

# SKW75 2x2 MIMO WLAN

## Module Datasheet

**Name: 802.11b/g/n 2x2 MIMO WiFi AP/Router Module**

**Model No.: SKW75**

**Revision: V3.04**

### Revision History

Revision	Description	Approved	Date
V1.01	Initial Release	George	20130928
V2.01	Add Ordering Information	George	20140215
V3.01	Redefine pin Description	George	20140506
V3.02	Update Ordering Information	George	20150721
V3.03	Update photo Information	George	20150723
V3.04	Add GPIO Information And Update Ordering Information,	George	20150923

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## 1. General Description

The SKW75 module includes an 802.11n MAC and baseband, a 2.4GHz radio and FEM, a 580MHz MIPS CPU, a 5-port 10/100 fast Ethernet switch. Solution for low power, low-cost, and highly integrated AP router and consumer electronic devices, the module requires only an external 3.3V power supply. It supports 802.11n operating up to 144 Mbps for 20 MHz and 300 Mbps for 40 MHz channel respectively, and IEEE 802.11b/g data rates. The module supports bridge mode and AP Client mode and Gateway mode. The high performance Module can process advanced applications effortlessly, such as routing and security. It also includes a selection of interface to support a variety of applications, such as a USB port for accessing external storage and 3G/TLE modem.

## 2. Applications

- ◆ USB WiFi Camera
- ◆ WiFi Gateway
- ◆ WiFi AP
- ◆ 3G/4G WiFi Router
- ◆ WiFi AP client
- ◆ Building Automation
- ◆ Home Automation
- ◆ Industry Control

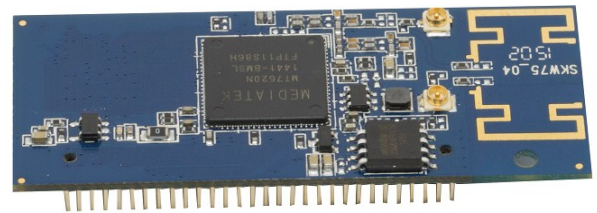


Figure 1: SKW75 Top View

## 3. Features

- ◆ Compliant to IEEE 802.11b/g/n.
- ◆ 2T2R mode with support for a 300Mbps PHY data rate.
- ◆ DDR2 memory up to 512Mb.
- ◆ Flash memory up to 128Mb.
- ◆ 4 LAN ports and 1 WAN port.
- ◆ Support USB 2.0 slave device for USB disk and USB 3G/4G dongle and USB camera.
- ◆ Support SD card.
- ◆ Security: WEP64/128, TKIP, AES, WPA, WPA2, WAPI.
- ◆ Support AP/Client/Router mode.
- ◆ RoHS compliance meets environment-friendly requirement.
- ◆ FCC/CE certified.
- ◆ 55.0mm(L) x 23.0mm(W) x 9.0mm(H) dimension.

