

WIZ630wi Datasheet

(Version 0.9)



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Document Revision History

Date	Revision	Changes
2012-01-13	V0.9	

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1. Overview

WIZ630wi is 802.11n high-rate and high-performance wireless network broadband router module. It supports 802.11b/g/n and provides transmission of up to 150Mbps speed. It is suitable for residential (in home) and M2M (Machine to Machine) device server for the machine control. It has Web GUI, in which you can easily modify the settings and connect to your ISP. It supports DHCP client, DHCP server, and NAT/NAPT functions. As a DHCP client, it can dynamically obtain an external Internet IP address. As a DHCP server, it can dynamically distribute local IP addresses to the related wireless stations. NAT/NAPT supports conversion between IP address and external address.

This device supports static IP address, dynamic IP address, PPPoE connection and L2TP/PPTP connection.

And it supports online gaming and transparent VPN connection without any extra configuration. It is an ideal wireless broadband solution, both for the home users who wish to share wireless high-speed internet access and small offices who wish to do business on the internet.

Additionally, it is mainly targeted to "Serial to WiFi" device server and all of ALG(Application Layer Gateway) is implemented. "Serial to LAN" and "Serial to WiFi" server function is well implemented and no need for extra work. It also supports "3G (WCDMA/CDMA) to WiFi" router and it can be easily implemented by connecting 3G USB modem. (Some of modem's device driver is not implemented, but most of modem is tested.)

2. Characteristics

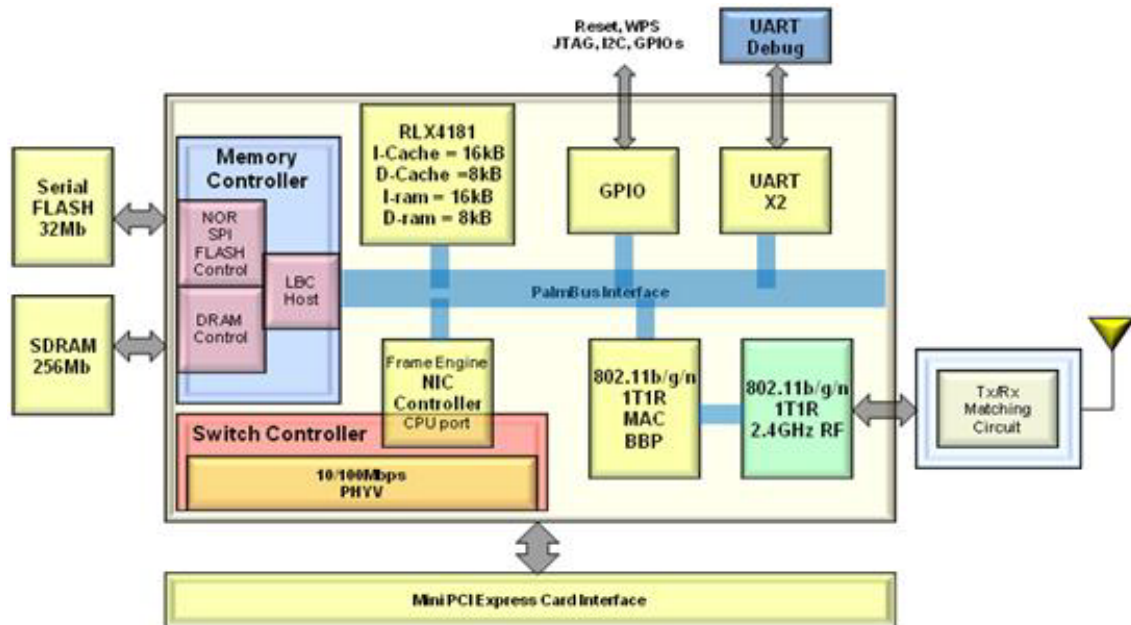
- Small Size: 33 X 43mm MINI PCI-E
- MIPS 24KEc 320Mhz with 32KB I cache / 16KB D cache
- Embedded 1T1R 2.4G CMOS RF
- Embedded 802.11n 1T1R MAC/BBP w/MLD enhancement
- WEP 64/128bit, WPA/WPA2-PSK TKIP, AES and 802.1x
- 150Mbps PHY data rate
- 20Mhz /40Mhz channel width
- Support IEEE 802.11 b/g/n
- Support 10/100 UTP 3ports
- Support Serial 2ports
- Support USB HOST 1port
- 1 Reset Button
- 1 WPS Button
- Support GPIO 10 ports (shared pin)

