Cypress Roadmap:
Wireless Solutions for The IoT

IoT = Internet of Things

Q1 2017
## Wireless Portfolio

<table>
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<th>Bluetooth</th>
<th>Wi-Fi</th>
<th>Wi-Fi + Bluetooth Combo</th>
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<tr>
<td><strong>Bluetooth (BR + EDR + BLE) + MCU</strong></td>
<td>Up to 150 Mbps</td>
<td><strong>IEEE 802.11a/b/g/n/ac WLAN</strong> + Bluetooth Up to 867 Mbps Wi-Fi, 1-3 Mbps Bluetooth Dual Band (2.4/5 GHz), 2x2 MIMO</td>
<td><strong>IEEE 802.11a/b/g/n/ac WLAN + Bluetooth</strong> Up to 867 Mbps, Dual Band (2.4/5 GHz), 2x2 MIMO, 1+1RSDB</td>
</tr>
<tr>
<td>1-3 Mbps, Class 1/2/3, ARM Cortex®-R4/-M3 MCU</td>
<td><strong>IEEE 802.11a/b/g/n WLAN + Bluetooth</strong> Up to 300 Mbps Wi-Fi, 1-3 Mbps Bluetooth Dual Band (2.4/5 GHz), 2x2 MIMO</td>
<td><strong>IEEE 802.11a/b/g/n ac WLAN + Bluetooth</strong> Up to 433 Mbps PHY rate Dual Band (2.4/5 GHz), 1x1</td>
<td></td>
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<tr>
<td><strong>Bluetooth Low Energy (BLE) + MCU</strong></td>
<td>Up to 150 Mbps</td>
<td><strong>IEEE 802.11a/b/g/n WLAN</strong> + Bluetooth Up to 150 Mbps</td>
<td><strong>IEEE 802.11a/b/g/n/ac WLAN + Bluetooth</strong> Up to 867 Mbps, Dual Band (2.4/5 GHz), 2x2 MIMO</td>
</tr>
<tr>
<td>1-2 Mbps, ARM Cortex®-M3 MCU</td>
<td><strong>IEEE 802.11a/b/g/n WLAN + MCU</strong> Up to 150 Mbps</td>
<td><strong>IEEE 802.11a/b/g/n/ac WLAN</strong> + Bluetooth Up to 867 Mbps, Dual Band (2.4/5 GHz), 2x2 MIMO, 1+1RSDB</td>
<td><strong>IEEE 802.11a/b/g/n/ac WLAN + Bluetooth</strong> Up to 433 Mbps PHY rate Dual Band (2.4/5 GHz), 1x1</td>
</tr>
</tbody>
</table>

### Integration and Performance

- Bluetooth (BR) + EDR
- BLE
- ARM Cortex

### Status

- Concept
- Development
- Sampling
- Production

### Available Integration and Performance

1. Wireless Local Area Network
2. Multiple-input multiple-output
3. Read simultaneous dual band
4. Basic Rate
5. Enhanced Data Rate
6. Bluetooth Low Energy
7. Class 1 (100 m)/2 (10 m)/3 (1 m)
Wireless Solutions for The Internet of Things (IoT) Roadmap

BLE PORTFOLIO
Bluetooth Low Energy (BLE) Portfolio

Integration and Flexibility

1. ARM® Cortex®-M0/M0+/M3/M4
2. Broadcom serial communications block
3. Infrared transmit and receive
4. Keyboard scanner
5. Mouse quadrature decoder
6. Cryptographic accelerator block for security
7. Bluetooth Specification
8. Software development kit
9. Out-of-Band pairing with NFC
10. Alliance for Wireless Power BLE Profile

BLE + MCU

BCM20719
CM41, SPI, UART, PC,
IR TX/RX, ADC, 6 PWM,
KB Scanner4, Mouse QD5,
Crypto6, 4 TRIAC Control,
40 GPIO, 1MB Flash,
512KB RAM, BT 4.2,
2 Mbps support, WICED SDK8

BCM20737
CM3, SPI, UART, PC,
IR TX/RX, ADC, 4 PWM,
LE Audio, NFC9, Crypto,
14 GPIO, 60KB RAM,
BT 4.1, WICED SDK

BCM20736
CM3, SPI, UART, PC,
IR TX/RX, ADC, A4WP10,
4 PWM, 40 GPIO, 60KB RAM,
BT 4.1, WICED SDK
BCM20737
Bluetooth Low Energy Connectivity MCU with Security and Wireless Charging

Applications
Wearables, medical, home automation, toys

Features
Industry’s Most-Widely-Deployed BLE Stack
Bluetooth Low Energy (BLE) Features
Bluetooth 4.1 compliant
Simultaneous multiple Master and Slave (1M, 3S)
Alliance for Wireless Charging (A4WP) support
Proprietary low-energy audio (LE Audio) support
Out-of-band (OOB) pairing using near-field communication (NFC)
Secure over-the-air (OTA) firmware upgrade

