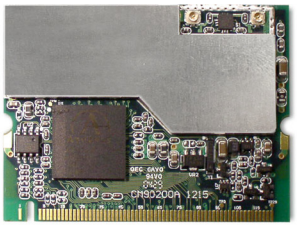
802.11 a/b/g 108Mbps wifi mini-PCI module, MB42/AR5213A+AR5112

Model: CM9-GP



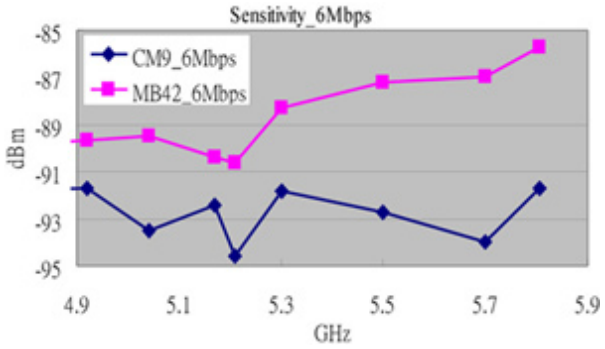
CM9-GP is an IEEE802.11a/b/g 108Mbps wifi mini-PCI module in type IIIB form factor designed specifically for integration in performance-critical applications. Providing 108Mbps connection speed, reliability, security, and low power consumption required for business-critical applications, CM9-GP is a feature-rich full size mini-PCI. It is ideal for embedding into new or existing ergonomic devices such as notebooks, APs, and application-specific devices (ASDs) used in vertical market.

Key Features:

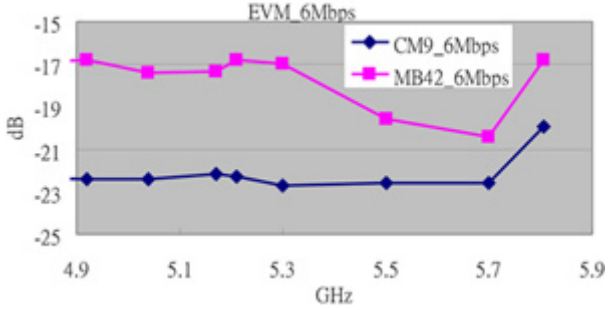
- Mini-PCI Type IIIB form factor is ideal for embedding into new or existing performance-critical applications.
- Windows 98SE/ME/2000/XP/NT4.0 SP6/Linux driver and comprehensive client utility supports provide immediate 11a/b/g wifi and management capability.
- Supported by MADWiFi providing Linux kernel drivers for industrial, academic, or personal projects at highest flexibility and lowest cost.
- Supports universal 802.11a/11g/11b auto fallback data rate and seamless roaming among 802.11a, 802.11b, and 802.11g multiple AP wifi networks.
- SuperA/G supports data rate up to 108 Mbps in 802.11a turbo mode and 802.11g super mode; 54 Mbps in standard 802.11a and 802.11g mode
- Off/normal/maximum power management options minimize system power consumptions.
- Country code selector provides flexibility to change regulatory domains.
- Hardware radio on/off mechanism support provides highest design flexibility for integrators.
- Hardware encryption of WEP/WPA/WPA2 security is ideal for performance-critical devices.
- Supports WEP/WPA/WPA2, IEEE802.1x (EAP-TLS, EAP-PEAP, LEAP), and LEAP/CCX3.0 providing advanced level of LAN security.
- Supports eXtended Range (XR) technology improves wireless coverage.
- Dual Hirose U.FL antenna connectors enable transmit and receive diversity for flexible RF design.
- REACH (EC 1907/2006) and RoHS compliance ensure a high level protection of human health and the environment from risks that can be posed by chemicals.

Higher Performance than MB42 Reference Design:

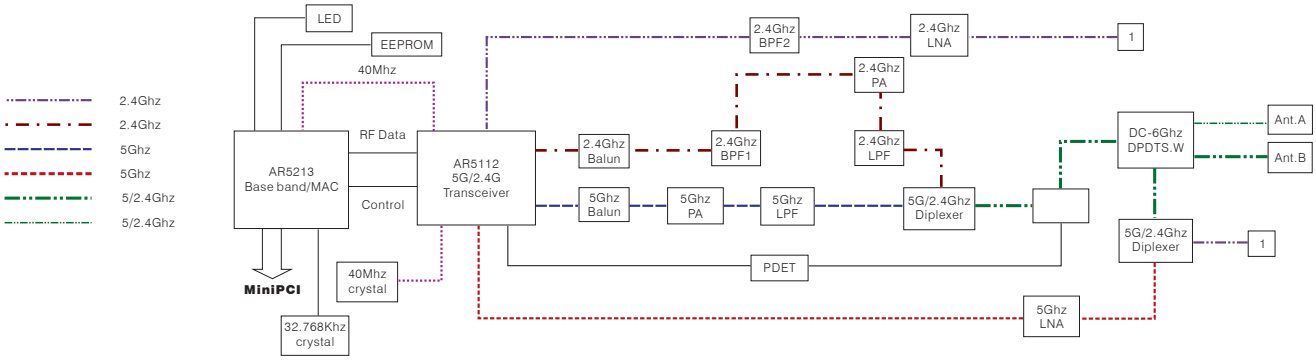
- becomes an industry standard of WiFi MiniPCI module.
- 6dB sensitivity improvement than standard' MB42 design.



- 5dB EVM improvement than standard MB42 design to provide stable quality on Tx signal.

