Innovative Leader for High Performance Cortex®-M4 MCU

2021.11

Artery Technology Company

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Introduction

About Us

An excellent 32-bit MCU designer

Artery Technology is a professional MCU design company founded in 2016. Since its establishment, ARTERY has been devoted to promoting innovation-driven development trend of 32-bit MCU in the global market. With leading chip R&D technology, complete silicon IPs and professional integration experience, we have managed to develop the Cortex®-M4 MCU with up to 288 MHz, realizing faster CPU execution.

Founded in 2016

Strong R&D team (up to 85%)

Leading R&D technology

Complete solutions

100M+ deliveries

About Us

Our vision

Continued efforts for an excellent 32-bit MCU designer

Core values

Sincere, practical, innovative and aggressive

Corporate social responsibility

Strive for a sustainable future with technology

Quality commitment

ISO 9001 Quality Management System Certification

JEDEC & IEC standards compliant

Quick and effective troubleshooting mechanism

Powerful tech support for your concerns

Help you find quick solutions with advanced technology we created.

Win-win cooperation

Profession

Development Timeline

2016

Established Artery Tech

A design company focusing on 32-bit MCU

2018

Advanced Process

55nm applied to the whole AT32 family

2019

Rich MCU Selection

Up to 100+ Parts

2020

ISO 9001 Certification

Passed ISO 9001 certification

2021

Booming Shipment Since 2018

100M+ units by the end of 2021.

Quality & Awards

Awards

ISO 9001 Quality Management System Certification

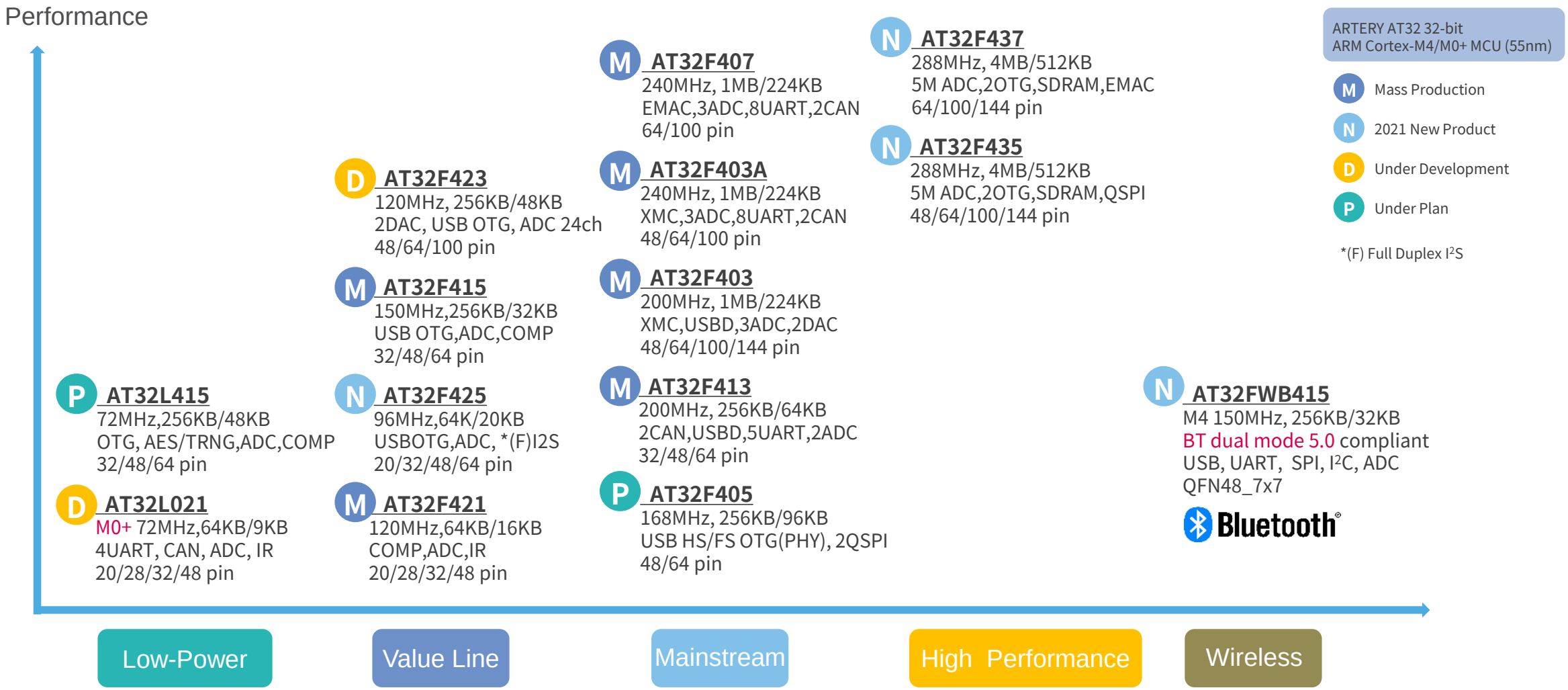
Best MCU Product Award & Most Potential IC Designer Award 2019

