

## How to install Intel WiMAX WiFi 5350 Wireless Mini PCIe Card into ASUS EEE PC 901 Netbook.

The Intel WiMAX/WiFi Link 5350 is an IEEE 802.16e and 802.11a/b/g/Draft-N wireless network adapter that operates in the 2.5GHz spectrum for WiMAX and 2.4/5.0GHz spectrum for WiFi.

This adapter designed using Mini PCIe form factor and used both of interfaces provided by Mini PCIe: USB and PCI Express x 1. PCI Express interface is used by WiFi adapter's circuits and USB used by WiMAX adapter's circuits.

There is some specific of Mini PCIe slots on ASUS EEE PC 901 Netbook. Let's look 'under hood' of EEE PC 901. User can get access to two PCIe Slots located on bottom side of Netbook (Figure 1). One of them used for Memory Module Mini PCIe Card, another is used for original WiFi Module Mini PCIe Card.

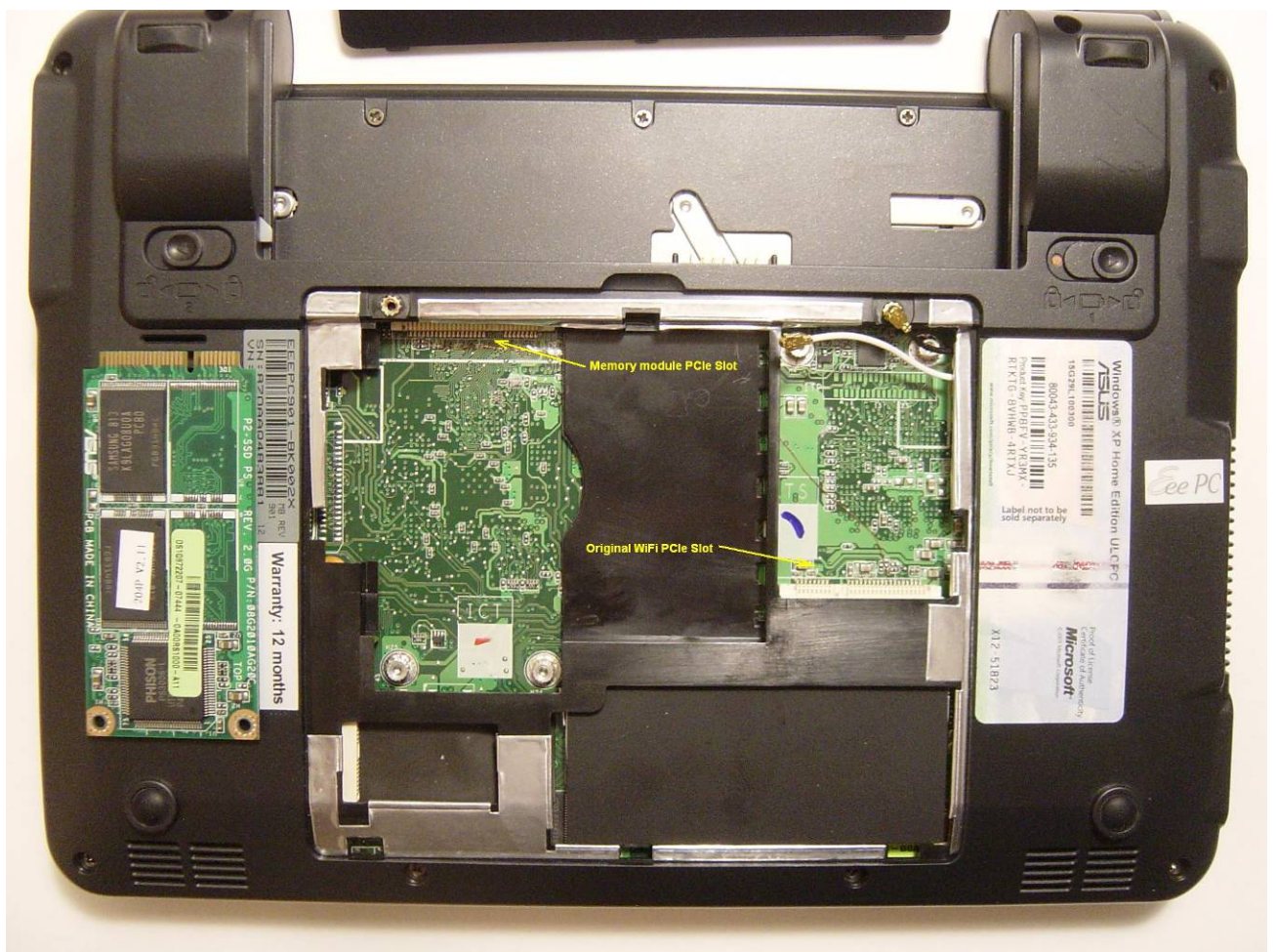


Figure 1

Let's look on pin out Mini PCIe Slot (Figure 2). In accordance with specification both of the links must be present on the slot: USB and PCI Express. But for some reason on ASUS EEE PC 901 Mini PCIe Slot reserved for original WiFi Mini PCIe Card does not have USB link connected. And opposite, Mini PCIe Slot reserved for Memory Module has USB Link which actually not used on Memory Module (Figure 3).

**MiniCard Pinout**

Pin #	Signal Name	Pin #	Signal Name
51	Reserved	52	+3.3V
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	LED_WPAN#
43	Reserved	44	LED_WLAN#
41	Reserved	42	LED_WWAN#
39	Reserved	40	GND
37	Reserved	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved (UIM_C4)	20	Reserved
17	Reserved (UIM_C8)	18	GND
Mechanical Key			
15	GND	16	UIM_VPP
13	REFCLK+	14	UIM_RESET
11	REFCLK-	12	UIM_CLK
