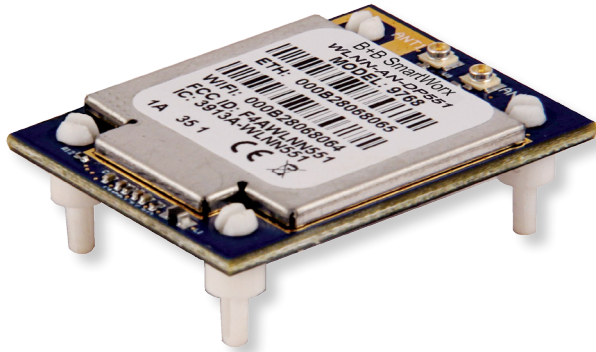


Secure, Rugged Wi-Fi Embedded OEM open board modules

BB-WLNN-xx-DP551 model series

ADVANTECH

www.advantech.com



PRODUCT FEATURES

- Quick time to market and reduced integration costs
- 802.11a/b/g/n Wi-Fi (2.4 GHz, 5 GHz)
- Airborne PowerSave firmware reduces power consumption and extends battery life in mobile devices
- Extended operating temperature range (-40 to +85°C) and environmental specifications
- AirborneM2M SpeedLink roaming provides enhanced connection reliability
- Advanced Enterprise Class wireless security
- AirborneM2M PortFlex capability enables any combination of COM ports (UART, SPI, GPIO, Ethernet and 802.11 interfaces)
- FCC Part 15 Class B Sub C Modular Approval minimizes regulatory requirements
- Backwards compatible with previous generations of AirborneM2M embedded modules

AirborneM2M™ Embedded Dual Band Wireless Device Server and Ethernet Solution Modules Serial & Ethernet to 802.11a/b/g/n (2.4 GHz, 5 GHz)

The AirborneM2M line of highly-integrated 802.11 wireless modules allows OEMs to Wi-Fi enable devices used in a variety of machine-to-machine (M2M) applications. Advantech delivers all the necessary RF technology, networking stacks and advanced security features in a compact, single-board package, reducing integration costs for OEMs and providing a quick time to market.

Big Performance in Small, Ruggedized Package

The AirborneM2M series provides the industry's most rugged, highly-integrated, embedded WiFi module solution. AirborneM2M modules meet extended operating temperature specifications of the most demanding M2M applications.

Utilizing a 32-bit ARM9 processor and high-performance Atheros AR6203 802.11 radio, AirborneM2M modules deliver increased transmit power and receive sensitivity contributing to superior range performance.

SpeedLink™ Roaming

AirborneM2M SpeedLink roaming feature provides enhanced connection reliability, enabling OEM devices to roam freely within a wireless network without loss of data or connection.

Flexible & Easy to Integrate

AirborneM2M incorporates support for both serial and Ethernet to WiFi 802.11 2.4 or 5 GHz communications. Utilizing AirborneM2M PortFlex capability, OEMs can configure via software any combination of UART, SPI, Ethernet, GPIO and 802.11 interfaces. Each individual port can be independently configured. A development kit is also available to aid developers (sold separately).

The AirborneM2M modules are footprint and pin compatible with their predecessors. Our commitment to maintaining hardware and software compatibility assures OEMs of a simple, future-proof migration path even as wireless technology evolves.

Enterprise Class Security

Security protocols are important to mission-critical wireless M2M applications. The AirborneM2M multi-layered security approach addresses the requirements of enterprise-class networks and corporate IT departments. These advanced security features include wireless security (801.11i/WPA2 Enterprise); network security (EAP authentication and certificate support); communication security (SSH functionality and fully encrypted data tunnels); and device security (multi-level encryption capability to protect configuration data).

ORDERING INFORMATION

| MODEL NUMBER | DESCRIPTION |
|------------------|--|
| BB-WLNN-ER-DP551 | 802.11a/b/g/n, 10/100 Ethernet Router (NAT Level 3), Advanced Enterprise Security |
| BB-WLNN-AN-DP551 | 802.11a/b/g/n, UART Interface, Advanced Enterprise Security |
| BB-WLNN-SE-DP551 | 802.11a/b/g/n, Serial Device Server, UART with RS-232/422/485 Driver Control, Advanced Enterprise Security |
| BB-WLNN-SP-DP551 | 802.11a/b/g/n, SPI Interface, Advanced Enterprise Security |
| BB-WLNN-EK-DP551 | Design and Development Kit |

ACCESSORIES - sold separately

- BB-ACH2-DBAT-DP002 - 2dBi Portable (rubber duck), 2.4/5GHz Antenna
- BB-ACH2-DBAT-DP003 - 3.8/5.5dBi Portable (rubber duck), 2.4/5GHz Antenna
- BB-ACH0-CA-DP003-G - Airborne Ethernet Cable, RJ-45 to Hirose Connector

All product specifications are subject to change without notice.
BB-WLNN-xx-DP551_EthernetDualBand-WiFiModules_1319ds