Security Engine
RSA, X.509, SHA, AES128

Packages
32-pin QFN (5 x 5 mm), 80-ball WLCSP (2.2 x 2.2 mm)
FCC and CE-certified 6.5 x 6.5 x 1.2-mm modules with antenna

WICED™ SMART SDK 2.1 (and later)

Collateral
Datasheet: BCM20737
Software: WICED SMART SDK
Quick Start Guide: WICED SMART SDK 2.x
BCM92073x LE_TAG4

Availability
Production: Now

1 Effective number of bits is 10 at 187 kps
BCM20736
Bluetooth Low Energy Connectivity MCU with Wireless Charging

Applications
Beacons, tags, toys, industrial/home automation

Features
Industry’s Most-Widely-Deployed BLE Stack
Bluetooth Low Energy (BLE) Features
- Bluetooth 4.1 compliant
- Support for all standard Bluetooth 4.1 low-energy profiles including Alliance for Wireless Charging (A4WP)
- Simultaneous multiple Master and Slave (1M, 1S)
- Pre-standard BLE mesh
- Over-the-air (OTA) firmware upgrade

Packages
- 32-pin QFN (5 x 5 mm)
- 80-ball WLCSP (2.2 x 2.2 mm)
- FCC and CE-certified 6.5 x 6.5 x 1.2-mm modules with antenna

WICED™ SMART SDK 2.1 (and later)

Collateral
Datasheet: BCM20736
Software: WICED SMART SDK
Quick Start Guide: WICED SMART SDK 2.x
BCM92073x_LE_TAG4

Availability
Production: Now

1 Effective number of bits is 10 at 187 kspS
BCM20719
Ultra Low Power Bluetooth Smart Ready Connectivity Secure MCU

Applications
Medical, home automation, wearables, POS

Features
Industry’s Most-Widely-Deployed Bluetooth Stack
Bluetooth Low Energy (BLE) Features
Bluetooth 4.2-compliance with LE privacy 1.2, LE data length extension, LE secure connections
Industry’s lowest-power radio
Proprietary low energy audio (LE Audio) support
2-Mbps proprietary BLE support
ARM® Cortex®-M4 CPU with Floating-Point Unit, Digital-Signal Processing Logic and 1MB Flash
MIPI-Compliant Display Driver
Security Engine
Public key accelerator (PKA), SHA, AES, RSA, Elliptic Curve Diffie Hellman (ECDH)
Packages
40-pin QFN (5 x 5 mm)
80-ball WLCSP (2.2 x 2.2 mm)
WICED™ SMART Ready SDK

Collateral
Datasheet: BCM20719 (Contact Sales)
Software: WICED SMART Ready SDK (Contact Sales)

Availability
Sampling: Q416
Production: Q117

1 Effective number of bits is 10 at 187 kspfs
Wireless Solutions for The Internet of Things (IoT) Roadmap

BLUETOOTH CLASSIC + BLE PORTFOLIO
## Bluetooth Classic + BLE Portfolio

### Integration

<table>
<thead>
<tr>
<th>BR¹ +BLE</th>
<th>BR + EDR² + BLE³</th>
</tr>
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<tbody>
<tr>
<td><strong>BCM20735</strong>&lt;br&gt;48-MHz CM4, 2 SPI (Quad/Dual), UART, I²C, IR TX/RX, ADC, 6 PWM, KB Scanner, Mouse QD, GCI, 4 TRIAC Control, 40 GPIO, 384KB RAM, BT 4.2 BLE 2 Mbps, C1/C2/C3, WICED SMART READY</td>
<td><strong>BCM207x9</strong>&lt;br&gt;ULP, 48-MHz CM4, 2 SPI (Quad/Dual), UART, I²C, IR TX/RX, ADC, 6 PWM, KB Scanner, Mouse QD, GCI, Crypto, 4 TRIAC Control, 40 GPIO, 1MB Flash, 512KB RAM, BT 4.2 BLE 2 Mbps, C2/C3, WICED SMART READY</td>
</tr>
<tr>
<td><strong>BCM20707</strong>&lt;br&gt;96-MHz CM3, 2 SPI, UART, I²C, GCI, 4 TRIAC Control, 24 GPIO, 352KB RAM, BT 4.2 EDR BLE C1/C2, WICED SMART READY</td>
<td><strong>BCM20706</strong>&lt;br&gt;96-MHz CM3 Embedded BT SoC, 2 SPI, UART, I²C, IR TX/RX, ADC, 4 PWM, GCI, I²S/PCM, 4 TRIAC Control, 24 GPIO, 352KB RAM, BT 4.2 EDR BLE C1/C2, WICED SMART READY</td>
</tr>
<tr>
<td>BCM20704&lt;br&gt;96-MHz CM3, UART, I²C, USB 2.0, I²S/PCM, GCI, 8 GPIO, 352KB RAM, BT 4.2 EDR BLE C1/C2, HCI-Over-UART/USB 2.0</td>
<td></td>
</tr>
</tbody>
</table>