The 3rd IC Unicorn 2020

Potential IC Designer 2021

Product Roadmap & Ecosystem

AT32 32-bit ARM Cortex-M4/M0+ MCU (55nm)



MCU Package List

20-pin TSSOP
6.5 x 4.4 mm

20-pin QFN
3 x 3 mm

28-pin QFN
4 x 4 mm

32-pin QFN
4 x 4 mm

32-pin QFN
5 x 5 mm

48-pin QFN
6 x 6 mm

32-pin LQFP
7 x 7 mm

48-pin LQFP
7 x 7 mm

64-pin LQFP
7 x 7 mm

64-pin LQFP
10 x 10 mm

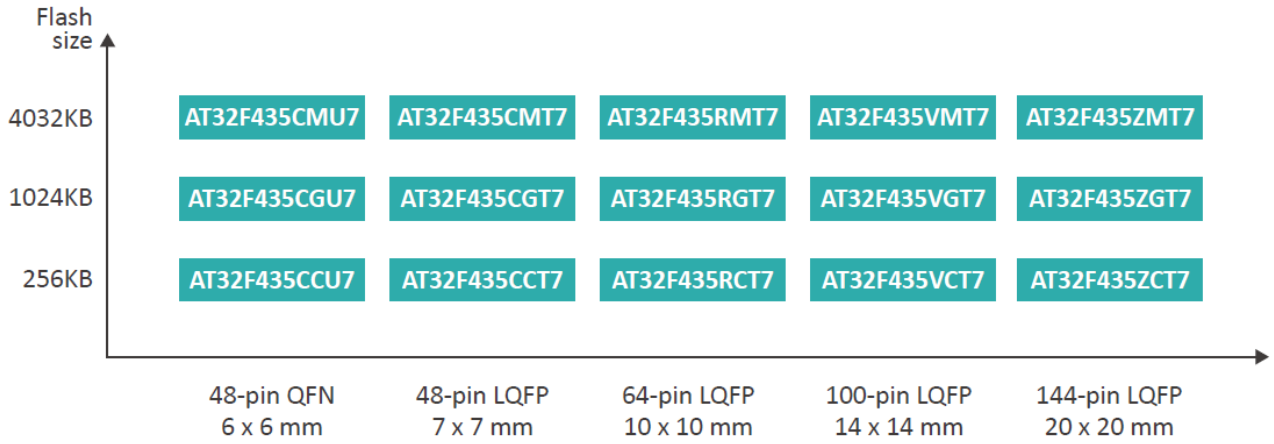
100-pin LQFP
14 x 14 mm

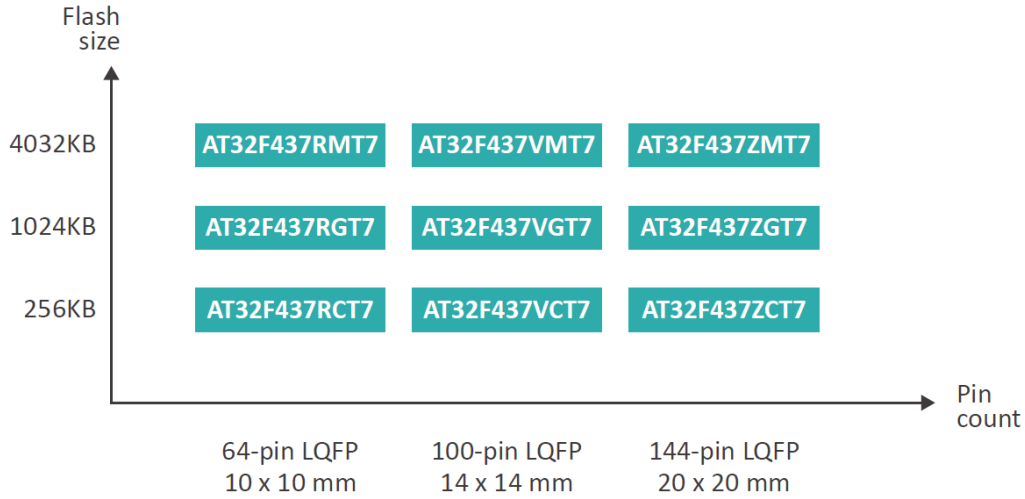
144-pin LQFP
20 x 20 mm

- Minimum area
  - QFN20 3x3 ($9mm^2$)
  - Pitch: 0.4mm
  - Thickness: 0.75mm
- Various packages
  - LQFP
  - QFN
  - TSSOP

