

muRata SPEAKS

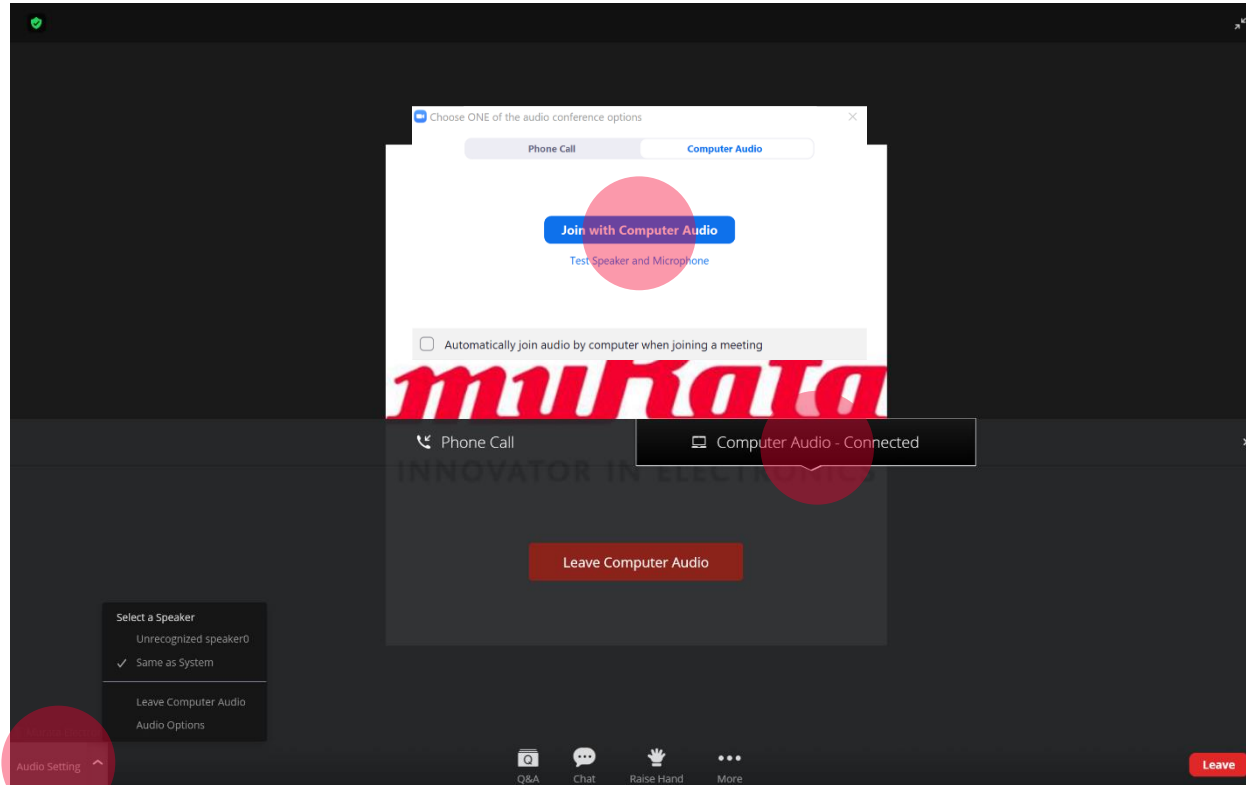
TECHNOLOGY | SOLUTIONS | INNOVATIONS

Murata Speaks - Monthly Webinar Series #12 [Aug 2021]

Infinite Technologies Asia Pacific
Murata Electronics Singapore & India

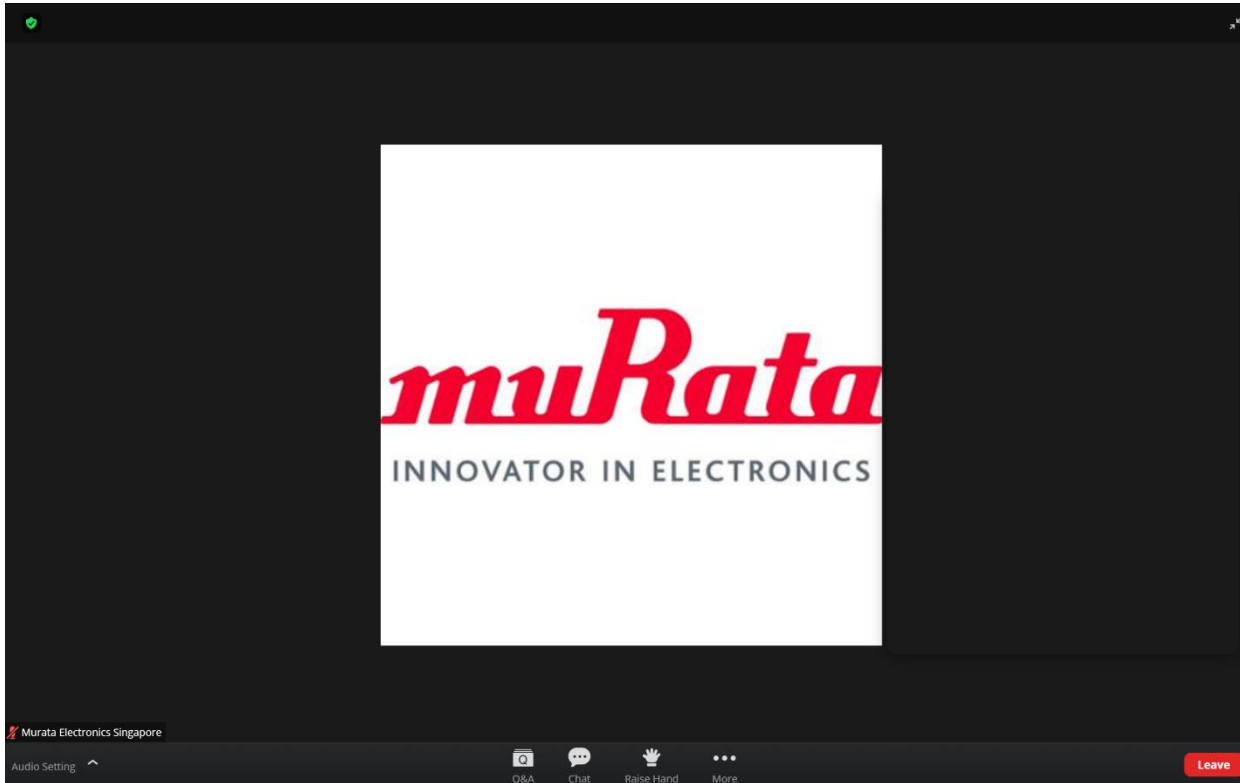


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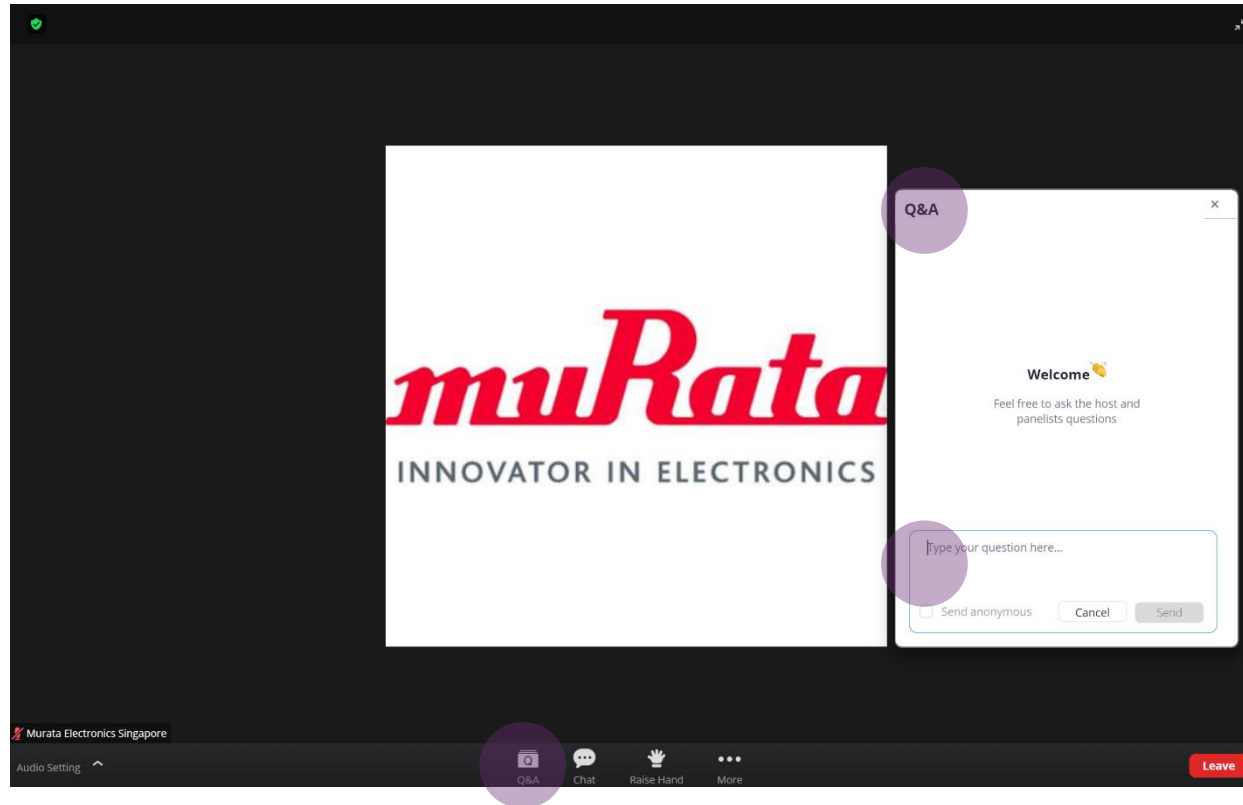


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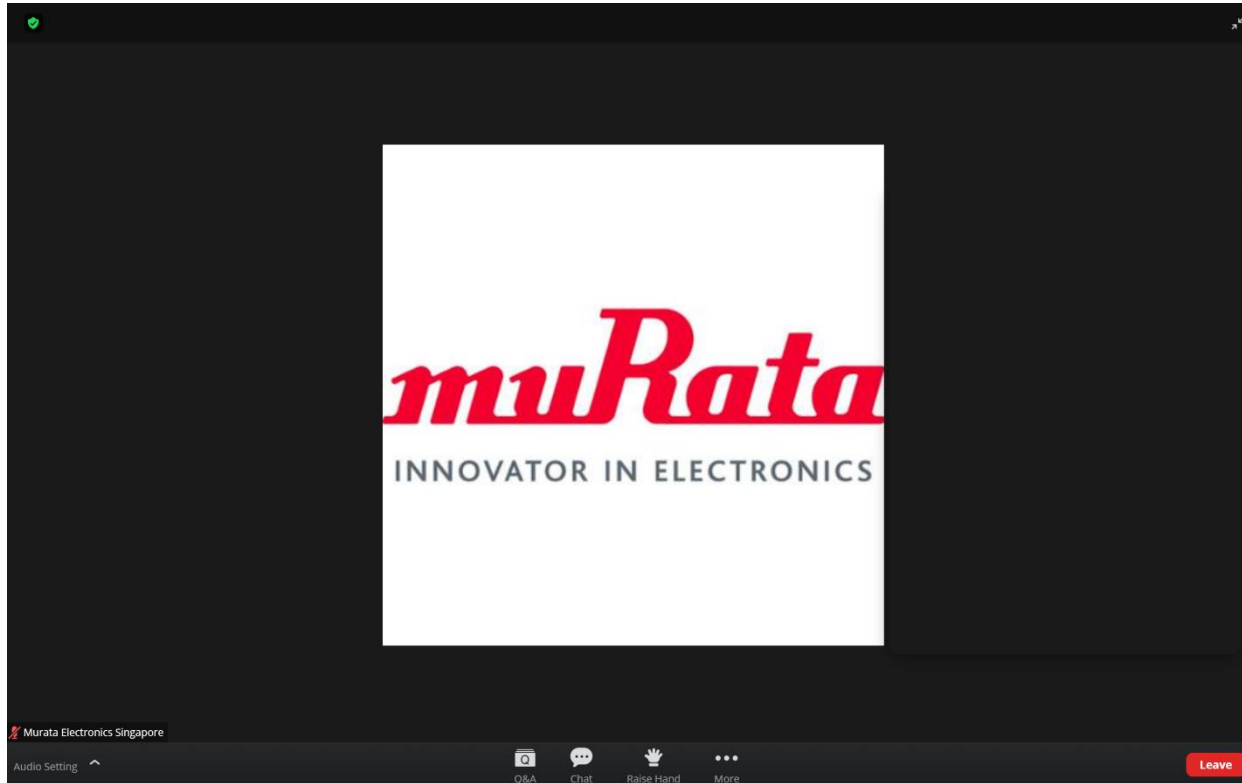


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Please type them
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Slides and
recording will be
available after
the session.