### CPU Performance

1. Basic Rate
2. Enhanced data rate
3. Bluetooth Low Energy
4. ARM® Cortex®-M3/M4
5. Infrared transmit and receive
6. Keyboard scanner
7. Mouse quadrature decoder
8. Global coexistence interface
9. Bluetooth Specification 3.0/4/1/4.2
10. Class 1 (100 m)/2 (10 m)/3 (1 m)
11. Ultra-low power
12. Cryptographic accelerator block for security
13. 3D Glass shutter control
14. Application Development Kit

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**Status**<br>Concept | Development | Sampling | Production
---
**Availability** | | | | QQYY | QQYY
BCM20707
Bluetooth Connectivity MCU

Applications
HCl-based Bluetooth and dongles

Features
Industry’s Most-Widely-Deployed Bluetooth Stack

Bluetooth Features
Bluetooth 4.2 + high-speed stack with BR¹/EDR²/BLE³
Class 1 (100 meters), Class 2 (10 meters) support
Global coexistence interface (GCI)
Wideband speech (16K) support
Up to 16 LE connections
Host controller interface (HCI) over UART

Application Specific Peripherals
Two independent half-duplex PCM/I²S interfaces

Package
49-pin FBGA (4.5 x 4.0 mm)

WICED™ SMART READY SDK

Collateral
Datasheet: BCM20707
Software: WICED SMART READY SDK (Contact Sales)

Availability
Production: Now

¹ Basic Rate
² Enhanced Data Rate
³ Bluetooth Low Energy
⁴ Effective number of bits is 10 at 187 ksps
BCM20704
Bluetooth Connectivity MCU

Applications
HCI-based Bluetooth and dongles

Features
Industry’s Most-Widely-Deployed Bluetooth Stack
Bluetooth Features
- Bluetooth 4.2 + high-speed stack with BR¹/EDR²/BLE³
- Class 1 (100 meters), Class 2 (10 meters) support
- Global coexistence interface (GCI)
- Host controller interface (HCI) over UART and USB

Package
49-pin FCBGA (4.5 x 4.0 mm)

WICED™ SMART READY SDK

Collateral
Datasheet: BCM20704
Software: WICED SMART READY SDK (Contact Sales)

Availability
Production: Now

Bluetooth Connectivity MCU

<table>
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<th>MCU Subsystem</th>
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<tbody>
<tr>
<td>Cortex®-M3</td>
</tr>
<tr>
<td>96 MHz</td>
</tr>
<tr>
<td>SRAM (352KB)</td>
</tr>
<tr>
<td>ROM (848KB)</td>
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<tr>
<td>Bluetooth Stack</td>
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<tr>
<td>Profiles</td>
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<tr>
<td>GCI</td>
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<tr>
<td>Bluetooth System (Bluetooth 4.2)</td>
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<td>JTAG Debug</td>
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<tr>
<th>Communication Interfaces</th>
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<td>UART x2</td>
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<tr>
<td>I2C/SPI Master</td>
</tr>
<tr>
<td>I²S/PCM</td>
</tr>
<tr>
<td>USB 2.0</td>
</tr>
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</table>

1 Basic Rate
2 Enhanced Data Rate
3 Bluetooth Low Energy
BCM20706
Bluetooth Connectivity MCU

Applications
Speaker/Headset, Bluetooth gateway, automation gateway

Features
Industry’s Most-Widely-Deployed Bluetooth Stack
Bluetooth Features
Hostless, complete system-on-chip
Bluetooth 4.2 stack with BR\(^1\)/EDR\(^2\)/BLE\(^3\)
Class 1 (100 meters), Class 2 (10 meters) support
A2DP, AVRCP, SPP, GATT support
Global coexistence interface (GCI)

Package
49-pin FBGA (4.5 x 4.0 mm)

WICED™ SMART READY SDK

Collateral
Datasheet: BCM20706
Software: WICED SMART READY SDK (Contact Sales)

Availability
Production: Now

1 Basic Rate
2 Enhanced Data Rate
3 Bluetooth Low Energy
4 Effective number of bits is 10 at 187 ksps
BCM20735
Bluetooth Smart and Basic Rate Connectivity MCU

Applications
Remote controls, BR-gateways

Features
Industry's Most-Widely-Deployed Bluetooth Stack
Bluetooth Features
Bluetooth 4.2 stack with basic rate and Bluetooth Low Energy (BLE)
All new Bluetooth 4.2 features: LE privacy 1.2, LE data length extension, LE secure connections
2-Mbps proprietary BLE support
Integrated power amplifier (up to 10 dBm)

ARM® Cortex®-M4 CPU With Floating-Point Unit (FPU) and Digital-Signal Processing (DSP) Logic
MIPI-Compliant Display Driver
Security Engine
PKA, SHA, AES

Packages
60-pin QFN (7 x 7 mm)
111-ball FBGA (9 x 9 mm)

WICED™ SMART READY SDK

Collateral
Datasheet: BCM20735
Software: WICED SMART READY SDK (Contact Sales)

