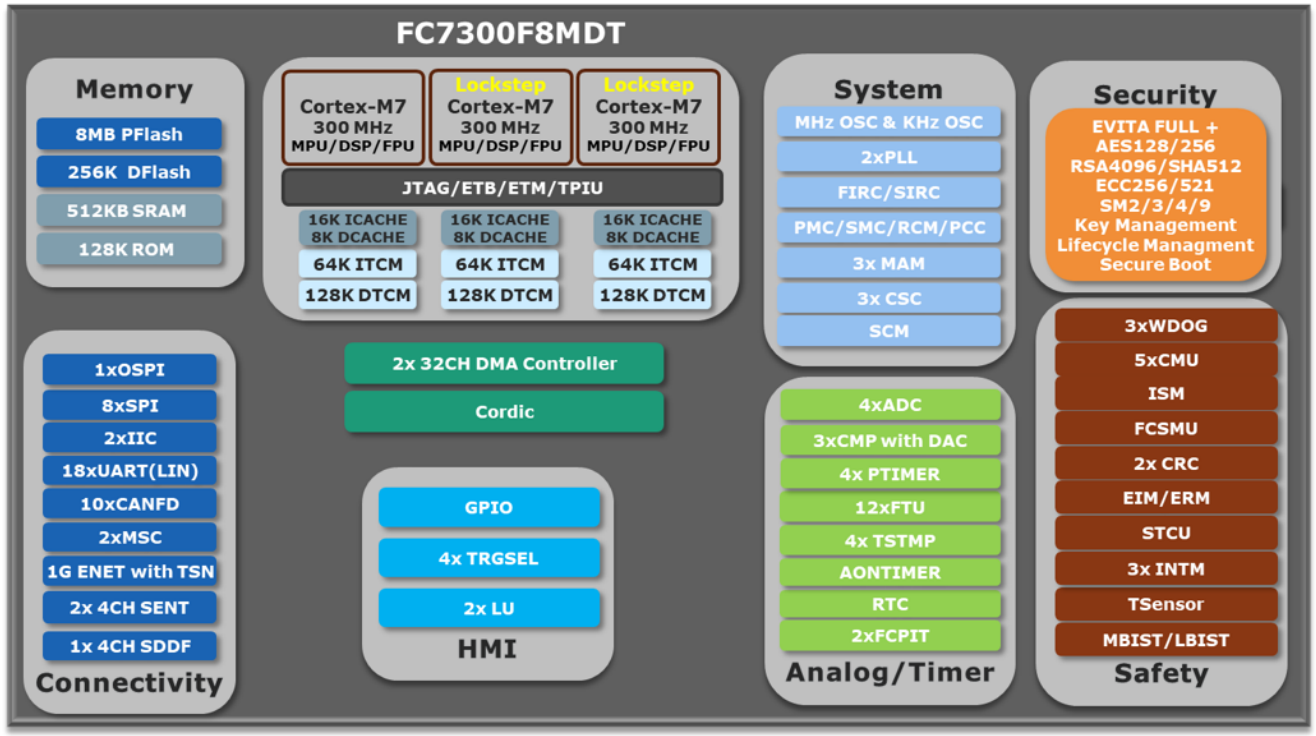


One Box

EV Drive

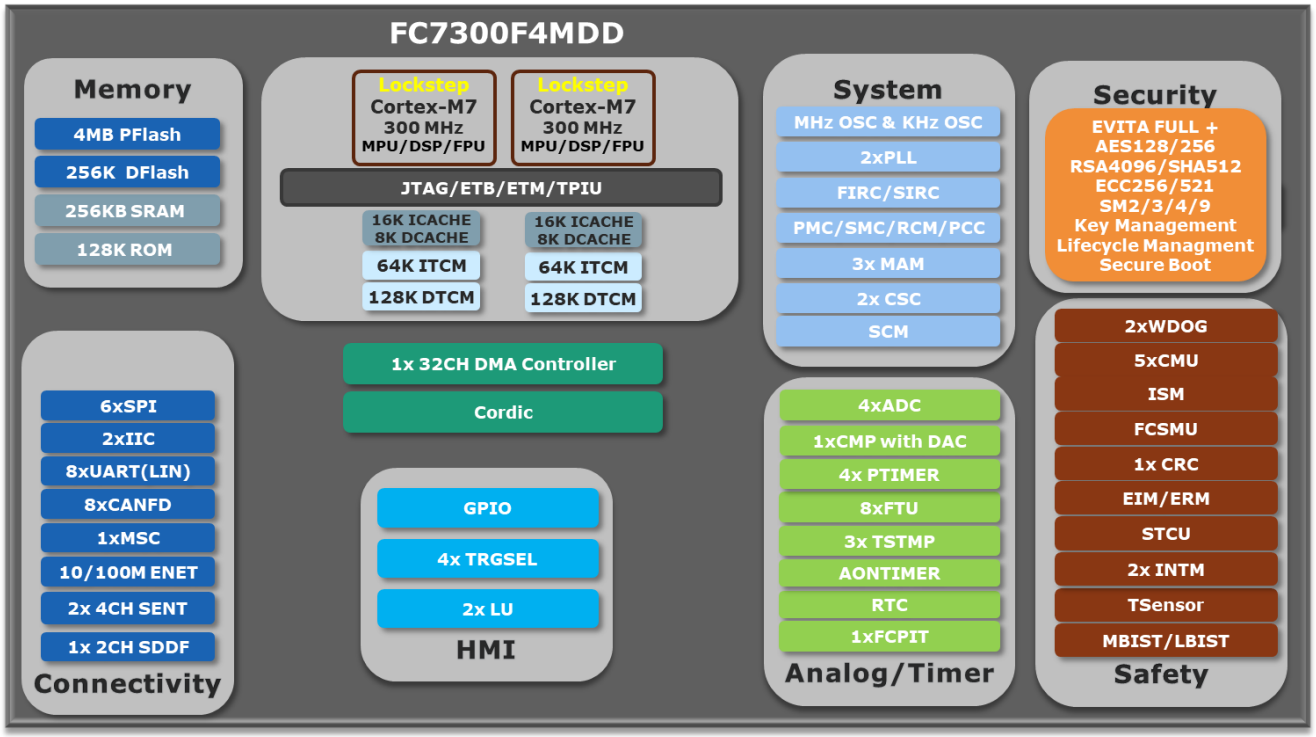
FC7300F8MDT Family – ISO26262 ASIL-D

- **High Performance**
  - **Three** Cortex M7 running at 300MHz (3.23 Dhrystone MIPS per MHz) with extra **two** checker core
  - 16kB ICache, 8kB DCache
- **Large memory**
  - **8MB** P-Flash, support A/B swap; 256K D-Flash
  - Up to **1088K** SRAM
- **Key Peripherals**
  - 1 Gbit Ethernet with TSN
  - 10 FlexCAN (with CAN-FD support)
    - Enhanced FIFO
  - 18 UART (with LIN support), 8xSPI, 2xI2C
  - 4xADC, 12-bit, up to 32-ch per module
  - 2x Micro Second Channel (MSC) modules
  - 2x 4ch Single Edge Nibble Transmit (SENT) modules
  - 12xFTU (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-D
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9, RNGM
  - EVITA full, Key Management, Secure boot
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 176LQFP-EP, BGA320



