GemiCom
Networking Your Partnership

WMIN-82E 802.11b/g/n miniPCI iNIC module

The WMIN-82E is the Ralink RT3352 SoC 2T2R MAC/BBP, a high performance CPU core, a Gigabit Ethernet MAC and a PCI host/device, to enable a multitude of high performance, cost-effective 802.11n applications for xDSL router, Cable modem, Set top Box, and Multi-Media devices. Users can treat the WLAN iNIC as a simple Ethernet device for easy porting and guaranteed 802.11n WLAN performance without the need to upgrade to an expensive host SOC.

FEATURES

- Comply with 802.11n and 802.11b/g standards
- High data transfer rate - up to 300Mbps
- 2x2 MIMO, farther coverage and less dead spots
- Support USB 2.0, RvMII, or RGMII interface (option)
- Supports QoS WMM, WMM power saving
- Mini PCI card form factor design

SPECIFICATIONS

Standards	IEEE 802.11 b/g/n
Main Chipset	Ralink RT3352 SoC
Frequency Band	2.4000~2.4835 GHz (subject to country regulations)
Modulation	802.11n: OFDM with BPSK, QPSK, 16QAM, 64QAM 802.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM 802.11b: BPSK, QPSK, CCK
Data Rate	802.11n (20MHz): MCS0 – 15, up to 144Mbps maximal (40MHz): MCS0 – 15, up to 300Mbps maximal 802.11g: 6, 9, 12, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps
Interface Type	USB 2.0 / RvMII / RGMII
Transmit Power	802.11n (20MHz): 11.5 ~ 14.5 dBm ; 802.11n (40MHz): 11.5 ~ 14.5 dBm 802.11g: 12.5 ~ 15.5 dBm 802.11b: 14.5 ~ 17.5 dBm
Receive Sensitivity	802.11n (20MHz) @ MCS15 : -67 ± 2 dBm, 802.11n (40MHz) @ MCS15 : -66 ± 2 dBm, 802.11g @ 54Mbps : -74 ± 2 dBm, 802.11b @ 11Mbps : -87 ± 2 dBm,
Operating voltage	DC 3.3V ± 5%
Antenna Connector	2 x U.FL-R-SMT connectors
Temperature	0 ~ 50 Celsius (operating), -20 ~ 60 Celsius (storage)
Humidity	10 ~ 90% (Non-Condensing), 95% max. (Non-condensing)
Dimensions (L x W x H)	59.75 x 45.2 x 1.0 mm

*Specifications are subject to change without further notice.

POWER CONSUMPTION

Voltage: 3.3V

Idle: 100mA

Mode	Current	Power consumption (W)
11b (11Mbps) TX	0.72A	2.376W
11g (54Mbps) TX	0.74A	2.442W
11n (20MHz) 2TX	0.74A	2.442W
11n (40MHz) 2TX	0.75A	2.475W

TRANSMIT POWER

Channel	Channel 1	Channel 6	Channel 11
11b (11Mbps)	15.11	15.10	15.38
11g (54Mbps)	13.49	13.42	13.38
11n (20MHz)	12.5	12.4	12.4
11n (40MHz)	12.8	12.7	12.7