9	GND	10	UIM_DATA
7	CLKREQ#	8	UIM_PWR
5	Reserved	6	1.5V
3	Reserved	4	GND
1	WAKE#	2	3.3V

PCI Express Link (points to pins 33, 31, 25, 23)  
USB Link (points to pins 38, 36)

Figure 2



Figure 3

In this case, if we just plug in Intel WiMAX/WiFi Link 5350 Card to ASUS EEE PC 901 PCIe Slot instead of original WiFi Card, we should have WiFi on this Card working only. WiMAX couldn't work because of USB Link absent on connector pin out.

To have working both of the interfaces we need modify/rework interconnections between two Mini PCIe Slots on ASUS EEE PC901.

**Warning!**

**This is not ‘dummy’ modification and required some special electronics Technician’s skills and appropriated equipment: solder station for small electronics components assembly, Magnifier Lens or Microscope, small screwdriver and tweezers sets, special thin solder wire and thin isolated solid magnet wire. If you not familiar with this, DO NOT rework it! You can damage your EEE PC board. Be careful when using solder station and equipment! Special Technician skills required!**

If you familiar with similar skills and have appropriated lab equipment let’s go ahead.

1. Twist two thin isolated magnet solid wires to pair for USB Link. That’s necessary for proper signal integrity. Both wires within pair should be twisted symmetrically and have equal length. Four inches should good enough.
2. Coat solder paste ends of wires on both sides using solder station. Keep ends conductive and solder coated very short (less 1mm).
3. Solder/connect twisted pair’s ends to Mini PCIe Memory Module Slot pins 38 (USB D+) & 36 (USB D-). Use resistor’s pad like shown on picture (Figure 4).

