

IEEE 802.11g (54Mbps) mini PCI Wireless LAN Module

Zcomax Technologies, Inc. has released its new line of Air Runner™ wireless LAN mini-PCI cards. The XG-603 is an IEEE 802.11g 54Mbps mini PCI module that has been designed with the integration market in mind. With its low profile external antenna connector and standard mini PCI form, the XG-603 will fit into any design that supports the mini-PCI form factor. The XG-603 is a high performance module that exceeds both IEEE 802.11g and FCC regulatory requirements.

The XG-603's reliable design helps to reduce overall costs associated with wireless integration by eliminating the need for debugging and driver support commonly associated with the designing a product from the "ground up". The XG-603 module is a robust plug and play ready device that has support for both windows and Linux operating systems.

With an excellent price / performance ratio and field-proven reliability associated with the Conexant chipset, the XG-603 is a superb choice for any wireless application requiring enhanced connectivity and reliability.



XG-603 at a glance

- IEEE 802.11g compliant
- 17 dBm Tx output Power
- -65 dBm @ 54Mbps Rx Sensitivity
- 2 Hirose U.FL Antenna Connectors
- 32-bit mini-PCI Type III B Interface
- FCC and ROHS compliant
- MAC / BB – Conexant ISL3886IKZ
- Radio - Conexant ISL 3686BIRZ-TK
- Driver support – Windows, Linux and customized drivers are available.

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Physical Specification:

Form Factor	32-bit Mini PCI
Dimensions (L x W x H)	59.6mm(L) * 44.5mm(W) * 3.2mm (H)
Weight	≤ 50 g

RF Specification:

Frequency Range (GHz)	North America:
	FCC: 2.412 ~ 2.462GHz (CH1 ~ CH 11)
	TELEC: 2.412~2.472GHz (CH1 ~ CH 13)
	ETSI: 2.412 ~ 2.472GHz (CH1 ~ CH 13)
Frequency Drift	<25KHz
Transmitter Output Power	
IEEE 802.11g 54Mbps	14 dBm ± 2dBm
IEEE 802.11b 11 Mbps	17 dBm ± 2dBm
Antenna Impedance	50 ohms
Media Access Protocol	CSMA/CA w/ACK
802.11g Data rates	54, 48, 36, 24, 12, 9, 6 Mbps
Modulation	48/54 Mbps (QAM-64) 24/36 Mbps (QAM-16) 12/18 Mbps (QPSK) 6/9 Mbps (BPSK)
Receiver Sensitivity	54 / 48 Mbps: ≤ -65dBm / -66dBm
@ PER < 10% for 802.11g	36 / 24 Mbps: ≤ -70dBm / -74dBm
	18 / 12 Mbps: ≤ -77dBm / -79dBm
	9 / 6 Mbps: ≤ -81dBm / -82dBm
Receiver Sensitivity	11 / 5.5 Mbps: ≤ -80dBm / -83dBm
@ PER < 8% for 802.11b	2 / 1 Mbps: ≤ -84dBm / -87dBm

Electrical Specification:

Supply Voltage	3.3 Vdc, +/- 5%
Supply Voltage Ripple	120mV (pp) max.
Power-on startup time	<600 ms
Sleep-to-receive startup time	<75 ms
Power consumption	TX: < 600mA, RX: < 400mA,

Antenna Connector Specification

Connector Type	2 x Hirose U.FL 50Ω
Manufacturer	Hirose Electronic Co. Ltd.
Part Number	U.FL-R-SMT (CL331-0471-0-01)

Environmental

Working Temperature	0 ~ 55°C, 90% relative humidity (non-condensing)
Storage Temperature	-20 ~ 80°C, 90% relative humidity (non-condensing)

Absolute Maximum Rating

Stress above those listed in Absolute Maximum Rating may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in standard specifications is not implied.

Supply Voltage	3.7V
I/O Voltage	-0.5V ~ VCC+0.3V
Storage Temperature	-20 ~ +80°C, 95% relative humidity (non-condensing)
Barometric Pressure	740 hPa ~ 1050 hPa

Performance

The range of a RF subsystem is determined by many different factors, including antenna design and cable loss, as well as connector selection. Typical ranges are given for PER < 10% (802.11g) and assume an adequate antenna design.