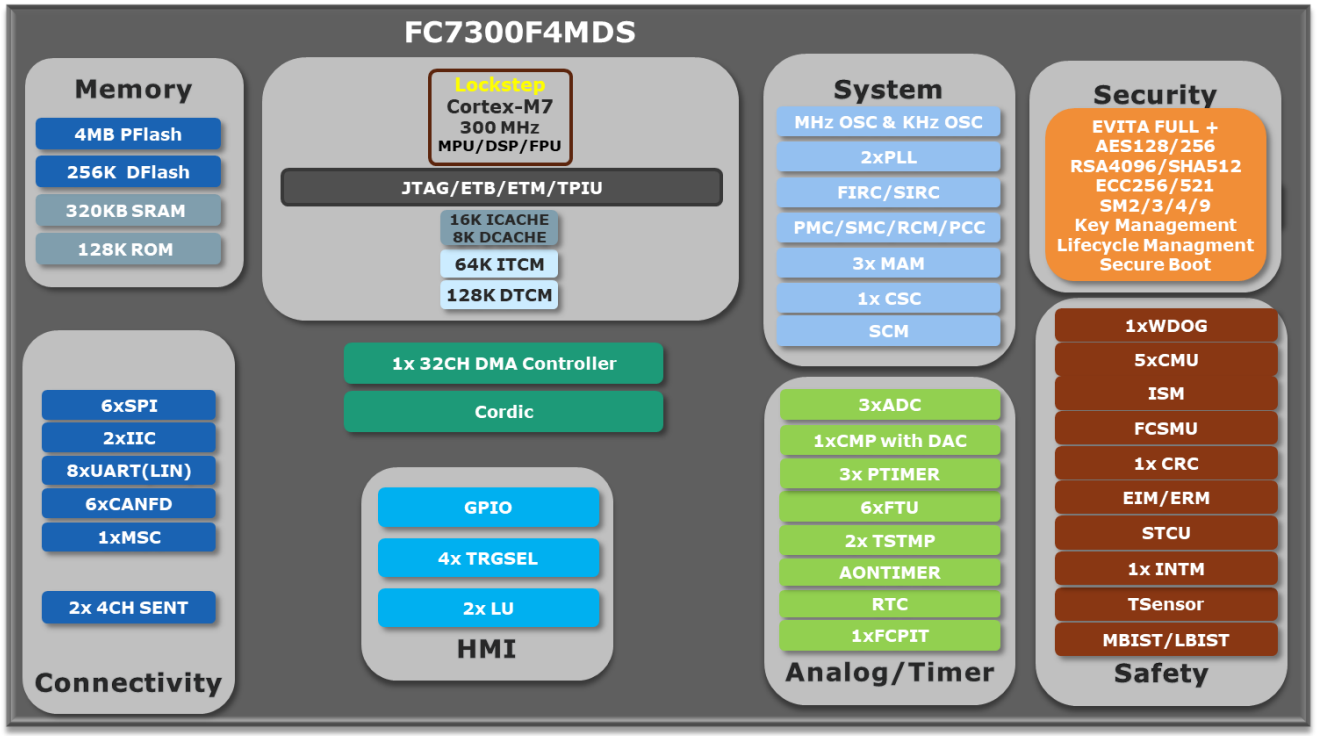
FC7300F4MDD Family – ISO26262 ASIL-D

- **High Performance**
  - **Two** Cortex M7 running at 300MHz (3.23 Dhrystone MIPS per MHz) with extra **Two** checker core
  - 16kB ICache, 8kB DCache
- **Large memory**
  - 4MB P-Flash, support A/B swap; 256K D-Flash
  - Up to 640K SRAM
- **Key Peripherals**
  - 10/100Mbit Ethernet with TSN
  - 8 FlexCAN (with CAN-FD support)
    - Enhanced FIFO
  - 8 UART (with LIN support), 6xSPI, 2xI2C
  - 4xADC, 12-bit, up to 32-ch per module
  - 1xACMP with 8-bit DAC
  - 1x Micro Second Channel (MSC) modules
  - 2x 4ch Single Edge Nibble Transmit (SENT) modules
  - 8xFTU (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-D
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9, RNGM
  - EVITA full, Key Management, Secure boot
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 176LQFP-EP, BGA320



