![Chipsmall logo]

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Wireless Module 802.11bgn with Antenna & Connector WYSAGVDX7 & WBSAGVDX7 Overview

March 10, 2015 Version 1.0

WYSAGVDX7 Wireless Module 802.11bgn with Antenna & Connector

Features

- IEEE802.11b/g/n standard conformity,
- Low standby current (with advanced power save and sleep mode)
- Transmit speed : 11/5.5/2/1 Mbps(11b), 54/48/36/24/18/12/9/6 Mbps(11g), 72.2~6.5 Mbps (11n)
- Channel Number : 1 to 13 channel (11bg)
- Interface : SDIO
- Built-in : Crystal, BPF
- Security : WEP (64/128), TKIP, AES, WPA/WPA2, WAPI
- Small Outline : 20.0 x 11.0 x 2.15(Max) mm, Metal case package
- RoHS Conformity
- Certifications: JAPAN, FCC(USA), IC(CANADA)

Application

- Camera, Portable printer, Handy terminal

Block Diagram

General Electrical Specification

Parameter	Description	Min.	Typ.	Max.	Units
Carrier Frequency	IEEE802.11b/g/n	2412		2472	MHz
Operation Voltage	VCC3.3	3.0	3.3	3.6	V
	VCC1.8	1.71	1.8	1.89	V
	VIO	1.71/3.0	1.8/3.3	1.89/3.6	
TX Output Power (11b/g/n)	11b/11g/11n		6/6/6	8/8/8	dBm
RX Sensitivity (11b/g/n)	11b/11g/11n		-86/-72/-69	-76/-65/-64	dBm
TX Power Consumption	Burst(Duty43.4%) Tx(11Mbps) 11b		397		mW
RX Power Consumption	Continuous RX(72Mbps)		188		mW
Power Consumption	Sleep Mode		1.0		mW
General Operation Temperature Range (Shielding case surface temperature)		0	25	70	deg-C

Outline

Unit:mm

TAIYO YUDEN
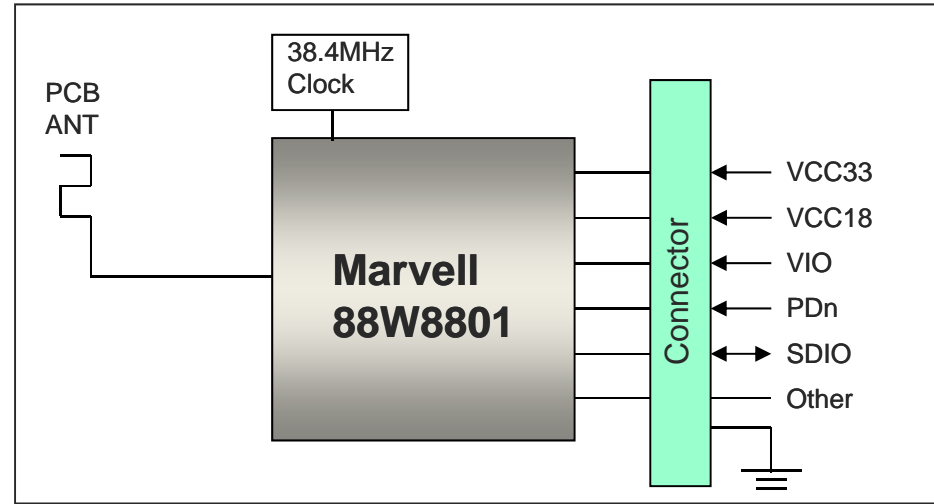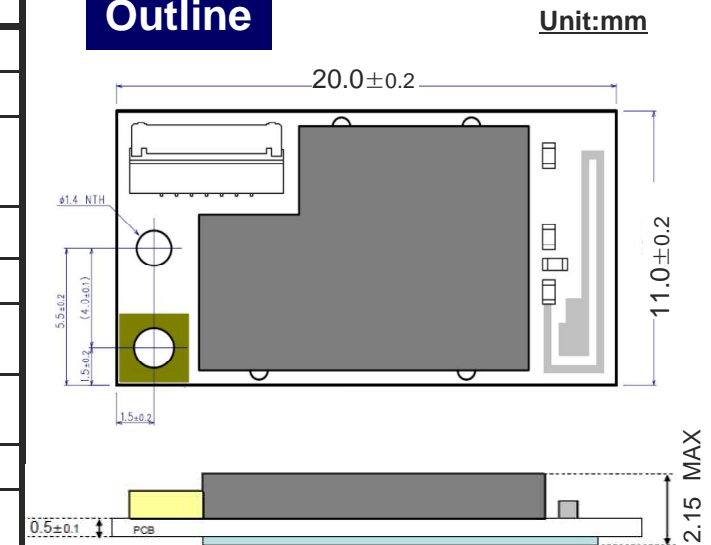
# WBSAGVDX7: Wireless LAN Module Evaluation Kit