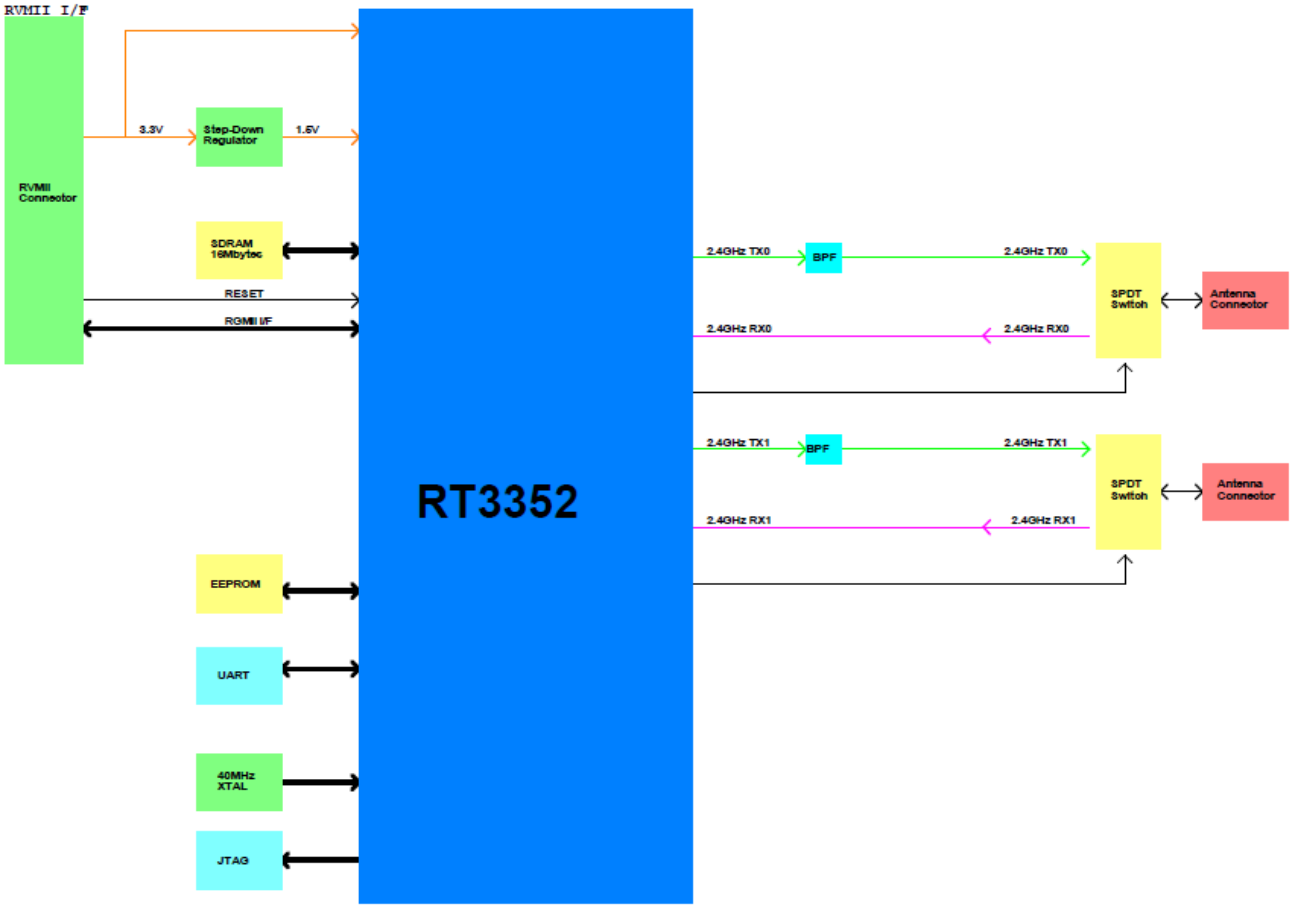
RECEIVER SENSITIVITY

Channel	Channel 1	Channel 6	Channel 11
11b (11Mbps)	-79	-79	-79
11g (54Mbps)	-65	-65	-65
11n (20MHz)	-64	-64	-64
11n (40MHz)	-61	-61	-61

TRANSMIT EVM

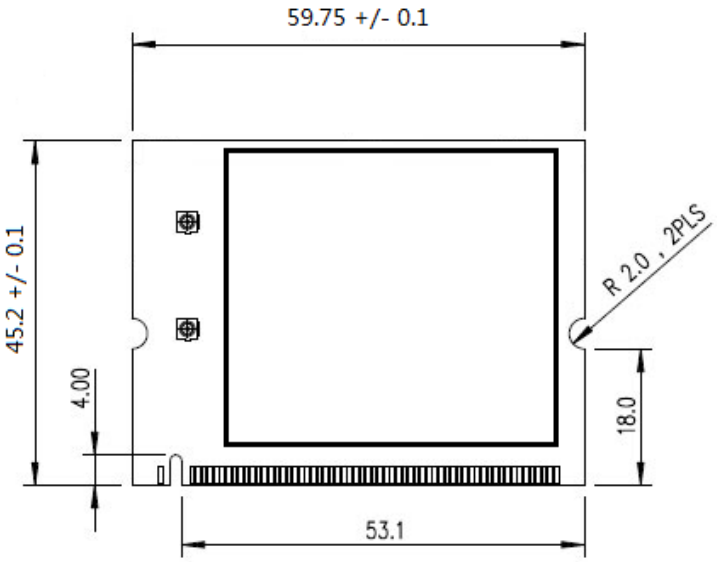
Channel	Channel 1	Channel 6	Channel 11
11b(11Mbps)	7.21%	6.81%	7.10%
11g (54Mbps)	-31.83dB	-31.46dB	-32.00dB
11n (20MHz)	-31.7dB	-32.4dB	-32.6dB
11n (40MHz)	-31.5dB	-31.1dB	-31.3dB