Accelerate your IOT wireless design with proven solution from **Infineon x Murata**

Infineon Technologies Asia Pacific
Murata Electronics Singapore & India



Key Takeaways

Through this webinar, you can get to know:

- The common challenges in designing IOT device with wireless connectivity
 - Complex and time consuming
 - Connectivity problems
 - Hardware and software integration
 - Regulatory requirement
 - Limited time to market

- The well verified hardware and software solution to overcome these challenges:
Murata Wi-Fi/BT module solutions on Infineon PSoC™ 6 reference platform -
Enabling you to minimize your development time and effort for connectivity implementation and connecting to AWS cloud

Today's Speakers



Pong Chi Leong

Principal Field
Application Engineer

ChiLeong.Pong@infineon.com

Over 10 years of experience in technical marketing and engineering support covering ASEAN and Oceania regions.

Chi Leong has keen interest in applying new technology and innovation to solve real world problem in the area of embedded and IoT systems.



Shafi Ahmed

Product Engineer
RF Components &
Wireless Connectivity

shafi.ahamed@murata.com

Accumulated rich technical support experience and skills, for semiconductor devices and wireless products across multiple applications, gained over the 10 years of working as a field application and product marketing engineer, Shafi is currently supporting Murata customers as a product engineer for wireless modules and RF components.

He is happy to help if you have any problem or challenge that you might be facing when integrating wireless to your design.



Lynn Tan

Sr. Product Engineer
RF Components &
Wireless Connectivity

lynn.tan@murata.com

Over 10 years of engineering and technical marketing experience in RF and wireless sensing systems, covering the challenging markets of Southeast Asia and Oceania.

With a strong passion for IoT, Lynn is actively seeking opportunities to collaborate with like-minded partners focusing on ever-changing telecommunications and smart industry.

A world leader in semiconductor solutions



Our vision

We are the link between the real and the digital world.

Our values

We commit
We partner
We innovate
We perform

Our mission

We make life
easier, safer
and greener.

Part of your life. Part of tomorrow.

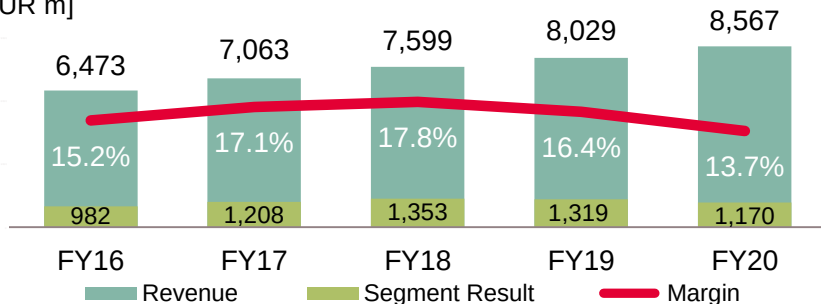
Infineon at a glance

Addressing long-term high-growth trends

- IoT (edge comp., data center, 5G, sensing, connectivity)
- electro-mobility
- assisted driving, autonomous driving
- energy efficiency, renewables, EV infrastructure
- security

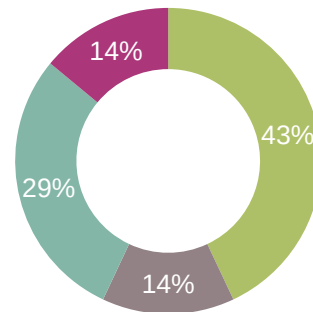
Financials

[EUR m]

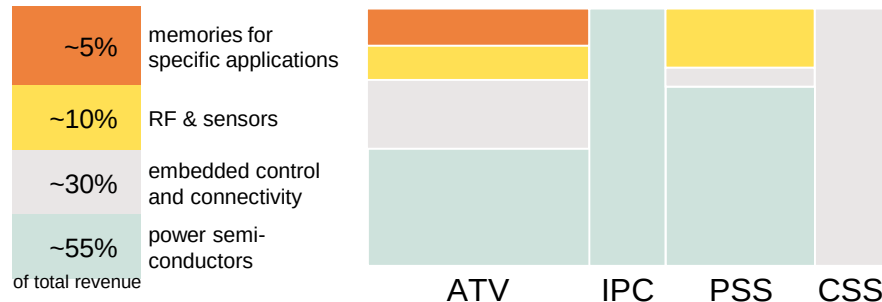


Illustrative aggregated FY20 revenue by segment

- Automotive (ATV)
- Industrial Power Control (IPC)
- Power & Sensor Systems (PSS)
- Connected Secure Systems (CSS)

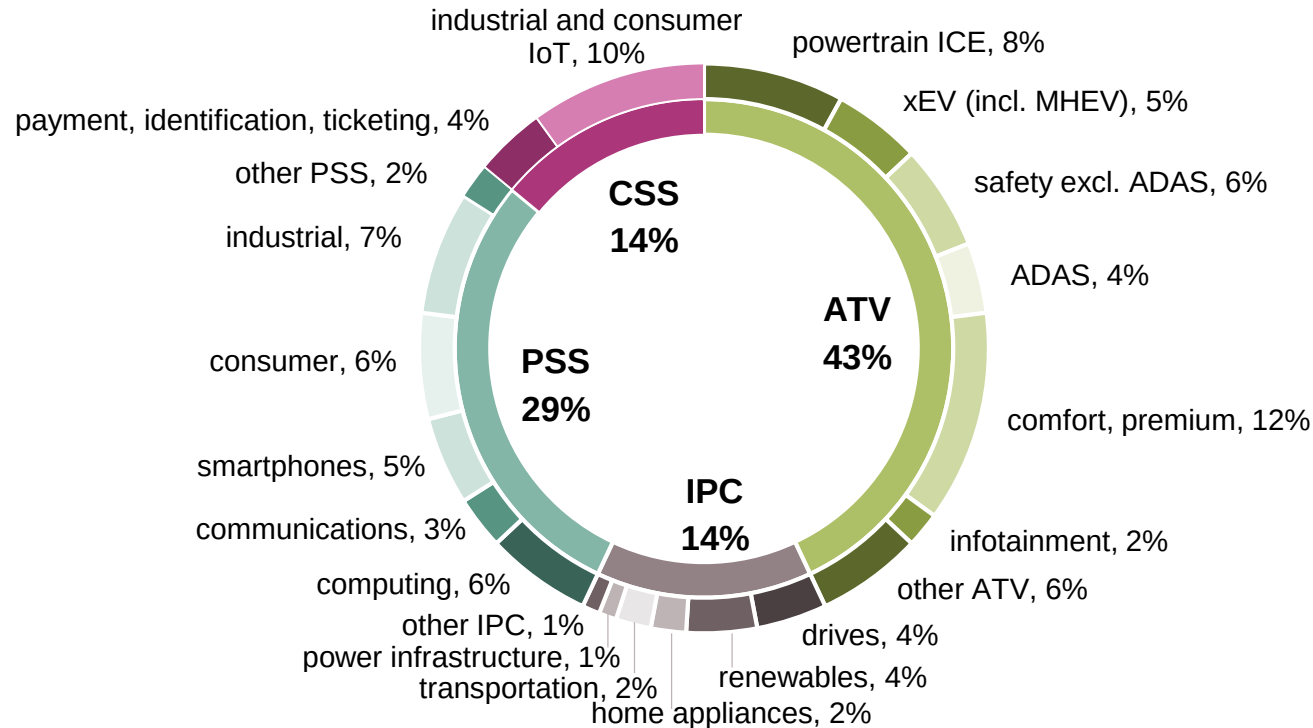


Illustrative aggregated FY20 revenue by product category



Illustrative aggregated FY20 revenue including contribution from Cypress of ~€1,900m from 1 Oct 2019 through 30 Sep 2020

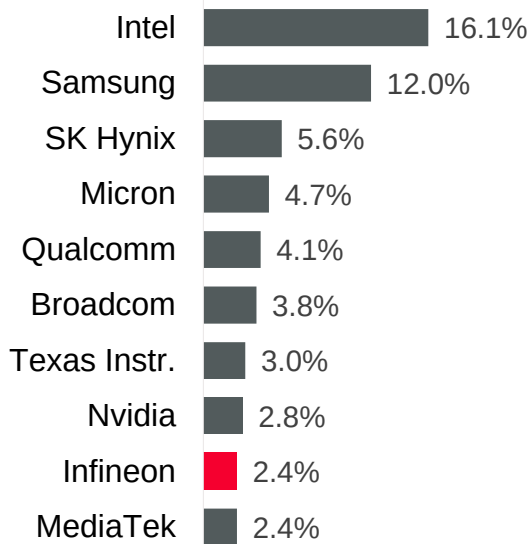
Illustrative aggregated FY20 revenue of ~€9,600m by target application



Infinion is a global top 10 player, #1 in power semiconductors, and ranked #3 in the overall microcontroller market

