Inventek Systems
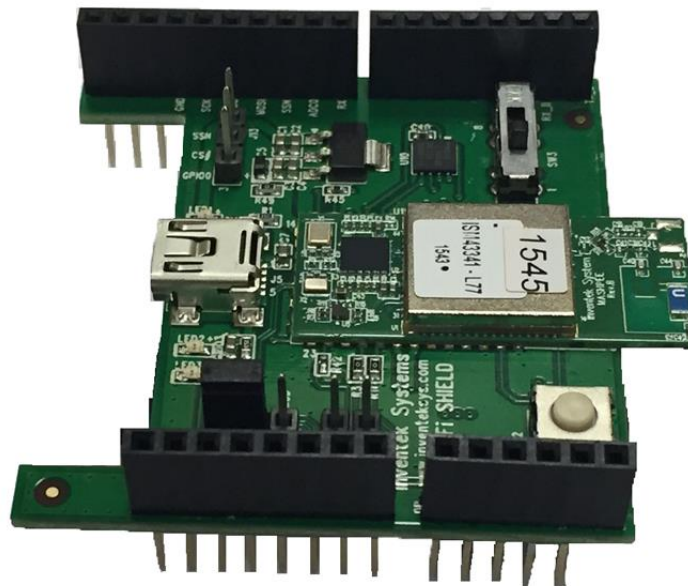## Embedding Connectivity Everywhere

ISMART
Inventek Systems Module Arduino Test

Product Brief

Wi-Fi, BT/BLE & NFC IoT Arduino Shields

1 General Description

The Inventek ISMART (**I**nventek **S**ystems **M**odule **Ar**duino **T**est) IoT platform is a user-friendly Arduino compliant shield suited for all of your wireless application needs.

