

NT-8192CE-M Specification

Customer: _____

Description: NT-8192CE-M V2.1

Customer P/N: _____

Date: _____

Customer		
Approve	Auditing	Admit

Provider		
Approve	Auditing	Admit

Customer:

Add:

Tel:

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Attn:

E-mail:

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NT-8192CE-M

Product Specification

WLAN 11b/g/n MINI PCI-E MODULE

Version: 2.1

1.General Description

NT-8192CE-M product Accord with FCC CE and is 300 wireless MINI PCI EXPRESS adapter which has lower power consumption, high linearity output power, accords with IEEE802.11B/G/N, and supports IEEE802.11i safety protocol, along with IEEE 802.11e standard service quality. It connects with other wireless device which accorded with these standards together, supports the new data encryption on 64/128 bit WEP and safety mechanism on WPA-PSK/WPA2-PSK, WPA/WPA2. Its wireless transmitting rate rises 150M, equivalent to 10 times of common 11b product. It's easy and convenient to link to wireless network for the users using desktop, laptop and other device that needs connect to wireless network.

2.The range of applying

MID, Networking camera, STB GPS, E-book, Hard disk player, Network Radios, PSP, etc, the device which need be supported by wireless networking.

3.Features

Feature	Implementation
Power supply	VCC_3.3V +-0.2V
Clock source	40MHz
Temperature range	Work temperature: -20°C---70°C Storage temperature -55°C ~ +125°C
Package	PCI-E 52 pins
WLAN features	
General features	<ul style="list-style-type: none">■ CMOS MAC, Baseband PHY, and RF in a single chip for IEEE 802.11b/g/n compatible WLAN■ Complete 802.11n solution for 2.4GHz band■ 72.2Mbps receive PHY rate and 72.2Mbps transmit PHY rate using 20MHz bandwidth■ 300Mbps receive PHY rate and 300Mbps transmit PHY rate using 40MHz bandwidth■ Compatible with 802.11n specification■ Backward compatible with 802.11b/g devices while operating in 802.11n mode
Host Interface	■ MINI PCI EXPRESS
Standards Supported	■ IEEE 802.11b/g/n compatible WLAN

	<ul style="list-style-type: none"> ■ IEEE 802.11e QoS Enhancement (WMM) ■ IEEE 802.11h TPC, Spectrum Measurement ■ 802.11i (WPA, WPA2). Open, shared key, and pair-wise key authentication services
WLAN MAC Features	<ul style="list-style-type: none"> ■ Frame aggregation for increased MAC efficiency (A-MSDU, A-MPDU) ■ Low latency immediate High-Throughput Block Acknowledgement (HT-BA) ■ Long NAV for media reservation with CF-End for NAV release ■ PHY-level spoofing to enhance legacy compatibility ■ Power saving mechanism ■ Channel management and co-existence ■ Multiple BSSID feature allows the RTL8192CE-VA4 to assume multiple MAC identities when used as a wireless bridge ■ Transmit Opportunity (TXOP) Short Inter-Frame Space (SIFS) bursting for higher multimedia bandwidth
WLAN PHY Features	<ul style="list-style-type: none"> ■ IEEE 802.11n OFDM ■ One Transmit and one Receive path (1T1R) ■ 20MHz and 40MHz bandwidth transmission ■ Short Guard Interval (400ns) ■ DSSS with DBPSK and DQPSK, CCK modulation with long and short preamble ■ OFDM with BPSK, QPSK, 16QAM, and 64QAM modulation. Convolutional Coding Rate: 1/2, 2/3, 3/4, and 5/6 ■ Maximum data rate 54Mbps in 802.11g and 150Mbps in 802.11n ■ Switch diversity for DSSS/CCK ■ Hardware antenna diversity ■ Selectable receiver FIR filters ■ Programmable scaling in transmitter and receiver to trade quantization noise against increased probability of clipping Fast ■ receiver Automatic Gain Control (AGC) ■ On-chip ADC and DAC

4. DC Characteristics

Symbol	Parameter	Minimum	Typical	Maximum	Units
VD33A, VD33D	3.3V I/O Supply Voltage	3.00	3.3	3.60	V
VD12A, VD12D	1.2V/Core Supply Voltage	1.10	1.20	1.32	V
VD15A, VD15D	1.5V Supply Voltage	1.425	1.5	1.575	V
IDD33	3.3V Rating Current	-	-	800	mA

5.The main performance of product

Item	Description
The supported protocol and standard	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
Interface type	MINI PCI EXPRESS
The range of frequency	2.4-2.484GHZ
The amount of working Channel	1-11 (America, Canada) ;1-13 (China, Europe) ;1-14 (Japan)
Data Modulation	OFDM/DBPSK/DQPSK/CCK
Working Mode	Infrastructure, Ad-Hoc
The transmitting rate	300/135/54/48/36/24/18/12/9/6 /1M (self-adapting)
Spread spectrum	DSSS
Sensitivity @PER	54/135/300M:-74dBm@10%PER, 11M:-85dBm@8%PER 6M: -88dBm@10%PER , 1M: -90dBm@8%PER
RF Power	300M:14DBM 135M:14dBm, 54M:14dBm, 11M:18dBm
Throughput	90Mbps(external 2dbi antenna ,damping 40dbm in Shielding box)
The connect type of Antenna	External antenna
The transmit distance	Indoor 100M, Outdoor 300M, according the local environment
Working Power consumption	180MA
MENS(L*W*H)	30.0mm* 26.7mm *3 .2mm
The chipset model	RTL8192CE-VA4