3. Supported Function

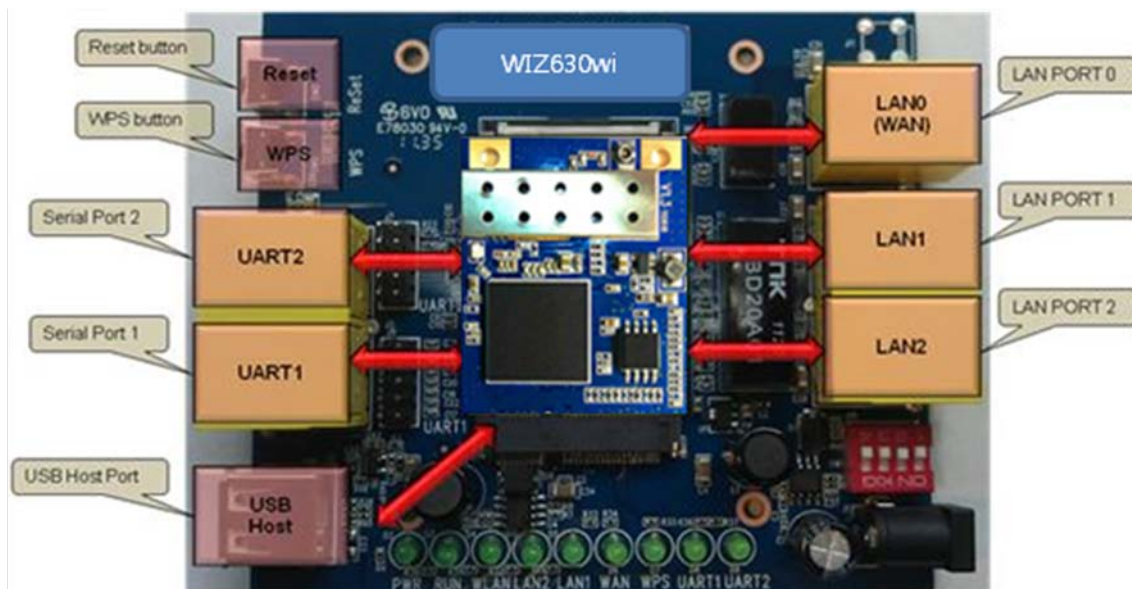
- Serial to WiFi
- Serial to Ethernet
- Serial to 3G Internet
- Serial to Wibro(WiMax)
- WiFi Router
- 3G Router
- Wibro/Wimax Router

4. Block Diagram

4.1 Module block diagram



4.2 EVB System block diagram



5. Specification

5.1 H/W Specification

	Item	Features	Reference
Wireless	Standard	IEEE 802.11 b/g/n	
	Wireless	1T/1R	
	Link Rate	150Mbps	
	Frequency Range	ISM band 2.4Ghz ~ 2.483Ghz USA: 2.400 ~ 2.483GHz Europe: 2.400 ~ 2.483GHz Japan: 2.400 ~ 2.497GHz China: 2.400 ~ 2.483GHz	
	TX Power	802.11b: 17dBm@11Mbps 802.11g: 14dBm@54Mbps 802.11n: 14dBm@150Mbps/72Mbps	
	RX Sensitivity	802.11b: -89dBm@11Mbps 802.11g: -74dBm@54Mbps 802.11n(40MHz): -66dBm@150Mbps 802.11n(20MHz): -70dBm@72Mbps	
	Modulation	QFDM :BPSK,QPSK,16QAM,64QAM DSSS :DBPSK, DQPSK, CCK	
	Security	WEP 64/128bit WPA/WPA2-PSK AES/TKIP 802.1x(Radius)	
	Antenna	1T1R 2dBi	
Network	1 LAN Port	1 x 10/100Mbps Auto detection	WAN/LAN
	2 LAN Port	10/100Mbps Auto detection	LAN
Interface	2 Serial port	UART 1 Baud Rate : 1200 ~ 921,600bps Stop bits : 1, 2 Parity : None, Odd, Even Flow Control : XON/XOFF, CTS/RTS, none	Full Function
		UART 2 Baud Rate : 1200 ~ 921,600bps Stop bits : 1, 2 Parity : None, Odd, Even Flow control : XON/XOFF, none	
	I2C	Host mode	
	GPIO	Support 11 Programmable I/Os	

5.2 S/W Specification

Item	Features
Operation Mode	Access Point(Bridge) Mode Gateway(Router) Mode Client(Station) Mode AP-Client Router Mode AP-Client Bridge (multi-bridge) Mode Ad-hoc (Support WDS ,WPS)
Protocol	ARP, UDP, TCP, Telnet, ICMP, DHCP, PPPoE, BOOTP, HTTP
Management	HTTP, Telnet, Serial. Web-based GUI (HTTP) Remote Management(Telnet) System Status System Notification Reporting Firmware Upgrade via Web Firmware Upgrade via TFTP
Notification	Event Logging
Serial To WiFi	2 Serial Port supported
3G router	3G(WCDMA) Router function
WAN Connection	Support LAN / Cable modem / xDSL modem Support 3G (HSDPA / CDMA), GSM Optional
WAN Protocol	PPPoE / Static IP / PPTP / Dynamic IP / L2TP
Security	NAT / NAPT IP Sharing 64 / 128 bit WEP, WPA-PSK, WPA2-PSK encryption DHCP Server / Client MAC / IP Filter URL Blocking Anti-DDOS Firewall(Optional)
Functions	3G and xDSL Auto Fail Over Port Triggering for special applications DDNS, WMM and QoS Virtual Server DMZ Support UPnP ICMP Blocking VPN Pass Through (IPSec / PPTP)