High performance MCU – AT32F435/437

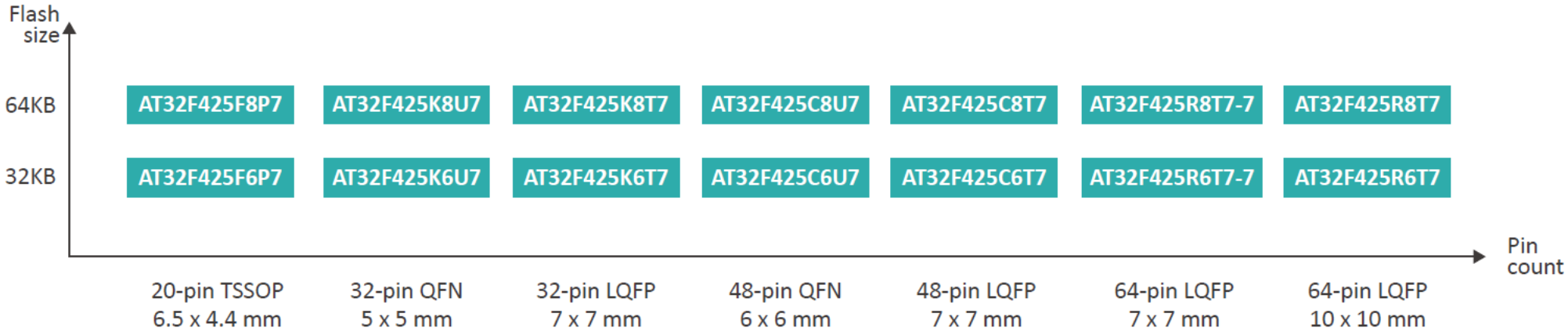
- Product positioning:
  - 288 MHz MCU / Rich digital and analog peripherals
  - Applications: sweet robot, micro printer, IoT gateway, serial server, HMI, LED display, QR code scanner, industrial control and 5G
- Specifications:
  - Cortex-M4 288 MHz CPU, DSP + FPU
  - 256/1024/4032KB Flash, 512KB SRAM
- Main features:
  - 3x 12-bit 5.33 Msps ADC
  - 8~14 bit digital video parallel interface (DVP)
  - IEEE-802.3 10/100Mbps Ethernet controller (F437 only)
  - SDRAM extension/2 QSPI/2 USB OTG/8 UART/2 CAN
- Packages available:
  - QFN48, LQFP48, LQFP64, LQFP100, LQFP144