To Evaluate WLAN Module WYSAGVDX7
You Will Need WBSAGVDX7

WBSAGVDX7 is the evaluation kit for WLAN Module **WYSAGVDX7.** This kit has everything you need to evaluate the performance of this module.

1 WBSAGVDX7

WBSAGVDX7 Kit includes:

No.	Item	Description	Qty
1	WBSAGVDX7	Evaluation Board for WLAN module WYSAGVDX7 with SDIO interface	1
2	Red & Blue Cable	Power Supply Cable	1
3	FPC Cable	SDIO communication Cable	1
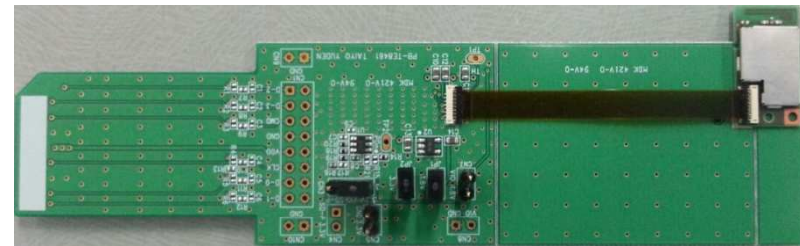
2 Red & Blue Cable

3 FPC Cable

TAIYO YUDEN

Supplemental Product Information
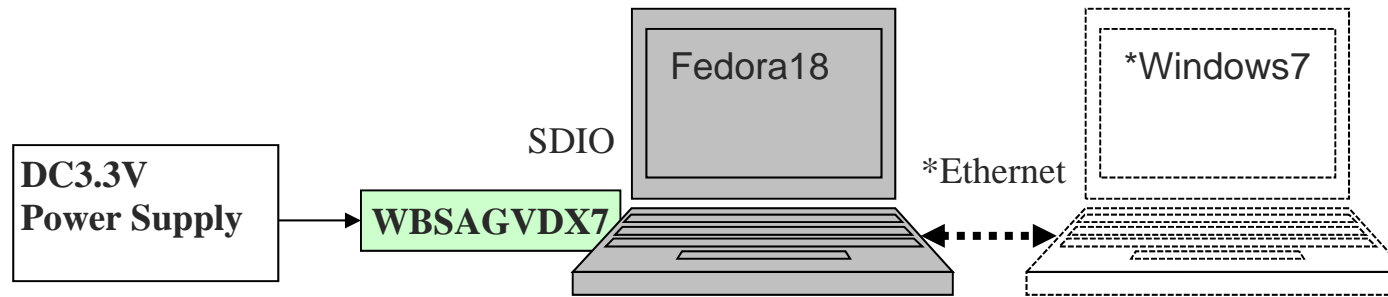
WLAN Module Operating Environment

- PC with Linux Fedora18 with software development option and SDIO interface
  Attention: ***PC with SDIO is required. Although SDIO and SD Memory Card have the
  same slot shape, they are not compatible. WLAN Module and Evaluation
  Board will not work if they are connected to SD memory card slot.***

- PC with Windows7 is also required in case LABTOOL is used. Linux PC and Windows PC are connected via Ethernet cable.