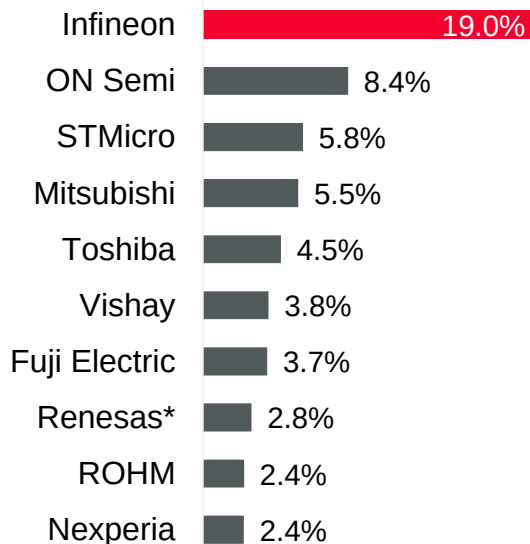
Semiconductor suppliers

2020 total market: \$473bn¹⁾



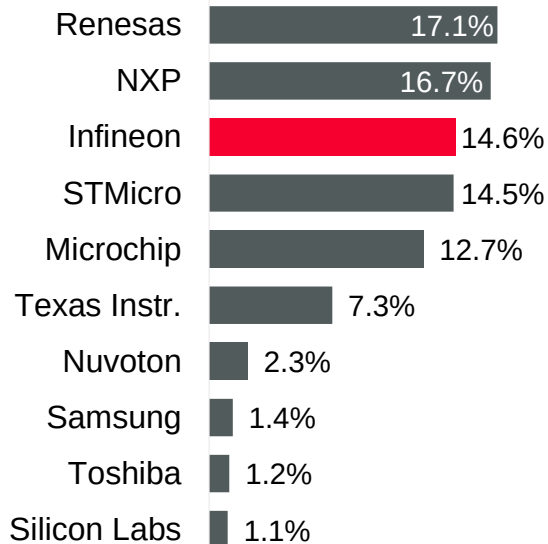
Power discretes and modules

2019 total market: \$21.0bn²⁾



MCU suppliers

2020 total market: \$17.3bn¹⁾



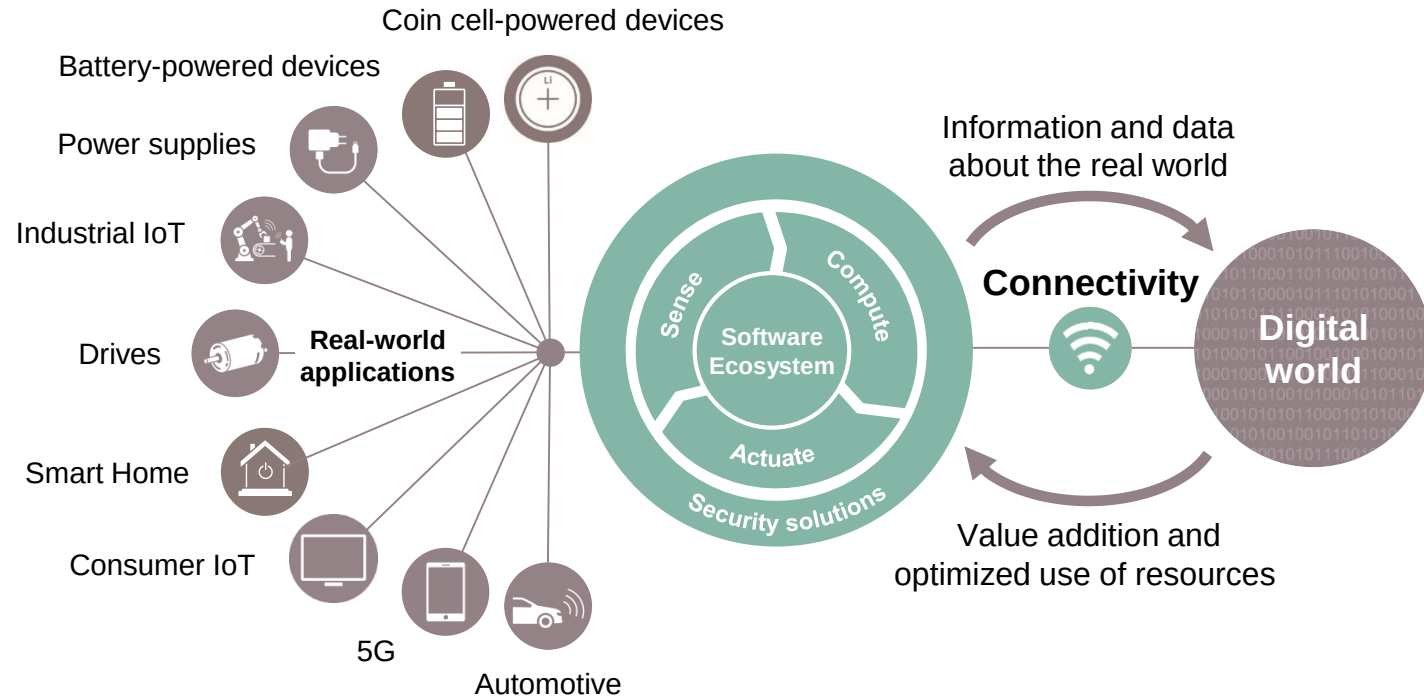
* Renesas acquired Integrated Device Technology in March 2019. Both companies were combined as Renesas in the 2019 ranking.

1) Based on or includes research from Omdia: *Annual 2001-2020 Semiconductor Market Share Competitive Landscaping Tool – Q4 2020*. March 2021.

2) Based on or includes research from Omdia: *Power Semiconductor Market Share Database – 2020*. September 2020.

Results are not an endorsement of Infineon Technologies AG. Any reliance on these results is at the third party's own risk.

Infinion offers a unique portfolio that links the real and the digital world



Sense: sensors

Compute: microcontrollers, memories

Actuate: power semiconductors

Connectivity: Wi-Fi, Bluetooth, USB

muRata

INNOVATOR IN ELECTRONICS

Murata Global Locations

Americas
United States
Brazil
Canada
Mexico

EMEA
The Netherlands
Finland Spain
France Switzerland
Germany United Kingdom
Hungary
Italy

Asean and India
Singapore
India Malaysia
Philippines Thailand
Vietnam

Japan

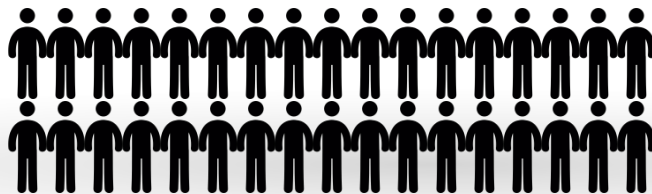
Greater China

Korea

76 years of
innovation



A total of **43**
manufacturing
facilities around
the world



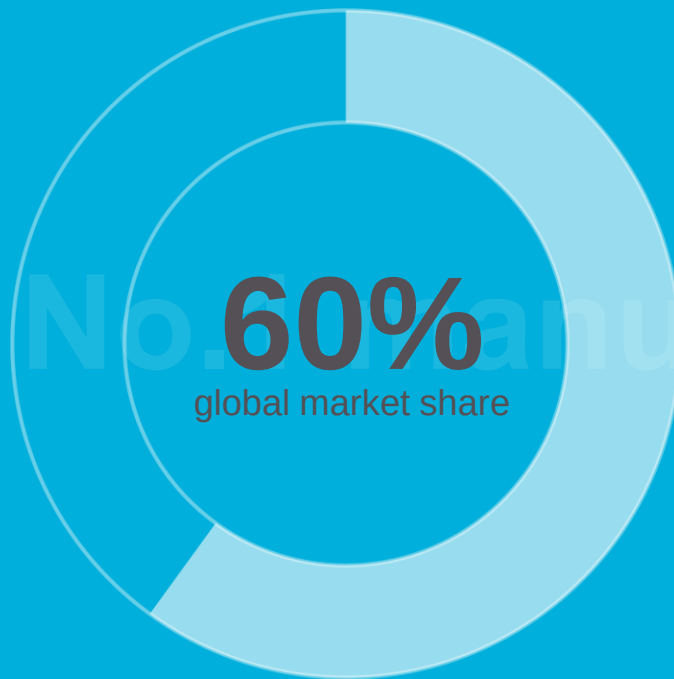
No. of Employees:

75,184

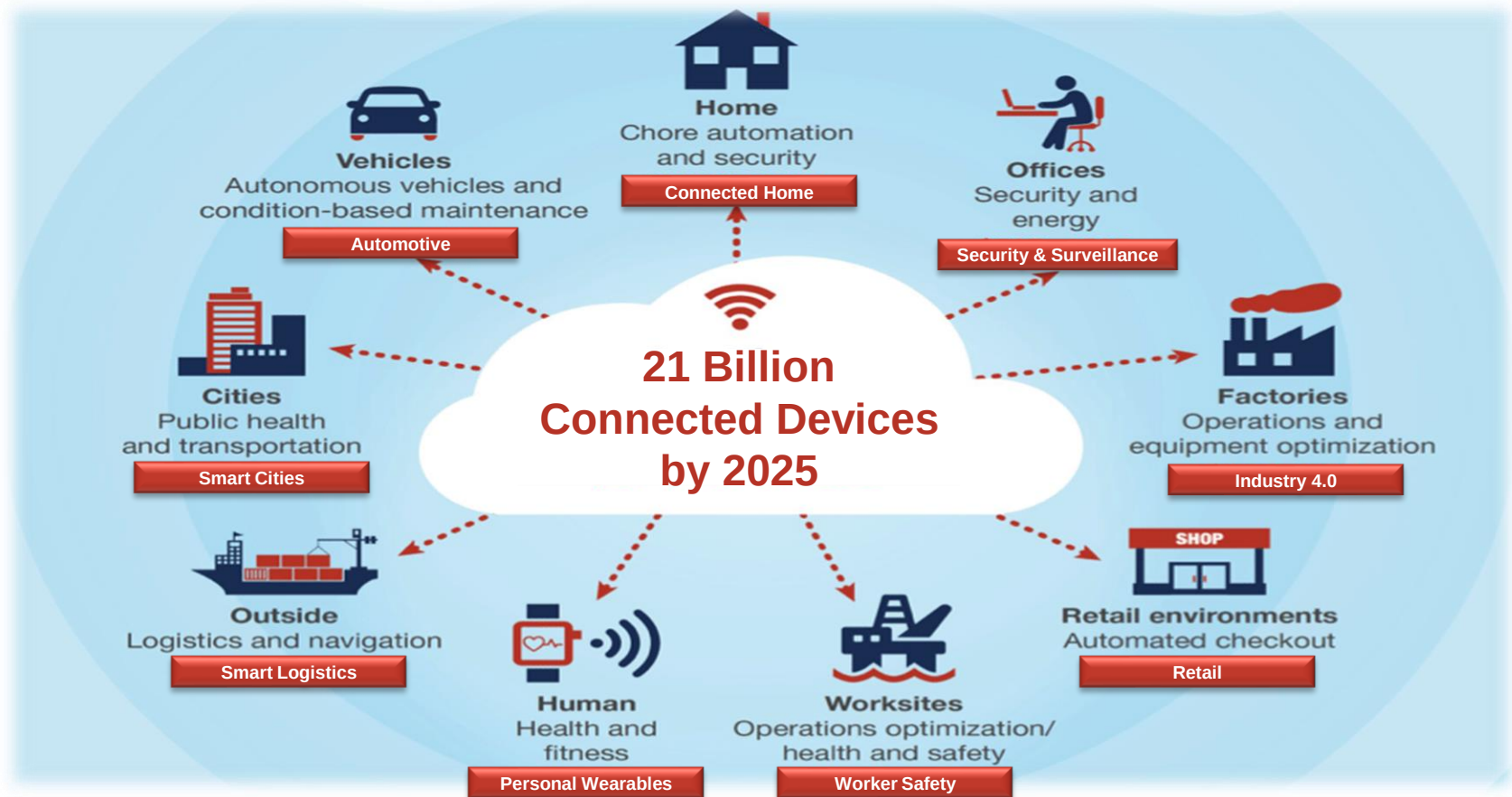
**as of 31 March 2020*



Wireless
modules



IoT enables “connected world” and new opportunities



Making IoT products is ever challenging

Build a great product

- Small shift in customer reviews has a large impact on sales.
- “40% of consumer IoT products reported experiencing problems.”
- “One positive star on Amazon increases sales by 20%.”

