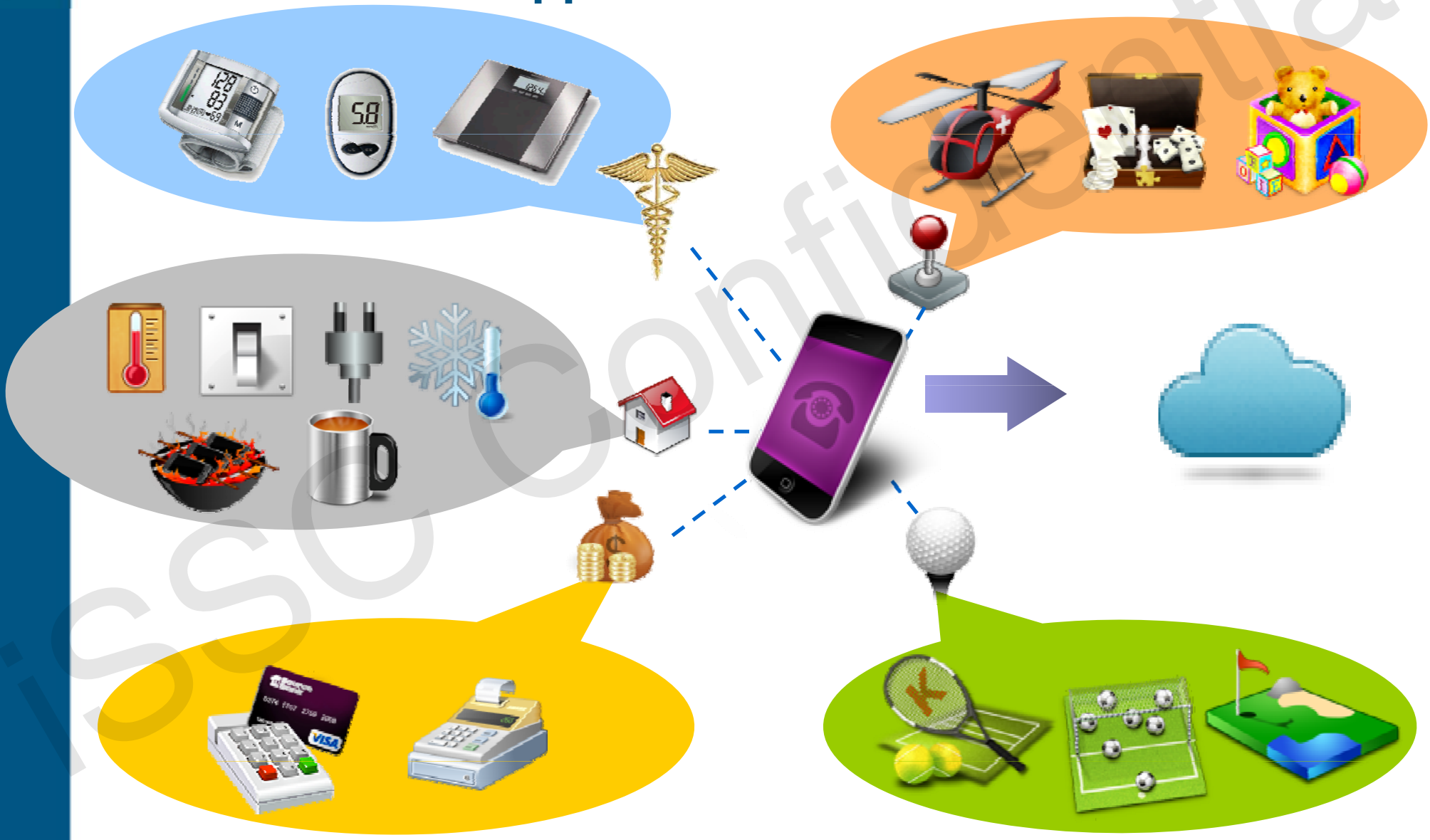
BM57SPP02
Bluetooth Module

Date: 2011/06/01

Bluetooth SPP Application

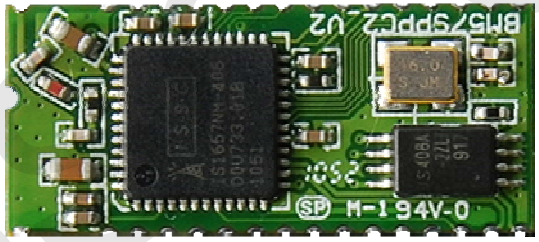


Introduction

- **Features**
  - Bluetooth **3.0** EDR Compliant
  - Low Power 1.8V RF operation
  - RF Receiver BDR **-90dBm**, EDR **-83dBm** typical
  - HCI over **UART**
  - I2C for external EEPROM & **CP**
  - **1** LED driver
  - Class**1**/ Class**2** types

Introduction

- **Application**
  - GPS
  - Printer
  - Electric Scale
  - Blood Pressure Monitors
  - Bar Code Scanner
  - Industrial Applications
  - Embedded systems
- **Outlook & Dimension**



- 23x10mm
- PIN assignment (32)