Availability
Production: Now

1 Effective number of bits is 10 at 187 ksps
**BCM207x9**

Ultra Low Power Multi-Protocol Connectivity MCU

**Features**

**Industry's Most-Widely-Deployed Bluetooth Stack**

**Bluetooth Features**
- Industry's lowest power Bluetooth radio
- Bluetooth 4.2 stack with BR¹/EDR²/BLE³
- All new, Bluetooth 4.2 features: LE privacy 1.2, LE data length extension, LE secure connections
- 2-Mbps proprietary BLE support
- LE audio

**802.15.4 ZigBee and Thread Support**

**ARM® Cortex®-M4 CPU With Floating-Point Unit (FPU), Digital-Signal Processing (DSP) Logic and 1MB Flash**

**MIPI-Compliant Display Driver**

**Security Engine**
- PKA, SHA, AES, RSA, ECDH⁴

**Packages**
- 40-pin QFN (5 x 5 mm)
- 80-ball WLCSP (2.2 x 2.2 mm)

**WICED™ SMART READY SDK**

**Applications**
- Medical, home automation, wearables, POS input devices

**Block Diagram**

**Multi-Protocol Connectivity MCU**

**MCU Subsystem**
- ARM Cortex®-M4 96 MHz
- SRAM (512KB)
- Flash (1MB)
- ROM (2MB)
- Profiles
- 802.15.4/BR/BLE/ZigBee/Thread Stack
- Profiles
- UART x2
- SPI/Dual SPI/Quad SPI/MIPI
- MIPI-Compliant Display Driver

**Analog Peripheral**
- 16-bit DelSig ADC⁵
- TRIAC Control x4

**I/O Subsystem**
- GPIO x40

**Communication Interfaces**
- UART x2
- I²C/SPI Master
- SPI/Dual SPI/Quad SPI/MIPI

**Digital Peripherals**
- IR RX/TX
- PWM x6
- Keyboard Scanner
- Quad Decoder

**Security Engine**
- PKA
- SHA
- AES

**Collateral**

**Datasheet:** BCM207x9 (Contact Sales)

**Software:** WICED SMART READY SDK (Contact Sales)

**Availability**

<table>
<thead>
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<th>BCM20729</th>
<th>BCM20739</th>
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<td>Sampling</td>
<td>Now</td>
<td>Q117</td>
<td>Q217</td>
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<tr>
<td>Production</td>
<td>Q217</td>
<td>Q217</td>
<td>Q217</td>
</tr>
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¹ Basic Rate
² Enhanced Data Rate
³ Bluetooth Low Energy
⁴ Elliptic-Curve Diffie Hellman
⁵ Effective number of bits is 10 at 187 kps
Wireless Solutions for The Internet of Things (IoT) Roadmap

Wi-Fi PORTFOLIO
Wi-Fi Portfolio

IEEE 802.11a/b/g/n WLAN¹

<table>
<thead>
<tr>
<th>Model</th>
<th>Data Rate</th>
<th>Features</th>
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<tbody>
<tr>
<td>BCM43143</td>
<td>Up to 150 Mbps, 802.11b/g/n, SISO</td>
<td>GCI, SECI, Security, SDIO 2.0, USB 2.0, SPI, 19 GPIO, Integrated PA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linux Driver</td>
</tr>
<tr>
<td>BCM43364</td>
<td>Up to 96 Mbps, 802.11b/g/n, SISO</td>
<td>GCI, SECI, Security, CCX, SDIO 2.0, SPI, 5 GPIO, Integrated PA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linux Driver, WICED</td>
</tr>
<tr>
<td>BCM43362</td>
<td>Up to 72 Mbps, 802.11b/g/n, SISO</td>
<td>SECI, Security, SDIO 2.0, SPI, 5 GPIO, Integrated PA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linux Driver, WICED</td>
</tr>
</tbody>
</table>

IEEE 802.11a/b/g/n WLAN + MCU

<table>
<thead>
<tr>
<th>Model</th>
<th>Data Rate</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM43907</td>
<td>Up to 150 Mbps, 802.11b/g/n, SISO²</td>
<td>320-MHz CR4³, GCI⁴ SECI⁵, Security⁶, CCX⁷, 6 PWMs, Ethernet (RMII/MII),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SDIO 3.0 (H/D), USB 2.0 + HSIC (H/D), S/PDIF, 3 UART, Quad SPI, 2 SPI, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I²C, 17 GPIO, Integrated PA² for both bands, WICED</td>
</tr>
<tr>
<td>BCM43903</td>
<td>Up to 72 Mbps, 802.11b/g/n, SISO, 160-MHz CR4</td>
<td>GCI, Security, CCX, 6 PWMs, 3 UART, Quad SPI, 2 SPI, 2 I²C, 17 GPIO,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrated PA, WICED</td>
</tr>
<tr>
<td>BCM4390</td>
<td>Up to 72 Mbps, 802.11b/g/n, SISO, 48-MHz CM3</td>
<td>GCI, Security, CCX, 6 PWMs, 4 UART, I²S, 2 SPI, I²C, 24 GPIO, Integrated</td>
</tr>
<tr>
<td></td>
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<td>PA, WICED</td>
</tr>
</tbody>
</table>