On a tight timeline

- Slight delay in timeline or budget has critical implication on revenue.
- “49% of organizations fail to finish a project within the original schedule.”
- “43% of organizations fail to finish a project within the original budget.”

With limited resource

- 9 out of 10 companies have resource constraints
- “Number of product managers who want more resources for their projects: 100%”



CONNECTIVITY PROBLEMS

40%



FAIL TO FINISH ON TIME

49%



FAIL TO FINISH ON BUDGET

43%



RESOURCE CONSTRAINTS

100%



PSoC™ 6: Purpose-built for the IoT

Emerging IoT devices require increased processing and security without a power or cost penalty



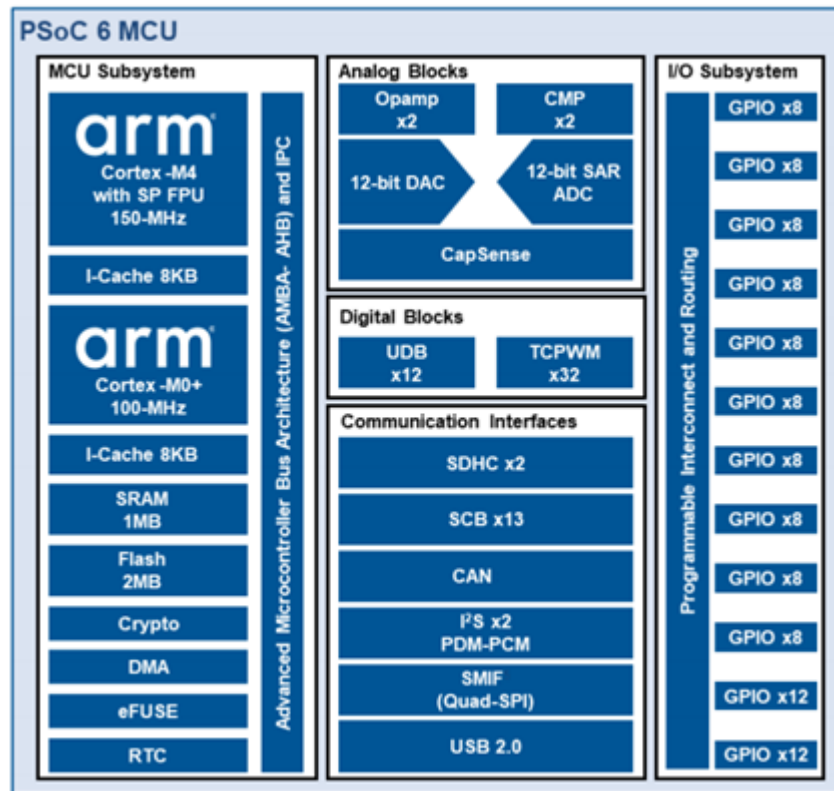
Infineon's PSoC™ 6 portfolio bridges the gap between application processors and standard microcontrollers

- 150-MHz and 100-MHz dual-core Arm® Cortex®-M4 and Arm Cortex®-M0+ ultra-low-power 40-nm architecture
- Industry-leading ultra-low-power design that consumes as little as 22-µA/MHz in active power mode¹
- Best-in-class flexibility with wired and wireless connectivity options, software defined peripherals and industry-leading [CapSense®](#)
- Integrated, hardware-based Trusted Execution Environment (TEE) with secure data storage

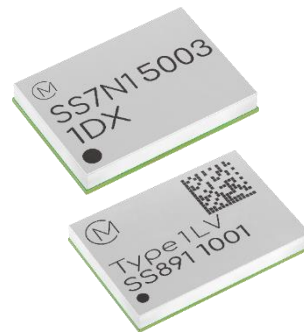
¹ Power specifications are based on the Arm Cortex®-M4 CPU

PSoC™ 6 MCU Architecture Overview

- Dual Core CPU Architecture - Arm CM4 (high performance CPU) and Arm CM0+ (low power, secure CPU)
- On-chip memory: Up to 2 MB Flash, 1 MB SRAM
- ROM-based root of trust, Crypto Accelerators
- Analog Peripherals – OpAmps, Comparators, 12-bit SAR ADC, CapSense, DAC
- Digital, Communication Peripherals – SDHC, SCB (UART/I2C/SPI), TCPWM, I2S, PDM-PCM, CAN-FD, QSPI, USB



PSoC™ 6 Wi-Fi MCU Product Overview



PSoC™ 6 Host MCU

- Hosts the Wi-Fi, Bluetooth LE Stack, and manages the connection to the Cloud Application
- Ultra Low power, Secure MCU with Hardware based security features and application level security
- Integrates the Application MCU functionality by implementing Display/Touch/Audio based HMI Interfaces, Sensor Interfaces

AIROC™ Wi-Fi/Bluetooth® Combo

- Implements the Wi-Fi MAC/radio, and Bluetooth® Controller/radio functionality
- Support for latest Wi-Fi security standards, Low power radio operation

- ## Type 1DX

Shielded Ultra Small WiFi 11b/g/n+Bluetooth 5.1 Module

- ## High Performance Capabilities for Internet of Things

- For Industrial IoT, Smart Home, Sensor Network, Gateway
- 802.11 b/g/n 65Mbps
- NXP i.MX Linux, Cypress WICED

Recommended In Production ?

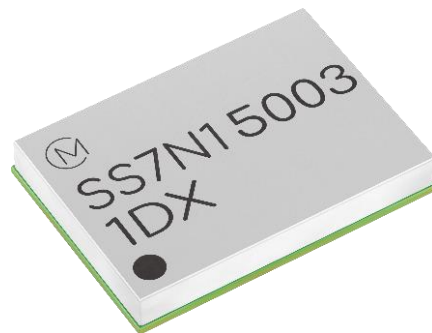
Data Sheet

Where To Buy | Disti Inventory

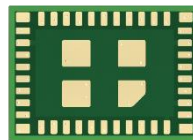
Contact Us

Request A Sample

Technical Support

[Request A Quote](#)

Top View



Bottom View



MURATA
INNOVATOR IN ELECTRONICS

AIROC™ CYW43012 Wi-Fi/BT Combo

Features
Wi-Fi 4

Internal

MCS8 (2
up to 78

Support
Mbps), E
PSoC 6
only Blu

Support
Coexiste

Best in c
active a

Ideal for
like Wea
and IoT

Type 1LV

Order Number LBEE59B1LV

Shielded Ultra Small Dual Band WiFi 11a/b/g/n+Bluetooth 5.0 Module

- 2.4GHz & 5 GHz WiFi+Bluetooth Module
- Network Topology: AP and STA dual mode
- Chipset: Cypress (CYW43012)
- Processor: No
- FCC/IC "Reference" Certified
- Modulation: DSSS / CCK / OFDM

High Performance Capabilities for Internet of Things

- For Industrial IoT, Smart Home, Sensor Network, Gateway
- 802.11 a/b/g/n 78Mbps
- NXP i.MX Linux, Cypress WICED

Recommended In Production ?

Data Sheet

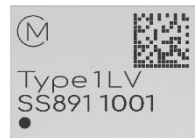
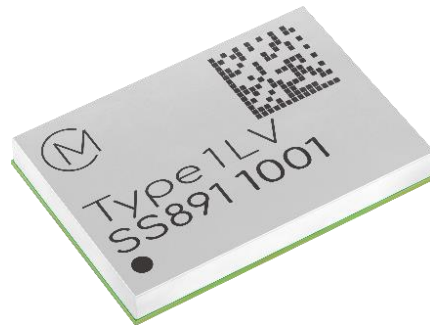
Where To Buy | Disti Inventory

Contact Us

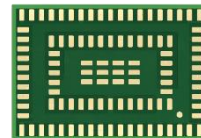
Request A Sample

Technical Support

Request A Quote



Top View



Bottom View

SDIO 3.0

-Wire GCI³

Wire SECI²

UART
SPI

PCM
I²S

CYW43012: Ultra-Low-Power 28nm IoT Wi-Fi/BT Combo



RECEIVE

50% ↓

Power consumption
than existing 40nm 802.11n products

70% ↓

Power consumption
than existing 40nm 802.11ac products



TRANSMIT

25% ↓

Power consumption than existing
40nm 802.11n products



LOW POWER

80% ↓

Sleep power consumption than existing 40nm 802.11n products

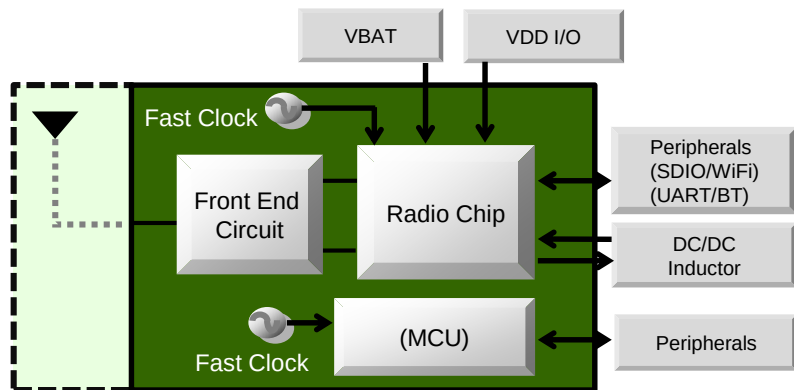
50% to 60% ↓

Idle & Ready Mode power consumption than existing 40nm 802.11n products

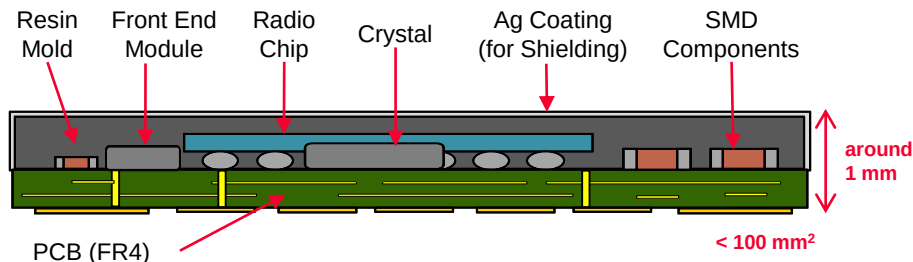


About Murata Modules...