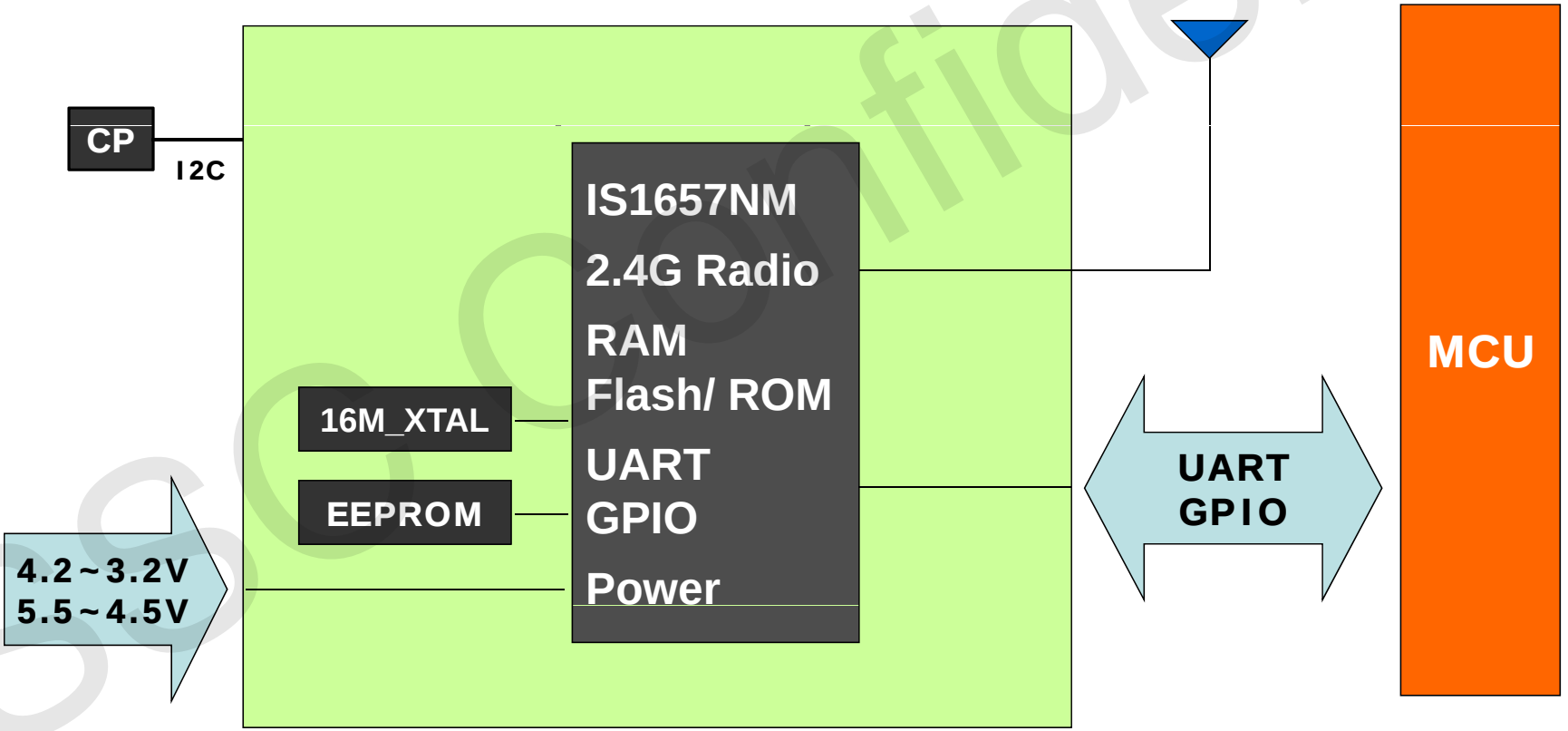
Chipset Specification

- **IS1657**
  - 7x7mm 48 PIN QFN
- **Interface**
  - Multi GPIO
  - Bluetooth RF
  - URAT up to 921600 bps