¹ Wireless Local Area Network ² Single-input single-output ³ ARM® Cortex®-M3/R4 ⁴ Global coexistence interface ⁵ Serial-enhanced coexistence interface ⁶ WPA, WAPI STA, WPA2, AES, TKIP security features ⁷ Cisco-compatible extensions ⁸ Power amplifier

Status
- Concept
- Development
- Sampling
- Production

Availability
- Concept
- Development
- Sampling
- Production
BCM43362
Single-Chip IEEE 802.11n MAC/Baseband/Radio + SDIO Connectivity Solution

Applications
Consumer and commercial internet-of-things (IoT), sensors and control

Features
Industry’s Most-Widely-Deployed Wi-Fi IP

Wi-Fi Features
802.11b/g/n compliant
72-Mbps data rate
Single band (2.4 GHz)
SDIO 2.0 and SPI support
3-/4-wire serial enhanced coexistence interface (SECI)

Security Engine\(^1\)
WPA and WPA2
AES in hardware

Packages
69-ball WLPGA (4.52 x 2.92 mm)

WICED™ Wi-Fi SDK, Linux Driver

Collateral
Datasheet: [BCM43362](#)
Software: [WICED Wi-Fi SDK](#)
Linux Driver
Modules: [IoT Solutions Guide](#)

Availability
Production: Now

1 WPA, WAPI STA, WPA2, AES, TKIP security features
BCM43364
Single-Chip IEEE 802.11n MAC/Baseband/Radio

Applications
Low-cost WLAN connectivity for consumer/commercial IoT

Features
Industry’s Most-Widely-Deployed Wi-Fi IP
Wi-Fi Features
- 802.11b/g/n compliant
- 96-Mbps data rate
- Single band (2.4 GHz)
- SDIO 2.0 and SPI support
- 2-/3-/4-wire global coexistence interface (GCI) SECI

Security Engine
- WPA and WPA2
- AES in hardware
- Cisco-compatible extensions

Packages
- 74-ball WLBGA (4.87 x 2.87 mm)

WICED™ Wi-Fi SDK, Linux Driver

Collateral
Datasheet: BCM43364
Software: WICED Wi-Fi SDK
Linux Driver
Modules: IoT Solutions Guide

Availability
Production: Now

Block Diagram
Single-Chip Wi-Fi Connectivity Solution

System Bus
- MAC
- PHY
- Radio
- Security Engine
- ARM® Cortex®-M3
- SRAM (512KB)
- ROM (640KB)
- JTAG Debug

Communication Interfaces
- UART
- SPI
- SDIO
- GCI SECI

I/O Subsystem
- I/O Ring Bus
- GPIO x5

I/O Subsystem

Applications

Features

Industry’s Most-Widely-Deployed Wi-Fi IP

Wi-Fi Features
- 802.11b/g/n compliant
- 96-Mbps data rate
- Single band (2.4 GHz)
- SDIO 2.0 and SPI support
- 2-/3-/4-wire global coexistence interface (GCI) SECI

Security Engine
- WPA and WPA2
- AES in hardware
- Cisco-compatible extensions

Packages
- 74-ball WLBGA (4.87 x 2.87 mm)

WICED™ Wi-Fi SDK, Linux Driver

Collateral
Datasheet: BCM43364
Software: WICED Wi-Fi SDK
Linux Driver
Modules: IoT Solutions Guide

Availability
Production: Now

1 Serial-enhanced coexistence interface
2 WPA, WAPI STA, WPA2, AES, TKIP security features
BCM43143
Single-Chip IEEE 802.11n MAC/Baseband/Radio + SDIO/USB Connectivity Solution

Applications
Consumer electronics, printers

Features
Industry’s Most-Widely-Deployed Wi-Fi IP
Wi-Fi Features
802.11b/g/n compliant
150-Mbps data rate
Single band (2.4 GHz)
SDIO 2.0 and USB 2.0 support
2-/3-/4-wire global coexistence interface (GCI) SECI¹
Security Engine²
WPA and WPA2
AES in hardware
Cisco-compatible extensions

Packages
56-pin QFN (7 x 7 mm)

Linux Driver

Collateral
Datasheet: BCM43143
Software: Linux Driver
Modules: IoT Solutions Guide

Availability
Production: Now

¹ Serial-enhanced coexistence interface
² WPA, WAPI STA, WPA2, AES, TKIP security features
BCM4390
IEEE 802.11n System-on-Chip with Embedded Application Processor

Applications
Consumer, home automation, health, smart energy

Features
Industry's Most-Widely-Deployed Wi-Fi IP
Wi-Fi Features
802.11b/g/n compliant
72-Mbps data rate
Single band (2.4 GHz)
2-/3-/4-wire global coexistence interface (GCI) SECI
32-bit ARM Cortex-M3 Application MCU Subsystem
Security Engine
WPA and WPA2
AES in hardware
Cisco-compatible extensions