Ultra-value USB OTG MCU – AT32F425

- Product positioning:
  - The most cost-effective USB OTG MCU
  - Applications: gaming keypad, gaming mouse, USB accessories, micro printer, OBD, industrial control, motor control
- Specifications:
  - Cortex-M4 96MHz CPU, DSP
  - 32+4/64+4KB Flash, 20KB SRAM
- Main features:
  - SRAM with parity check
  - USB OTG (support Xtal-less in device mode)
  - High-speed 2 Msps ADC
  - 4 UART/2SPI (I^2S)/2 I^2C/CAN
- Packages available:
  - TSSOP20, QFN32, QFN48
  - LQFP32, LQFP48, LQFP64



AT32 MCU Ecosystem

Product selector ---------- Development design ---------- Tech/Trial run support ---------- MP/Upgrading ---------->

PSG

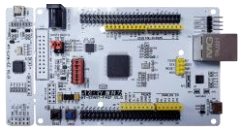
User guide

Cross Ref.

Application solutions

- USB OTG
- QR Decode
- IAP
- LittlevGL
- IEC 60730
- Ethernet

AT-START board



IDE

KEIL Tools by ARM

IAR SYSTEMS

eclipse

AT32F4xx Std library (BSP)

- 100+ example codes
- FreeRTOS
- sLib, IAP Demo, USB OTG demo
- RT-Thread OS/IDE

Tech documentation

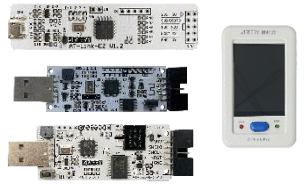
Datasheet
FAQ/AP note
Example code

Sample testing

Online & offline FAE support

Reliability test

Programming tools



3rd party

User firmware protection

- Encrypted programming
- sLib for secondary development/algorithm protection

sLib

AT32 MCU Tech Support Trilogy

Development

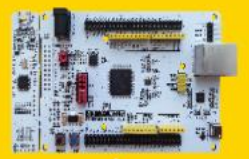
AT-SURF-437

KEIL Tools by ARM

eclipse

Target Board SWD USB

RT-Thread Studio



AT-START-Board

IAR SYSTEMS

Clock Config Tool

OS Support : FreeRTOS & RT-Thread

Mass Production

On-Line Programming

Target Board SWD USB

ICP AP

Target Board

Target Board

UART/USB

ISP AP

ISP Multi-Port Tool

Off-Line Programming

Target Board SWD

3rd party Writer

Upgrade

In System Programming

ISP AP

Through
-UART
-USB

In Application Programming (OTA)

IAP AP

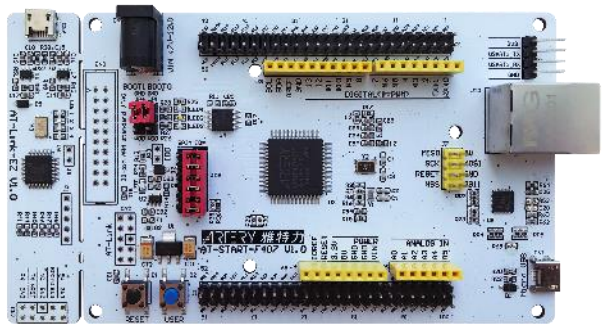
Through
-UART
-USB
-I²C
-SPI
-CAN
-Ethernet

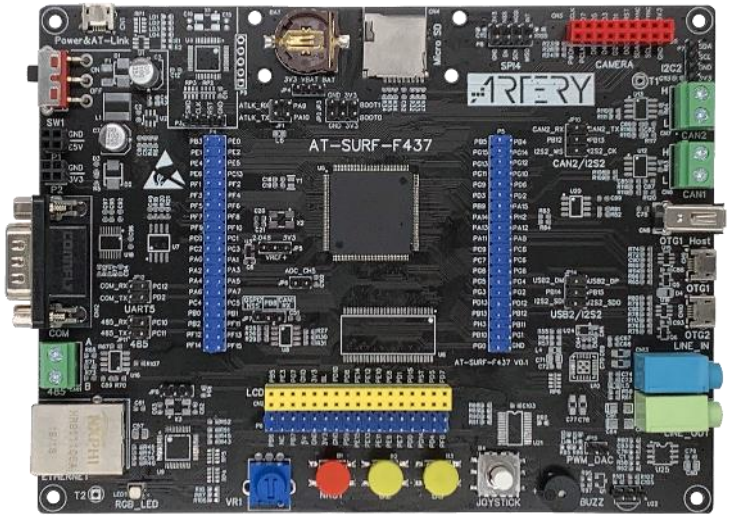
Open Source
Boot Loader (Firmware)
PC GUI Tool (Software)