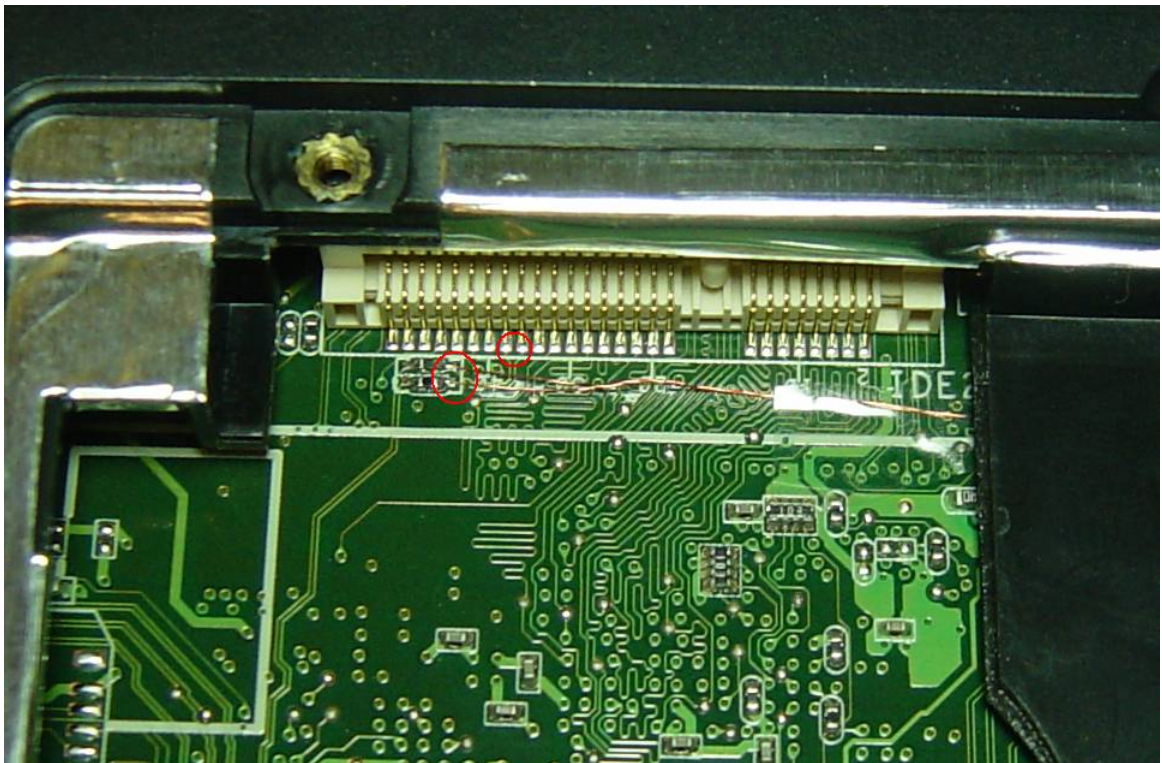


Figure 4

4. Solder/connect another twisted pair’s ends to Mini PCIe WiFi Module Slot pins 38 (USB D+) & 36 (USB D-). Before that make sure (use multi-meter) that D+ connected to D+ and D- connected to D-. **Polarity is important!** Be patient and accurate because this side is

more difficult. No options are here and we need solder thin wires directly to Slot pins (Figure 5).

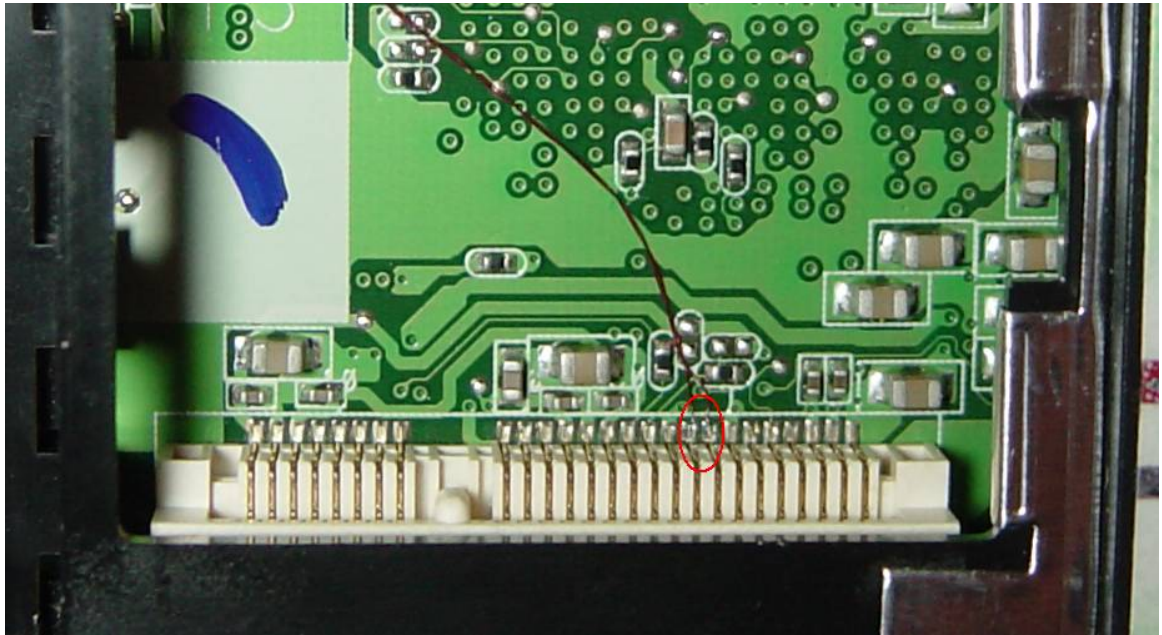


Figure 5

5. Fix twisted pair on board using Scotch tape. Using multi-meter make sure about right interconnection and no shorts between wires.
6. Insert and fix original Memory Module Card (Figure 6).



