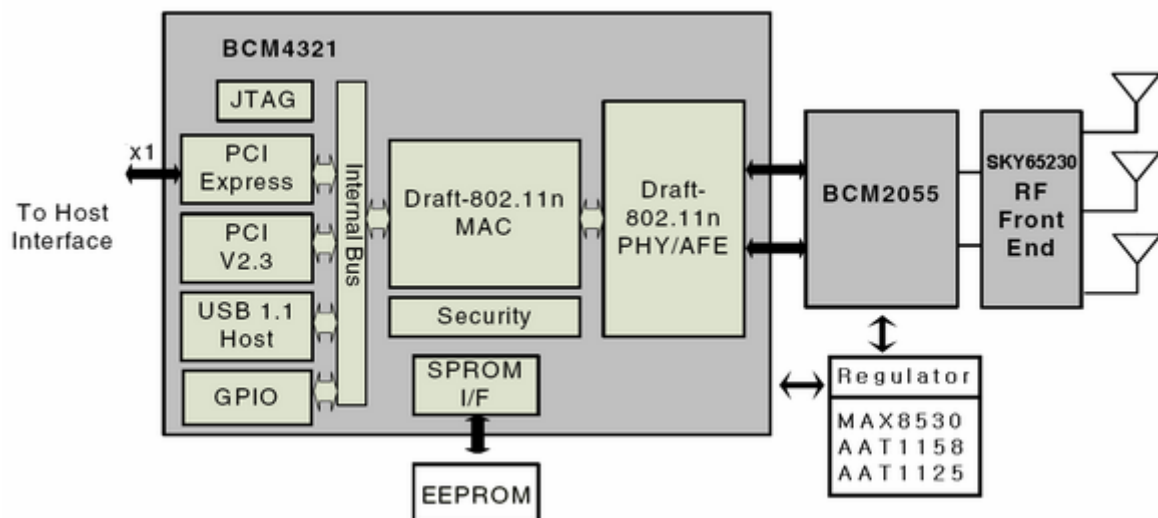


WL-270n mini PCIe Wireless Module (mini-card)

Product Features

- Draft 802.11n compliant.
- Compatibility with legacy 802.11a/b/g device with enhanced performance
- 2 stream spatial multiplexing up for to 270Mbps
- 2 of 3 antenna configuration
- Supports MCS 0-15 and MCS 32 Modulation and coding rates in Draft 802.11n
- Supports 20MHz and 40MHz channelization
- Green field, Mixed Mode, and Legacy modes supported
- Comprehensive wireless network security support that includes WPA, WPA2, and AES encryption/decryption coupled with TKIP and IEEE 802.1x support
- Support drivers for Windows Vista, Windows XP and Windows 2000.

Block Diagram



**Specification**

Host interface	Mini PCI Express BUS Management Interface																																																																																										
Network Standard	IEEE 802.11a/b/g/Draft-n																																																																																										
Main Chip	Broadcom BCM4321 (Baseband/MAC/PHY) Broadcom BCM2055 (RF Transceiver)																																																																																										
Data Rate (Mbps)	<table border="1"> <thead> <tr> <th rowspan="2">11a</th> <th rowspan="2">11b</th> <th rowspan="2">11g</th> <th colspan="2">Draft 11n*</th> </tr> <tr> <th>20MHz</th> <th>40MHz</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>1</td> <td>6</td> <td>6.5</td> <td>13.5</td> </tr> <tr> <td>9</td> <td>2</td> <td>9</td> <td>13.0</td> <td>27.0</td> </tr> <tr> <td>12</td> <td>5.5</td> <td>12</td> <td>19.5</td> <td>40.5</td> </tr> <tr> <td>24</td> <td>11</td> <td>24</td> <td>26.0</td> <td>54.0</td> </tr> <tr> <td>36</td> <td></td> <td>36</td> <td>39.0</td> <td>81.0</td> </tr> <tr> <td>48</td> <td></td> <td>48</td> <td>52.0</td> <td>108.0</td> </tr> <tr> <td>54</td> <td></td> <td>54</td> <td>58.5</td> <td>121.5</td> </tr> <tr> <td></td> <td></td> <td></td> <td>65.0</td> <td>135.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13.0</td> <td>27.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>26.0</td> <td>54.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>39.0</td> <td>81.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>52.0</td> <td>108.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>78.0</td> <td>162.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>104.0</td> <td>216.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>117.0</td> <td>243.0</td> </tr> <tr> <td></td> <td></td> <td></td> <td>130.0</td> <td>270.0</td> </tr> </tbody> </table>				11a	11b	11g	Draft 11n*		20MHz	40MHz	6	1	6	6.5	13.5	9	2	9	13.0	27.0	12	5.5	12	19.5	40.5	24	11	24	26.0	54.0	36		36	39.0	81.0	48		48	52.0	108.0	54		54	58.5	121.5				65.0	135.0				13.0	27.0				26.0	54.0				39.0	81.0				52.0	108.0				78.0	162.0				104.0	216.0				117.0	243.0				130.0	270.0
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Modulation Technology	Orthogonal Frequency Division Multiplexing (OFDM), Direct Sequence Spread Spectrum (DSSS)																																																																																										
Network Types	Infrastructure and Ad-hoc																																																																																										
Operating Frequency	802.11b/g (2412 ~ 2484 MHz)		802.11a Mid (5180 ~ 5700 MHz)																																																																																								
	802.11a Low(4900 ~ 5080 MHz)		802.11a HI (5745 ~ 5925 MHz)																																																																																								