AT-START / SURF Board

AT-START

- Connected to main MCU via AT-Link/J-Link
- Compatible with Arduino™ UNO R3 hardware interface
- Update code using UART/USB DFU





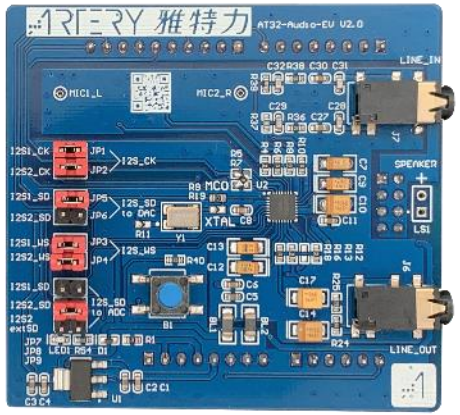
AT-SURF-F437

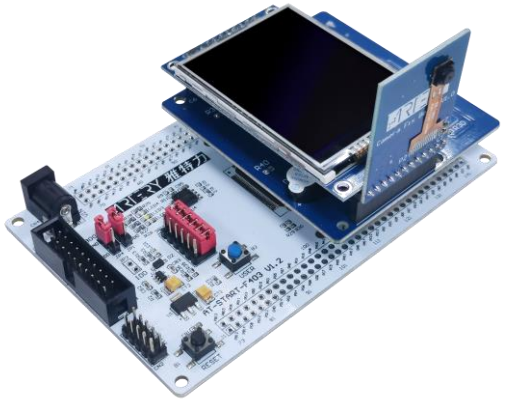
- 288MHz ultra-high speed/ Extend 256Mb SDRAM onboard
- 2 million pixel digital camera/3.5–inch 480x320 TFT-LCD screen
- Standard communication interface (RS-232, RS-485 and dual CAN receiver/transmitter)
- Dual OTG and 10/100M Ethernet
- MIC / LINE IN / LINE OUT

AT32-Audio / Video / LCD Board

AT32 Audio Evaluation Board

- Support multi-media playback through audio signal processing
- Standard Arduino™ Uno R3 extension interface
- Support 2 MIC input / LINE IN / LINE OUT





AT32 Video Evaluation Board

- Support multiple image data processing
- Standard Arduino™ Uno R3 extension interface
- SPI interface QVGA CMOS Sensor
- 2.4-inch TFT LCD screen

AT32 LCD Evaluation Board

- Support 2.8-inch 240x320 TFT-LCD resistance touch screen

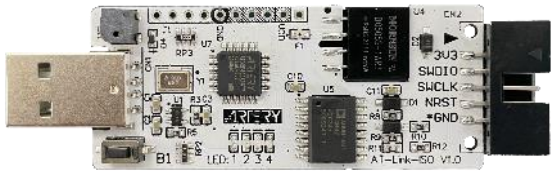
AT-Link Family

AT-Link-Pro

- IDE online debugging, online/offline programming, output voltage regulating, offline parameter setting and USB-to-serial-interface
- Support LCD display and touch operation

