AVNET SILICA

Brilliance of IoT Designs

Smart | Connected | Secure

IoT Design Challenge

IoT has dramatically increased the complexity of designs including sensors, actuators and gateways. Complex challenges include increasing lines of software, integration of complex communication IPs, additional middleware and operating systems and integrating best practices for data security and authentication. Failures and unfavorable delays are often the results. To make your life more relaxed, Microchip offers some of the best practices and solutions for IoT design.

IoT Mission

What is brilliance? It is making complex things simple. Experience and feel how Microchip has reduced the complexity and effort required to design embedded IoT devices—smart design, connected to any cloud and highly secure.

Microchip's IoT Value Proposition

- Any core any cloud
- Smart, connected and secure
- Design and scale fast and easy from proof of concept to millions

IoT

www.microchip.com/IoT

MICROCHIP

IoT Enabled Reference Boards

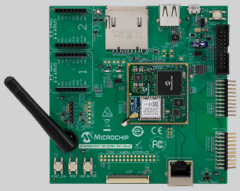
Reference Boards, Evaluation Boards and Function Boards Demonstrating Ready-to-Go Embedded IoT Solutions

ATSAMA5D27-WLSOM1

- Simplify your MPU gateway design with ready-to-use hardware and software
- Featuring: ATSAMA5 SiP - 2 Gbit LPDDR2, Wi-Fi®, BLE® combo module, secure element with pre-provisioning service, power and Ethernet
- Long-time availability

www.microchip.com/ATSAMA5D27-WLSOM1

- **Arm® A5 MPU wireless SOM RED/FCC certified**
- **Preprovisioned**
- **For Cloud authentication**
- **Low power**
- **AWS, MS Azure, Google**
- **Linux®**

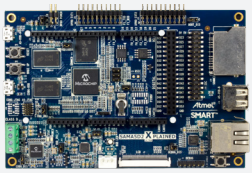


ATSAMA5D27-WLSOM1-EK1 Evaluation Kit (DM320117)

- Get started in no time to build your secure Linux gateway
- SAMA5D27-WLSOM1
- RF antenna
- Ethernet, TFT, USB
- Full Linux distribution available

www.microchip.com/ATSAMA5D27-WLSOM1

- **Arm A5 WLSOM evaluation and prototyping**
- **Secure Linux**
- **Cloud gateway**

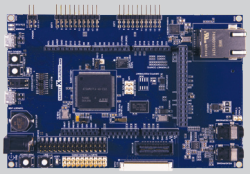


Cortex-M4 based controller system platform running FreeRTOS™. The board can easily extended by further system functions like security, authentication, Ethernet and CAN FD.

Code examples for many functions available.

https://github.com/MicrochipTech/amazon-freertos/blob/mchpdev/Getting%20Started%20with%20the%20Microchip%20SAME54%20XPRO.md

- **FreeRTOS**
- **Arm Cortex-M4**
- **System expandable**



Cortex-M7 based controller system platform running FreeRTOS. The board can be easily extended by further system functions like security, authentication, Ethernet, CAN and camera. It is also offering an Andruio™ Mega interface.

Code Examples are available.

https://github.com/MicrochipTech/amazon-freertos/blob/mchpdev/Getting%20Started%20with%20the%20Microchip%20SAME70%20XULT.md

- **FreeRTOS**
- **Arm Cortex-M7**
- **System expandable**

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LoRa SiP ATSAMR34 System Evaluation Platform

- FCC, ISED and RED certified board
- Can be combined with ATECC608A evaluation board with pre-provisioning for TTI or Actility
- Chip-down design package

www.microchip.com/dm320111

- LoRa®
- LoRa security
- LoRa stack
- TTI
- TTN
- Actility

AVR-BLE Development Board (DT100111)

- 8-bit AVR® MCU
- BLE module
- Secure element
- MicroE socket for functional extension, app

www.microchip.com/DT100111

- Bluetooth® LE
- Smart AVR CPU
- Secure
- App
- Expandable module

PIC-BLE Development Board (DT100112)

- 8-bit PIC® MCU
- BLE module
- Secure element
- MicroE socket for functional extension, app

www.microchip.com/DT100112

- Bluetooth LE
- Smart PIC CPU
- Secure
- App
- Expandable module

AVR-IoT WG Development Board (AC164160)

- Wi-Fi® Google Cloud demo
- 8-bit AVR CPU
- Pre-provisioned secure element
- Certified Wi-Fi module
- Google Sandbox

www.microchip.com/AC164160

- Wi-Fi
- Google Cloud
- Smart AVR CPU
- Secure
- Preprovisioned
- Authentication
- Sandbox on Google Cloud