Block Diagram



Hardware Structure



Murata key competency

- RF system Know-how
- Packaging technology to achieve small form factor

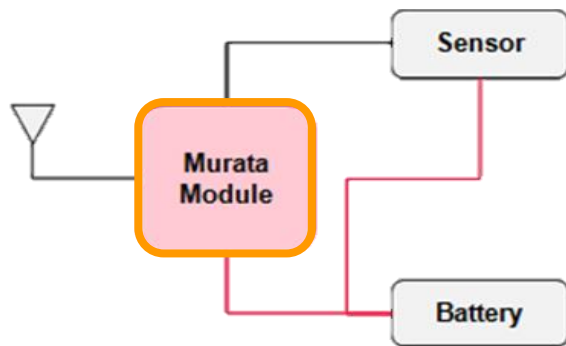
Features

- Small size (<50% of COB)
- Best RF performance
- Highly reliable; good for long life
- Very large production capacity
- 100% tested



Hostless or Hosted Architecture

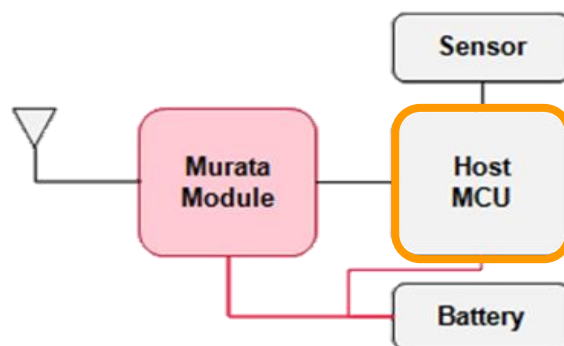
“Hostless” Module



- No external MCU required
- Price includes all (Radio, MCU, software etc.)
- Use the SDK (software development kit) to develop Application FW to run inside the module
- Use SW libraries and commands available to easily connect to AWS IoT and cloud services

► **Fast go-to-market and robust design**

“Hosted” Module



- External MCU required
- Module (modem only) + External host MCU cost add
- Application run in the external host MCU, additional HW & SW development can be required
- Additional SW development and validation can be required

► **Flexible or customized design approach**

Benefits of Wireless Module

Hardware

- Avoid chip-down with a pre-built module
- Multiple antenna choices and RF front end configurations

Software, Kits

- ModusToolbox software support for the modules with validated firmware libraries, code examples
- Evaluation Kits based on modules to enable rapid prototyping

Certifications

- Reference Certified RF Modules
- Multiple Regulatory body support & services (CE, IC, FCC, ...)

Validation & Support

- Complimentary support organizations between Infineon and Module Partners
- RF, Performance, Parametric

Support - FreeRTOS

Documentation

Murata

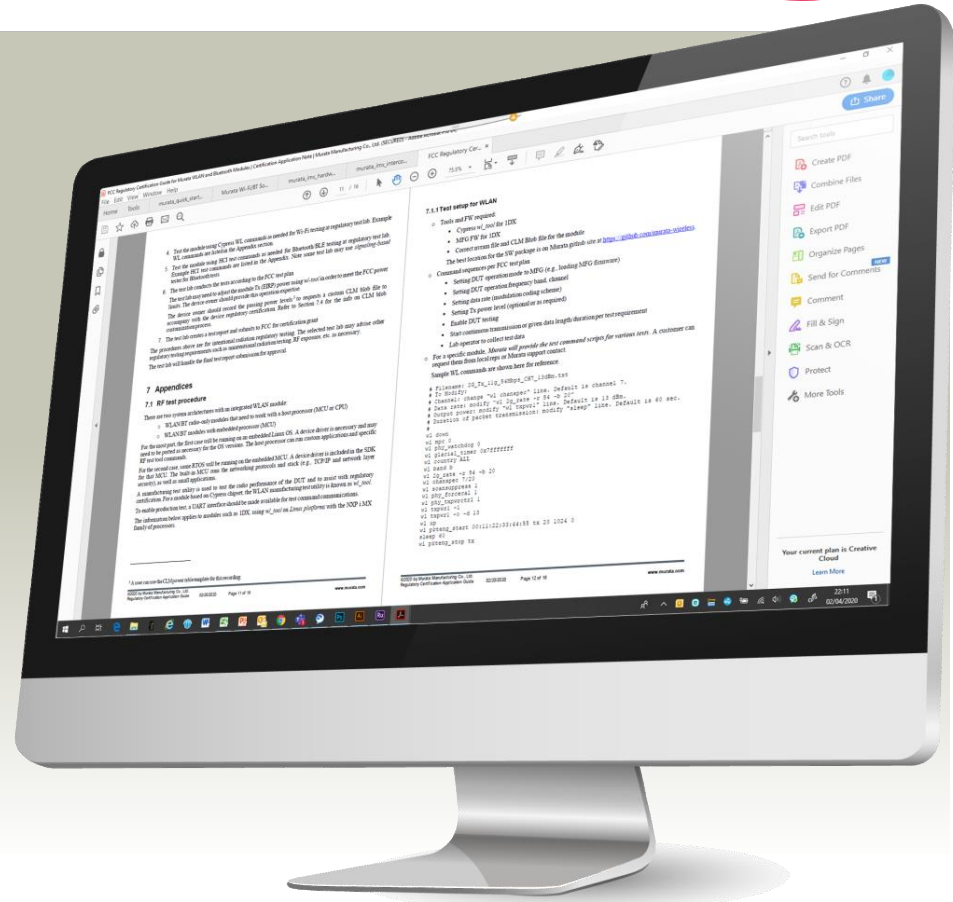
Quick-start guide

Hardware user manual

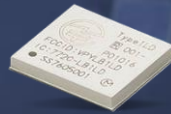
Reference schematics

RF test manual

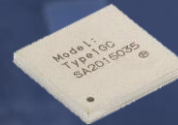
wireless.murata.com/imx



Best sellers...



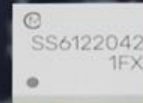
Type 1LD
CYW43438 Radio
802.11 b/g/n + BR/EDR/BLE 4.2



Type 1GC
CYW43907 Wi-Fi MCU
802.11 a/b/g/n Cortex®-R4



Type 1DX
CYW4343W Radio
802.11 b/g/n + BR/EDR/BLE 5.1



Type 1FX
CYW43364 Radio
802.11 b/g/n



Type 1MW
CYW43455 Radio
802.11 a/b/g/n/ac + BR/EDR/BLE 5.0

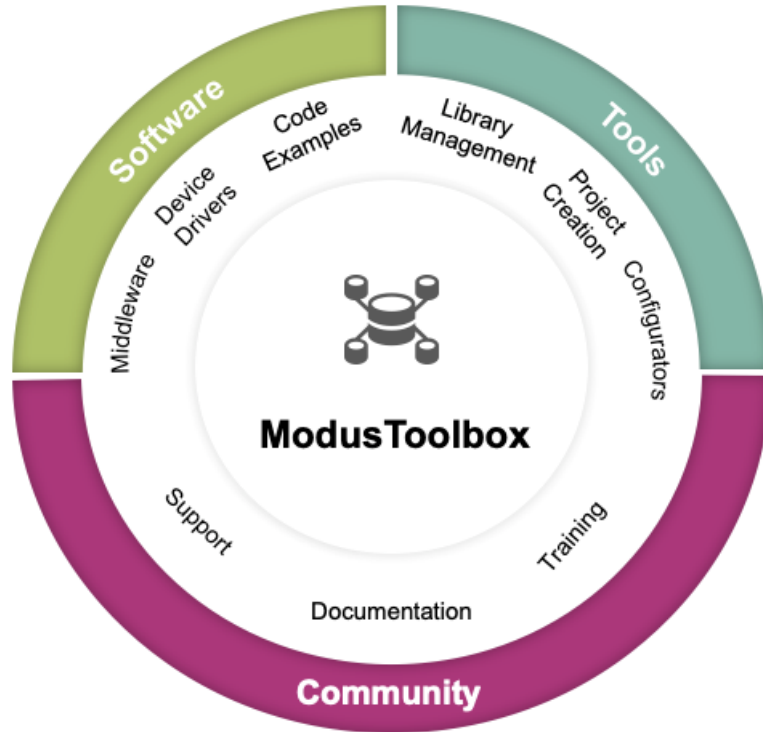
Type 1XA
CYW54591 2X2 Radio
802.11 a/b/g/n/ac
BR/EDR/BLE 5.2



Type 1LV
CYW43012 Radio
802.11 a/b/g/n & 11ac-Friendly™
BR/EDR/BLE 5.0

ModusToolbox™ Software

– Created for Developers



- Multi-platform development tools
 - Create projects for any hardware
 - Add libraries and update versions
 - Set up peripherals graphically
 - Build with the best optimizations (GCC, IAR, ARMCC)
 - Edit and Debug in your favorite tools (Eclipse, IAR Workbench, Arm uVision)
- Complete set of Libraries covering Device Drivers, Board Support Packages (BSPs), RTOS, Connectivity stacks, Graphics, Security
- Hundreds of well documented and tested Code Examples to get started.
- Get support and brainstorm ideas as part of a vibrant developer community

Extensive Set of Middleware Libraries and Graphical Configurators



Cloud Connectivity

Native support for AIROC™ Wi-Fi, full network stack, and built-in support for leading cloud platforms.



Device Security

PSA and PKCS#11 libraries enable access to secure services provided by the Cortex-M0+ core in dual-core PSoC 64 Secure MCUs.



Network Security

TLS is built into the ModusToolbox connectivity libraries and made easy to use with a secure socket API.



Low Power Assist

Low Power Assist filters unnecessary wakeup events from the network on the connectivity device to keep the host MCU asleep and optimize power consumption.



CapSense

The gold standard for mechanical button replacement, providing unmatched SNR and a self-calibrating baseline sensitivity algorithm.



Coexistence

Automatically balances the bandwidth load between Wi-Fi and Bluetooth communications using the Serial Enhanced Coexistence Interface.



Bluetooth

AIROC™ Bluetooth is the industry's most widely-used stack supporting Classic, Low Energy and Bluetooth Mesh operations.



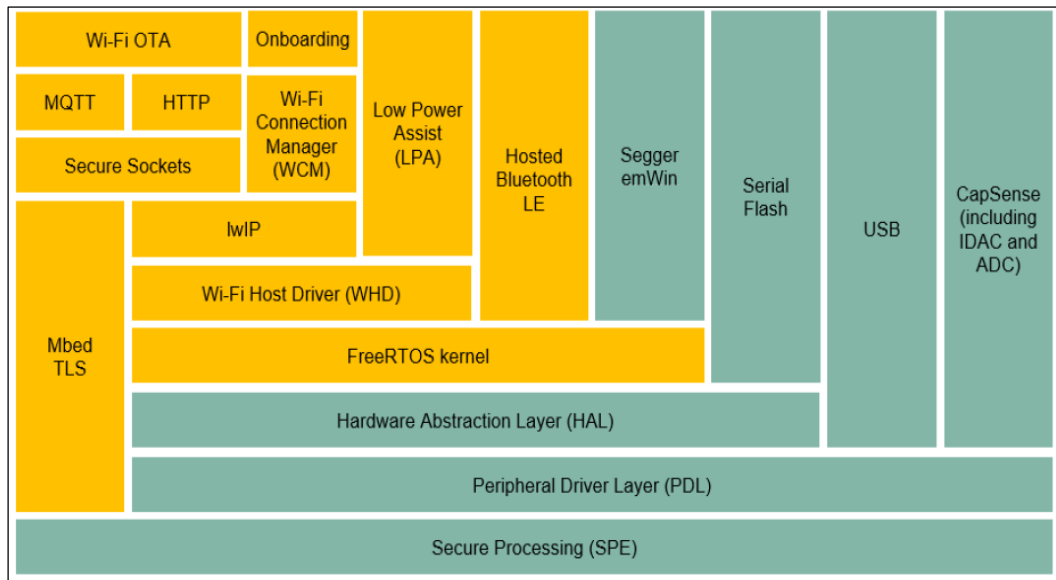
Machine Learning

Software workflow for optimizing and deploying ML models, enabling rapid model benchmarking and validation and application-optimized Neural Net kernels.