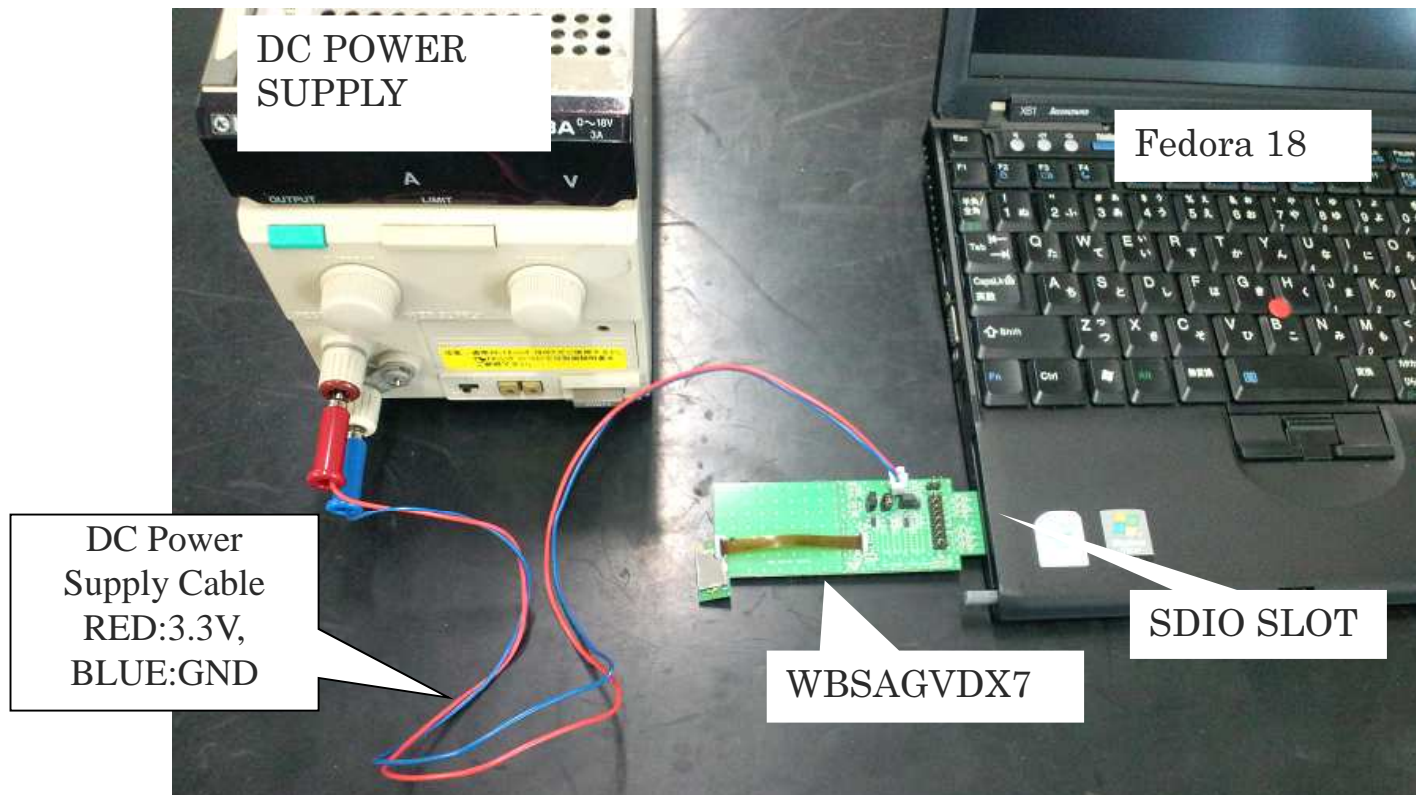***What will be provided if the Evaluation Board is purchased***