BLOCK DIAGRAM



MECHANICAL DRAWING

Dimension: 59.75 (L) x 45.2 (W) mm



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PIN DEFINITIONS

Pin	Name	Pin	Name	Pin	Name	Pin	Name
1	NC	2	NC	63	3.3V	64	FRAME#
3	NC	4	NC	65	CLKRUN#	66	TRDY#
5	NC	6	NC	67	SERR#	68	STOP#
7	NC	8	NC	69	GND	70	3.3V
9	NC	10	NC	71	PERR#	72	DEVSEL#
11	WLAN_LED	12	LED 2.4G	73	C/BE1#	74	GND
13	NC	14	LED 5G	75	AD14	76	AD15
15	CHSGND	16	SW RESET	77	GND	78	AD13
17	INTB#	18	NC	79	AD12	80	AD11
19	3.3V	20	INTA#	81	AD10	82	GND
21	NC	22	MA17	83	GND	84	AD9
23	GND	24	3.3AUX	85	AD8	86	C/BE0#
25	CLK	26	RST#	87	AD7	88	3.3V
27	GND	28	3.3V	89	3.3V	90	AD6
29	REQ#	30	GNT#	91	AD5	92	AD4
31	3.3V	32	GND	93	GE_MDIO	94	AD2
33	AD31	34	NC	95	AD3	96	AD0
35	AD29	36	NC	97	NC	98	DISABLE_RF_TX
37	GND	38	AD30	99	AD1	100	WPS
39	AD27	40	3.3V	101	GND	102	GND
41	AD25	42	AD28	103	GE_TXEN	104	MA11
43	GE_MDC	44	AD26	105	GE_RXDV	106	GE_RXD0
45	C/BE3#	46	AD24	107	GE_TXD0	108	GE_RXD1
47	AD23	48	IDSEL	109	GE_TXD1	110	GE_RXD2
49	GND	50	GND	111	GE_TXD2	112	GE_RXD3
51	AD21	52	AD22	113	GND	114	GND
53	AD19	54	AD20	115	GE_TXD3	116	GE_RXCLK
55	GND	56	PAR	117	GND	118	GND
57	AD17	58	AD18	119	GND	120	GND
59	C/BE2#	60	AD16	121	GE_TXCLK	122	MPCIACT#
61	IRDY#	62	GND	123	NC	124	3.3V

RGMII/RvMII interface

Pin	Name	RGMII	RvMII
43	GE_MDC	OUTPUT	OUTPUT
93	GE_MDIO	INPUT/OUTPUT	INPUT/OUTPUT
11	WLAN_LED	OUTPUT	OUTPUT
26	RST#	INPUT	INPUT
106	GE_RXD0	INPUT	OUTPUT
108	GE_RXD1	INPUT	OUTPUT
110	GE_RXD2	INPUT	OUTPUT
112	GE_RXD3	INPUT	OUTPUT
105	GE_RXDV	INPUT	OUTPUT
116	GE_RXCLK	INPUT	OUTPUT
107	GE_TXD0	OUTPUT	INPUT
109	GE_TXD1	OUTPUT	INPUT
111	GE_TXD2	OUTPUT	INPUT
115	GE_TXD3	OUTPUT	INPUT
103	GE_TXEN	OUTPUT	INPUT
121	GE_TXCLK	OUTPUT	OUTPUT