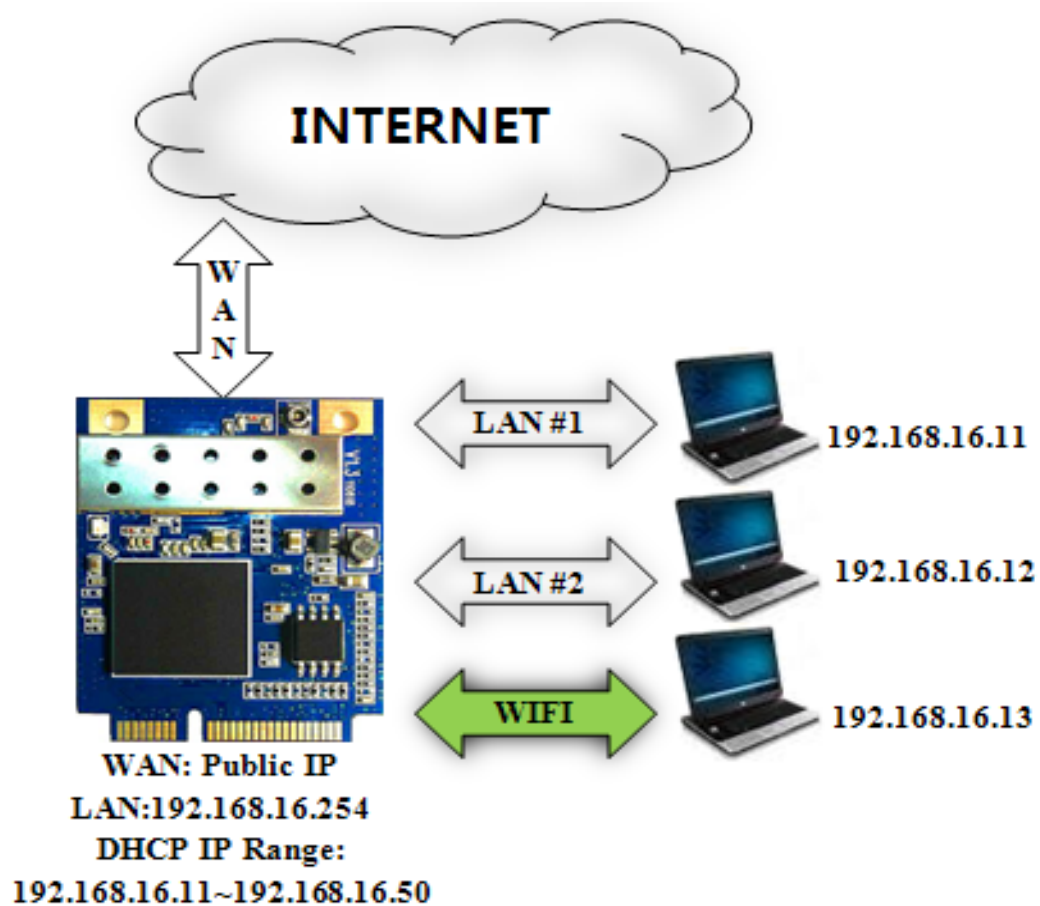
5.3 Module Characteristics

content	Item	Features	Reference
Power	Input Power	3.3V / 1A	
	Power Consumption	Min : 3.3V / 100mA (Client sleep mode)	
		Normal : 3.3V / 360mA	
		Max : 3.3V / 600mA	
Environmental	Temperature	Operation : -30℃~80℃ Storage : -30℃~80℃	
	Humidity	Operation : 10% to 90%, Non-Condensing Storage : 5% to 90%, Non-Condensing	
Mechanical	Dimension	33mm X 43mm X 4.5mm	
	Weight	6g	