ModusToolbox™ AnyCloud

– Flexible Cloud Connectivity Solution

- Built for customers who have their own cloud device management backend, whether hosted on AWS, Google, Microsoft® Azure, or another cloud infrastructure.
- Provides core functionality including connectivity, security, firmware upgrade support, and application layer protocols like MQTT for applications that do not use commercial cloud management systems such as Arm® Pelion or Amazon AWS IoT Core



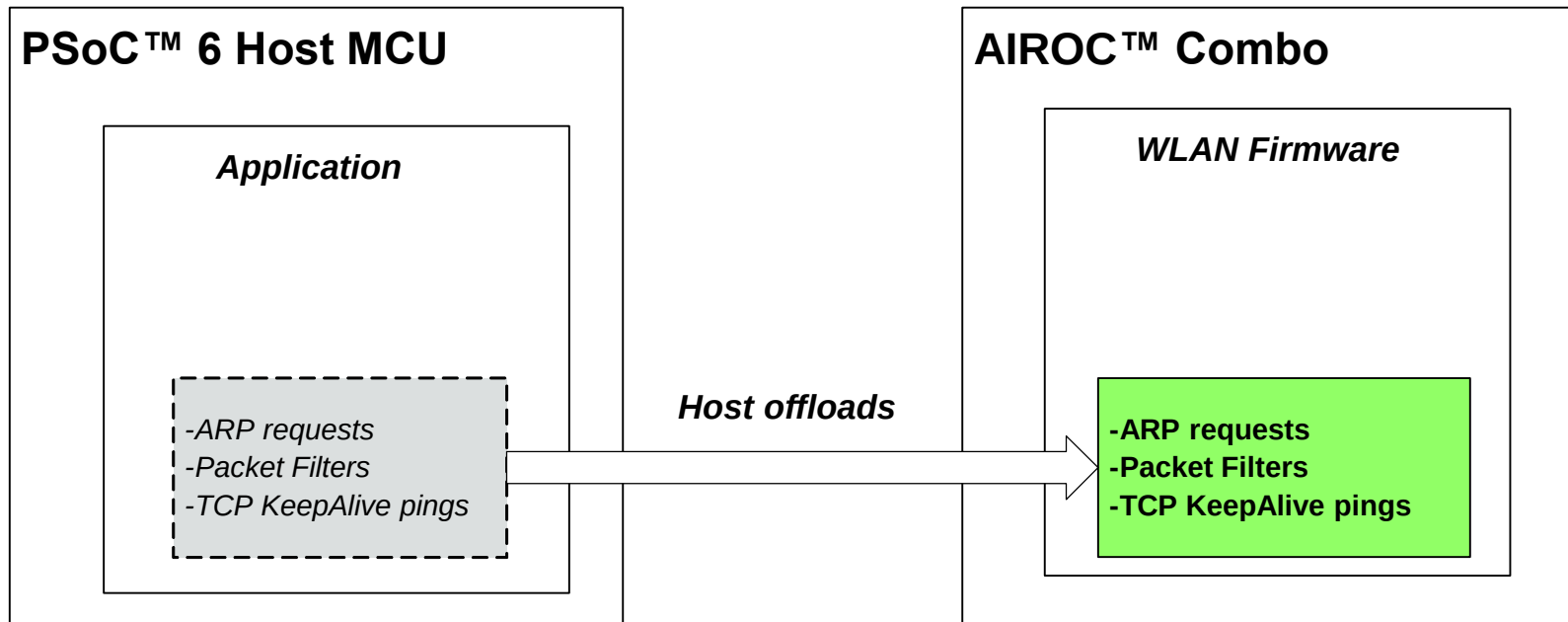
Connectivity Libraries

MCU Libraries

**Seamless combination of best-in-class MCU
and wireless functionality**

Wi-Fi: Host Offloads to Optimize System Power Consumption

- Functionalities executed by AIROC™ Wi-Fi/Bluetooth Combo device on behalf of PSoC™ 6 host MCU

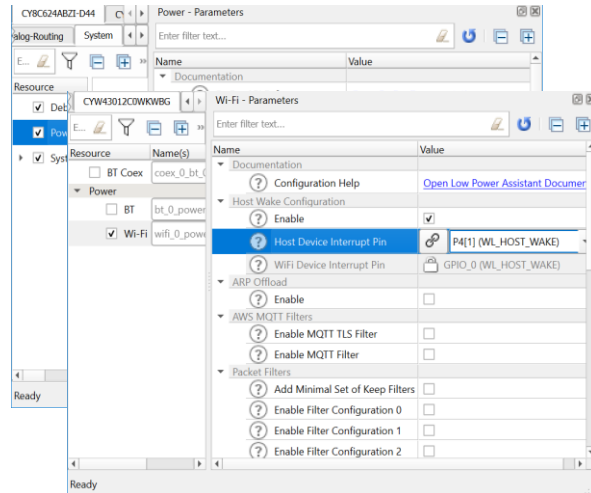


■ **More time for Host MCU in low-power mode**

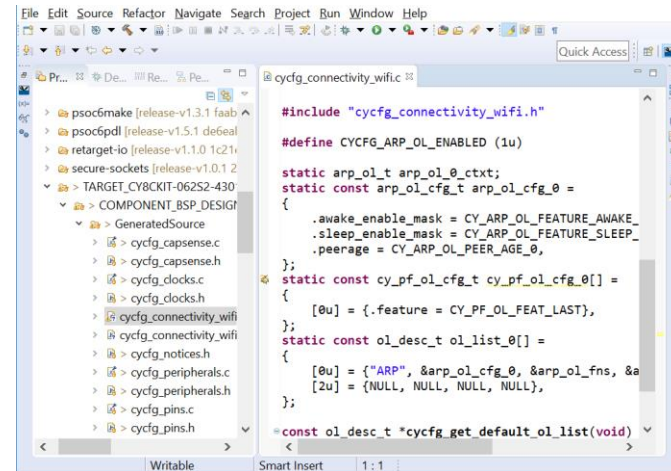
Low Power Assist (LPA) Middleware Overview

- Self-aware firmware that detects configurations automatically and enables appropriate low-power features without any additional API calls from the user
- Supports multiple platforms – ModusToolbox™ AnyCloud, Mbed OS, AFR
- GUI-based configuration for ease of use
- Supports low-power configuration for PSoC™ 6 MCU, AIROC™ Wi-Fi/Bluetooth Combo

Using ModusToolbox™ Configurator

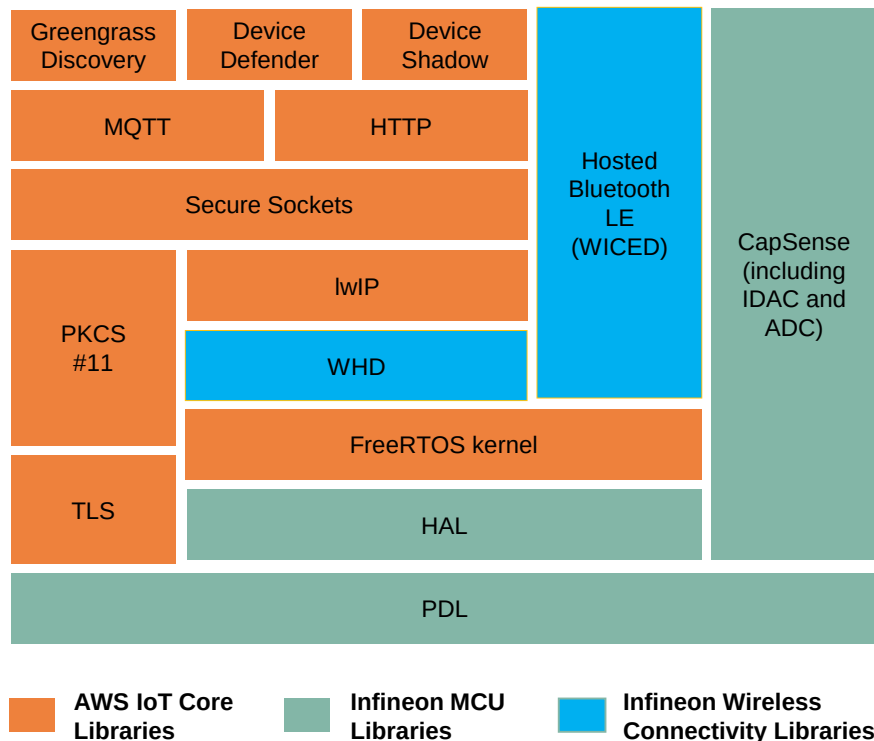


Using Code



PSoC™ 6 Wi-Fi MCU Support in AWS Cloud Ecosystem

- PSoC™ 6 Wi-Fi MCUs supported in AWS Cloud Ecosystem by integrating tools and middleware from ModusToolbox™ software in to AWS IoT Device SDK
- FreeRTOS qualified PSoC™ 6 Wi-Fi MCU development kits to get started in AWS Cloud Ecosystem



Unique Infineon functionality, highest security, and lowest power solution based on FreeRTOS

AWS Cloud Ecosystem – PSoC™ 64 Standard Secure AWS MCUs



Qualified by AWS to work optimally with FreeRTOS and AWS IoT Core for secure device management



Incorporates open source Trusted Firmware-M security firmware achieving Platform Security Architecture (PSA) certification



Integrated Wi-Fi Host Driver (WHD) support to easily pair with Cypress wireless connectivity solutions

Secure Device Management for the IoT



Provisioning

SECURE CONFIGURATION
of device with
TRUSTED unique
identity



Onboarding

SECURE CONNECTION of
device to cloud with
proper credentials



Regular Use

SECURE ACCESS
to device in the Field



Updates

SECURE UPDATES of
device software
remotely



Decommissioning

SECURE REMOVAL of
devices from the
service (End of life)

Secure Lifecycle Management

PSoC™ 6 Wi-Fi MCU Pioneer Kits

Evaluation Kits for PSoC™ 62 General Purpose MCU and AIROC™ Wi-Fi/Bluetooth Combo Modules



CY8CPROTO-062-4343W
PSoC™ 62 MCU
(2 MB Flash, 1 MB SRAM), AIROC™
CYW4343W Murata 1DX module



CY8CKIT-062S2-43012
PSoC™ 62 MCU
(2 MB Flash, 1 MB SRAM), AIROC™
CYW43012 Murata 1LV module



CY8CKIT-062-WiFi-BT
PSoC™ 62 MCU
(1 MB Flash, 288 KB SRAM), AIROC™
CYW4343W Murata 1DX module



CY8CPROTO-062S3-4343W
PSoC™ 62 MCU
(512 KB Flash, 256 KB SRAM), AIROC™
CYW4343W Murata 1DX module

Evaluation Kits for PSoC™ 64 Secure MCU and AIROC™ Wi-Fi/Bluetooth Combo Modules



CY8CKIT-064S0S2-4343W
PSoC™ 64 Standard Secure - AWS MCU
(2 MB Flash, 1 MB SRAM), AIROC™
CYW4343W Murata 1DX module



CY8CKIT-064B0S2-4343W
PSoC™ 64 Secure Boot MCU
(2 MB Flash, 1 MB SRAM), AIROC™
CYW4343W Murata 1DX module

