SD-Link11n User Manual

\<Product Name\>
IEEE802.11b/g/n SDIO Wireless LAN Card

\<Model Name\>
SD-Link11n

\<Brand\>
d-broad

\<Product Feature\>
SD-Link11n is a SDIO combo card which supports Wireless LAN Standard (IEEE802.11b/g/n 2.4GHz Single-Band) and implements microSD Memory card connector on the card.
One of Key Technologies is to work both SDIO (11n-WiFi) and microSD Memory card as SDIO Combo Card by SD Shard Bus.
The host system requires only 1 slot of SD connector to support both Wireless LAN and storage functions with lower cost and saves product space.

\<Brief Specification\>

Standard	Wireless LAN: IEEE 802.11n Compliant（2.4GHz Single stream） Host Interface: SDIO Specification Version 2.0 Compliant（SDIO 1bit & 4bit Mode）				
Power Supply	Normal mode 3.0V – 3.6V / High speed mode 3.15V – 3.6V				
Connection	Infrastructure Mode / Ad-Hoc Mode				
Channel & Frequency	Japan	US	Canada	EU	Taiwan
	1-13ch	1-11ch	1-11ch	1-13ch	1-11ch
	2412-2472MHz	2412-2462MHz	2412-2462MHz	2412-2472MHz	2412-2462MHz
Modulation	OFDM with BPSK, QPSK, 16-QAM, and 64-QAM 802.11b with CCK and DSSS				
Data Rate	802.11n: 6.5, 13, 19.5, 26, 39, [52], [58.5], [65] Mbps（HT 20MHz Mode Only） 802.11g: 6, 9, 12, 18, 24, 36, 48, [54] Mbps 802.11b: 1, 2, 5.5, 11 Mbps ※[ ]：High speed mode				
802.11n Features	MCS 0-7, STBC, RIFS, Greenfield Protection A-MPDU, A-MSDU Aggregation with Block-ack, PSMP, and MTBA				
Security	WEP, TKIP, AES, WPA/WPA2-PSK				
Wireless LAN Set-up	support WPS (WiFi Protected Setup)（Optional）				
Power Consumption (Reference) (Excluding SD Memory)	Typical: Tx: 220mA (802.11n 65Mbps Packet) @ 3.3V Typical: Rx: 165mA (802.11n 65Mbps Packet) @ 3.3V				
Supporting OS	RTOS for embedded System (Linux, WinCE, uITRON, etc)				
Radio Certification	Japan (TELEC), US (FCC), Canada (IC), EU Countries (CE), Taiwan (NCC)				
Card Size／Weight	41.16mm x 24mm x 2.1mm / 5g				
Others	RoHS Compliant				

\<System (Host) Requirement\>
1) Hardware
SD-Link11n is targeting any kinds of embedded product such as digital still camera, digital video camera, Projector, Printer, Handy Terminal, Sensor Networking equipment ,etc.
SD-Link11n requires SDIO Host controller such as SDIO Supported CPU, SoC or ASIC and a SD slot on PCB.

2) Software
SD-Link11n and wireless LAN solution require below software drivers, middleware and applications (Please see software structure)
- **SD/SDIO host driver (if card is combo, host driver has to be COMBO supported)**
- **SD-Link11n card driver**
- SD memory driver (if card is combo)
- File System (if card is combo)
- Network Protocol Stack
- Product application

Note:
d-broad supports porting work for SD/SDIO host driver and SD-Link11n card driver.
Supporting OS: RTOS (Linux, ITRON, WinCE, etc) *Windows XP is prepared only for manufacturing or RF test purpose)

<Example of Software Structure>
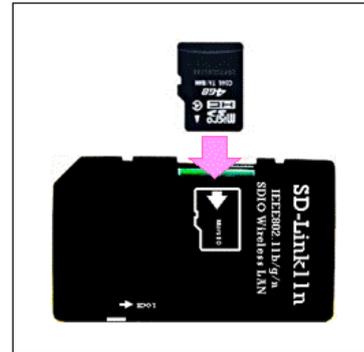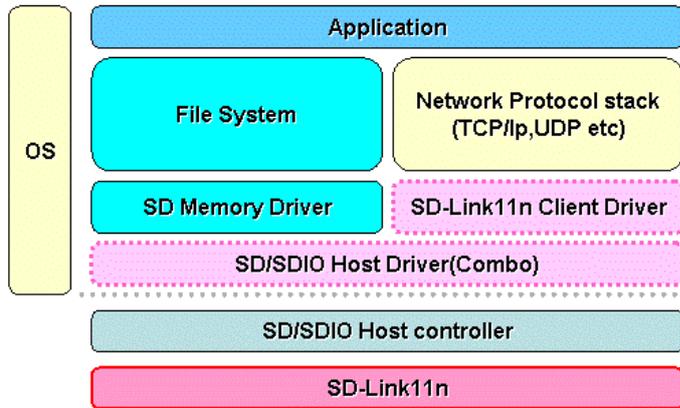
[Product Image]

<Target Application> DSC, DVC, Video Projector, Printer, Handy Terminal, Sensor Networking equipment etc.

<Product Safety Notice>

1) Federal Communication Commission Interference Statement:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.   This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.   However, there is no guarantee that interference will not occur in a particular installation.   If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

The product comply with the US/Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual.   The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

2) Industry Canada statement:

This device complies with RSS-210 of the Industry Canada Rules.   Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

IMPORTANT NOTE:

Radiation Exposure Statement:

The product comply with the US/Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual.   The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

Déclaration d'exposition aux radiations:

Le produit est conforme aux limites d'exposition pour les appareils portables RF pour les Etats-Unis et le Canada établies pour un environnement non contrôlé.

Le produit est sûr pour un fonctionnement tel que décrit dans ce manuel. La réduction aux expositions RF peut être augmentée si l'appareil peut être conservé aussi loin que possible du corps de l'utilisateur ou que le dispositif est réglé sur la puissance de sortie la plus faible si une telle fonction est disponible.

3) NCC Statement:

根據 NCC 低功率電波輻射性電機管制辦法：

第十二條：

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條：

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。