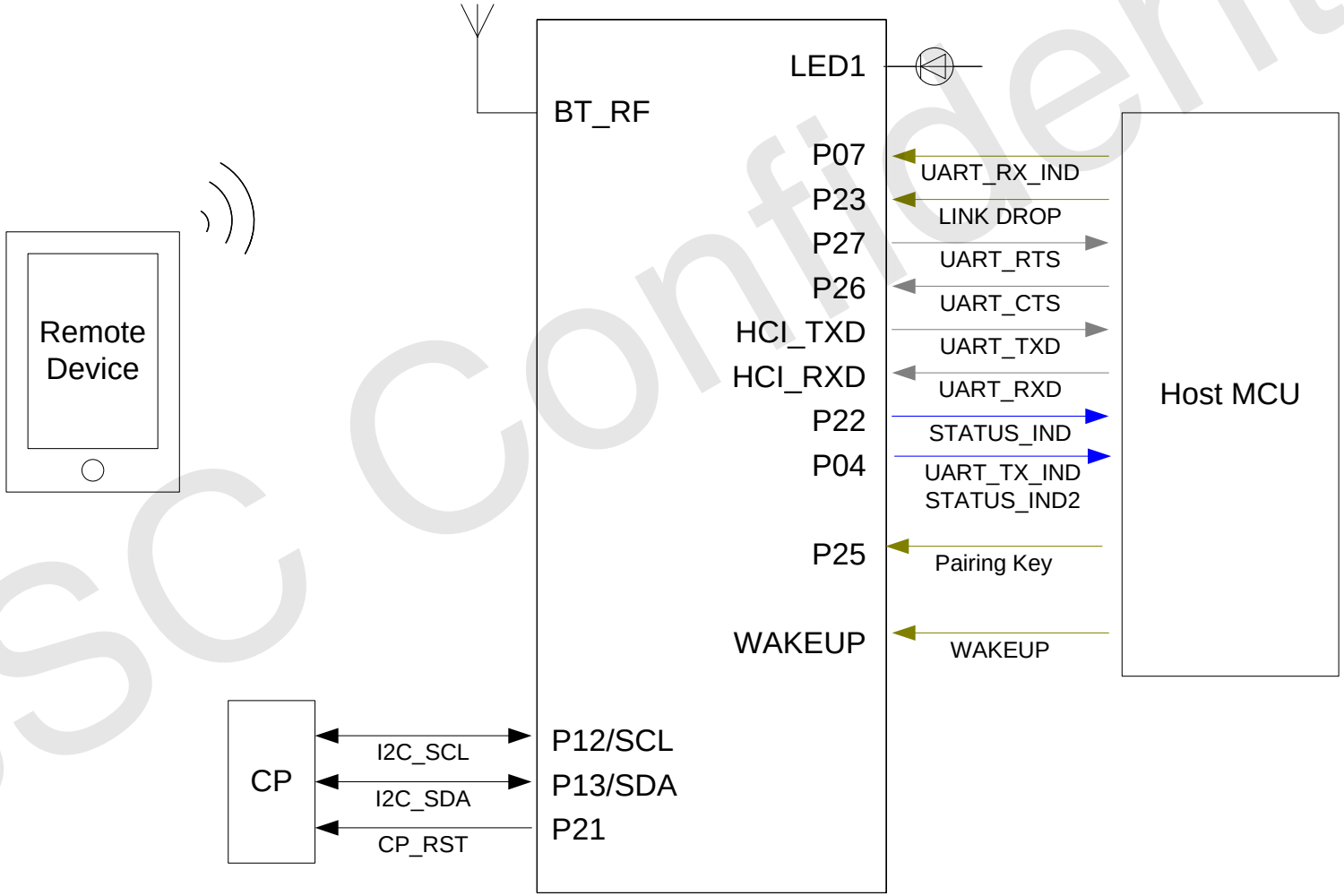
Chipset Specification

- **Hardware Design Considerations**
  - Power
    - 3.2V~5.5V (3.2~4.2V, 4.5~5.5V)
  - Clock
    - 16MHz+/- 10ppm
  - Radio
    - 2402-2480 GHz
    - 79 MHz channels