AVR-IoT WA Development Board (EV15R70A)

- Wi-Fi AWS Cloud demo
- 8-bit AVR CPU
- Pre-provisioned secure element
- Certified Wi-Fi module
- AWS sandbox

- Wi-Fi
- AWS Cloud
- Smart AVR CPU
- Secure
- Preprovisioned
- Authentication
- Sandbox on AWS

PIC-IOT WG Development Board (AC164164)

- Wi-Fi Google Cloud demo
- 16-bit PIC MCU
- Pre-provisioned secure element
- Certified Wi-Fi module
- Google Sandbox

www.microchip.com/ac164164

- Wi-Fi
- Google Cloud
- Smart PIC CPU
- Secure
- Preprovisioned
- Authentication
- Sandbox on Google

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PIC-IOT WA Development Board (EV54Y39A)

- Wi-Fi AWS Cloud demo
- 16-bit PIC MCU
- Preprovisioned secure element
- Certified Wi-Fi module
- AWS Sandbox

- Wi-Fi
- AWS Cloud
- Smart
- Connected
- Secure

SAM-IoT WG Development Board (EV75S95A)

- Wi-Fi Google Cloud demo
- 32-bit Cortex CM0+ MCU
- Preprovisioned secure element
- Certified Wi-Fi module
- Google Sandbox

- SAMD21
- Wi-Fi
- Google Cloud
- Smart
- Connected
- Secure

CEC17xx Based System Development Board

- Secure Boot and update especially for MPU, FPGA booting from external memory
- Cortex-M4 CPU, integrated Crypto accelerators. Framework supports Microsoft DICE and Microsoft Azure

www.microchip.com/DM990013-BNDL

- Microsoft Azure
- Microsoft DICE
- Crypto Accelerator
- Root of Trust
- Security companion for MPU, FPGA

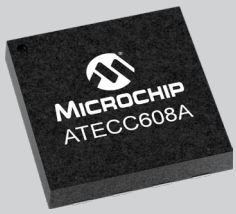
KSZ8477 Managed Switch

- 7-Port Gigabit switch for time-sensitive industrial IoT applications.

www.microchip.com/ksz9477

- IIoT
- GigE Switch
- TSN
- AVB

IoT Enabling Focus Products



Secure Element - Trust Platform

- Secure authentication for any cloud any core and network including secure key storage
- Factory service for pre-provisioning for any cloud (eg AWS, MS Azure, Google, TTI, Actility)
- Supports Secure Boot, Secure OTAU
- Keep your secrets secret at best level
- Protect your brand

www.microchip.com/trust-platform

- IoT security
- Cyber security
- Factory preprovisioning
- Authentication
- Any cloud any core
- JIL high

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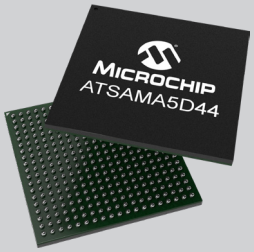
CEC1702 Cortex-M4-Based Microcontroller With a Complete Hardware Cryptography

- Microsoft Azure for IoT Certified device with DICE (Device Identity Composition Engine)

www.microchip.com/CEC1702

- Hardware cryptography
- Microsoft Azure
- DICE
- Root of Trust
- Secure Boot for MPU, FPGA
- Robust hardware cryptography cypher suite

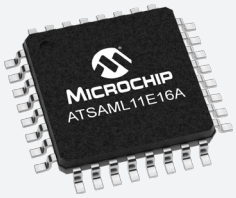


ATSAMA5 Cortex-A5 MPU With TrustZone and PCI

- PCI pre-certified for payment applications
- AWS Greengrass qualified; Linux support
- Low power; long-time availability
- SiP version available with stacked DDR RAM

www.microchip.com/design-centers/32-bit-mpus/microprocessors/sama5/sama5d2-series

- PCI compliant
- Cash systems
- Security
- Authentication
- Tamper
- Secure Boot
- Secure update

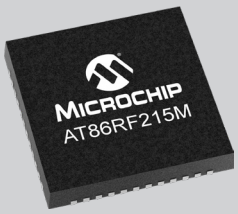


ATSAML11 – Cortex-M23 TrustZone

- Trustonic's Kinibi-M™ solution and Secure Thingz
- Robust chip-level security
- Secure Boot, Secure Update

www.microchip.com/design-centers/32-bit/sam-32-bit-mcus/sam-l-mcus/sam-l10-and-l11-microcontroller-family