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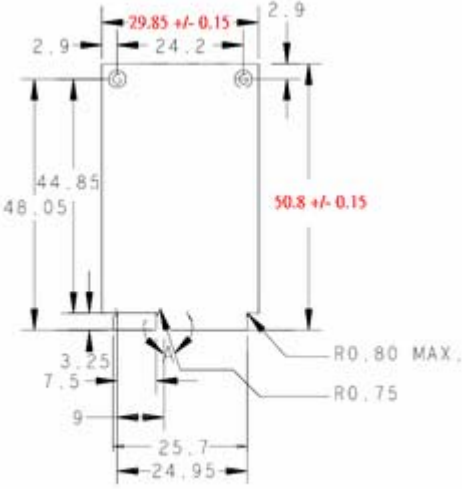
Operating Channels	11b/g/n(20MHz)		11a/n(20MHz)					
	2.4G Band		5GHz Lo Band		5GHz Mid Band		5GHz HI Band	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
	1	2412	180	4900	36	5180	149	5745
	2	2417	184	4920	38	5190	153	5765
	3	2422	188	4940	40	5200	157	5785
	4	2427	192	4960	44	5220	161	5905
	5	2432	196	4980	48	5240	165	5925
	6	2437	200	5000	52	5260		
	7	2442	204	5020	56	5280		
	8	2447	208	5040	60	5300		
	9	2452	212	5060	64	5320		
	10	2457	216	5080	100	5500		
	11	2462			104	5520		
	12	2467			108	5540		
	13	2472			112	5560		
	14	2484			116	5580		
					120	5600		
					124	5620		
					128	5640		
					132	5660		
					136	5680		
					140	5700		

11n (40MHz)		
Control Channel		Frequency (MHz)
Extension=1	Extension=-1	
1	5	2422
2	6	2427
3	7	2432
4	8	2437
5	9	2442
6	10	2447
7	11	2452
36	40	5190



	<table border="1"> <tr><td>44</td><td>48</td><td>5230</td></tr> <tr><td>52</td><td>56</td><td>5270</td></tr> <tr><td>60</td><td>64</td><td>5310</td></tr> <tr><td>100</td><td>104</td><td>5510</td></tr> <tr><td>108</td><td>112</td><td>5550</td></tr> <tr><td>116</td><td>120</td><td>5590</td></tr> <tr><td>124</td><td>128</td><td>5630</td></tr> <tr><td>132</td><td>136</td><td>5670</td></tr> <tr><td>149</td><td>153</td><td>5755</td></tr> <tr><td>157</td><td>161</td><td>5795</td></tr> </table>	44	48	5230	52	56	5270	60	64	5310	100	104	5510	108	112	5550	116	120	5590	124	128	5630	132	136	5670	149	153	5755	157	161	5795
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RF Output Power	<p>15 +/- 1.5dBm (2.4G, b/g mode) 18 +/- 1.5dBm (2.4G, n mode) 11 +/- 2dBm (5G, a mode) 14 +/- 2 dBm (5G, n mode) at normal temp. range</p>																														
Sensitivity	<p>-52dBm @270Mbps -74dBm @54Mbps -87dBm @11Mbps -96dBm @ 1Mbps at normal temp. range</p>																														
Antenna Connectors	3 I-PEX U.FL RF connectors																														
Power Consumption	<table border="1"> <thead> <tr> <th></th> <th>Tx (mA)</th> <th>Rx (mA)</th> </tr> </thead> <tbody> <tr> <td>802.11b</td> <td>520</td> <td>520</td> </tr> <tr> <td>802.11g</td> <td>545</td> <td>520</td> </tr> <tr> <td>802.11a</td> <td>535</td> <td>540</td> </tr> <tr> <td>draft 11n(20MHz) 2.4GHz</td> <td>730</td> <td>520</td> </tr> <tr> <td>draft 11n(40MHz) 2.4GHz</td> <td>750</td> <td>615</td> </tr> <tr> <td>draft 11n(20MHz) 5GHz</td> <td>740</td> <td>630</td> </tr> <tr> <td>draft 11n(40MHz) 5GHz</td> <td>750</td> <td>630</td> </tr> </tbody> </table>		Tx (mA)	Rx (mA)	802.11b	520	520	802.11g	545	520	802.11a	535	540	draft 11n(20MHz) 2.4GHz	730	520	draft 11n(40MHz) 2.4GHz	750	615	draft 11n(20MHz) 5GHz	740	630	draft 11n(40MHz) 5GHz	750	630						
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Security	64/128-bit WEP, WPA, WPA2, TKIP, AES, WPA-PSK, WPA2-PSK, 802.1x																														
Windows XP Compatibility	Native support for all built-in WLAN functions, like Zeroconfig, Media Sense and 802.1x																														
Driver Support OS	Windows 2000, Windows XP and Windows Vista.																														