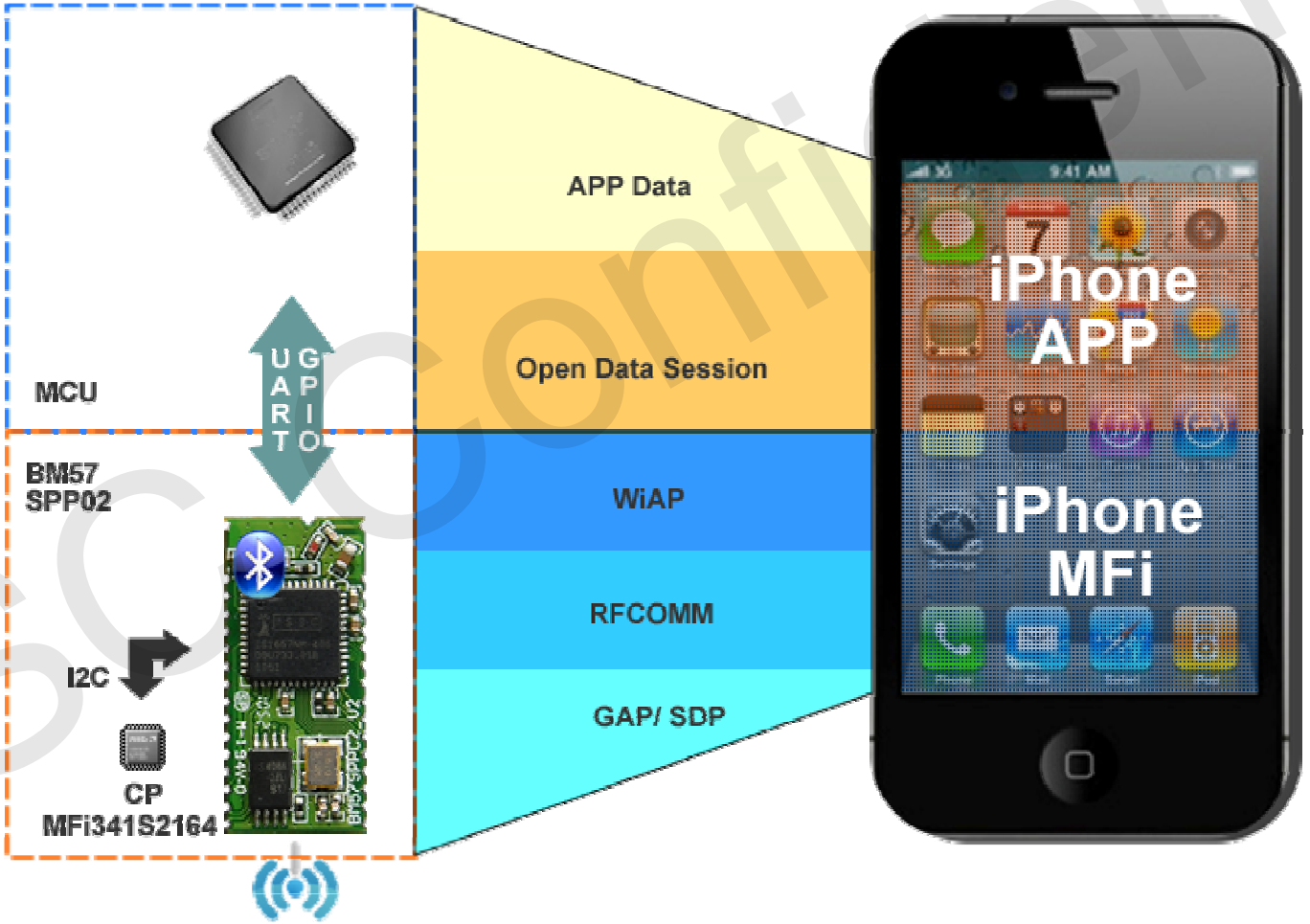
Hardware Architecture



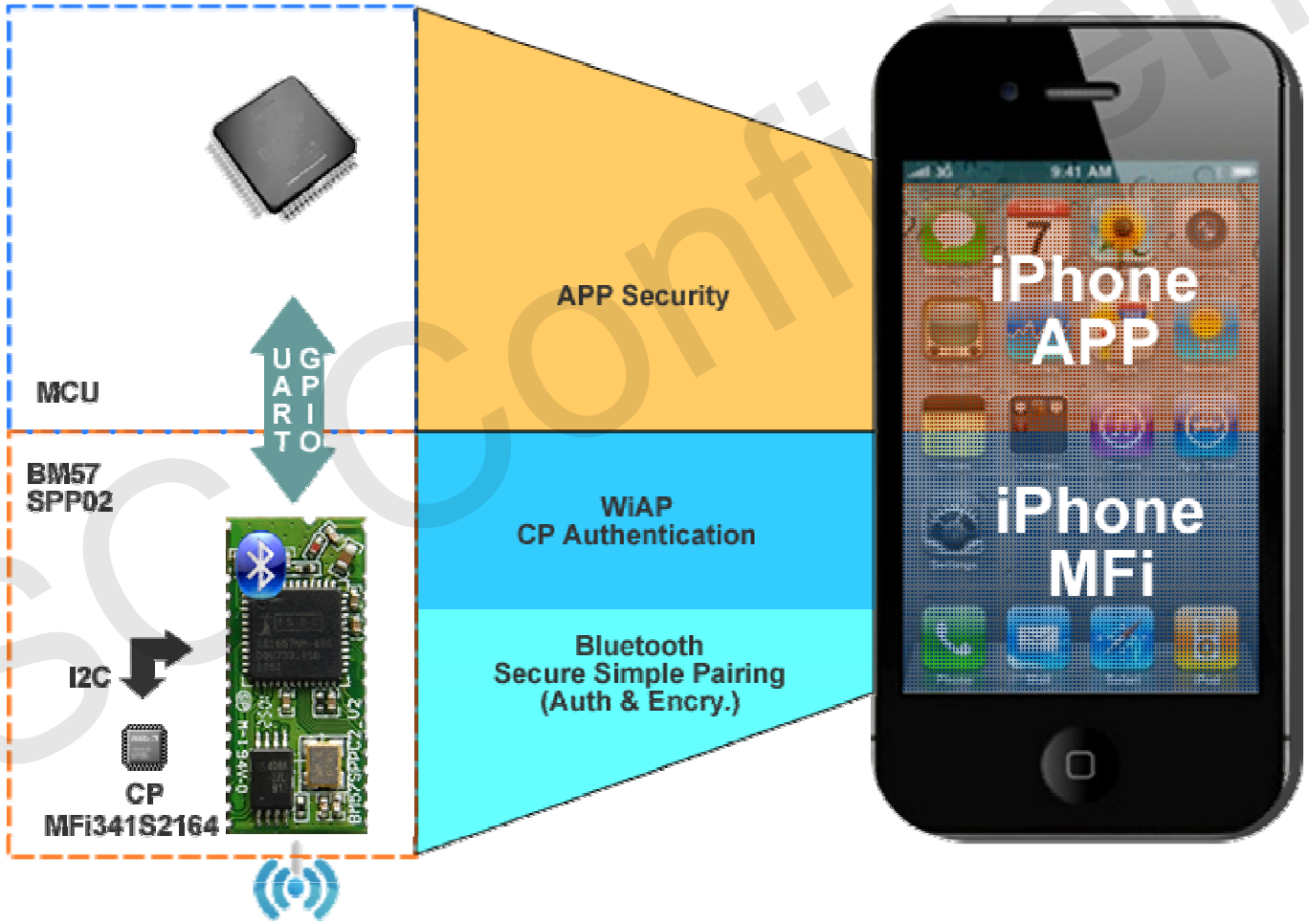
Function Block



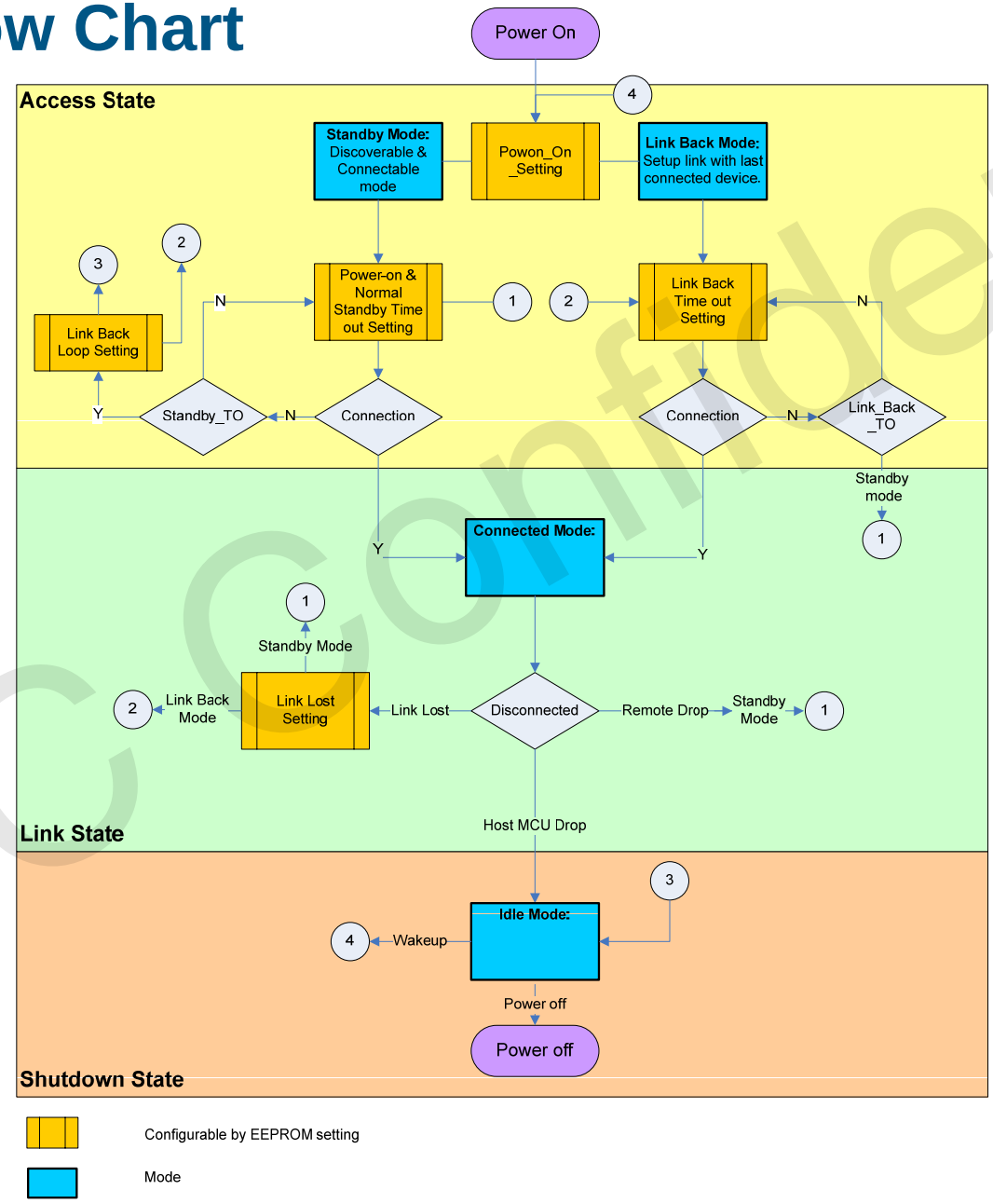
Application Architecture



Security Methodology



GAP Flow Chart

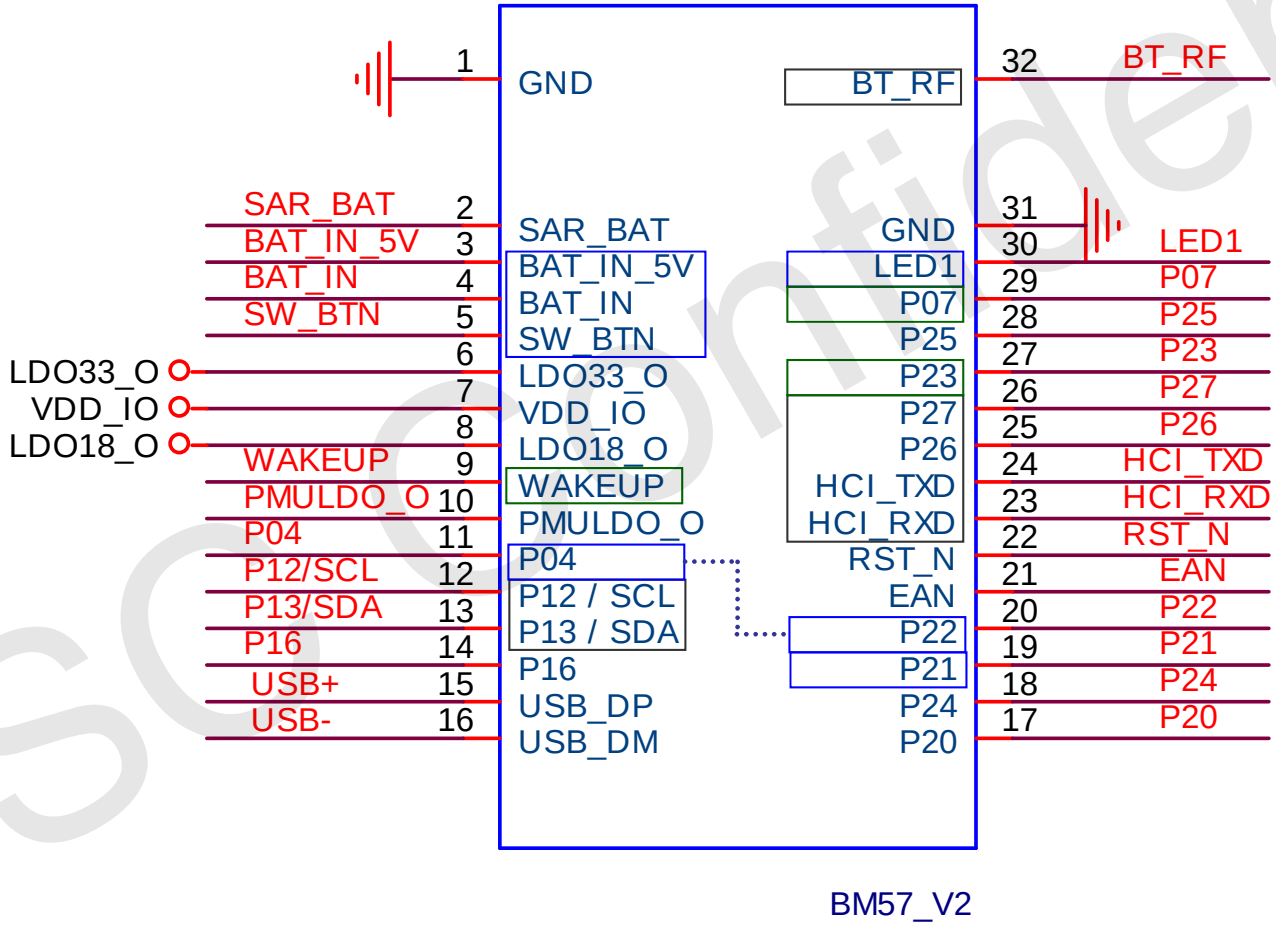


Power Consumption

Operational Mode	Conditions	Typical	Unit
Transmit, Receive	Continue TX/ RX packets at baudrate 115200bps	18	mA
Connected	Connected but without transmitting or receiving data, at 32K low power mode	0.6	mA
Standby	Under inquiry and page mode	2.3	mA
Idle standby	Disconnected and standby for connecting, at 32K low power mode	0.2	mA