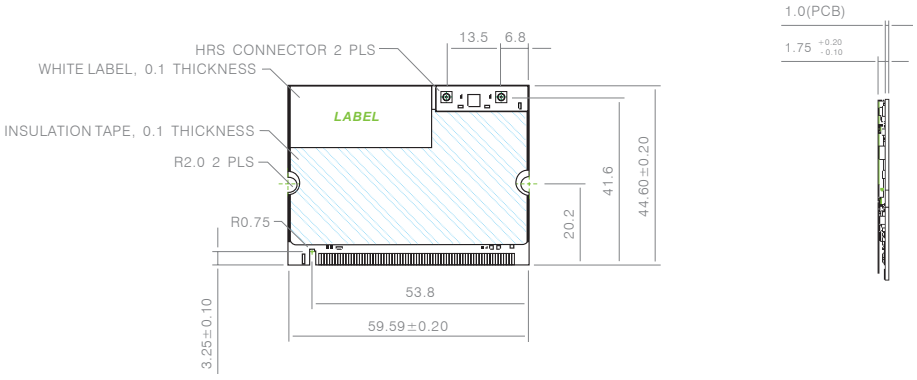


Hardware Block Diagram



Mechanical Outline

Unit: mm



Specifications:	
Standard Conformace	IEEE 802.11a, 802.11b, 802.11g
Frequency Range	▪ USA/Canada: 2.400~2.483GHz, 5.15~5.35GHz, 5.725~5.825GHz ▪ Europe: 2.400~2.483GHz, 5.15~5.34GHz, 5.47~5.725GHz ▪ Japan: 2.400~2.483GHz, 4.90~5.091GHz, 5.15~5.25GHz ▪ China: 2.400~2.483GHz, 5.725~5.85GHz
Interface	32-bit mini-PCI Type IIIB
Operation Voltage	3.3V +/-5%
Modulation Technique	▪ 802.11a: OFDM with BPSK, QPSK, QAM, 64QAM ▪ 802.11b: DSSS with DBPSK, DQPSK, and CCK ▪ 802.11g: OFDM and DSSS
Data Rate	▪ 802.11a (Normal mode): 54, 48, 36, 24, 18, 12, 9, 6Mbps, auto-fallback ▪ 802.11a (Turbo mode): 108,96,72,48,36,24,18,12 Mbps, auto-fallback ▪ 802.11b/g: 11, 5.5, 2, 1 Mbps, auto-fallback, up to 54 Mbps ▪ 802.11g (Super mode): up to 108 Mbps
Operating Channels	▪ 802.11a ▫ US/Canada: 12 non-overlapping channels ▫ Europe: 19 non-overlapping channels ▫ Japan: 4 non-overlapping channels and 7 non-overlapping ▫ China: 5 non-overlapping channels(5.725~5.85GHz) ▪ 802.11b/g ▫ US/Canada: 1~11 ▫ Major European Countries: 1~13 ▫ France: 10~13 ▫ Japan: 11b: 1~13 or 14, 11g: 1~13 ▫ China: 1~13
Power Consumption	**802.11a** / **802.11b** / **802.11g** **FTP Tx**: 360~410mA / 430~470mA / 350~400mA **FTP Rx**: 310~350mA / 310~350mA / 310~350mA **Standby mode**: 270~310mA / 250~290mA / 280~320mA **Power saving mode**: 20mA (typical)~40mA(max) **RF 0ff**: 20mA (typical)~40mA(max)
Transmit Power Settings	▪ 802.11a: 18 dBm @6Mbps, 12 dBm @54Mbps ▪ 802.11b: 19 dBm ▪ 802.11g: 19 dBm @6Mbps, 14 dBm @54Mbps
Operating Range (subject to environment and antenna)	▪ 802.11a ▫ Outdoor: over 350m@6Mbps ▫ Indoor: 35~100m@6Mbps ▪ 802.11b ▫ Outdoor: over 350m@11Mbps ▫ Indoor: 35~100m@11Mbps ▪ 802.11g ▫ Outdoor: over 350m@6Mbps ▫ Indoor: 35~100m@6Mbps
Receive Sensitivity	▪ 802.11a ▫ -67 dBm@54 Mbps ▫ -87 dBm@6 Mbps ▪ 802.11b ▫ -87 dBm@11 Mbps ▫ -94 dBm@1 Mbps ▪ 802.11g ▫ -70 dBm@54 Mbps ▫ -87 dBm@6 Mbps
Antenna	two UFL ultra-miniature coaxial antenna connections for diversity receive at both 2.4GHz and 5 GHz. Use Hirose pigtail to connect to a standard antenna.
MAC Protocol	CSMA/CA with ACK architecture 32-bit MAC
Security	▪ 64-bit, 128-bit, 152-bit WEP Encryption ▪ 802.1x Authentication ▪ AES-CCM & TKIP Encryption ▪ WPA, WPA2 ▪ Cisco CCX
Operation Mode	Infrastructure & Ad-hoc mode

Specifications:	
Operation Systems Supported	Windows 98 SE, Windows Me, Windows 2000, Windows XP, NT4.0 SP6, Linux
WHQL	Windows XP (Windows 2000 support)
Dimension/Weight	▪ Size: 59.75mm(L) x 44.60mm (W) x 5.00mm (H) ▪ Weight: 11g/1pcs
Storage Temperature Range	-20°C ~ 80°C
Operation Temperature Range	0°C ~ 70°C
EMC Certificate	FCC part 15 (USA), ETSI, EN301893, EN60950 (Europe), Telec (Japan) with multiple e-antenna.
Human Health & Environment-Friendly Compliance	REACH and RoHS

Ordering Information:	
CM9-GP	802.11 a/b/g 108Mbps wifi mini-PCI module, MB42/AR5213A+AR5112