Figure 6

7. Insert and fix Intel WiMAX/WiFi Link 5350 Card (Figure 7).

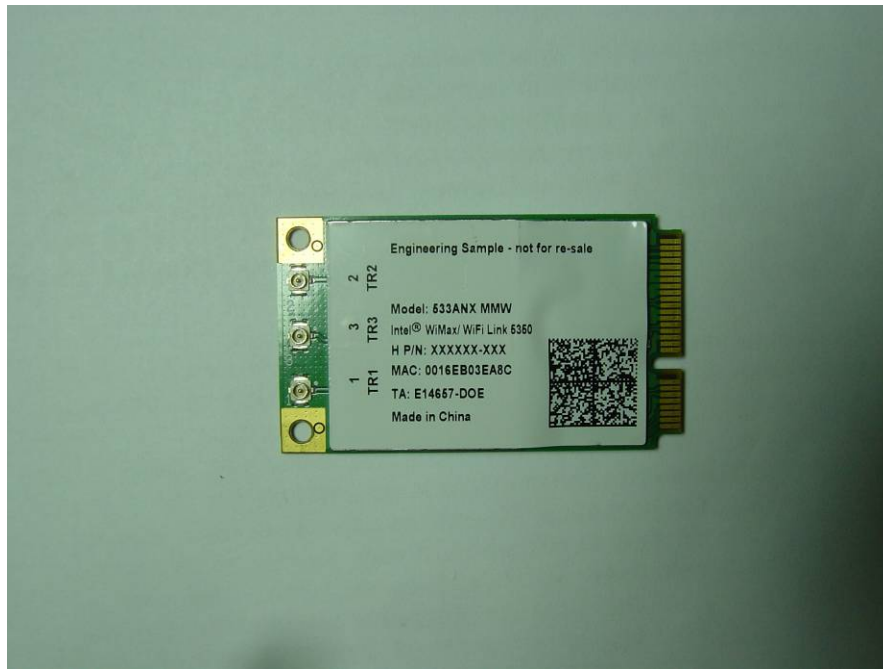


Figure 7

8. Connect original two antenna cable to micro connectors 1 & 2 like shown on picture (Figure 8).

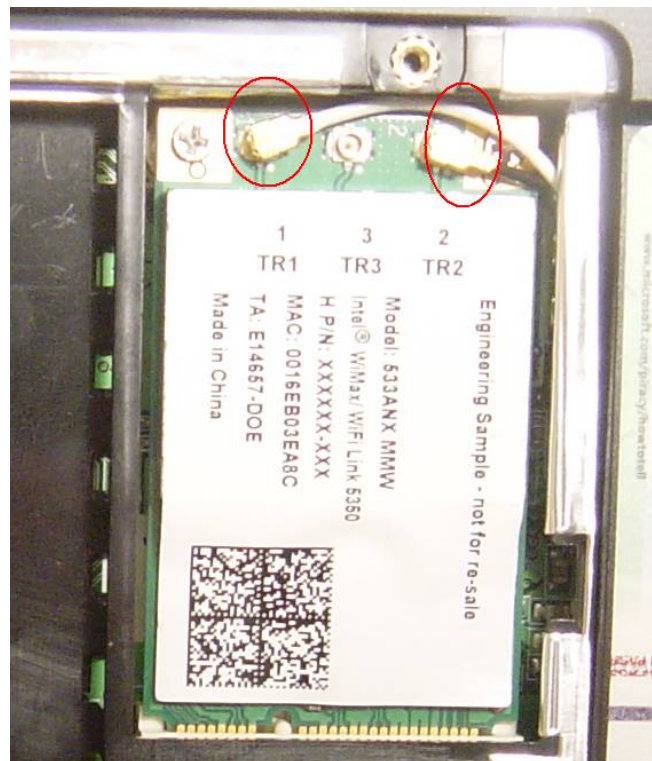


Figure 8

9. Intel WiMAX/WiFi Link 5350 Card included three antennas. Two of them used for WiFi, and third for WiMAX. Two of them connected and used from original EEE PC 901. Third one needs to be connected to micro connector 3 on module (Figure 9).