FC7300F4MDS Family – ISO26262 ASIL-D

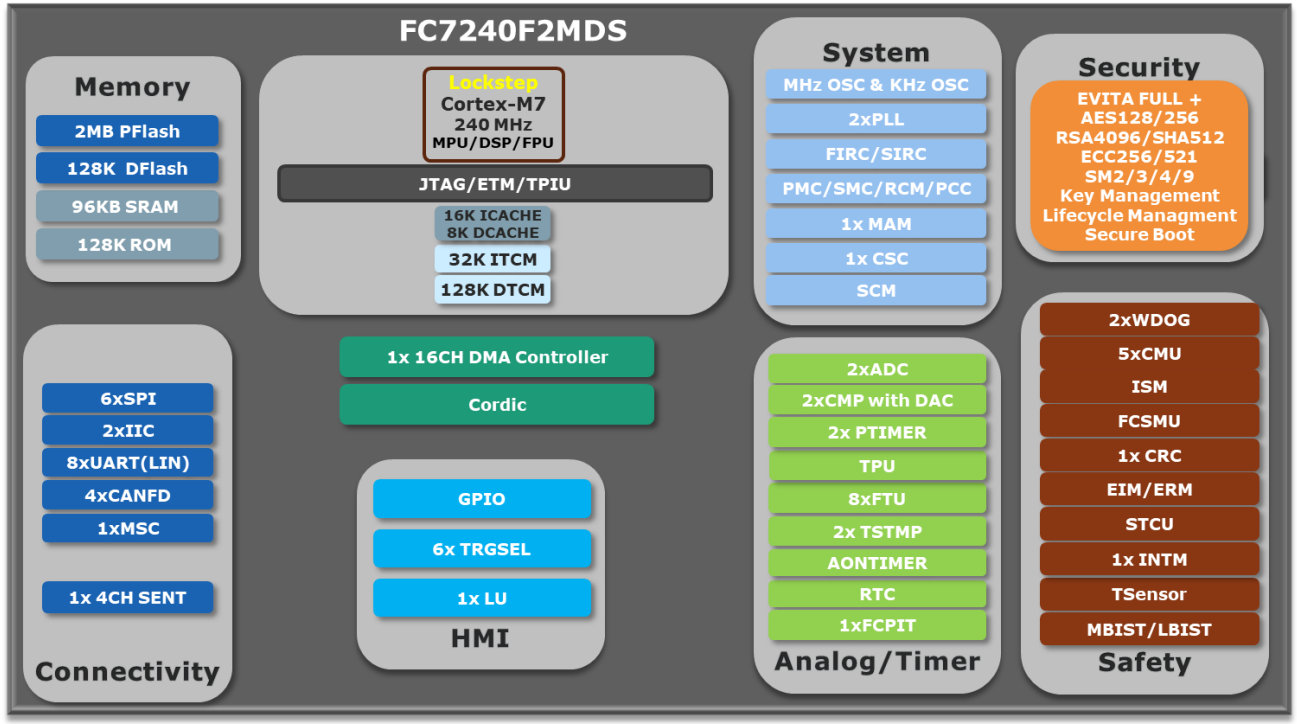
- **High Performance**
  - **One** Cortex M7 running at 300MHz (3.23 Dhrystone MIPS per MHz) with extra **One** checker core
  - 16kB ICache, 8kB DCache
- **Large memory**
  - 4MB P-Flash, support A/B swap; 256K D-Flash
  - Up to 512K SRAM
- **Key Peripherals**
  - 6 FlexCAN (with CAN-FD support)
    - Enhanced FIFO
  - 8 UART (with LIN support), 6xSPI, 2xI2C
  - 3xADC, 12-bit, up to 24-ch per module
  - 1xACMP with 8-bit DAC
  - 1x Micro Second Channel (MSC) modules
  - 2x 4ch Single Edge Nibble Transmit (SENT) modules
  - 6xFTU (Flexible Timer Unit), 16-bit
- **Safety & Security**
  - ISO 26262 ASIL-D
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9, RNGM
  - EVITA full, Key Management, Secure boot
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 176LQFP-EP, BGA320



AUTOSAR

FC7240F2MDS Family – ISO26262 ASIL-D

- **High Performance**
  - **One** Cortex M7 running at 240MHz (3.23 Dhrystone MIPS per MHz) with extra **One** checker core
  - 16kB ICache, 8kB DCache
- **Large memory**
  - 2MB P-Flash, support A/B swap; 128K D-Flash
  - Up to 256K SRAM
- **Key Peripherals**
  - 4 FlexCAN (with CAN-FD support)
    - Enhanced FIFO
  - 8 UART (with LIN support), 6xSPI, 2xI2C
  - 2xADC, 12-bit, up to 32-ch per module
  - 1x Micro Second Channel (MSC) modules
  - 1x 4ch Single Edge Nibble Transmit (SENT) modules
  - 8xFTU (Flexible Timer Unit), 16-bit
  - TPU
- **Safety & Security**
  - ISO 26262 ASIL-D
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9, RNGM
  - EVITA full, Key Management, Secure boot
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** LQFP-EP100/144/176