802.11b Open Space with 0dBi antenna	54Mbps ≤ 60 meters
802.11g Open Space with 0dBi antenna	11Mbps ≤ 80 meters

Absolute Maximum Rating

Stress above those listed in Absolute Maximum Rating may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in standard specifications is not implied.

Supply Voltage	3.7V
I/O Voltage	-0.5V ~ VCC+0.3V
Storage Temperature	-20 ~ +80°C, 95% relative humidity (non-condensing)
Barometric Pressure	740 hPa ~ 1050 hPa

Security

The XG-603 supports WPA / WPA2 and IEEE 802.1X. Support will be equal to or greater than the latest conexant supplied driver.

Reliability

Mean Time To Failure is rated at 150,000 hours.

Interoperability

The XG-603 interoperates with any IEEE 802.11g compliant devices.

Warranty

The XG-603 is supplied with a 12 month warrantee against manufacturing defects.

mPCI Pin Definition (Pins 1 – 66)

Pin #	mPCI Spec	Usage	Description
1	TIP	NC	No Connect
2	RING	NC	No Connect
3	RJ/8PMJ-3	NC	No Connect
4	RJ/8PMJ-1	NC	No Connect
5	RJ/8PMJ-6	NC	No Connect
6	RJ/8PMJ-2	NC	No Connect
7	RJ/8PMJ-7	NC	No Connect
8	RJ/8PMJ-4	GND	GND
9	RJ/8PMJ-8	NC	No Connect
10	RJ/8PMJ-5	VCC	3.3V
11	LED1_GRNP	LED_1	LED_1
12	LED2_YELP	LED_0	LED_0
13	LED1_GRNN	NC	No Connect
14	LED2_YELN	GND	GND
15	CHSGND	GND	GND
16	RESERVED	NC	No Connect
17	INTB#	NC	No Connect
18	5V	NC	No Connect
19	3.3V	VCC	3.3V
20	INTA#	PCI3	As in the MPCPI Specification
21	RESERVED	NC	No Connect
22	RESERVED	NC	No Connect
23	GROUND	GND	As in the MPCPI Specification
24	3.3V AUX	3.3VAUX	3.3V
25	CLK	PCI2	As in the MPCPI Specification
26	RST#	PCI0	As in the MPCPI Specification
27	GROUND	GND	As in the MPCPI Specification
28	3.3V	VCC	As in the MPCPI Specification
29	REQ#	PCI1	As in the MPCPI Specification
30	GNT#	PCI4	As in the MPCPI Specification
31	3.3V	VCC	As in the MPCPI Specification
32	GROUND	GND	As in the MPCPI Specification
33	AD[31]	ADDR31	As in the MPCPI Specification

Pin #	mPCI Spec	Usage	Description
34	PME#	PCI5	As in the MPCPI Specification
35	AD[29]	ADDR29	As in the MPCPI Specification
36	RESERVED	NC	No Connect
37	GROUND	GND	As in the MPCPI Specification
38	AD[30]	ADDR30	As in the MPCPI Specification
39	AD[27]	ADDR27	As in the MPCPI Specification
40	3.3V	VCC	As in the MPCPI Specification
41	AD[25]	ADDR25	As in the MPCPI Specification
42	AD[28]	ADDR28	As in the MPCPI Specification
43	RESERVED	NC	No Connect
44	AD[26]	ADDR26	As in the MPCPI Specification
45	C/BE[3]#	PCI14	As in the MPCPI Specification
46	AD[24]	ADDR24	As in the MPCPI Specification
47	AD[23]	ADDR23	As in the MPCPI Specification
48	IDSEL	PCI6	As in the MPCPI Specification
49	GROUND	GND	As in the MPCPI Specification
50	GROUND	GND	As in the MPCPI Specification
51	AD[21]	ADDR21	As in the MPCPI Specification
52	AD[22]	ADDR22	As in the MPCPI Specification
53	AD[19]	ADDR19	As in the MPCPI Specification
54	AD[20]	ADDR20	As in the MPCPI Specification
55	GROUND	GND	As in the MPCPI Specification
56	PAR	PCI7	As in the MPCPI Specification
57	AD[17]	ADDR17	As in the MPCPI Specification
58	AD[18]	ADDR18	As in the MPCPI Specification
59	C/BE[2]#	PCI15	As in the MPCPI Specification
60	AD[16]	ADDR16	As in the MPCPI Specification
61	IRDY#	PCI8	As in the MPCPI Specification
62	GROUND	GND	As in the MPCPI Specification
63	3.3V	VCC	3.3V
64	FRAME#	PCI18	As in the MPCPI Specification
65	CLKRUN#	PCI19	As in the MPCPI Specification
66	TRDY#	PCI9	As in the MPCPI Specification