* Including: CP/ RS-232 Console board

PIN Definition



Pin No.	I/O	Name	Description
1	P	GND	Ground
2	I	SAR_BAT	Reserved
3	I	BAT_IN_5V	5V power input
4	I	BAT_IN	3.3V power input
5	I	SW_BTN	Reserved
6	P	LDO33_O	3V3 LDO output
7	P	VDD_IO	Main power supply
8	P	LDO18_O	LDO18 output
9	I	**WAKEUP**	**Wakeup BM57 from Shutdown State. (Low Active)** **It is only valid while BM57 into Shutdown State.**
10	P	PMULDO_O	Output of PMULDO
11	O	**P04**	**UART_TX_IND:** **H: BM57 indicate UART data will be transmitted out after a certain timing (setting by EEPROM, default 5 ms)** **L: Otherwise.** **STATUS_IND_2: BM57 State indication , refer to P22**
12	I/O	**P12/ SCL**	**I2C_SCL, for Authentication Coprocessor 2.0B**
13	I/O	**P13/ SDA**	**I2C_SDA, for Authentication Coprocessor 2.0B**
14	I/O	P16	EEPROM WP
15	I/O	USB_DP	Reserved
16	I/O	USB_DM	Reserved

Pin No.	I/O	Name	Description
17	I	P20	System configuration, refer to P2_4.
18	I	P24	Boot mode selection P2_0/ P2_4: HH → Application LL → Boot mode LH → HCI UART mode for testing and system configuration.
19	O	**P21**	**CP_RST:** **Reset Authentication Coprocessor 2.0B**