- Cortex-M23
- TrustZone
- Security
- Preprovisioning
- Authentication
- Secure Boot
- Active shield



AT86RF215 is a Dual-Band Sub-1 GHz/2.4 GHz Transceiver

- Compliant to IEEE 802.15.4-2011, IEEE 802.15.4g-2012, and ETSI TS 102 887
- Only chip worldwide chip with dual band based on IEE802.15.4

www.microchip.com/AT86RF215

- 802.15.4 dual band
- zigbee®
- Sub GHz + 2.4 GHz
- Metering
- Cross region

ATSAMR34 LoRa SiP Module

- Accelerate your LoRa end-node development with industry's lowest-power SAM R34 LoRa SiP devices

www.microchip.com/design-centers/wireless-connectivity/low-power-wide-area-networks/lora-technology

- ATSAMR34
- LoRa
- Low power
- LoRa security
- LoRa stack

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RN4870 Bluetooth Low Energy Module

- Bluetooth 5 certified module
- Easy-to-use ASCII command interface for communication with the host microcontroller
- Microchip Bluetooth Data (MBD) mobile app

www.microchip.com/RN4870

- RN4870
- RN4871
- Bluetooth LE
- DT100111
- DT100112
- Certfied module

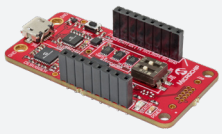
ATWINC1500

- Certified Wi-Fi module
- Single-band 2.4 GHz b/g/n IoT Network controller
- Extreme-low power
- PCB Antenna
- Tested for more than 70 Countries

www.microchip.com/ATwinc1500

- ATWINC1500
- ATWINC1510
- Wi-Fi
- Embedded security
- Embedded network stack Google Cloud, AWS, Azure
- Certified module

IoT Accessories



Trust Platform Development board (DM320118)

- Featuring ATECC608A Trust&GO TLS
- ATECC608A TrustFLEX TLS
- ATECC608A TrustCUSTOM

www.microchip.com/DM320118

- Secure element
- Provisioning
- Any core
- Any network
- Any cloud

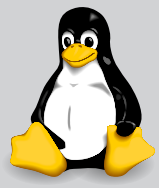
WINC1500 Wi-Fi Smart Device Enablement Kit: AWS Cloud + Alexa

Microchip's Wi-Fi Smart Device Enablement Kit is designed to accelerate adding Alexa voice control to your existing application, enabling rapid prototyping based on a Cortex-M0+ low-power controller and a Wi-Fi module, security and authentication. Code Examples are available.

https://github.com/MicrochipTech/winc1500-wifi-smart-device-enablement-kit-aws-cloud

- Alexa voice control
- Wi-Fi
- Security
- Authentication

IoT - Service, Support and Trainings



Microchip Linux Solutions

Get started with Linux on our microprocessors and explore the potential of the combined hardware and software platform.

www.Linux4SAM.org

- Yocto, Buildroot, openWRT
- Device tree peripheral drivers
- Security updates
- Maintaining stable kernels

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SAMA5D2 Intelligent Gateway

Get started building your edge computing cloud gateway on SAMA5D2 with increased reliability and reduced operating costs.

https://www.microchip.com/design-centers/internet-of-things/amazon-web-services/intelligent-gateways

- SAMA5D2 edge computing
- Cloud function locally at the edge
- AWS Greengrass
- Linux

Design Check Services

- LANCheck™ Design Review
- MPUCheck
- USBCheck™ Design Review
- WirelessCheck Design Review

www.microchip.com/design-check-services

- Design and layout review
- Added value
- LANCheck
- MPUCheck
- USBCheck
- WirelessCheck

Masters Training Conferences Worldwide

MICROCHIP MASTERs Conference

- Training conference with more than 100 classes
- Transfer knowledge
- Become an expert
- Security, Ethernet, USB, Linux

http://techtrain.microchip.com/masters/Home.aspx

- Become a design expert
- Design efficiency
- Networking
- IoT trainings
- Security, Ethernet, USB and more

Shields Up: System and Data Security Webinars

MICROCHIP SHIELDS UP!

1. Implementing Multizone Security in RISC-V Applications
2. Protecting Your IP in a Cloud-Connected World
3. Trust Your Firmware: Secure Boot for Application Processors
4. RISC-V Enclaves
5. The Importance of Quantum Resistance for Critical Security Functions
6. Trust&GO for Any Cloud
7. Guidelines to Securing Embedded Applications
8. Trust Platform for the CryptoAuthentication™ Family

www.microchip.com/promo/shields-up-webinar-series

- Webinars about security
- Trust&Go
- RISC-V

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