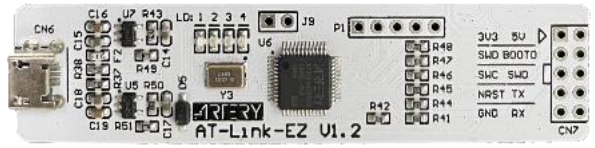
AT-Link

- Online/offline programming



AT-Link-ISO

- Enhanced isolation protection over AT-Link



AT-Link-EZ

- Online programming

Third-party Programmer Supported

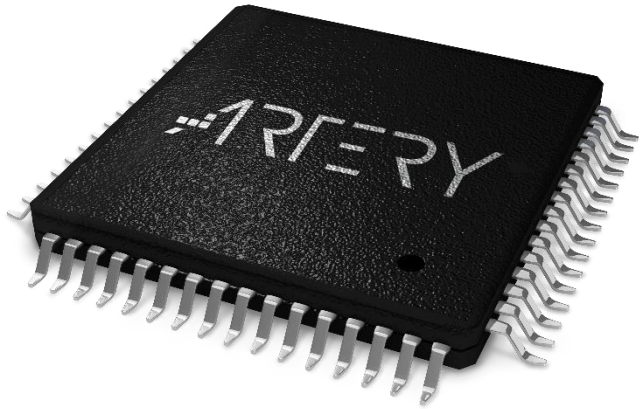
- In addition to ARTERY official tools (ICP/ISP), the following programmers are also supported:
  - Acroview (www.acroview.com)
  - Alientek (www.alientek.com)
  - Armfly (www.armfly.com)
  - Depiprog (www.dediprog.com)
  - Y-chuang (https://www.forcreat.com)
  - ICWORKSHOP (www.icworkshop.com)
  - MaxWiz (www.maxwiz.com.cn)
  - SG (www.sg.com.tw)
  - XELTEK (www.xeltek-cn.com)
  - XWOPEN (https://xuanweikeji.taobao.com)

Product Highlights

High-Efficient Core
M0/M3 → M4+DSP+FPU

Cost-Effective
Enjoy M4 performance with only M0 price

Maximum Frequency
72 MHz~288 MHz



Advanced Process
55nm

Security Library
Comprehensive protection

Tools
Various development tools &
3rd party programmers

Wider Temperature
-40°~105 ℃

Successful Applications

Industrial Control Applications

F403A / F413 / F421

Electric scooter controller

F403A / F413 / F407

Industrial sewing machine

F403A / F413

F415/ F421

Intelligent circuit breaker

F403A / F407

Industrial HMI

F403A / F413

Elevator

Automotive Electronics and Power Applications

F430A / F413

Intelligent charging pile

F403A / F413

ADAS

F403A / F413

T-Box (Automotive)