The ISMART platform enables customers to quickly launch IoT products based on a host MCU of your choice and Broadcom's Wi-Fi, BT/BLE and NFC combo radios. The robust user friendly Inventek AT command set FW, IWIN (Inventek Wireless Interoperability Network), makes it easy to take any Host microcontroller and communicate with any Inventek **eS-WiFi** (embedded Serial Wi-Fi), module, thus allowing customers to quickly get a Wi-Fi connected application up and running.
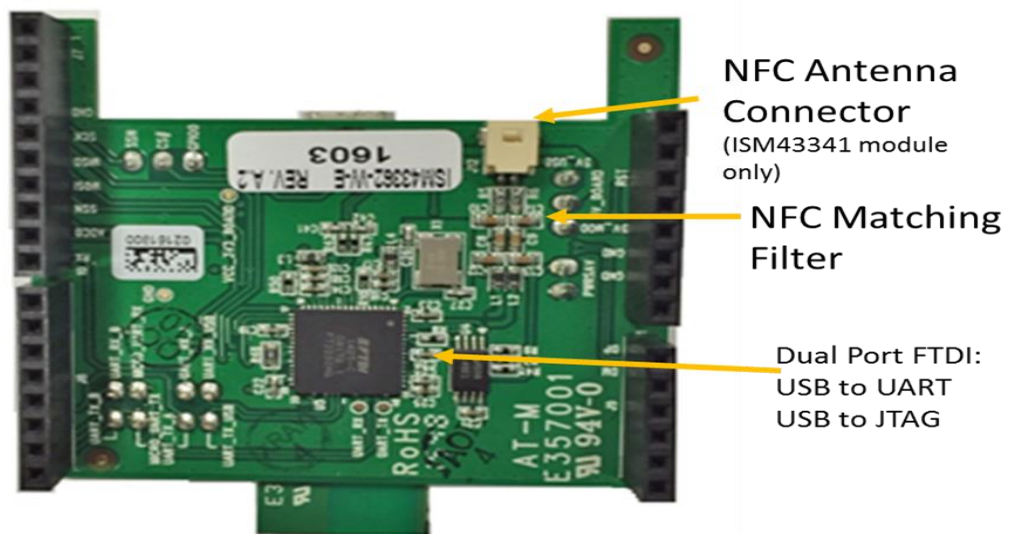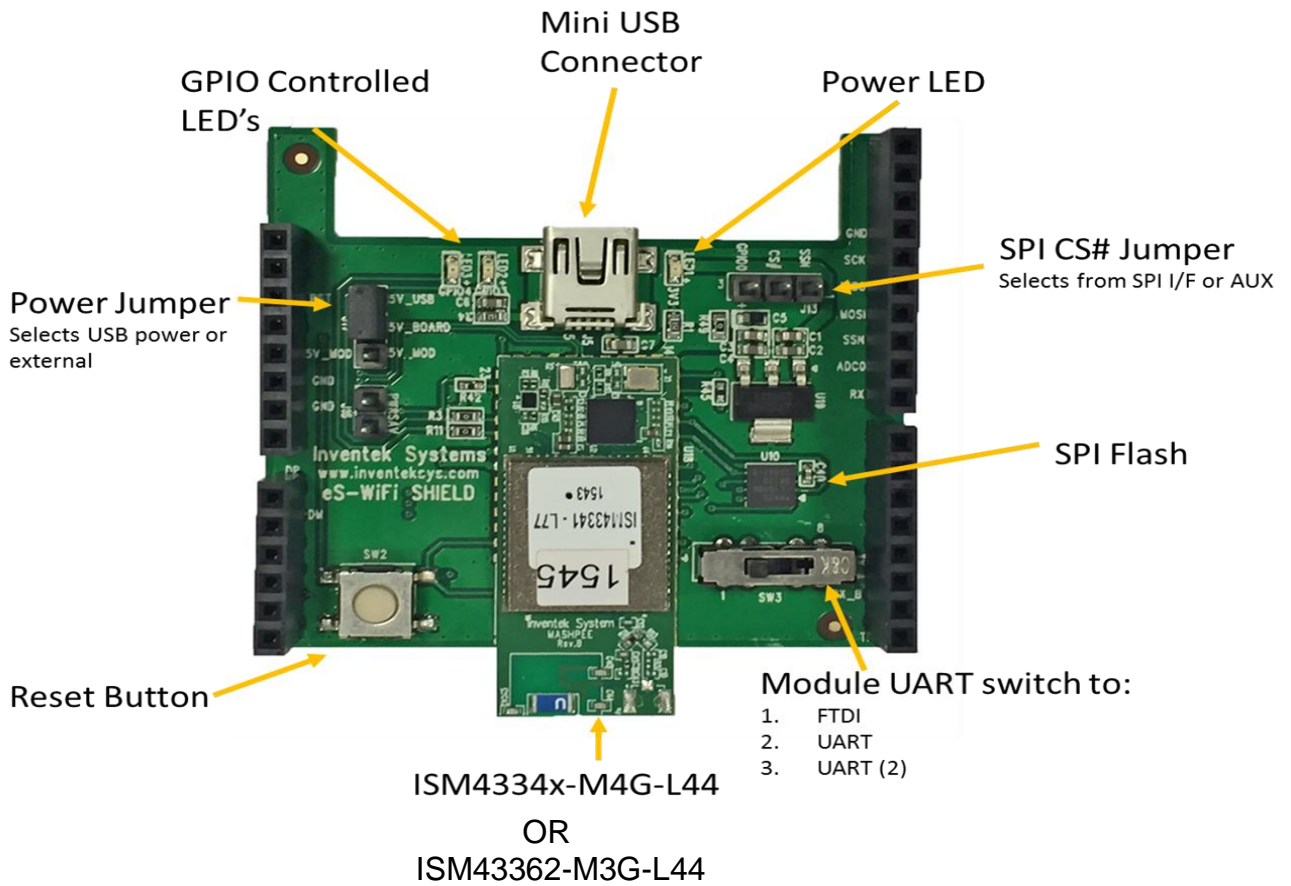
The ISMART shield is an embedded wireless internet connectivity platform that operates in the 2.4 & 5.0 GHz spectrum. The ISMART hardware includes the option for an Inventek eS-WiFi module consisting of the Broadcom BCM43362 (2.4GHz), or BCM43341/0 Dual-Band (2.4GHz / 5GHz) 802.11 a/b/g/n MAC/Baseband/Radio with Integrated Bluetooth 4.0 and NFC.