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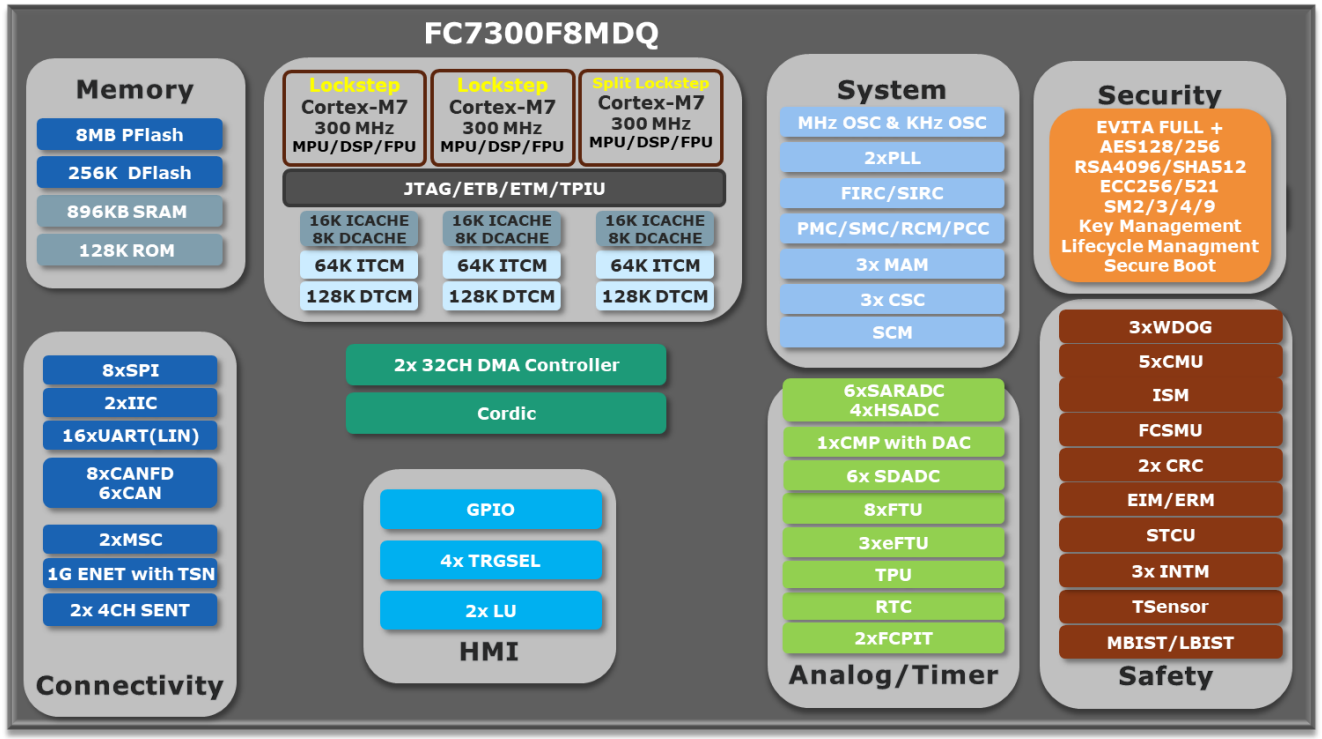
AUTOSAR

FC7300F8MDQ

- **High Performance**
  - **Three lockstep** Cortex M7 running at 300MHz (3.23 Dhrystone MIPS per MHz), **one is splitable**
  - 16kB I-Cache, 8kB D-Cache
- **Large memory**
  - **8MB** P-Flash, support A/B swap; 256K D-Flash; Flash overlay
  - Up to **1472K** SRAM
- **Key Peripherals**
  - 1Gbit Ethernet with TSN
  - 8 FlexCAN (with CAN-FD support)+ 6 CAN
    - Enhanced FIFO
  - 14 UART (with LIN support), 8xSPI, 2xI2C
  - 6xSAR ADC, 12-bit, up to 24-ch per module; 4xHSADC
  - 6xSD ADC, 16bit; 1xCMP
  - 2x Micro Second Channel (MSC) modules
  - 2x 4ch Single Edge Nibble Transmit (SENT) modules
  - 8xFTU (Flexible Timer Unit), 16-bit, one FTU is high resolution
  - 8 ch HSPWM (high resolution)，~210ps
  - 3 eFTU, each eFTU support GTM 8xTIM, 16xTOM and 2xDTM
  - 1xTPU with 32 channels, support Angle Count and flexible input capture function



- **Safety & Security**
  - ISO 26262 ASIL-D
  - HSM with AES/SM4/SHA/SM3/RSA/ECC/SM2/SM9, RNGM
  - EVITA full, Key Management, Secure boot
- **AEC-Q100 Grade 1**
- **Supply Voltage:** 3.0~5.5V
- **Package:** 176LQFP-EP, BGA320