6. S/W Operation Mode

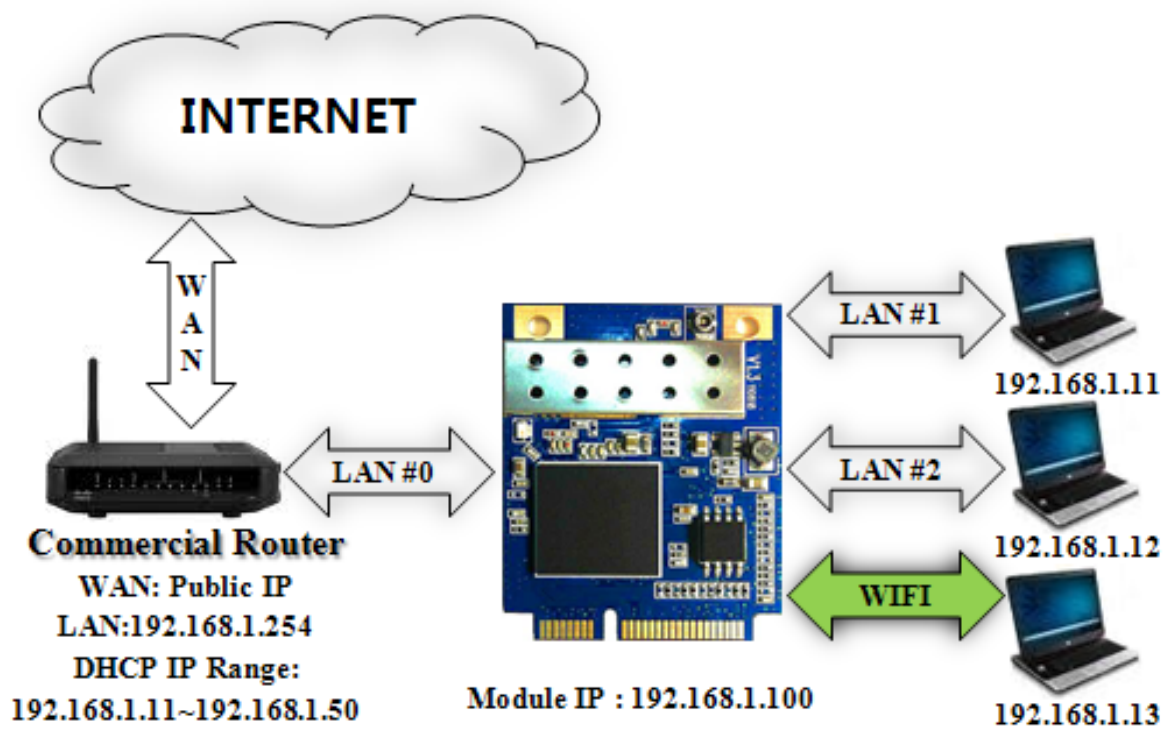
6.1 GW(Router) Mode

- WiFi Router
- Port#0 is WAN
- Port#1 and Port #2 is LAN
- WiFi LAN



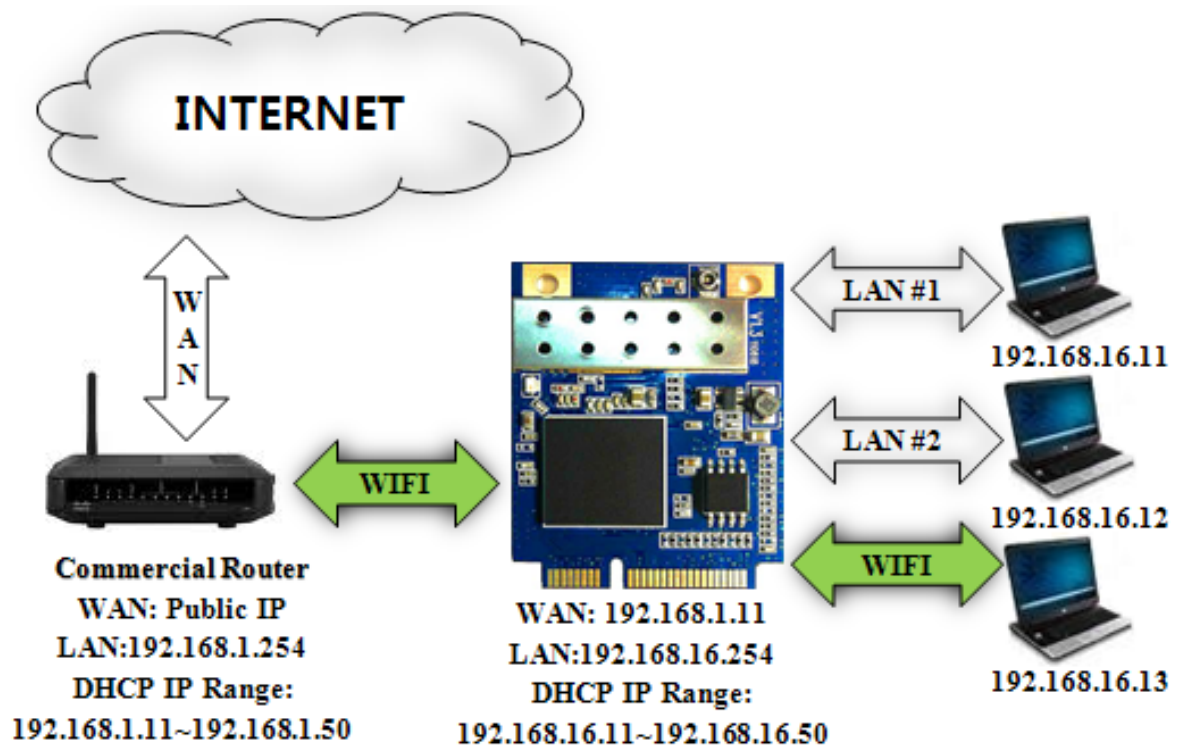
6.2 AP(Bridge) Mode

- WiFi AP (Access Point, Bridge)
- LAN #x is connected to Router (Any port can be connected to Router)
- Module IP can be Static or Auto (DHCP client)
- Port#1 and Port #2 is LAN
- WiFi LAN