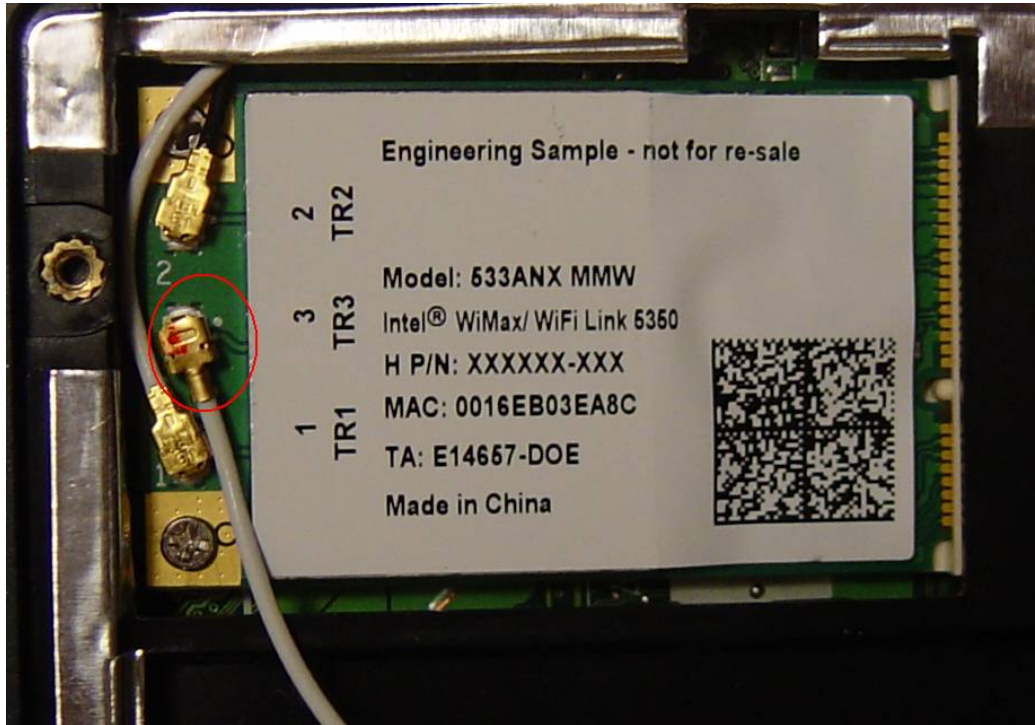


Figure 9

10. Antenna cable can be shorter (Figure 10) or keep length as is. Fix antenna by Scotch tape and hide cable wire under case cover (Figure 11).

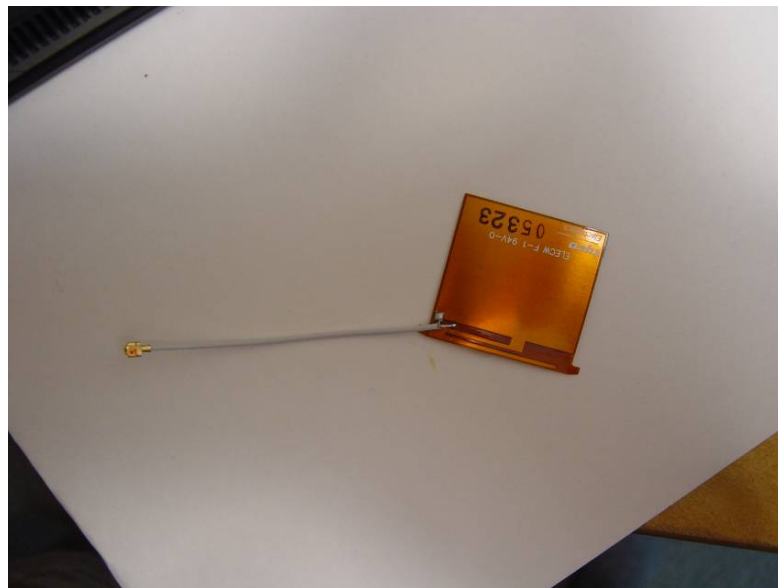


Figure 10