The ISMART shield is compatible with the Arduino UNO R3 connector layout. The Inventek eS-WiFi module options supported by ISMART require no operating system and contain an integrated TCP/IP stack. The Inventek eS-WiFi modules can be used with Inventek's AT Command Set FW, **IWIN** (Inventek Wireless Interoperability Network), or with Broadcom's WICED^{TM} (Wireless Internet Connectivity for Embedded Devices), SDK 3.1.2 or later.

ISMART Hardware Features:

- Uses the Inventek ISM43341/0 or ISM43362 eS-WiFi modules leveraging Broadcom's leading edge radio devices.
- Includes an ST Microcontroller Cortex M3 STM32F204 (ISM43362) or Cortex M4 STM32F405 (ISM43341/0), MCU.
- Bluetooth 4.0 including BLE support.
- 2.4GHz (ISM43362) or 2.4/5 GHz (ISM43341/0), chip antenna on module.
- U.FL external antenna connector option for both modules
- Configurable using Inventek AT Commands FW (IWIN).
- Host interface: UART, SPI.
- Input Power: 5.0 V
- Near Field Communication (NFC option), with the ISM43341/0 modules.
- Dual Port FTDI for firmware development and testing.
- SPI Flash for Over The Air (OTA) updates
- FCC, IC and CE approval on all module options.
- All eS-WiFi module options also support a standard L44 form factor to enable customers to migrate between module options once in mass production without requiring any board layout changes.
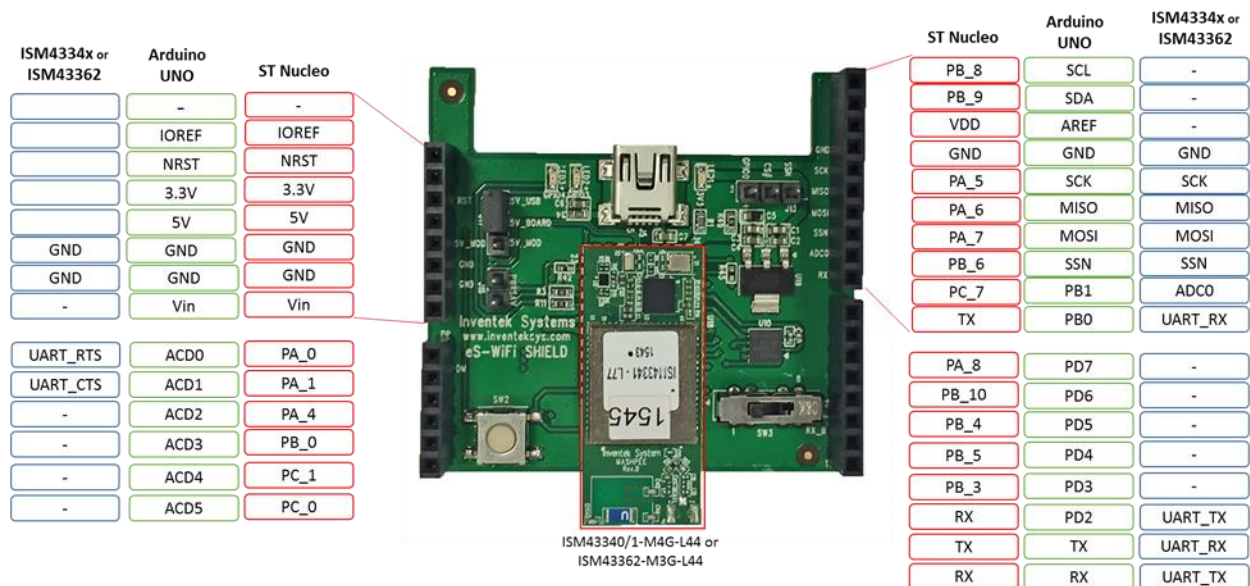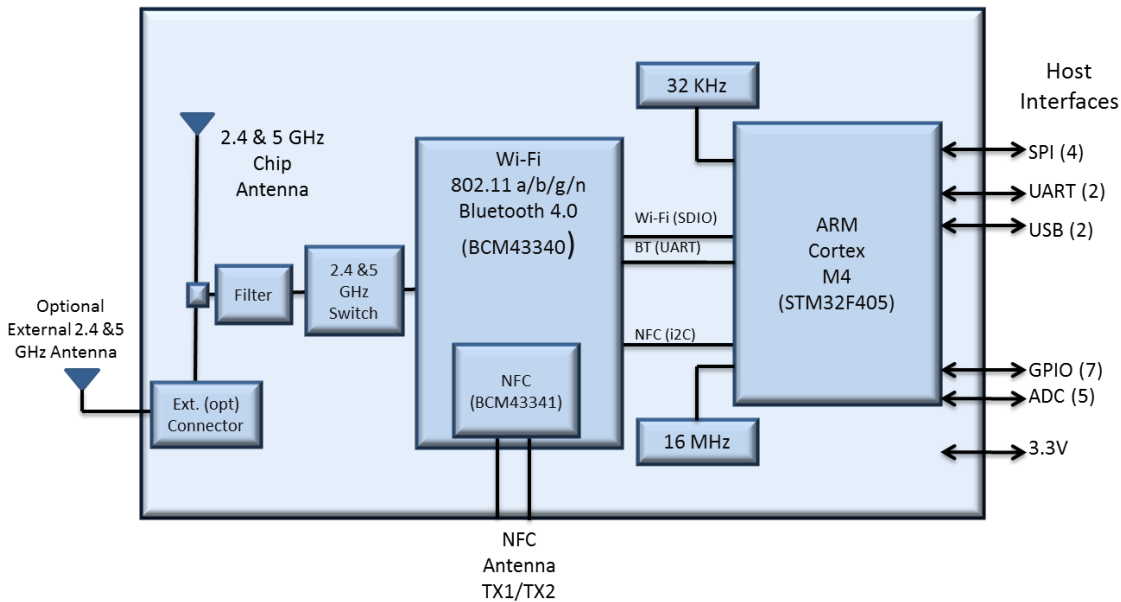
1.1 ISMART Architecture (Top/Bottom)