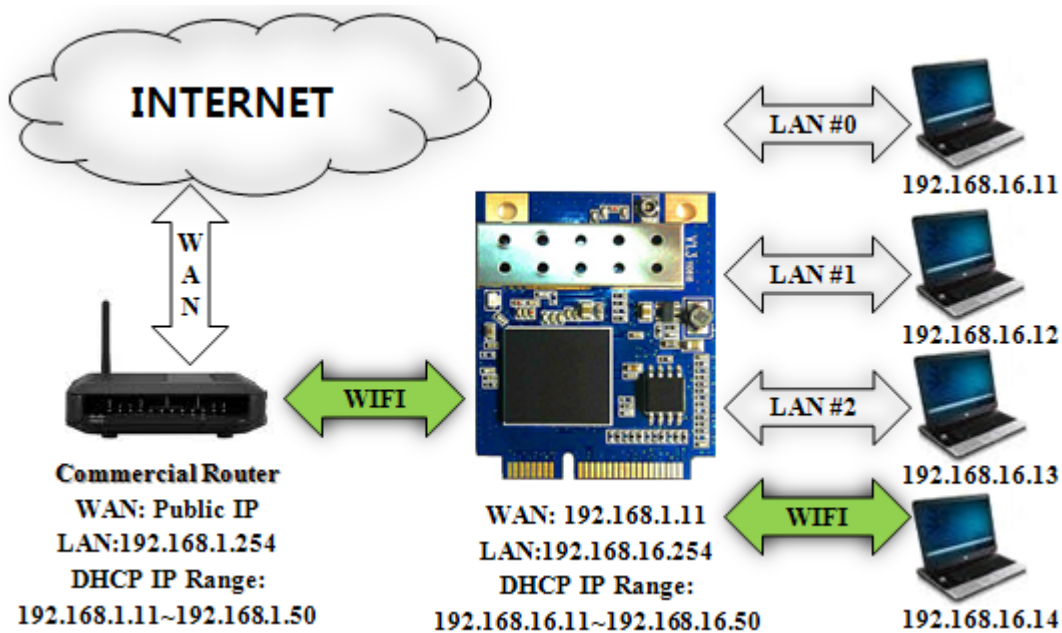
6.3 Client (Station) Mode

- WiFi Client Router
- WiFi is WAN
- Port#0, Port#1 and Port #2 is LAN



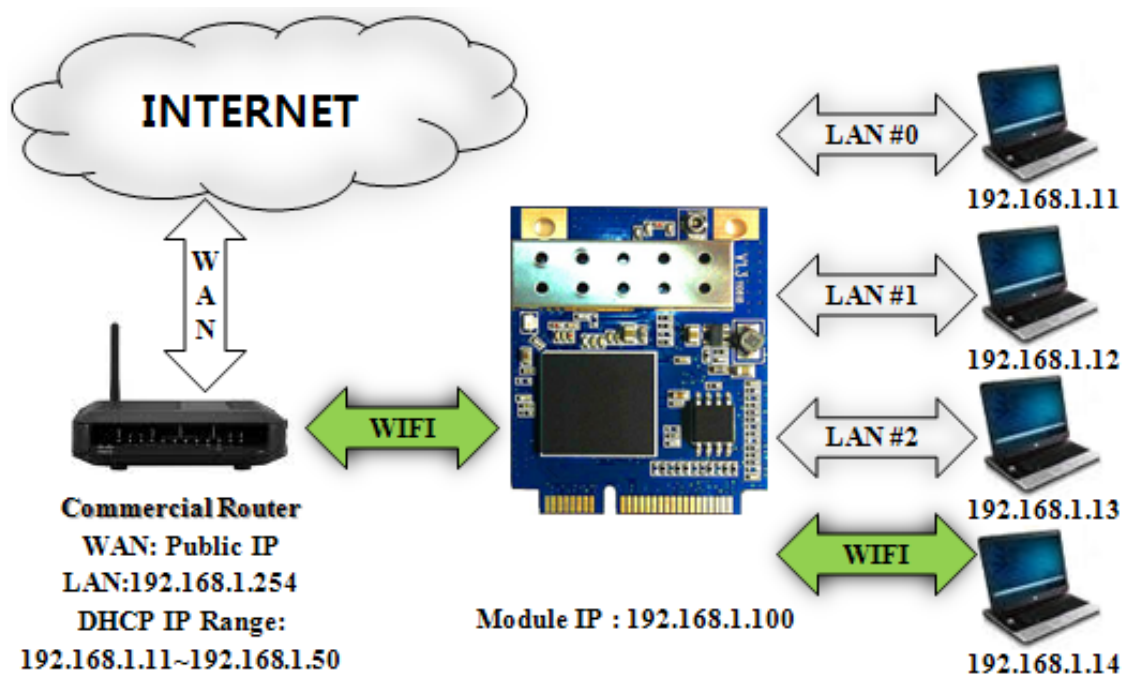
6.4 AP-Client (WiFi is WAN) Mode

- WiFi AP and Client Mode at the same time
- WiFi is WAN and LAN
- WiFi Router
- Port#0, Port#1 and Port #2 is LAN



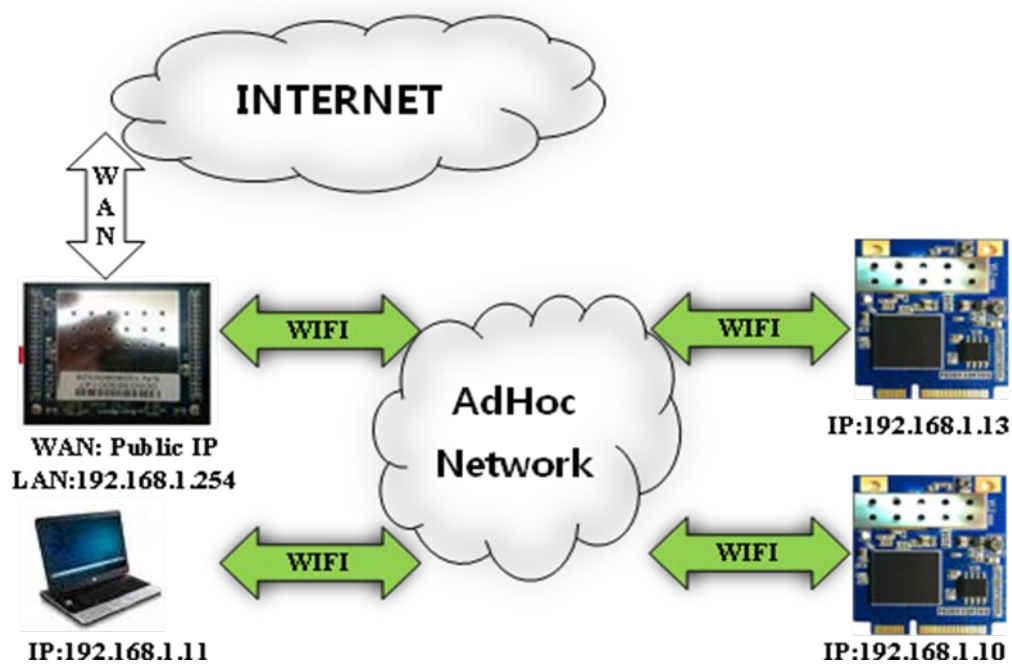
6.5 AP-Client (Multi Bridge Mode) Mode

- WiFi AP and Client Mode at the same time
- Bridge Service
- WiFi is connectivity AP service
- No Routing function
- Port#0, Port#1 and Port #2 is LAN
- WiFi is LAN