20	O	**P22**	**STATUS_IND:** **Bluetooth link status indication** **P22/P04: HH → Power default value and Shutdown State.** **P22/P04: HL → Access State.** **P22/P04: LL → Link State w/o UART_TXD.** **P22/P04: LH → Link State with UART_TXD.**
21	I	EAN	ROM/Flash selection. H: ROM code; L: Flash code
22	I	**RST_N**	**External reset input (Low Active)**
23	I	HCI_RXD	UART_RXD
24	O	HCI_TXD	UART_TXD
25	I	**P26**	**UART_CTS:** **UART Flow Control, if set HIGH, disables TX transmitter.**
26	O	**P27**	**UART_RTS:** **UART Flow Control, goes HIGH to disable host transmitter.**

Pin No.	I/O	Name	Description
27	I	**P23**	**LINK_DROP:** **Host_MCU ask to drop SPP link under Link State;** **One low pulse with 10 ms duration low signal to trigger SPP disconnection.** **Otherwise it will be set as high always.**
28	I	**P25**	**Pairing Key**
29	I	**P07**	**UART_RX_IND:** **L: Inform BM57 that UART data will be transmitted out after 1 ms** **H: Otherwise.**
30	O	**LED1**	**LED1 driver**
31	P	GND	Ground
32	RI/O	BT_RF	RF Port

Environmental Requirement

Temperature

Conditions	Operating Temp.	Non-Operating Temp.
Minimum	-10 degree	-40 degree
Maximum	+70 degree	+80 degree

Humidity

Conditions	Operating Humidity	Non-Operating Humidity
Minimum	10%	5%
Maximum	90%	95%