mPCI Pin Definition (Pins67 – 124)

Pin #	mPCI Spec	Usage	Description
67	SERR#	PCI10	As in the MPCl Specification
68	STOP#	PCI12	As in the MPCl Specification
69	GROUND	GND	As in the MPCl Specification
70	3.3V	VCC	3.3V
71	PERR#	PCI13	As in the MPCl Specification
72	DEVSEL#	PCI11	As in the MPCl Specification
73	C/BE[1]#	PCI16	As in the MPCl Specification
74	GROUND	GND	As in the MPCl Specification
75	AD[14]	ADDR14	As in the MPCl Specification
76	AD[15]	ADDR15	As in the MPCl Specification
77	GROUND	GND	As in the MPCl Specification
78	AD[13]	ADDR13	As in the MPCl Specification
79	AD[12]	ADDR12	As in the MPCl Specification
80	AD[11]	ADDR11	As in the MPCl Specification
81	AD[10]	ADDR10	As in the MPCl Specification
82	GROUND	GND	As in the MPCl Specification
83	GROUND	GND	As in the MPCl Specification
84	AD[09]	ADDR09	As in the MPCl Specification
85	AD[08]	ADDR08	As in the MPCl Specification
86	C/BE[0]#	PCI17	As in the MPCl Specification
87	AD[07]	ADDR07	As in the MPCl Specification
88	3.3V	VCC	3.3V
89	3.3V	VCC	3.3V
90	AD[06]	ADDR06	As in the MPCl Specification
91	AD[05]	ADDR05	As in the MPCl Specification
92	AD[04]	ADDR04	As in the MPCl Specification
93	RESERVED	NC	No Connect
94	AD[02]	ADDR02	As in the MPCl Specification
95	AD[03]	ADDR03	As in the MPCl Specification

Pin #	mPCI Spec	Usage	Description
96	AD[00]	ADDR00	As in the MPCl Specification
97	5V	NC	No Connect
98	RESERVED_WIP	NC	No Connect
99	AD[01]	ADDR01	As in the MPCl Specification
100	RESERVED_WIP	NC	No Connect
101	GROUND	GND	As in the MPCl Specification
102	GROUND	GND	As in the MPCl Specification
103	AC_SYNC	NC	No Connect
104	M66EN	GND	GND
105	AC_SDATA_IN	NC	No Connect
106	AC_SDATA_OUT	NC	No Connect
107	AC_BIT_CLK	NC	No Connect
108	AC_CODEC_ID0	NC	No Connect
109	AC_CODEC_ID1	NC	No Connect
110	AC_RESET#	NC	No Connect
111	MOD_AUDIO_M O N	NC	No Connect
112	RESERVED	NC	No Connect
113	AUDIO_GND	NC	No Connect
114	GROUND	GND	GND
115	SYS_AUDIO_OUT	NC	No Connect
116	SYS_AUDIO_IN	NC	No Connect
117	SYS_AUDIO_OUT _GND	NC	No Connect
118	SYS_AUDIO_IN_G ND	NC	No Connect
119	AUDIO_GND	NC	No Connect
120	AUDIO_GND	NC	No Connect
121	RESERVED	NC	No Connect
122	MPCIACT#	MPCIACT#	GND
123	VCC5VA	NC	No Connect
124	3.3V AUX	3.3VAUX	3.3V