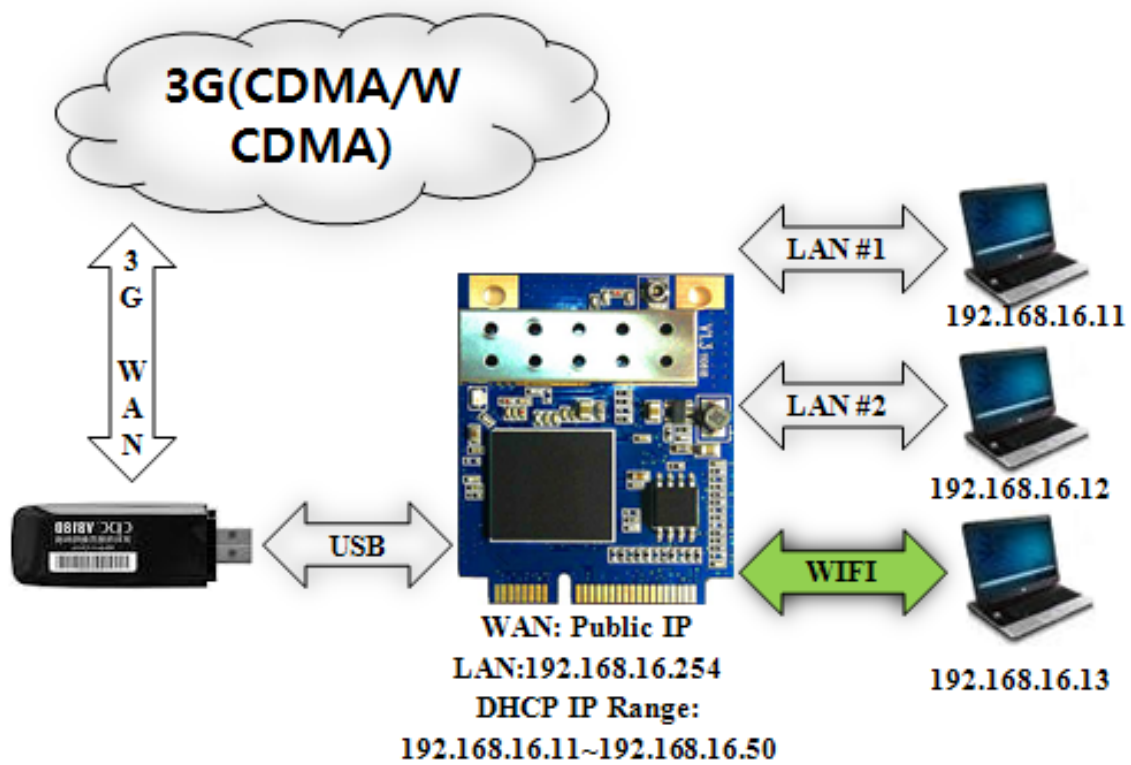
6.6 Ad-Hoc Mode

- Ad-Hoc network device
- 1:1 and 1:N networks
- Static IP and dynamic IP



6.7 3G Router

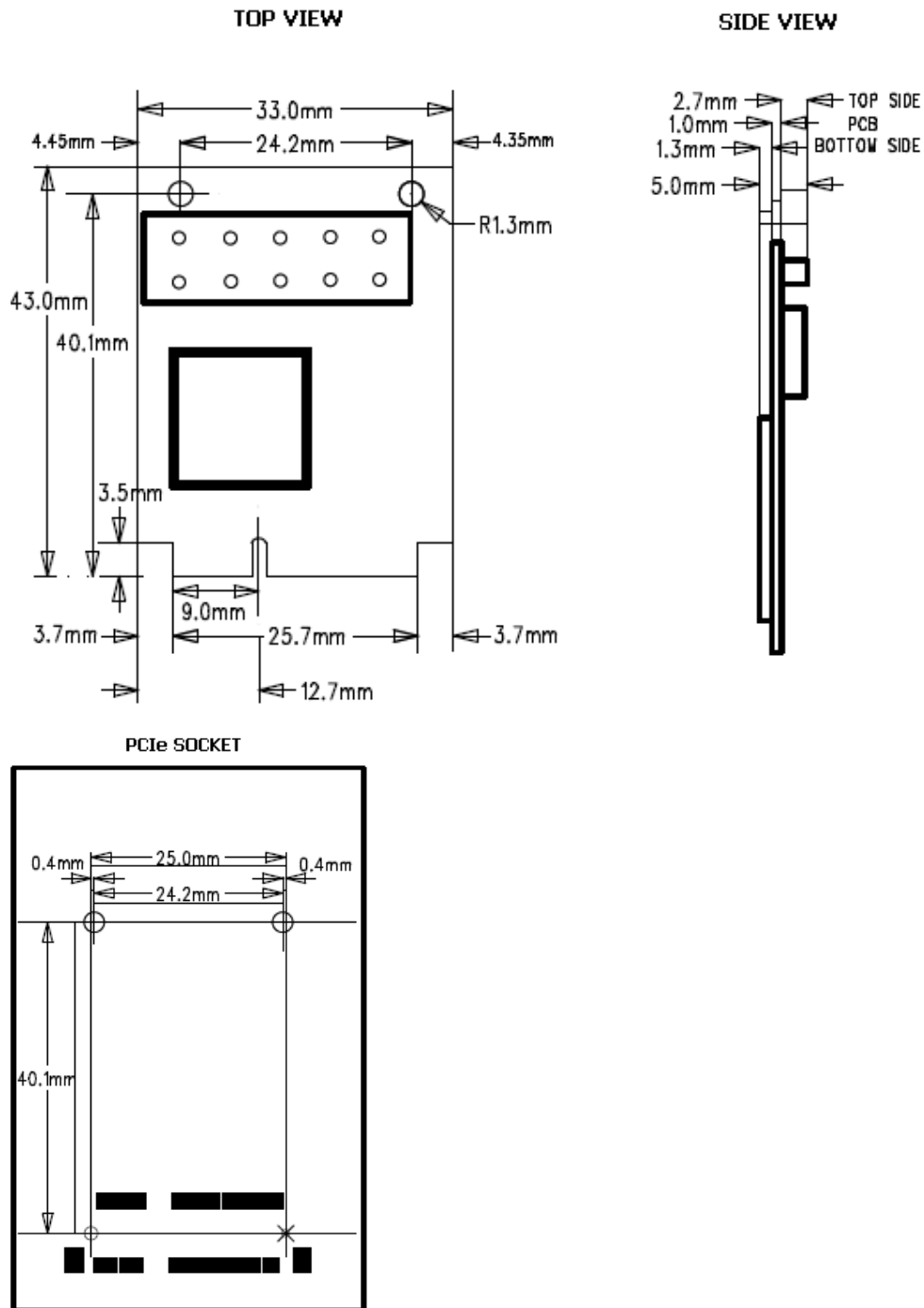
- 3G is WAN (WCDMA/CDMA/GSM)
- USB 3G Modem can be connected
- WiFi is LAN
- Port#0, Port#1 and Port#2 is LAN