Preliminary

旗芯微半导体
Flagchip as Flagship

Rex-FC7300 Family Sku's

	FC7240F2MDS	FC7300F4MDS	FC7300F4MDD	FC7300F8MDT
Core	Cortex-M7; 1*LS 240MHz	Cortex-M7; 1*LS 300MHz	Cortex-M7; 2*LS 300MHz	Cortex-M7; 2*LS+1 300MHz
Memory	RAM-256KB Code Flash-2MB Data Flash-128KB	RAM-512KB Code Flash-4MB Data Flash- 256KB	RAM-640KB Code Flash-4MB Data Flash- 256KB	RAM-1088KB Code Flash-8MB Data Flash- 256KB
Clock	FIRC96/PLL/SIRC12/SIRC32 K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32 K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32 K/OSC40M/SOSC32K	FIRC96/PLL/SIRC12/SIRC32 K/OSC40M/SOSC32K
Power	Input power_3~5.5V	Input power_3~5.5V	Input power_3~5.5V	Input power_3~5.5V
Peripheral	Digital I/Os x152, ADC-2x32ch/12bit, LINx8, SPIx6 DMAx16 with lockstep, CANFDx4, SENT,MSC,32ch TPU, Watchdog,	Digital I/Os x217, ADC-3x24ch/12bit, LINx8, SPIx6, DMAx32, CANFDx6, SENT,MSC, Watchdog,	Digital I/Os x247, ADC-4x32ch/12bit, LINx8, SPIx6, DMAx64, CANFDx8, Ethernet 10/100Mbit x1 with TSN, SENT,MSC, Watchdog,	Digital I/Os x247, ADC-4x32ch/12bit, LINx10, SPIx8, DMAx64, CANFDx10, Ethernet 1Gbit x1 with TSN, OSPI SENT,MSC, Watchdog,
Security	HSM, EVITA Full	HSM, EVITA Full	HSM, EVITA Full	HSM, EVITA Full
Safety	ASIL D	ASIL D	ASIL D	ASIL D
Package	LQFP-EP100/144/176	176LQFP-EP, BGA320	176LQFP-EP, BGA320	176LQFP-EP, BGA320

Competitor:
Infineon
TC377/TC36x/TC33x/ TC23x

Renesas
RH850/U2A/C1M-A2/P1M-C

NXP
S32K358 S32K386
S32K344 S32K324
SPC57XXX

ST SPC58NXX
SemiDrive E34XX

Quality And Certification

Quality Management

ISO 9001

- Quality Manual
- Organization Management
- Knowledge Management
- Document Control
- Design Flow Control
- Supply chain Management

ISO9001

ISO 26262

- Management Process
- HW Product functional safety
- Customer Deliver
  - ✓ Safety Manual
  - ✓ FMEA Analysis
  - ✓ Fault Coverage Report
  - ✓ Function safety plan and safety case
  - ✓ Certification document

ASIL D Process

IATF 16949

- Supply chain Management
- Annual Audit

GLOBAL FOUNDRIES

SMIC

JCET

ASE GROUP

华天科技 HT-Tech

Report & Certification

AEC-Q100

- CNAS/IEC 17025 Qualified Lab
- Beyond AEC-Q100 requirement

FC4150
AEC-Q100 Report

FC7300
AEC-Q100 Report

ISO 26262

- Flagchip's FC4150 has achieved ASIL B certification
- Flagchip's FC7300/7240 has achieved ASIL D certification

FC4150
ASIL B Product

FC7300/7240
ASIL D Product

旗芯微半导体
Flagchip as Flagship

旗芯微产品可靠性认证加严方案

旗芯微产品可靠性认证基于 AEC-Q100 标准之上，结合客户的需求，做了一系列的加严：

- ✓ AEC-Q100全部项目由CNAS认证的实验室在授权服务范围内执行
- ✓ 实验样品数超过3000pcs，每颗样品都有唯一追踪码和测试记录对应，方便数据分析和追踪
- ✓ 强大的半导体数据分析工具和专业的数据处理团队，实现PAT, SBA以及GDBC等零缺陷方法来满足车规要求
- ✓ 环境和寿命老化项目时间两倍于标准，确保15年以上的使用寿命
- ✓ HTOL采用电压和温度的双重加速因子，对模拟，数字和存储电路实现动态向量测试老化，并保持连续监控记录，确保有效性
- ✓ 对于嵌入式FLASH进行全阵列100K次擦写，150度下1008小时的的数据保持能力测试，确保15年以上的数据保存能力
- ✓ IC EMC测试项目除了AEC-Q100要求的辐射发射之外，也开展了辐射抗干扰，传导发射，DPI直接电流注入测试
- ✓ 全部项目读点都采用三温ATE电性能参数测试， 测试温度达到Tj 150℃，做到全项目可靠性试验前后电性能参数分布和退化分析

Branding Coverage 品牌覆盖

flagchip as flagship

Flagchip.com.cn