Murata 1SC EVK + Infineon PSoC™ 6 & OPTIGA Connect IoT

Leverage Murata's Type 1SC Cat-M/NB-IoT module with Infineon PSoC6 MCU and OPTIGA Connect eSIM IOT solution to connect your IoT Devices to the cloud

LTE-M **NB-IoT**



Type 1SC

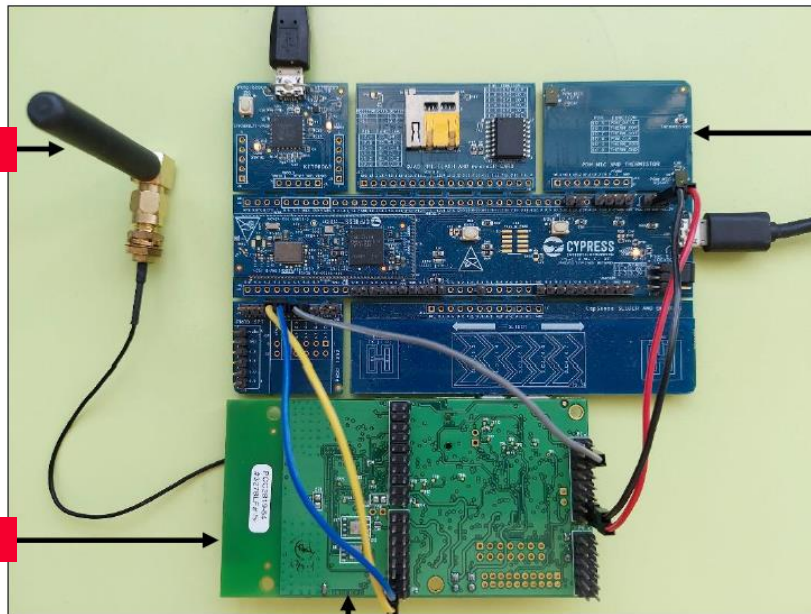
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- Cat-M1 /NB1/ NB2 module
- AT command via UART
- GNSS, Secure Element, VoLTE



LTE Antenna

Murata 1SC EVK



**PSoC™ 6 Wi-Fi BT
Prototyping Kit
(CY8CPROTO-062-4343W)**



PSoC™ 6 Board

- Connected to 1SC EVK using UART (TX, RX), GPIO (IO_Ref) and power (5V, GND)
- Using I2C card adapter to connect to OPTIGA Connect IoT eSIM (VQFN package)



**OPTIGA™ Connect IoT OC2321
(in SIM slot on reverse side)**

OPTIGA Connect IoT OC2321 eSIM

- Cover 600 MNOs & 200 countries



AWS Qualified PSoC™ 6 x Murata Modules

Partner	Device Name	Device Type	Qualification	Murata Hosted Modules
Infineon	CYW943907AEVAL1F	Development Kit	FreeRTOS	1GC is hostless module
	PSoC 6 Wi-Fi BT Prototyping Kit	Development Kit	FreeRTOS	1DX is on board
	PSoC® 6 WiFi-BT Pioneer Kit	Development Kit	FreeRTOS	1DX is on board
	PSoC® 64 Standard Secure AWS Wi-Fi Bluetooth Pioneer Kit	Development Kit	FreeRTOS	1DX is on board
	PSoC® 62S2 Wi-Fi BT Pioneer Kit	Development Kit	FreeRTOS	1LV is on board
	PSoC 6 Wi-Fi BT Prototyping Kit and the OPTIGA Connect lot eSIM	Development Kit	IoT Core	1SC EVK (LTE-M) and NB-1
	PSoC 6 Wi-Fi BT Prototyping Kit			
	https://www.infineon.com/cms/en/product/security-smart-card-solutions/optiga-embedded-security-solutions/optiga-connect/optiga-connect-iot/ https://devices.amazonaws.com/detail/a3G0h000007d16VEAQ/Type-1SC			

Evolving IoT Security Legislation



U.S. State

California Consumer Privacy Act (SB-327)

Oregon (HB 2395)

January 1, 2020

Virginia (HB 2793)

Hawaii (SB 418)

Maryland (SB 0613)

Massachusetts (SD 341)

New Mexico (SB 176)

New York (S00224)

Rhode Island (SB 234)

Washington (SB 5376) ... and more...

U.S. Federal

IoT Cybersecurity Improvement Act

September 2019



NISTIR 8259A –

IoT Device Cybersecurity

Capability Core Baseline

Europe



National Cyber Security Centre



Cyber Security for Consumer Internet of Things

ETSI 303 645

ETSI TS 103 645



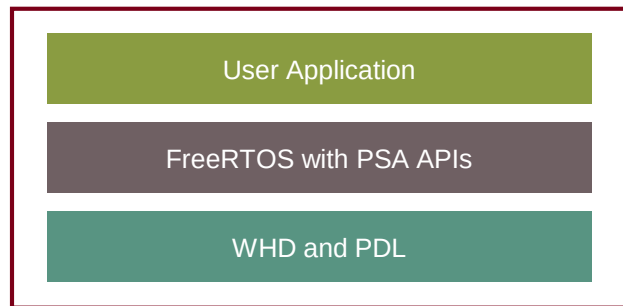
European Union Agency for Cybersecurity

European Network and Information Security Agency

Legislation addressing industries' inability to self-regulate

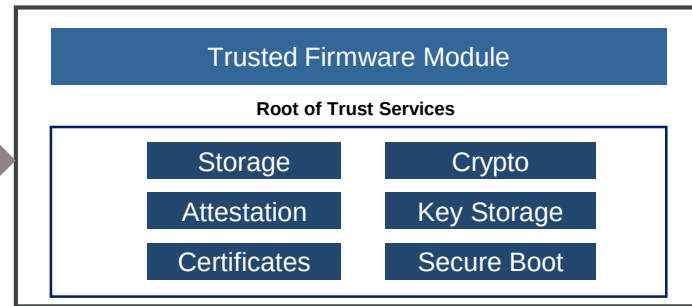
PSoC™ 64 Secure MCUs Feature Overview

Non-Secure Processing Environment



Cortex M4

Secure Processing Environment



Cortex M0+



- Develop your application on the Arm® Cortex®-M4 processor
- FreeRTOS supports PSA APIs for access secure services in SPE
- Wi-Fi driver support for Cypress wireless chipsets

- Pre-established SPE runs on Arm Cortex-M0+ processor
- Utilizes open source Trusted Firmware-M
- PSA-L2 Certification Q3-21

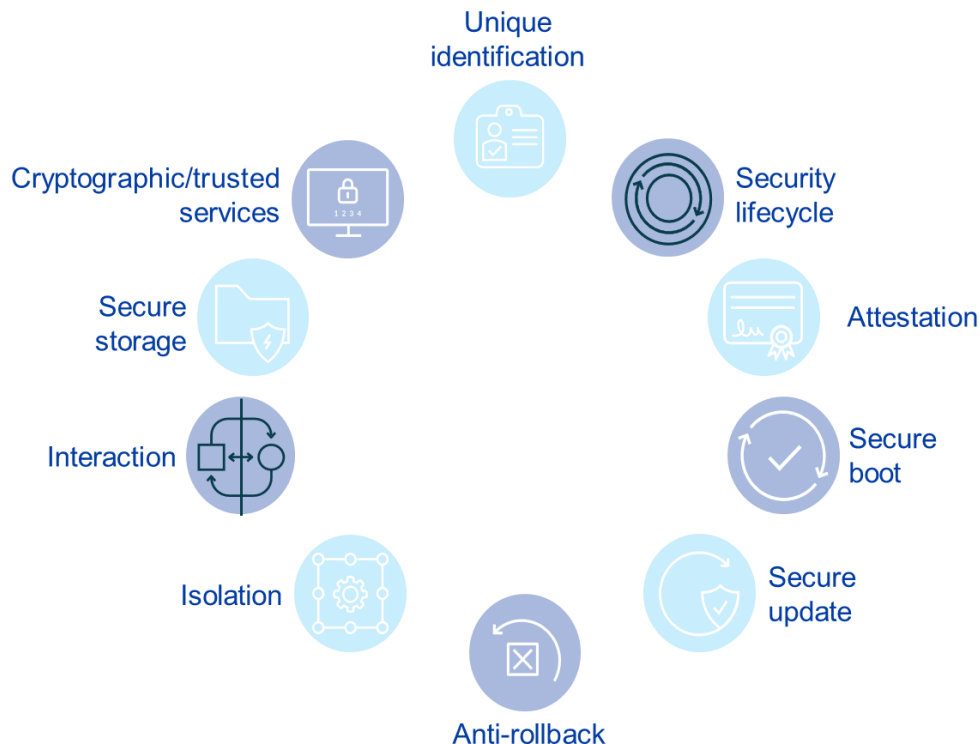
Root of Trust Services

- The root-of-trust provides an immutable, unclonable identity
- Securely store keys
- Performs security operations such as secure provisioning, secure boot, attestation, and firmware over-the-air (FOTA) updates.



Arm Platform Security Architecture (PSA)

- A security framework that allows security to be consistently designed in
- Provides a set of security goals with key security functionality



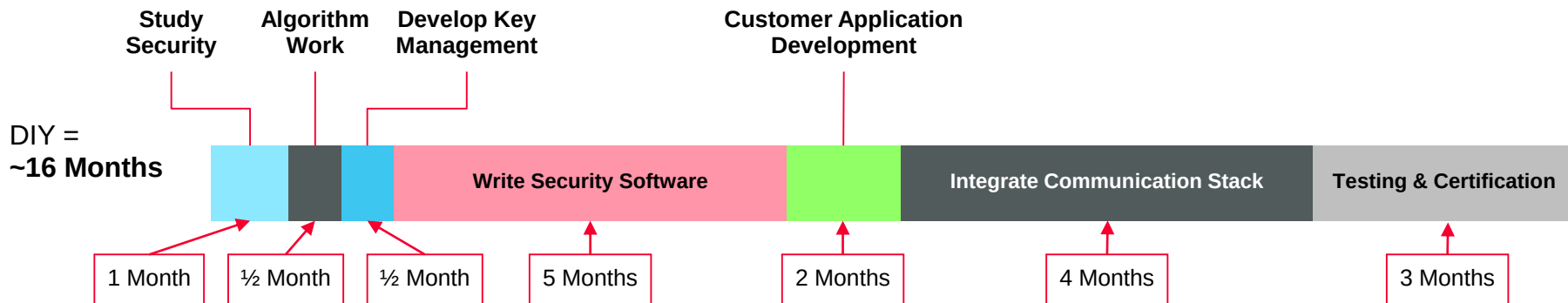
PSoC™ 64 takes care of the latest IoT Security Legislation/ Standards

Requirement	SB-327	NIST 8259A	ETSI 303 645	PSA Certification with PSoC 64
Authentication/Password	✓	✓	✓	✓
Configuration		✓		✓
Crypto		✓	✓	✓
Hardening		✓	✓	✓
Logging		✓		✓
Privacy		✓	✓	✓
Secure Storage		✓	✓	✓
Update		✓	✓	✓