6. DC/RF characteristics

Terms	Contents			
Specification : IEEE802.11b				
Mode	DSSS / CCK			
Frequency	2412 – 2484MHz			
Data rate	1, 2, 5.5, 11Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	305	311	320	mA
Rx mode	180	190	200	mA
Standby mode	240	245	246	uA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	250	260	270	mA
Rx mode	180	190	200	mA
Standby mode	243	245	246	uA
Specification : IEEE802.11n				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6.5, 13, 19.5, 26, 39, 52, 58.5, 65Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	240	250	260	mA
Rx mode	180	190	200	mA
Standby mode	244	245	246	uA

7.The block diagram of product principle

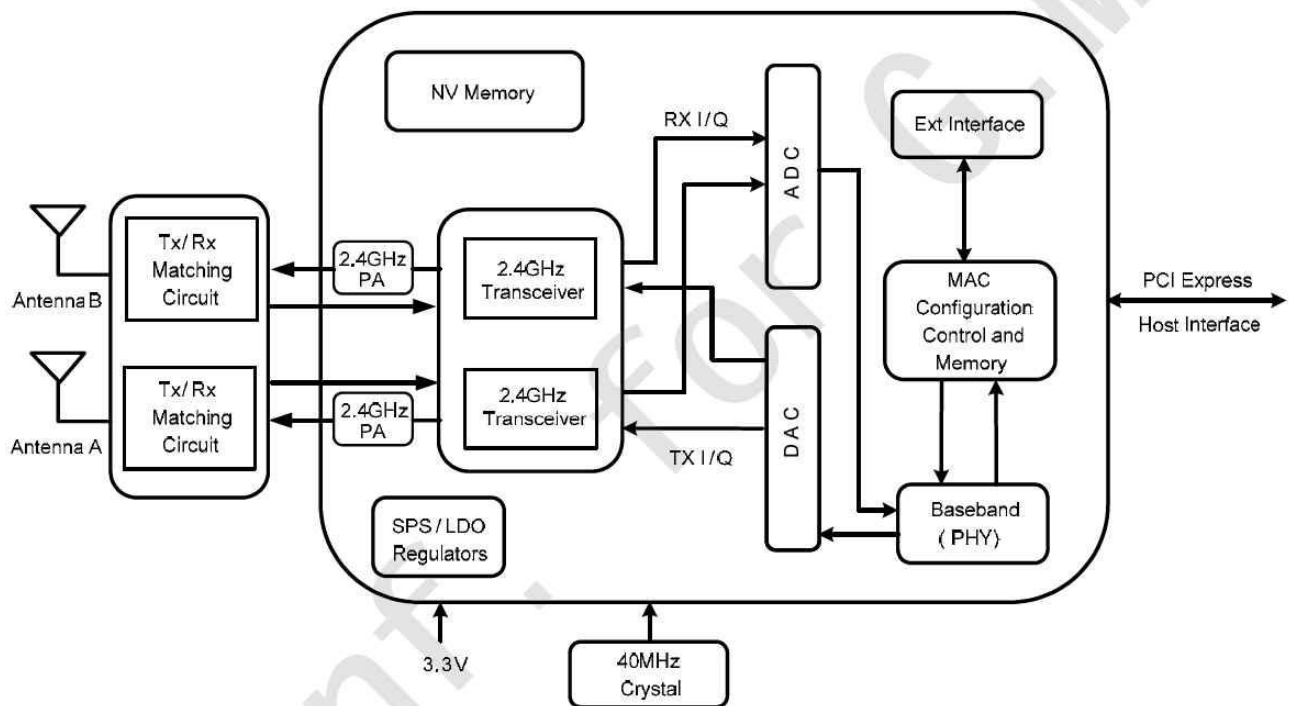


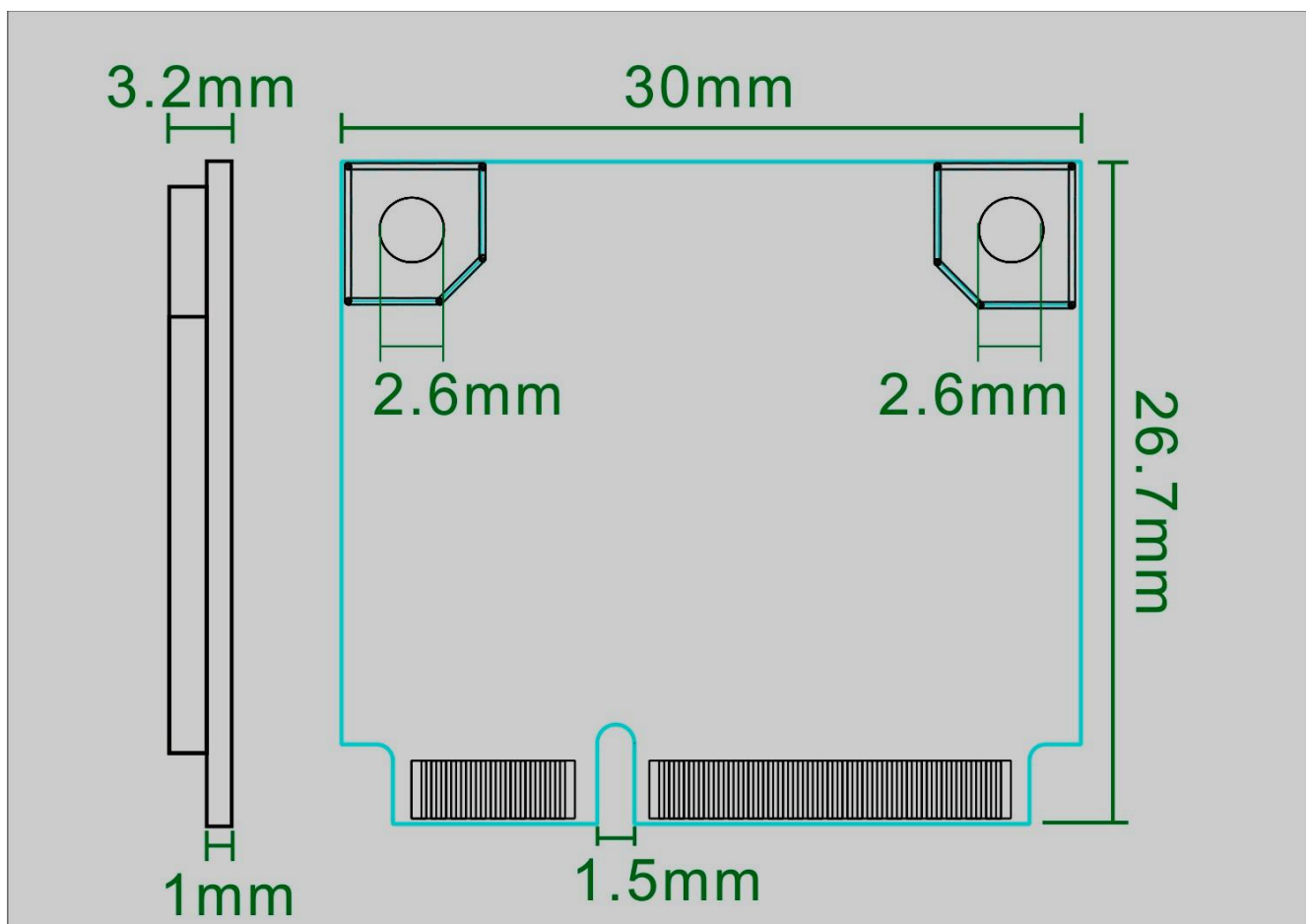
Figure 1. 11n 2x2 MAC/BB/RF Application

8.The supported platform

Operating System	CPU Framework	Driver
WIN2000/XP/VISTA/WIN7	X86 Platform	Enable
LINUX2.4/2.6	ARM, MIPSII	Enable
WINCE5.0/6.0	ARM ,MIPSII	Enable



Top and bottom view of NT-8192CE-M



10.The definition of product Pin

NO	Signal Name	Description	NO	Signal Name	Description
1	WAKE#	Wake up/dormancy control	2	VD33A	3.3V power supply
3	COEX1	Wireless coexist control	4	GND	negative)