Packages
286-ball WLCSP (4.87 x 5.413 mm)

WICED™ Wi-Fi SDK

Collateral
Datasheet: BCM4390
Software: WICED Wi-Fi SDK
Modules: IoT Solutions Guide

Availability
Production: Now

1 Serial-enhanced coexistence interface
2 WPA, WAPI STA, WPA2, AES, TKIP security features
BCM43907
IEEE 802.11n System-on-Chip with Embedded Application Processor

Applications
Appliances, HID, embedded audio, health/medical

Features
Industry’s Most-Widely-Deploelyed Wi-Fi IP

Wi-Fi Features
802.11a/b/g/n compliant
150-Mbps data rate
Dual band (2.4/5 GHz)
2-/3-/4-wire global coexistence interface (GCI) SECI¹

32-bit ARM Cortex-R4 Application MCU Subsystem

Ethernet (RMII/MII)

Security Engine²
WPA and WPA2
AES in hardware
Cisco-compatible Extensions

Packages
316-ball WLCSP (4.58 x 5.53 mm)

WICED™ Wi-Fi SDK

Collateral
Datasheet: BCM43907
Software: WICED Wi-Fi SDK
Modules: IoT Solutions Guide

Availability
Production: Now

Single-Chip Wi-Fi Connectivity Solution
Wi-Fi Subsystem
- MAC
- PHY
- 2.4/5-GHz Dual-Band Radio
- Security Engine
- ARM® Cortex®-R4 (160 MHz)
- SRAM (448KB)
- ROM (576KB)
- JTAG Debug

Application MCU Subsystem
- Cortex®-R4
- 320 MHz
- ROM (640KB)
- SRAM (2MB)
- JTAG Debug

I/O Subsystem
- GPIO x17
- Digital Peripherals
- PWM x6
- Ethernet (RMII/MII)
- USB 2.0 HSIC
- SPI x2
- PC x2
- SDIO 3.0

Communication Interfaces
- UART x3
- GCI SECI

¹ Serial-enhanced coexistence interface
² WPA, WAPI STA, WPA2, AES, TKIP security features
**BCM43903**

**IEEE 802.11n System-on-Chip with Embedded Application Processor**

### Applications

Consumer/home appliances, HID

### Features

**Industry’s Most-Widely-Deployed Wi-Fi IP**

**Wi-Fi Features**
- 802.11b/g/n compliant
- 72-Mbps data rate
- Single band (2.4 GHz)
- 2-/3-/4-wire global coexistence interface (GCI) SECI¹

**32-bit ARM Cortex-R4 Application MCU Subsystem**

**Security Engine²**
- WPA and WPA2
- AES in hardware
- Cisco-compatible extensions

**Packages**
- 151-ball WLBGA (4.91 x 5.85 mm)

**WICED™ Wi-Fi SDK**

### Collateral

**Datasheet:** BCM43903

**Software:** WICED Wi-Fi SDK

**Modules:** IoT Solutions Guide

### Availability

**Production:** Now

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¹ Serial-enhanced coexistence interface
² WPA, WAPI STA, WPA2, AES, TKIP security features
Wireless Solutions for The Internet of Things (IoT) Roadmap

Wi-Fi + BLUETOOTH COMBO PORTFOLIO
## Cypress Roadmap: Wireless Solutions for The IoT

### Wi-Fi + Bluetooth Combo Portfolio

<table>
<thead>
<tr>
<th>Dual-Band (2.4/5 GHz)</th>
<th>Single-Band (2.4 GHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IEEE 802.11a/b/g/n WLAN(^1) + Bluetooth (BR(^2) + EDR(^3) + BLE(^4))</strong></td>
<td><strong>BCM43438/BCM4343W</strong></td>
</tr>
<tr>
<td><strong>BCM43438/BCM4343W</strong></td>
<td></td>
</tr>
<tr>
<td>Up to 96 Mbps, 802.11a/b/g/n, BT(^4.0), SECI(^6), Security(^7), SDIO 2.0, SPI, HSIC, HCI-over-UART, 2 PCM/I(^2)S, I(^2)S/Stereo Audio for FM, 8 GPIOs, Integrated PA(^8), Linux Driver, WICED</td>
<td></td>
</tr>
<tr>
<td><strong>BCM43455</strong></td>
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</tr>
<tr>
<td>Up to 150 Mbps, 802.11a/b/g/n, BT(^5.0), SECI(^6), Security(^7), SDIO 2.0, SPI, HSIC, HCI-over-UART, PCM/I(^2)S, FM RX, 18 GPIOs, Integrated PA, Linux Driver</td>
<td></td>
</tr>
<tr>
<td><strong>BCM4339</strong></td>
<td></td>
</tr>
<tr>
<td>Up to 433.3 Mbps, 802.11a/b/g/n/ac, BT4.1, A4WP(^9), GCI(^10) SECI, Security, PCIe3.0, SDIO 2.0/3.0, SPI, HCI-over-UART, PCM/I(^2)S, FM RX, 16 GPIOs, Integrated PA, Linux Driver</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Data Rate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IEEE 802.11a/b/g/n/ac WLAN + Bluetooth (BR + EDR + BLE)</strong></td>
</tr>
</tbody>
</table>