7. Interface Pin Map

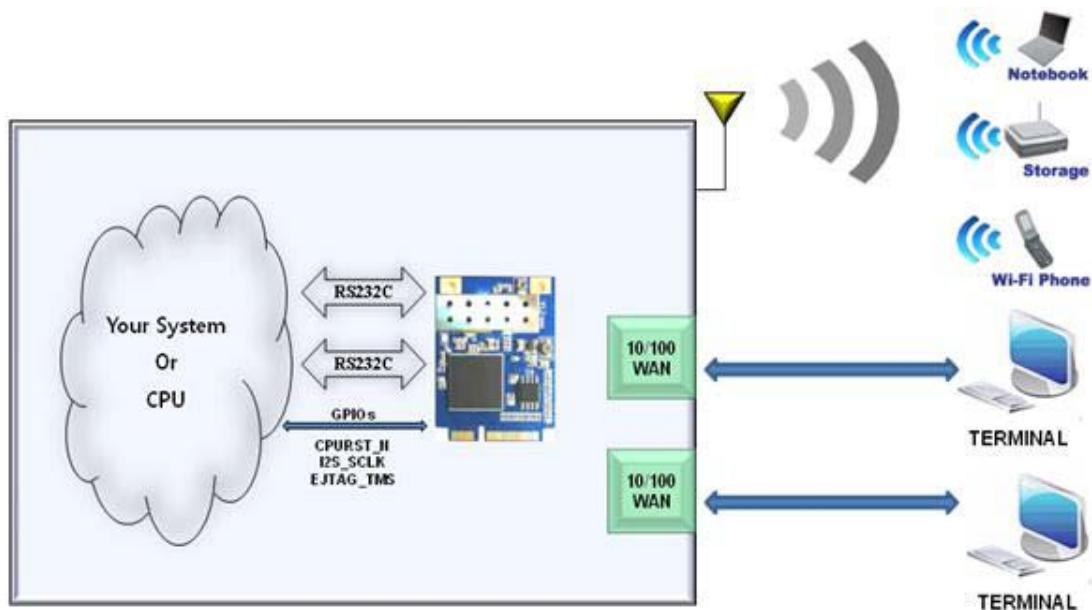
No	T	Name	Shared	Description
1	P	GND		
2	P	3.3V		
3	P	GND		
4	P	3.3V		
5	I/O, IPD	CTS_N	GPIO9	UART1 CTS-N
6	I/O, IPD	RTS_N	GPIO7	UART1 RTS-N
7	I/O, IPD	RIN	GPIO14	UART1 RIN
8	I/O, IPD	DTR_N	GPIO11	UART1 DTR-N
9	I/O, IPD	RxD	GPIO10	UART1 RXD
10	I/O, IPD	TxD	GPIO8	UART1 TXD
11	I/O, IPD	DSR_N	GPIO13	UART1 DSR-N
12	I/O, IPD	DCD_N	GPIO12	UART1 DCD-N
13	O	WLAN_LED		Wireless Init On/ Active Data : blinking
14		NC		
15	I/O	VBUS		USB OTG VBUS pin;Connect VBUS pin of the USB
16		NC		
17	I/O	PADP		USB OTG data pin Data+
18	I/O, IPD	UART_RX		UART2 RxD
19	I/O	PADM		USB OTG data pin Data-
20	I/O, IPD	UART_TX		UART2 TxD
21	O	TXOP0		10/100 PHY Port #0 TXP
22	I	RXIM0		10/100 PHY Port #0 RXN
23	O	TXOM0		10/100 PHY Port #0 TXN
24	I	RXIP0		10/100 PHY Port #0 RXP
25	I	RXIM1		10/100 PHY Port #1 RXN
26	O	TXOP1		10/100 PHY Port #1 TXP
27	I	RXIP1		10/100 PHY Port #1 RXP
28	O	TXOM1		10/100 PHY Port #1 TXN
29	I	RXIP2		10/100 PHY Port #2 RXP
30	O	TXOM2		10/100 PHY Port #2 TXN
31	I	RXIM2		10/100 PHY Port #2 RXN
32	O	TXOP2		10/100 PHY Port #2 TXP
33	O	LINK_LED_0		LAN port 0 Link LED
34	O	LINK_LED_2		LAN port 2 Link LED
35	O	LINK_LED_1		LAN port 1 Link LED
36	I/O, IPD	GPIO0		WPS Button Push
37	I, IPU	CPURST_N		
38	I/O, IPD	EJT_TDO		Reset Button Push(GPIO17)
39	I/O, IPD	EJT_TRSTN	GPIO21	UART2 Tx/Rx LED
40	I/O, IPD	EJT_TMS		Serial Command Mode #1(GPIO19)
41	I/O, IPD	EJT_TDI	GPIO18	UART1 Tx/Rx LED
42	I/O, IPD	EJT_TCK		WPS LED(GPIO20)
43		NC		
44		NC		
45		NC		
46		NC		
47	I/O, IPD	I2C_SCLK		Serial Command Mode #2(GPIO2)
48	I/O, IPD	I2C_SD		RUN LED(GPIO1)
49		GND		
50		3.3V		
51		GND		
52		3.3V		