Radio Transmitter Disable Switch	RF_disable# (input signal, pin 20)
Mechanical Dimension	 <p style="text-align: right;">unit: mm</p>
Regulatory	<p>USA FCC Canada CE (R&TTE) Bulgaria Norway Japan South Korea MIC Taiwan NCC Argentina Australia Bosnia & Herzegovina China Israel Montenegro New Zealand Saudi Arabia South Africa</p>
Environment	All components are RoHS complaint

*Note: The maximum wireless signal rate is IEEE802.11n draft specifications. Actual throughput will vary depending on the wireless environment and other parameters

**Pin Definitions**

PIN #	Pin Name (In mini PCIe spec)	Additional Description
1	WAKE#	<i>As in the MiniPCIE Specification.</i>
2	3.3V	<i>As in the MiniPCIE Specification.</i>
3	Reserved	<i>Reserved for WLAN & BT coexistence</i>
4	GND	<i>As in the MiniPCIE Specification.</i>
5	Reserved	<i>Reserved for WLAN & BT coexistence</i>
6	1.5V	<i>No Connect.</i>
7	CLKREQ#	<i>As in the MiniPCIE Specification.</i>
8	UIM_PWR	<i>No Connect.</i>
9	GND	<i>As in the MiniPCIE Specification.</i>
10	UIM_DATA	<i>No Connect.</i>
11	REFCLK-	<i>As in the MiniPCIE Specification.</i>
12	UIM_CLK	<i>No Connect.</i>
13	REFCLK+	<i>As in the MiniPCIE Specification.</i>
14	UIM_RESET	<i>No Connect</i>
15	GND	<i>As in the MiniPCIE Specification.</i>
16	UIM_VPP	<i>No Connect.</i>
17	Reserved(UIM_C8)	<i>No Connect</i>
18	GND	<i>As in the MiniPCIE Specification.</i>
19	Reserved(UIM_C4)	<i>No Connect</i>
20	W_DISABLE#	<i>No Connect</i>
21	GND	<i>As in the MiniPCIE Specification.</i>
22	PERST#	<i>As in the MiniPCIE Specification.</i>
23	PERn0	<i>As in the MiniPCIE Specification.</i>
24	+3.3Vaux	<i>No Connect</i>
25	PERnp0	<i>As in the MiniPCIE Specification.</i>
26	GND	<i>As in the MiniPCIE Specification.</i>
27	GND	<i>As in the MiniPCIE Specification.</i>
28	1.5V	<i>No Connect</i>
29	GND	<i>As in the MiniPCIE Specification.</i>
30	SMB_CLK	<i>Useless</i>
31	PETn0	<i>As in the MiniPCIE Specification.</i>
32	SMB_DATA	<i>Useless</i>
33	PETp0	<i>As in the MiniPCIE Specification.</i>



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PIN #	Pin Name (In mini PCIe spec)	Additional Description
34	GND	<i>As in the MiniPCIE Specification.</i>
35	GND	<i>As in the MiniPCIE Specification.</i>
36	USB_DN	<i>No Connect</i>
37	Reserved	<i>As in the MiniPCIE Specification.</i>
38	USB_DP	<i>No Connect</i>
39	Reserved	<i>As in the MiniPCIE Specification.</i>
40	GND	<i>As in the MiniPCIE Specification.</i>
41	Reserved	<i>As in the MiniPCIE Specification.</i>
42	LED_WWAN#	<i>As in the MiniPCIE Specification.</i>
43	Reserved	<i>As in the MiniPCIE Specification.</i>
44	LED_WLAN#	<i>As in the MiniPCIE Specification.</i>
45	Reserved	<i>No Connect</i>
46	LED_WPAN#	<i>As in the MiniPCIE Specification.</i>
47	Reserved	<i>No Connect</i>
48	1.5V	<i>As in the MiniPCIE Specification.</i>
49	Reserved	<i>No Connect</i>
50	GND	<i>As in the MiniPCIE Specification.</i>
51	Reserved	<i>No Connect</i>
52	3.3V	<i>As in the MiniPCIE Specification.</i>