- Data Report: Detail Module information
- Application Note: Peripheral design guide
- Evaluation Board Manual: Manual on how to evaluate the Module with the Evaluation Board
- Labtool User Guide: RF Control Tool Guide
- Labtool: RF Control Tool
- WLAN Device Driver Software
  - for Linux PC, Fedora18

Attention: ***There is a possibility that export control could limit customer's access WLAN
Device Driver and the API Specification depending on the customer's country
or application.***

TAIYO YUDEN

Example of hardware configuration for WBSAGVDX7

Fedora18

*Windows7

SDIO

*Ethernet

DC3.3V
Power Supply

WBSAGVDX7

*To use LABTOOL, PC with Windows7 is also required.
Each PCs are connected via Ethernet cable.

DC POWER
SUPPLY

Fedora 18

DC Power
Supply Cable
RED:3.3V,
BLUE:GND

WBSAGVDX7

SDIO SLOT

TAIYO YUDEN

Software structure
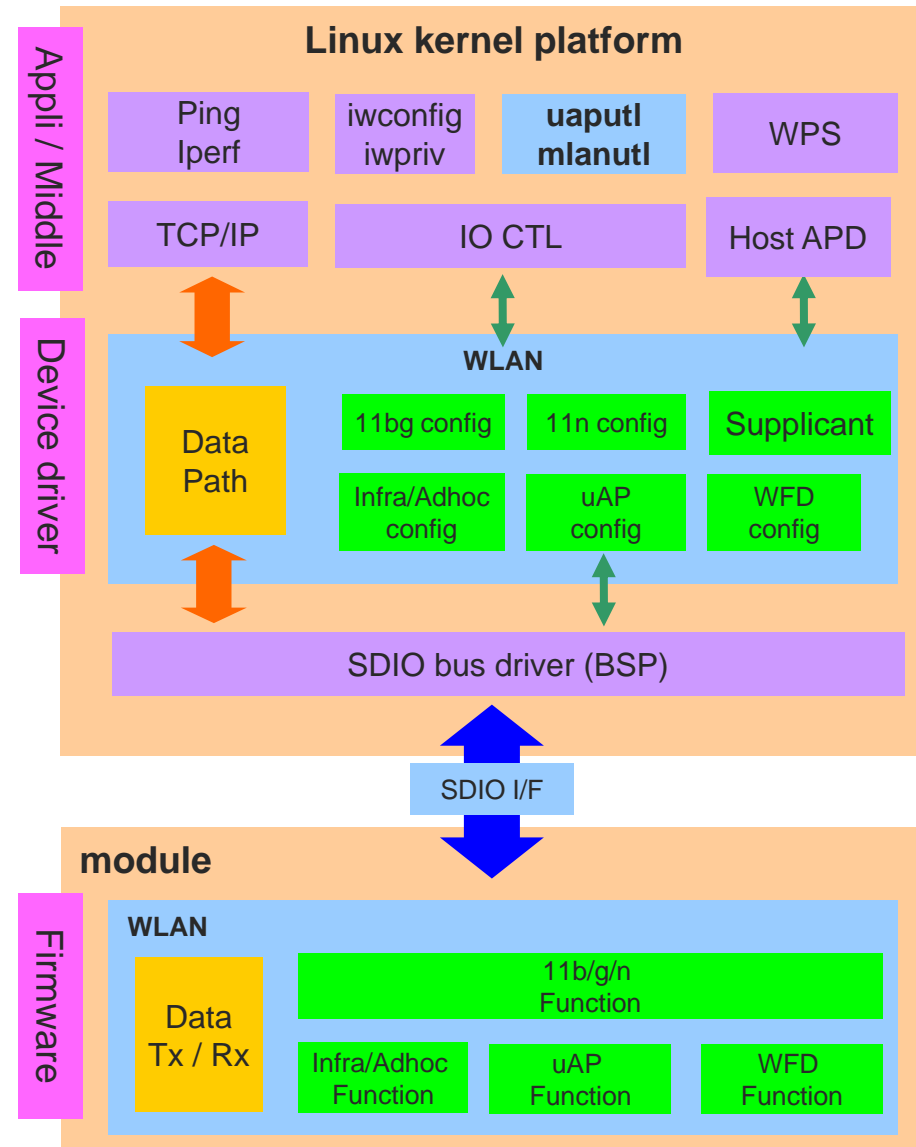
Sample Application
- uaputl , mlanutl (Configuration tools)

WLAN Device driver

- Data path
  Communicate data such as TCP or UDP.