8. Mechanical specification



10. Design Guide

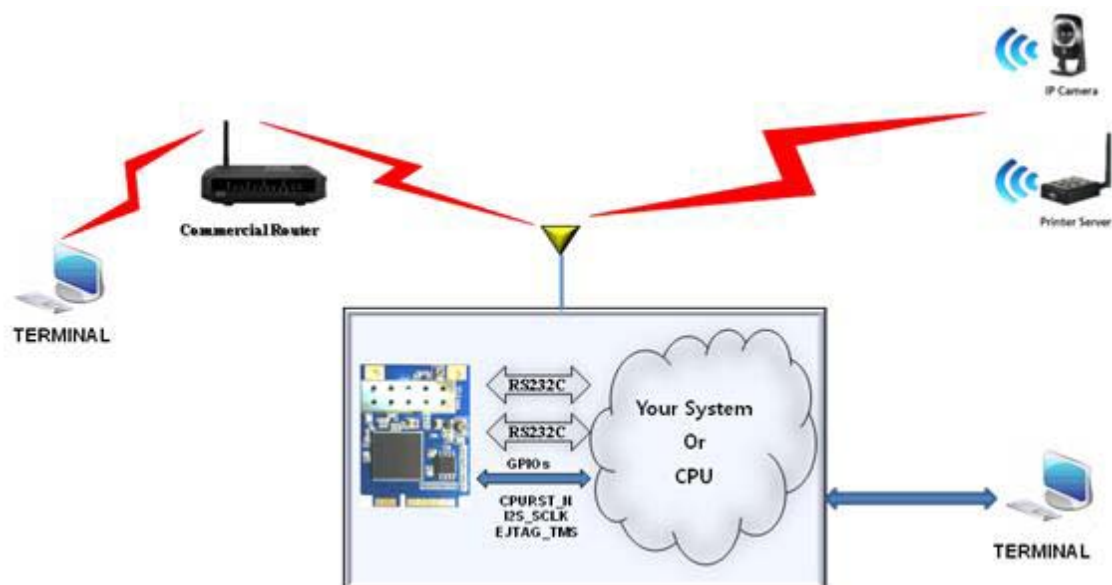
10.1 Serial Device Server



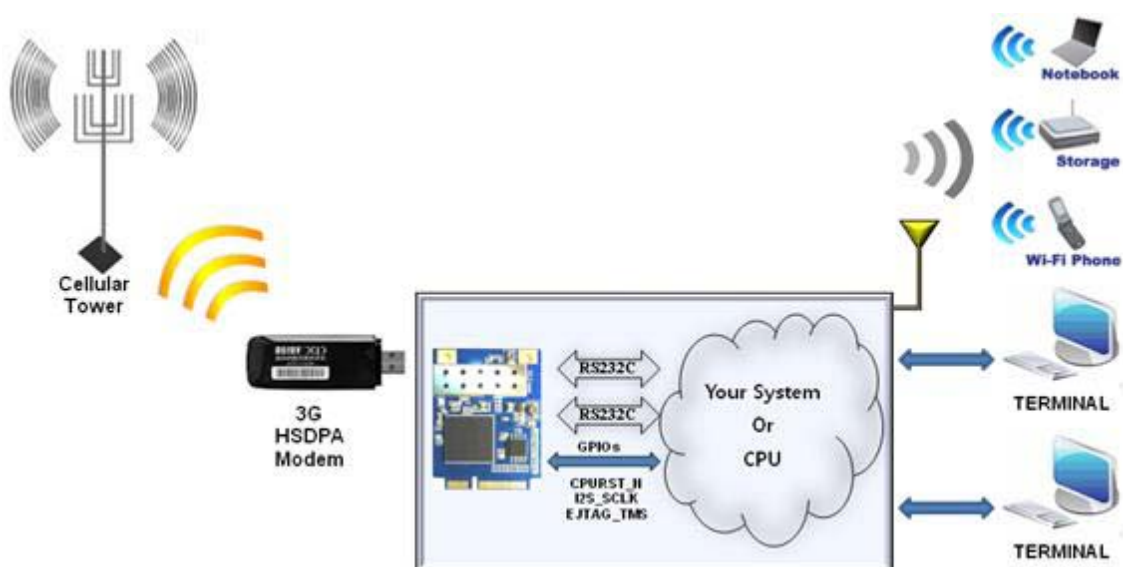
10.2 WiFi Router



10.3 WiFi Client



10.4 3G Router



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