Mini USB Connector

GPIO Controlled LED's

Power LED

SPI CS# Jumper
Selects from SPI I/F or AUX

Power Jumper
Selects USB power or external

SPI Flash

Reset Button

Module UART switch to:
1. FTDI
2. UART
3. UART (2)

ISM4334x-M4G-L44
OR
ISM43362-M3G-L44

NFC Antenna Connector
(ISM43341 module only)

NFC Matching Filter

Dual Port FTDI:
USB to UART
USB to JTAG

2 ISMART eS-WiFi Module Part Number Detail Description

ISMART43362-E	2.4 GHz Wi-Fi Shield w/ ISM43362-M3G-L44-E eS-WiFi module	On board Antenna
ISMART43340-C	2.4 & 5 GHz Wi-Fi & Bluetooth Shield w/ ISM43340-M4G-L44 eS-WiFi module	On board Antenna
ISMART43341-C	2.4 & 5 GHz Wi-Fi & Bluetooth Shield and NFC w/ ISM43341-M4G-L44 eS-WiFi module	On board Antenna

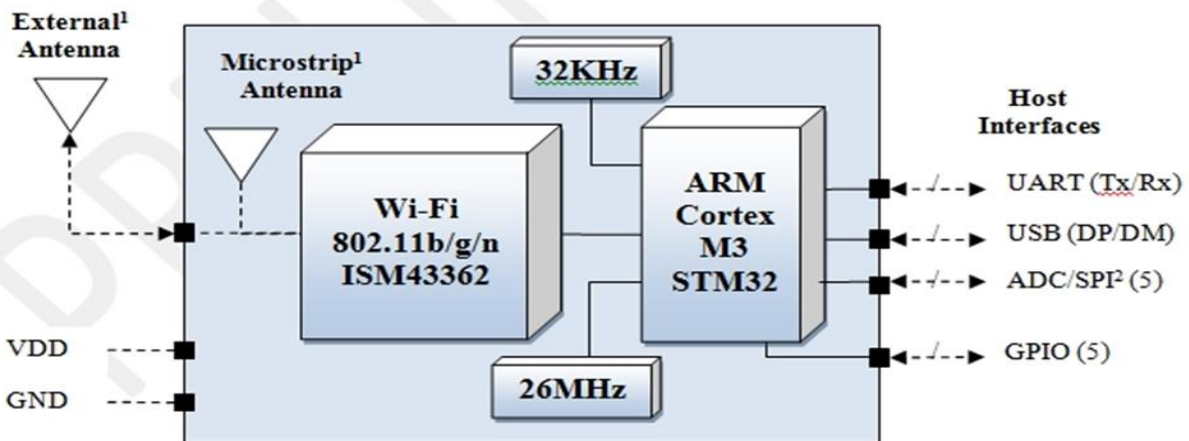## 2.1 The ISMART–ST Nucleo-Arduino Pin Out Map Example:

2.2 ISM43340/1-M4G-L44 eS-WiFi Module Block Diagram

ISM4334x-M4G-L44 **(Functional Specifications)**

ISM43362-M3G-L44 eS-WiFi Module Block Diagram

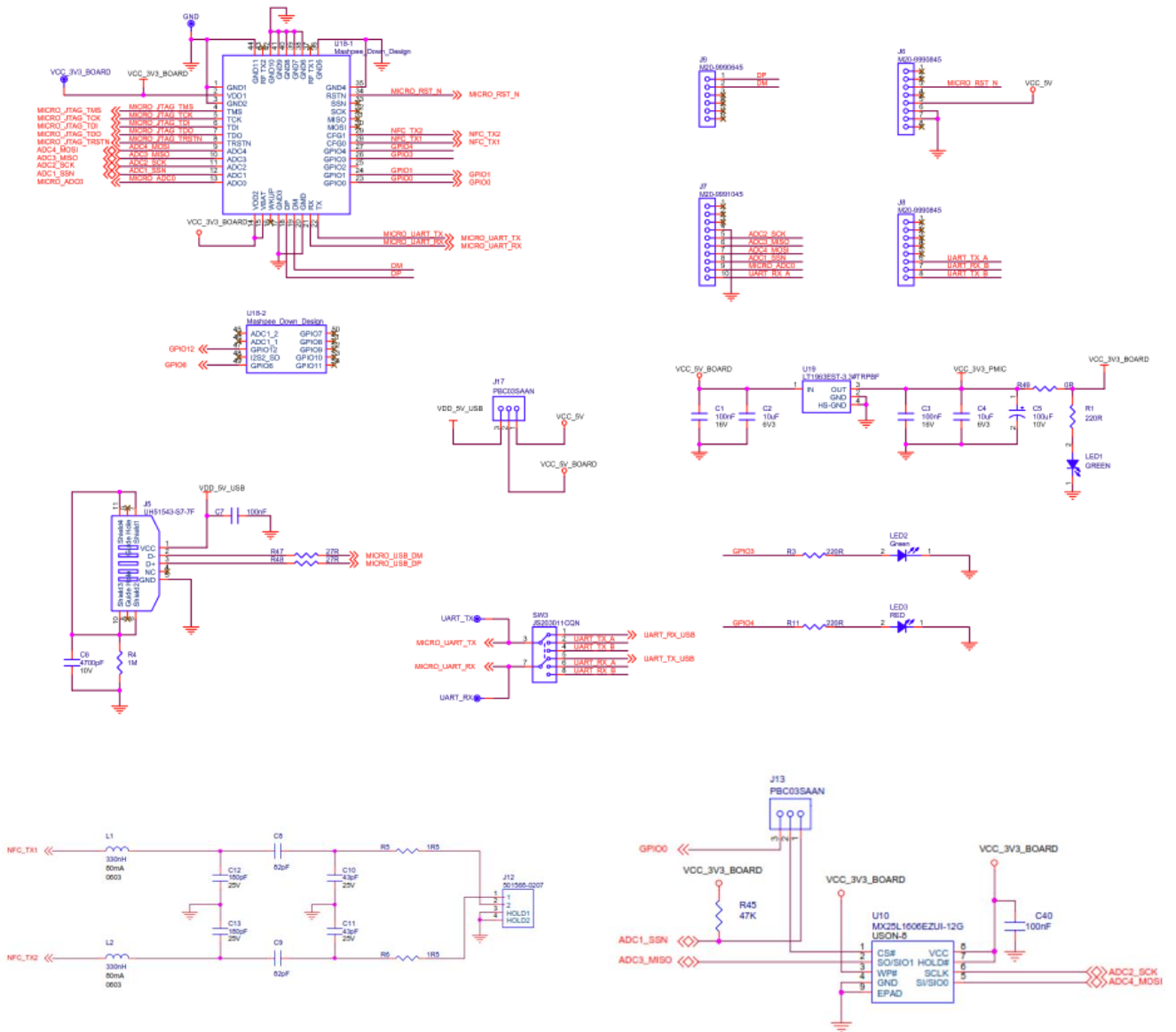**ISM43362-M3G-L44-E** *(Functional Specifications)*