ADVANTECH

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SPECIFICATIONS

| TECHNOLOGY | | |
|-------------------------------------|---|--|
| Technology | IEEE 802.11a/b/g/n, Wi-Fi Compliant | |
| Frequency | 2.4 ~ 2.4835 GHz (US/Canada/Europe) 5.150 ~ 5.350 GHz 5.725 ~ 5.825 GHz | |
| Modulation Technology | DSSS, CCK, OFDM | |
| Modulation Type | DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM | |
| Network Access Modes | Infrastructure (Client), Ad Hoc | |
| Channels | US/Canada: 11 Channels 802.11b/g 13 Channels 802.11a | |
| | Europe: 13 Channels 802.11b/g 19 Channels 802.11a | |
| | France: 4 Channels 802.11b/g | |
| | Japan: 14 Channels 802.11b 13 Channels 802.11g 23 Channels 802.11a | |
| | Wireless Data Rate | 802.11b: 11, 5.5, 2, 1 Mbps 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: 65, 58.5, 42, 39, 26, 19.5, 13, 6.5 Mbps |
| | MAC | CSMA/CA with ACK, RTS, CTS |
| | Network Protocols | TCP/IP, ARP, ICMP, DHCP, DNS, UDAP, TFTP, UDP, PING |
| Receive Sensitivity - 802.11 b/g | 54Mb/s = -72 dBm 36Mb/s = -78 dBm 18Mb/s = -84 dBm 6Mb/s = -89 dBm 11Mb/s = -86 dBm 1Mb/s = -92 dBm | |
| | 54Mb/s = -74 dBm 36Mb/s = -80 dBm 18Mb/s = -86 dBm 6Mb/s = -90 dBm | |
| Receive Sensitivity - 802.11 a | 802.11b = 15 dBm 802.11g = 12.6 dBm 802.11a = 17 dBm | |
| Transmit Power - 802.11a/b/g | Disabled, WEP 64 & 128bit, WPA (TKIP), WPA (AES), WPA2 (AES), 802.1x (EAP) Supplicant 802.11i, WPA & WPA2 Enterprise supplicants (EAP-TLS, EAP-TTLS(MSCHAPv2), EAPTTLS(MD5), EAP-PEAPv0(MSCHAPv2, LEAP), EAP-FAST, LEAP) Supports Certificates and Private Key Upload and Storage (Multiple) | |
| Antenna | Two (2) U.FL Coaxial Connectors, 50 Ohms Maximum Gain @ 5 GHz = 5.5 dBi Maximum Gain @ 2.4 GHz = 4.1 dBi | |
| Supply | 3.3 VDC +/-5%, 650 mA (maximum) | |
| Supply In-rush Current | 1500 mA (maximum) for 400us | |
| DC Characteristics | Operating Current (Tx, 802.11g) = 370 mA (typical) Operating Current (Rx, 802.11g) = 200 mA (typical) | |
| Environmental | Operating Temperature: -40 to +85 °C Storage Temperature: -40 to +85 °C Relative Humidity: 5 to 95%, non-condensing | |
| Interfaces | Dual UART (960K baud), RS-232/422/485, SPI (1-bit/8 MHz), 10/100 Ethernet, PortFlex | |
| Digital I/O | 8 GPIO | |
| LED Indicators | 4 Indicator LED Signals (RF ACT, POST, CONNECT, RF LINK), Signal Strength | |
| Connector | 36-pin High Density SMT connector from Hirose (DF12-36DS-0.5V), 4mm Height | |
| MEANTIME BETWEEN FAILURES (MTBF) | | |
| MTBF | 524380 hours (all models) | |
| MTBF Calc Method | MIL 217F (Parts Count Reliability Prediction) | |

APPROVALS, DIRECTIVES, STANDARDS

| | |
|--------------------------|--|
| North America | FCC Title 47 Part 15 Class B Sub C Intentional Radiator |
| CE - Directives (Europe) | 2014/35/EU - Low Voltage Directive 2014/53/EU - Radio Equipment Directive (RED) Hereby, Advantech Advantech declares that the radio equipment type Wi-Fi module is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.advantech-bb.com 2011/65/EU - Reduction of Hazardous Substances Directive (RoHS) 2012/19/EU - Waste Electrical & Electronic Equipment Directive (WEEE) |
| CE - Standards (Europe) | EMC: ETSI EN 300 328 v2.1.1 - EMC & Radio Spectrum Matters (ERM) Wideband Transmission Systems - 2.4 GHz ISM Band ETSI EN 301 893 v2.1.1 - EMC & Radio Spectrum Matters (ERM) Wideband Transmission Systems - 5 GHz ISM Band ETSI EN 301 489-1 v2.1.1 - Applied in accordance with the specific requirements of: ETSI EN 301 489-17 v3.1.1 - EMC & Radio Spectrum Matters: Broadband Data Systems EN 55032+AC, Class A - Information Technology Equipment - RF Emissions EN 55024 - Information Technology Equipment - Immunity Characteristics - Limits and Methods of Measurement Safety: EN 60950-1 + A1 + A11 + A12 + A2 - Information Technology Equipment - Safety - Part 1: General Requirements RF Exposure: EN 62311 - Assessment of electronic and electrical equipment related to human exposure restrictions for EM fields (0 Hz to 300 GHz) |