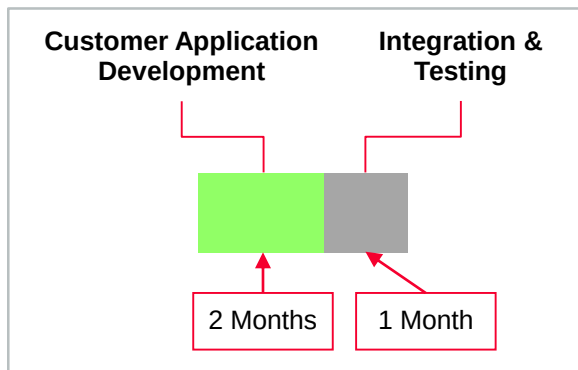
PSoC™ 64 reduces R&D Spend & Time-to-Market

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x **Infineon**



PSoC™ 64 + AIROC™
Combo =
~3 Months

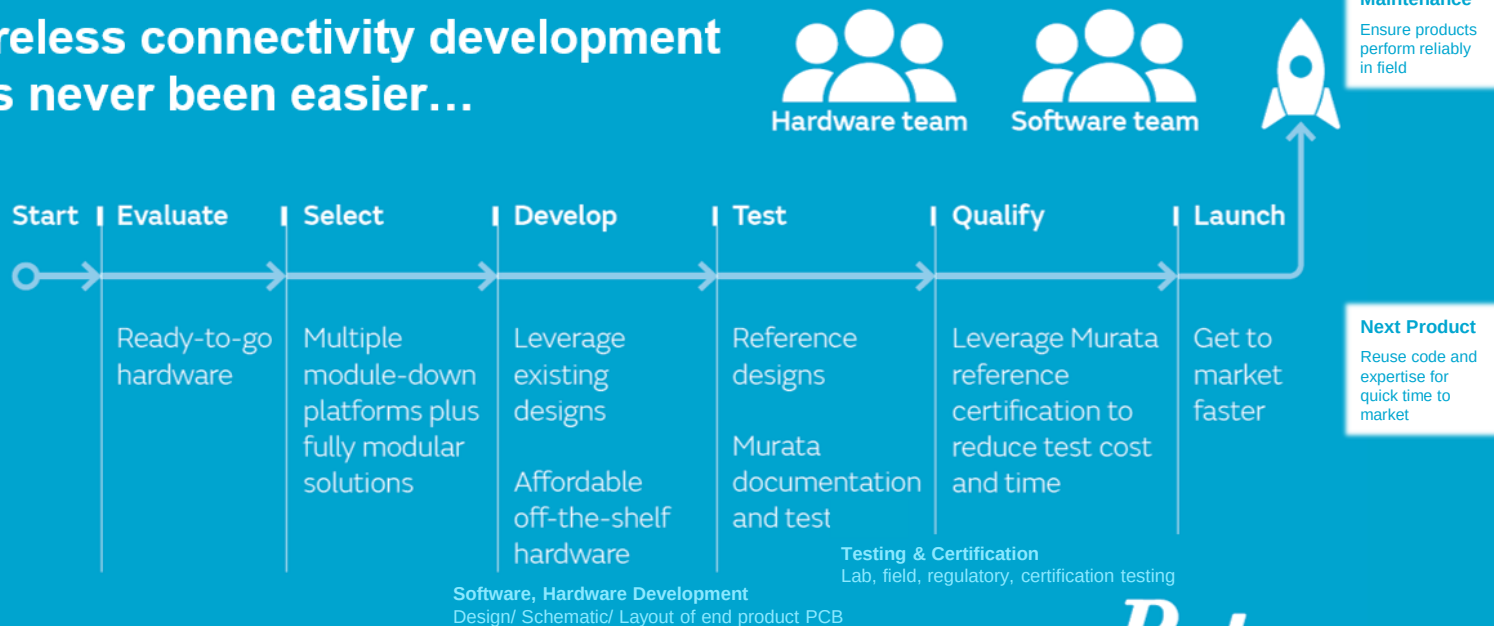


**Design Your Secure IoT Application in ~1/5
the Time Using Certified Firmware!**

Enabling your wireless connectivity development



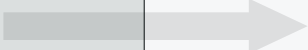
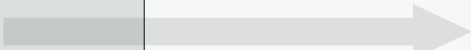
Wireless connectivity development has never been easier...



Infineon and Murata's rich ecosystem will support you throughout your project lifecycle



Murata Infineon-based Modules Roadmap

	IN PRODUCTION	CY2021			CY2022	
		1H		2H	1H	2H
		CQ1	CQ2			
Wi-Fi/ Bluetooth	 Type 1DX CYW4343W • 11b/g/n + BT5.1 • SDIO			Type 1YN CYW43439 • 11b/g/n + BT5.1 • SDIO <i>• ES:20CQ4</i> <i>MP:21CQ2</i>		
	Type 1LV CYW43012 • 11a/b/g/n + BT5.0 • Ultra Low Power • SDIO					
	 Type 1MW CYW43455 • 1x1 11ac + BT5.0 • SDIO			Type 2BC/2AE CYW4373(E) • 11b/g/n/ac + BT5.1 • SDIO <i>• ES:20CQ4</i> <i>MP:21CQ3</i>		
	Type 1XA CYW54591 • 2x2 11ac + BT5.1 • RSDB • PCIe				 Type 2EA CYW55573 • 2x2 11ax + BT5.x • PCIe/SDIO <i>• ES:21CQ3</i> <i>MP:22CQ3</i>	

Wi-Fi Standard:



Stage of Development:



Delivering Differentiation for IoT and Consumer Applications

Home Automation	Human Machine Interface	Wearables	Battery-Powered Applications	Portable Medical
				
Applications				
  	  	  	  	  
Infineon Wi-Fi MCUs Deliver				
› HMI: Touch/ Proximity Sensing › Analog/Digital Sensor Interfaces › Connectivity	› CapSense › <u>MagSense</u> › Gestures › Wake-word and Voice commands	› Ultra-Low-Power › High-performance and small form factor › Connectivity	› Ultra-Low-Power › High-performance and small form factor › Connectivity	› Ultra-Low-Power › Connectivity › Customizable Analog Front End › Reliability

Case Study 1: (Wi-Fi®/ Bluetooth® Module)

Application

Smart lock

Product

Type 1LV

Customer's challenges

- High power consumption
- Software Integration

How Murata & Infineon stacks up?

- Low module power consumption
- Software and hardware support
- Competitive pricing



Type 1LV



PN: LBEE59B1LV-278
CYW43012 Chipset
10.0 x 7.2 x 1.4 mm
FCC/IC/CE/Japan Certified



802.11 a/b/g/n/ac + Bluetooth®
5.0
(It only supports 20MHz channel bandwidth)

Case Study 2: (Wi-Fi®/ Bluetooth® Module)

Application

Smart faucet with voice control functionality

Product

Type 1LV

Customer's challenges

- High power consumption
- Dual-band support that could be supported with an MCU not an MPU
- software Integration

How Murata & Infineon stacks up?

- Low module power consumption
- Size – small form factor module
- Software and hardware support
- Competitive pricing



Type 1LV



PN: LBEE59B1LV-278
CYW43012 Chipset
10.0 x 7.2 x 1.4 mm
FCC/IC/CE/Japan Certified



802.11 a/b/g/n/ac + Bluetooth®
5.0
(It only supports 20MHz channel bandwidth)

Case Study 3: (Wi-Fi®/ Bluetooth® Module)

Application

Smart belt

Product

Type 1LV

Customer's challenges

- Dual-band supporting module
- Small form factor
- Host processor supported

How Murata & Infineon stacks up?

- Size – small form factor module
- Software and hardware support
- Competitive pricing



Type 1LV



PN: LBEE59B1LV-278
CYW43012 Chipset
10.0 x 7.2 x 1.4 mm
FCC/IC/CE/Japan Certified



802.11 a/b/g/n/ac + Bluetooth®
5.0
(It only supports 20MHz channel bandwidth)

Accelerate your time-to-market and improve your design development with us.

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Infineon Strengths

System know-
how and
application
understanding

Proven track
record of
commitment
and quality

Compelling
roadmap
focused on
the IoT

Core supplier
to 8 of top 10
IoT
companies

Flexible,
secure, low-
power MCU
family

Rich,
easy- to - use
software

Reliable -
most widely
deployed
wireless IP

Strong global
partner
ecosystem

Infineon Online Support and Forum (1)

Developer Community

<https://community.cypress.com>

IoT Developer Zone

<https://www.cypress.com/iot-developer-zone>

Infineon Online Support and Forum (2)



Optiga Connect

<https://www.infineon.com/cms/en/product/security-smart-card-solutions/optiga-embedded-security-solutions/optiga-connect/optiga-connect-iot/>

Community Page

<https://community.cypress.com/>

IoT Developer Zone

<https://www.cypress.com/iot-developer-zone>

EVKs

PSoC 6 Wi-Fi BT Prototyping Kit (CY8CPROTO-062-4343W)

<https://www.cypress.com/documentation/development-kitsboards/psoc-6-wi-fi-bt-prototyping-kit-cy8cproto-062-4343w>

PSoC 6 Wi-Fi-BT Pioneer Kit (CY8CKIT-062-Wi-Fi-BT)

<https://www.cypress.com/documentation/development-kitsboards/psoc-6-wifi-bt-pioneer-kit-cy8ckit-062-wifi-bt>

PSoC 62S3 Wi-Fi BT Prototyping Kit (CY8CPROTO-062S3-4343W)

<https://www.cypress.com/documentation/development-kitsboards/psoc-62s3-wi-fi-bt-prototyping-kit-cy8cproto-062s3-4343w>

PSoC 62S2 Wi-Fi BT Pioneer Kit (CY*C-062S2-43012)

<https://www.cypress.com/documentation/development-kitsboards/psoc-62s2-wi-fi-bt-pioneer-kit-cy8ckit-062s2-43012>

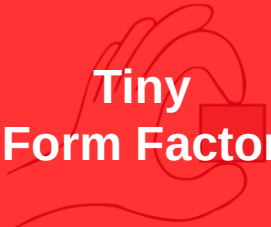
PSoC 64 Standard Secure – AWS Wi-Fi BT Pioneer Kit (CY8CKIT-064S0S2-4343W)

<https://www.cypress.com/documentation/development-kitsboards/psoc-64-standard-secure-aws-wi-fi-bt-pioneer-kit-cy8ckit>

PSoC 64 "Secure Boot" Wi-Fi BT Pioneer Kit (CY8CKIT-064B0S2-4343W)

<https://www.cypress.com/documentation/development-kitsboards/psoc-64-secure-boot-wi-fi-bt-pioneer-kit-cy8ckit-064b0s2-4343w>

Murata Wireless Solutions in a Nutshell



**Tiny
Form Factor**



**Hosted &
Hostless**



**RF Design
Support**



**Huge Supply
Capability**



**Strong
Partnerships**



**Global
Support**



**Online
Support Tools**



**Community
Forum**

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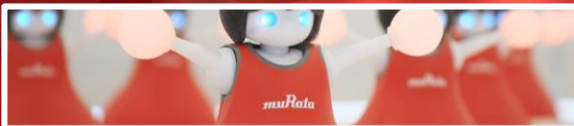


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YouTube



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3.78K subscribers

 **YouTube**

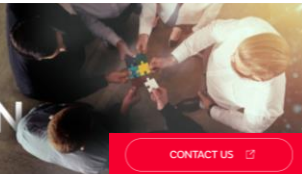
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questions answered by experts

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