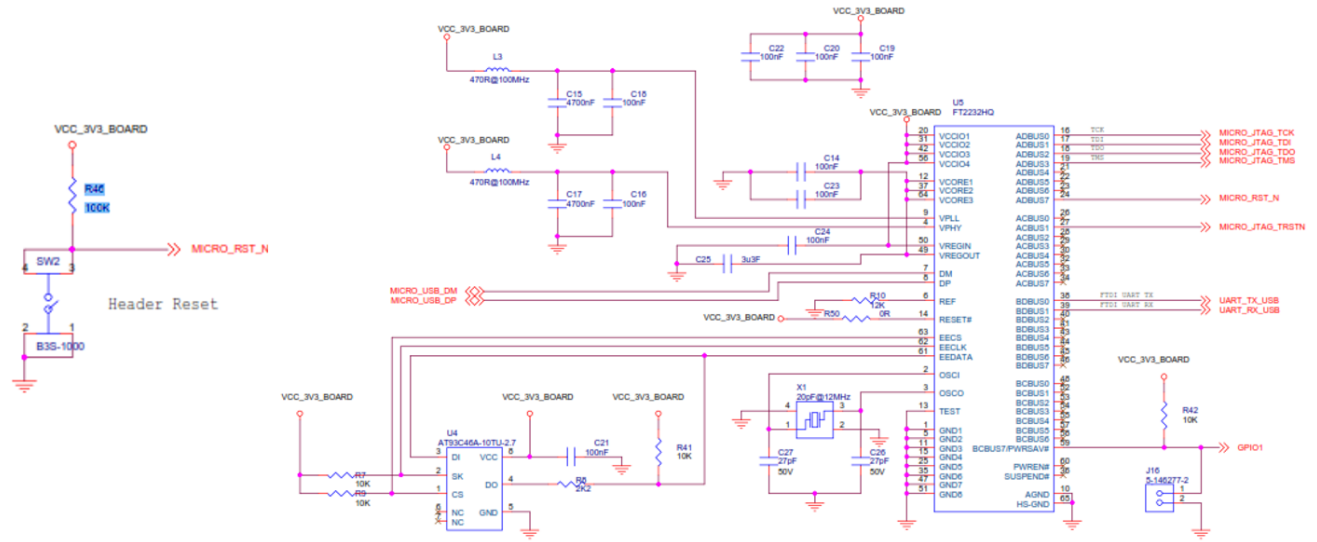**NOTE: Inventek eS-WiFi Module options for ISMART**
ISM43362-M3G-L44-E
ISM43340-M4G-L44-C (+BT combo + 2.4 & 5 GHz)
ISM43341-M4G-L44-C (+BT combo + 2.4 & 5 GHz + NFC)

3   ISMART Shield Schematic

4 Revision Control

Document : ISM4334xC-Shield	Wi-Fi Shield
External Release	DOC-PB-200108

Date	Author	Revision	Comment
12/27/2015	KMT	1.1	Preliminary Release

5 CONTACT INFORMATION

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