**Status Availability**

- **Concept**
- **Development**
- **Sampling**
- **Production**

### Footnotes:

1. Wireless Local Area Network
2. Basic Rate
3. Enhanced Data Rate
4. Bluetooth Low Energy
5. Bluetooth Specification
6. Serial-enhanced coexistence interface
7. WPA, WAPI STA, WPA2, AES, TKIP
8. Power amplifier
9. Alliance for Wireless Power BLE Profile
10. Global coexistence interface
BCM43438/BCM4343W
Single chip IEEE 802.11n with Integrated Bluetooth 4.1 and FM Receiver

Applications
Portable consumer/commercial IoT and wearables

Features
Industry’s Most-Widely-Deployed Wi-Fi IP and Bluetooth Stack

Wi-Fi Features
- 802.11b/g/n compliant
- 96-Mbps data rate
- SDIO 2.0 and SPI support
- 2-/3-/4-wire global coexistence interface (GCI) SECI¹

Bluetooth Features
- Bluetooth 4.0 compliant
- Class 1 (100 m) and Class 2 (10 m) operation
- Host controller interface (HCI)-over-UART

FM Features
- FM receiver

Packages
- 63-ball WLBGA (4.87 x 2.87 mm)
- 74-ball WLBGA (4.87 x 2.87 mm)
- 153-ball WLCSP (4.87 x 2.87 mm)

WICED™ Wi-Fi SDK, Linux driver

Collateral
Datasheets: BCM43438, BCM4343W
Software: WICED Wi-Fi SDK, Linux Driver
Modules: IoT Solutions Guide

Availability
Production: BCM43438 Now, BCM4343W Now

¹ Serial-enhanced coexistence interface
² WPA, WAPI STA, WPA2, AES, TKIP security features
BCM43340
Single chip IEEE 802.11n with Integrated Bluetooth 4.0 and FM Receiver

Applications
Portable consumer/commercial IoT applications

Features
Industry’s Most-Widely-Deployed Wi-Fi IP and Bluetooth Stack

Wi-Fi Features
802.11a/b/g/n compliant
150-Mbps data rate
Dual band (2.4/5 GHz)
SDIO 2.0, SPI, HSIC support

Bluetooth Features
Bluetooth 4.0 compliant
Class 1 (100 m) and Class 2 (10 m) operation
Host controller interface (HCI)-over-UART

FM Features
FM receiver

Package
141-ball WLPGA (5.67 x 4.47 mm)

WICED™ Wi-Fi SDK, Linux Driver

Collateral
Datasheet: BCM43340
Software: WICED Wi-Fi SDK
Linux Driver
Modules: IoT Solutions Guide

Availability
Production: Now

Single-Chip Wi-Fi and Bluetooth Connectivity Solution

Block Diagram

I/O Subsystem
I/O Subsystem

Interfaces
UART
SPI
PCM/IP
SDIO 2.0
Legacy SEC

FM Subsystem
FM RX

Bluetooth Subsystem

Bluetooth 4.0
Link Layer And PHY
ARM® Cortex® M3
SRAM (195KB)
ROM (652KB)
JTAG/SWD

Wi-Fi Subsystem

MAC And PHY
Dual-Band Radio
Security Engine
ARM® Cortex® M3
SRAM (512KB)
ROM (640KB)
JTAG/SWD

Single-Chip Wi-Fi and Bluetooth Connectivity Solution

APB
GPIO x8

AHB

SRAM (195KB)
ROM (652KB)
JTAG/SWD

ARM® Cortex® M3
SRAM (512KB)
ROM (640KB)
JTAG/SWD

AXI

JTAG

SDIO 2.0

Legacy SEC

USB/HSIC

AHB

PCM/IP

UART

SPI

SDIO 2.0

Legacy SEC

PCM/IP

Stereo Audio

FM RX

APB

GPIO x8

1 WPA, WAPI STA, WPA2, AES, TKIP security features
2 Serial-enhanced coexistence interface
**BCM4339**

Single-Chip IEEE 802.11ac with Integrated Bluetooth 4.1 and FM Receiver

### Features

**Industry's Most-Widely Deployed Wi-Fi IP and Bluetooth Stack**

**Wi-Fi Features**
- 802.11b/g/n/ac compliant
- 433.3-Mbps data rate
- Dual band (2.4/5 GHz)
- 2-/3-/4-wire global coexistence interface (GCI) SECI

**Bluetooth Features**
- Bluetooth 4.1 compliant
- Class 1 (100 m) and Class 2 (10 m) operation
- Host controller interface (HCI)-over-UART