5	COEX2	Wireless coexist control	6	Reserved	NC
7	CLKREQ#	Reference clock request signal	8	Reserved	NC
9	GND	negative	10	Reserved	NC
11	REFCLK-	PCI Express differential reference when reference	12	Reserved	NC
13	REFCLK+	CLK: 100MHz \pm 300ppm	14	Reserved	NC
15	GND	negative	16	Reserved	NC
17	Reserved	NC	18	GND	negative
19	Reserved	NC	20	W_DISABLE#	Radio signal control
21	GND	negative	22	PERST#	Reset signal (low level)
23	HS0N	PCI Express differential transmission positive signal	24	Reserved	NC
25	HS0P	PCI Express differential transmission negative signal	26	GND	negative
27	GND	negative	28	Reserved	NC
29	GND	negative	30	Reserved	NC
31	HS1N	PCI Express Difference is the received positive signal	32	Reserved	NC
33	HS1P	PCI Express Difference is the received negative signal	34	GND	negative
35	GND	negative	36	USB_D-	USB negative Signal
37	GND	negative	38	USB_D+	USB positive Signal
39	Reserved	NC	40	Reserved	NC
41	Reserved	NC	42	Reserved	NC
43	GND	negative	44	LED_WLAN#	LED PIN (Active Low)
45	Reserved	NC	46	Reserved	NC
47	Reserved	NC	48	VDD15	1.5V power supply
49	Reserved	NC	50	GND	negative
51	Reserved	NC	52	VD33	3.3V power supply

11.Tpical Solder Reflow Profile