- 11bg config/11n config
  Configure the such as Ch/Rate/band/mode.

- Infra, Adhoc config
  Configure the Infa or Adhoc mode.

- uAP, WFD config
  Configure the uAP or WFD mode.

- Supplicant
  Process WPA/WPA2 sequence.

Firmware

- Data Tx/Rx
  Transmit and receive data on the air, such as TCP or UDP.

- 11b/g/n function
  Execute the function of such as Ch/Rate/Band/Mode.

- Infra, Adhoc function
  Execute the function of Infra or Adhoc mode.

- uAP, WFD function
  Execute the function of uAP or WFD mode.

Linux kernel platform

Appli / Middle

| Ping Iperf | iwconfig iwpriv | **uaputl mlanutl** | WPS |
| TCP/IP | IO CTL | | Host APD |

Device driver

WLAN

Data Path

| 11bg config | 11n config | Supplicant |
| Infra/Adhoc config | uAP config | WFD config |

SDIO bus driver (BSP)

SDIO I/F

module

Firmware

WLAN

Data Tx / Rx

| 11b/g/n Function |
| Infra/Adhoc Function | uAP Function | WFD Function |

*WFD : Wi-Fi Direct

Software feature set

General
- 802.11b Data rates of 1,2 ,5.5 and 11 Mbps.
- 802.11g Data rates 6 - 48, and 54 Mbps.
- 802.11n Data rates up to 72 Mbps (MCS0 - 7).
- 802.11d
  Regulatory Domain/Operating Class/Country Info
- 802.11e
  Qos EDCA / WMM (Wireless Multi-Media)
  U-APSD/ WMM-Power save
- 802.11i
  Open and Shared Authentication, WEP(64 128-bit)
  TKIP and AES-CCMP for WPA -PSK, WPA2-PSK
  Opensource WPA supplicant support.
  Embedded supplicant in the device driver
- Infrastructure and ad-hoc mode.
- IEEE Power Save, Auto Deep Sleep, Host Sleep
- Tx and Rx of AMPDU and AMSDU-4k Packets
  Only Tx of AMSDU-8k Packets.
- Background Scan, Vendor specific IE

Access point
- Multi-BSS Support (2 BSS).
- Opensource Host based Authenticator Support
  (Hostapd)
- Association support up to 8 Stations.
- ACS (Automatic Channel Selection).

Simultaneous AP-STA Operation
- AP-STA functionality.
- Independent security configurations on different
  interfaces.
- Enhanced Power Save.
  (AP-STA simultaneous power save)

Wi-Fi Direct/P2P
- Autonomous Group Owner (GO) Mode.
- P2P Client mode.
- Power save
  P2P Client with IEEE Power save enabled
  P2P Client with WMM PS enabled
  P2P Client with NoA PS enabled on GO
  P2P Client with Opportunistic PS enabled on GO

- Max 7 Clients Support
- Provision Discovery, Persistent Group,
  P2P Invitation

Driver package

Driver package (Platform)	Software	CPU / OS Type	Content
Object package for PC	Device driver	CPU : x86 (PC) OS : Fedora 18 (Linux 3.6.10)	Driver object - Configuration tools - WLAN driver, Firmware
			Document - Install guide - Demo guide
	RF control tool (LABtool, Firmware)	LABtool CPU : x86 (PC) OS : Windows7 Firmware CPU : x86 (PC) OS : Fedora 18 (Linux 3.6.10)	Driver Object - Labtool, Firmware
			Document - User guide

TAIYO YUDEN