**FM Receiver**

**Packages**
- 160-ball FCFBGA (8 x 8 mm)
- 145-ball WLBGA (4.87 x 5.41 mm)
- 286-ball WLCSP (4.87 x 5.41 mm)

**Linux Driver**

### Applications

High-performance, space-constrained consumer IoT applications

### Collateral

- **Datasheet:** [BCM4339](#)
- **Software:** [Linux Driver](#)
- **Modules:** [IoT Solutions Guide](#)

### Availability

Production: Now

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1. Serial-enhanced coexistence interface
2. WPA, WAPI STA, WPA2, AES, TKIP security features
BCM43455
Single-Chip IEEE 802.11ac with Integrated Bluetooth 4.1 and FM Receiver

Applications
High-performance, space-constrained consumer/commercial IoT

Features
Industry’s Most-Widely-Deployed Wi-Fi IP and Bluetooth Stack

Wi-Fi Features
- 802.11b/g/n/ac compliant
- 433.3-Mbps data rate
- Dual band (2.4/5 GHz)
- 2-/3-/4-wire global coexistence interface (GCI) SECl

Bluetooth Features
- Bluetooth 4.1 compliant
- Class 1 (100 m) and Class 2 (10 m) operation
- Host controller interface (HCI)-over-UART

FM Receiver

Package
- 140-ball WLBGA (4.47x5.27 mm)

Linux Driver

Collateral
Datasheet: BCM43455
Software: Linux Driver
Modules: IoT Solutions Guide

Availability
Production: Now

Block Diagram
Single-Chip Wi-Fi and Bluetooth Connectivity Solution

I/O Subsystem
- GPIO x15

Wi-Fi Subsystem
- MAC And PHY
- Dual-Band Radio
- Security Engine
- ARM® Cortex® R4
- SRAM (800KB)
- ROM (704KB)
- JTAG/SWD

Bluetooth Subsystem
- Bluetooth 4.1 Link Layer And PHY
- ARM® Cortex® M3
- SRAM (270KB)
- ROM (845KB)
- JTAG/SWD

Interfaces
- UART
- SPI
- PCM/I²S
- SDIO 2.0/3.0
- PCIe 3.0
- GCI SECI

FM Subsystem
- PCM/I²S
- FM RX

Notes:
1 Serial-enhanced coexistence interface
2 WPA, WAPI STA, WPA2, AES, TKIP security features
Wireless Solutions for The Internet of Things (IoT) Roadmap

AUTOMOTIVE WIRELESS PORTFOLIO
## Automotive Wireless Portfolio

<table>
<thead>
<tr>
<th>Bluetooth (BR(^1) + EDR(^2))</th>
<th>IEEE 802.11/a/b/g/n/ac WLAN(^3) + Bluetooth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BCM89071</strong></td>
<td><strong>BCM89359</strong></td>
</tr>
<tr>
<td>24-MHz ARM7TDMI-S, SPI, UART, I(^6)C, I(^5)S/PCM, GCI(^7) SECI(^8), HCI(^9)-over-UART/SPI, 8 GPIO, 112KB RAM, BT(^9) 4.1 BR + EDR, C1/C2/C3(^9)</td>
<td>Up to 867 Mbps, 802.11a/b/g/n/ac, 2x2 MIMO(^{10}) w/RSDB(^{11}), BT 4.2 BR + EDR + BLE, GCI SECI, SDIO 3.0, PCIe, UART, USB, I(^7)C, SPI, HCI-over-UART, PCM/I(^7)S, Security(^{12}), 20 GPIO, C1/C2, Linux Driver</td>
</tr>
<tr>
<td><strong>BCM20713</strong></td>
<td><strong>BCM88335/BCM89359</strong></td>
</tr>
<tr>
<td>24-MHz ARM7TDMI-S, SPI, UART, I(^6)C, I(^5)S/PCM, GCI SECI, HCI-over-UART/SPI, 8 GPIO, 16KB RAM, BT 4.0 BR + EDR, C1/C2/C3</td>
<td>Up to 433.3 Mbps, 802.11a/b/g/n/ac, SISO(^{13}), BT 4.1 BR + EDR + BLE, GCI SECI, SDIO2.0/3.0, SPI, HCI-over-UART, PCM/I(^7)S, Security, 9 GPIO, C1/C2, Linux Driver</td>
</tr>
</tbody>
</table>

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1. Basic Rate  
2. Enhanced Data Rate  
3. Wireless Local Area Network  
4. ARM 7 Family CPU  
5. Global coexistence interface  
6. Serial-enhanced coexistence interface  
7. Host controller interface  
8. Bluetooth Specification  
9. Class 1 (100 m)/2 (10 m)/3 (1 m)  
10. Multiple-input multiple-output  
11. Real Simultaneous Dual Band  
12. WPA, WAPI STA, WPA2, AES, TKIP, Cisco Compatible Extensions security features  
13. Single-input single-output