F413 / F415

OBDII / CAN Box

F415 / F421

BMS

F421

Inverter

F403A / F413 / F421

Photovoltaic

F403A / F413 / F421

Digital power

Business Applications

F437 / F407/ F403A F413/ F415

Micro printer

F437/ F407 / F403A

Surveillance

F403A / F415

Digital water/electricity meter/ heating meter

F437/ F407

Serial port server

F415

Barcode scanner

F403A

QR code scanner

F437 / F403A / F413

Stage lighting

F407/ F403A / F415

KVM & KVM Dongle

Consumer Electronics Applications

F403A / F415

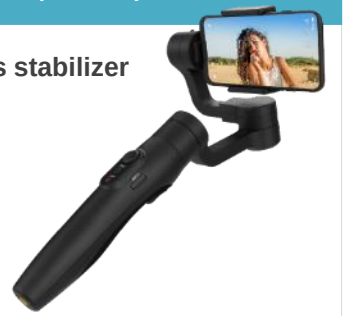
Sweep robot

F435 / F403A

Electronic whiteboard

F403A / F413/ F415

3-axis stabilizer



F415/ F421

Synchronous/Asynchronous LED display

F421 / L021

High-speed vacuum cleaner

F405 / F415 / F425

Gaming mouse/keyboard

F415 / F425

Gaming pad

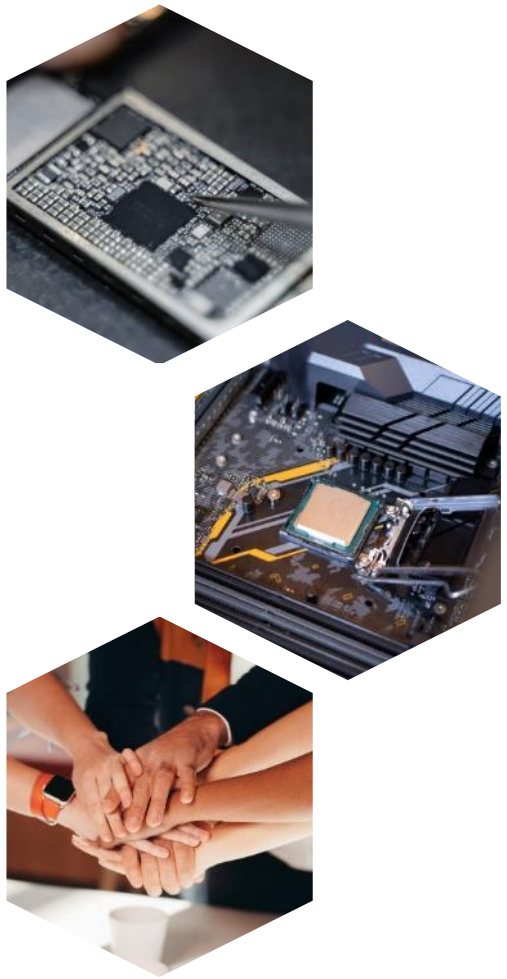
F403A / F413 / F415

Balance scooter/panel

F421 / L021

Electric handheld tools

Focus on Our Advantages



Leading R&D technology

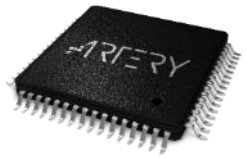
- Rich experience in high-end microcontroller development and applications
- Advanced technology and diversified silicon IP suited to various applications
- Powerful tech support from Faraday team
- Successful experience in high-level ARM Core SoC

Optimized process and cost-competitiveness

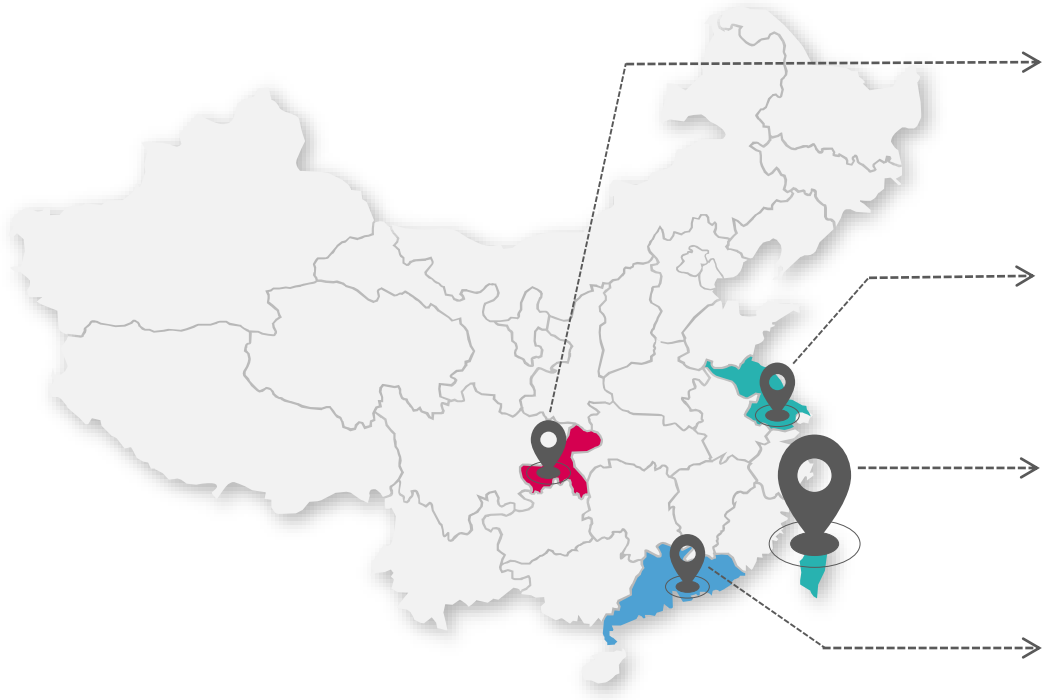
- 55nm process for higher performance and lower consumption and costs
- Strong support from UMC for better control in quality, supply and costs

Local strategic partners(Wafer/IP/Package/Test)

UMC 聯華電子 · GREATEK · CYTEC · FARADAY · HUA TIAN 华天科技 · HiSEMI



Contact Us



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