## 4. Application Block Diagram

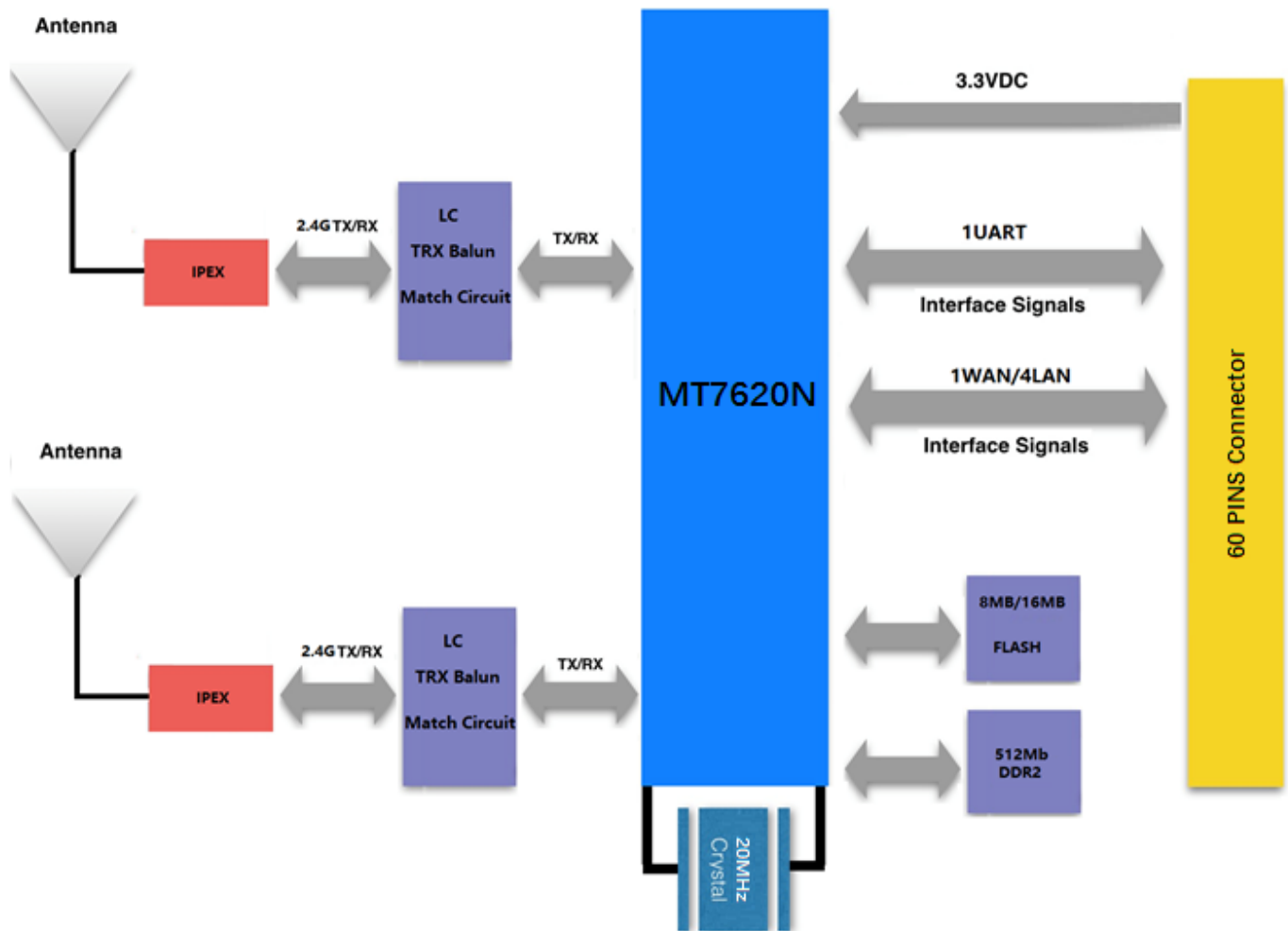


Figure 2: SKW75 Block Diagram

## 5. Interfaces

### USB

The USB interface support USB slave devices for USB disk and USB 3G/4G dongle and USB camera.

### WAN/LAN

The SKW75 module integrates 5-port 10/100Mbps fast Ethernet switch.

## 6. Module Specifications

Hardware Features	
Model	SKW75
Antenna Type	IPEX
Chipset solution	
Voltage	3.3V±10%
Dimension(L×W×H)	55.0mm*23.0mm*9.0mm
Wireless Features	
Wireless Standards	IEEE 802.11b/g/n
Frequency Range	2.412GHz--24.884 GHz
Data Rates	IEEE 802.11b : 1,2,5.5,11Mbps
	IEEE 802.11g : 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n : MCS0--MCS7 @ HT20
	MCS0--MCS7 @ HT40
Receiver Sensitivity	HT40 MCS7 : -70dBm@10% PER(MCS7)
	HT20 MCS7 : -73dBm@10% PER(MCS7)
	54M: -77dBm@10% PER
	11M: -89dBm@ 8% PER
Modulation Technique	DSSS (DBPSK, DQPSK, CCK)
	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
Wireless Security	WPA/WPA2, WEP, TKIP and AES, WPS2.0, WAPI
Transmit Power	IEEE 802.11n: 14dBm @HT20/40 MCS7
	IEEE 802.11g: 15dBm @54MHz
	IEEE 802.11b: 18dBm @11MHz
Work Mode	Bridge/Gateway/AP Client
Others	
Certification	RoHS
Environment	Operating Temperature: -20°C~55°C
	Storage Temperature: -40°C~125°C

	Operating Humidity: 10%~90% non-condensing
	Storage Humidity: 5%~90% non-condensing

## 7. Module Pinout and Pin Description

Module Pinout:

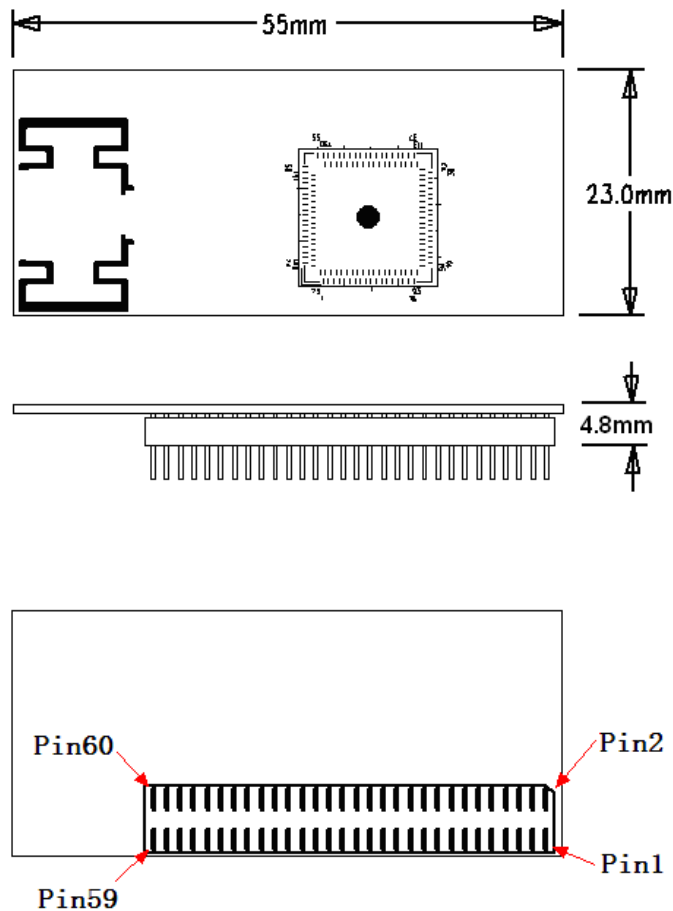


Figure 5: SKW75 Pin Package

**Pin Description:**

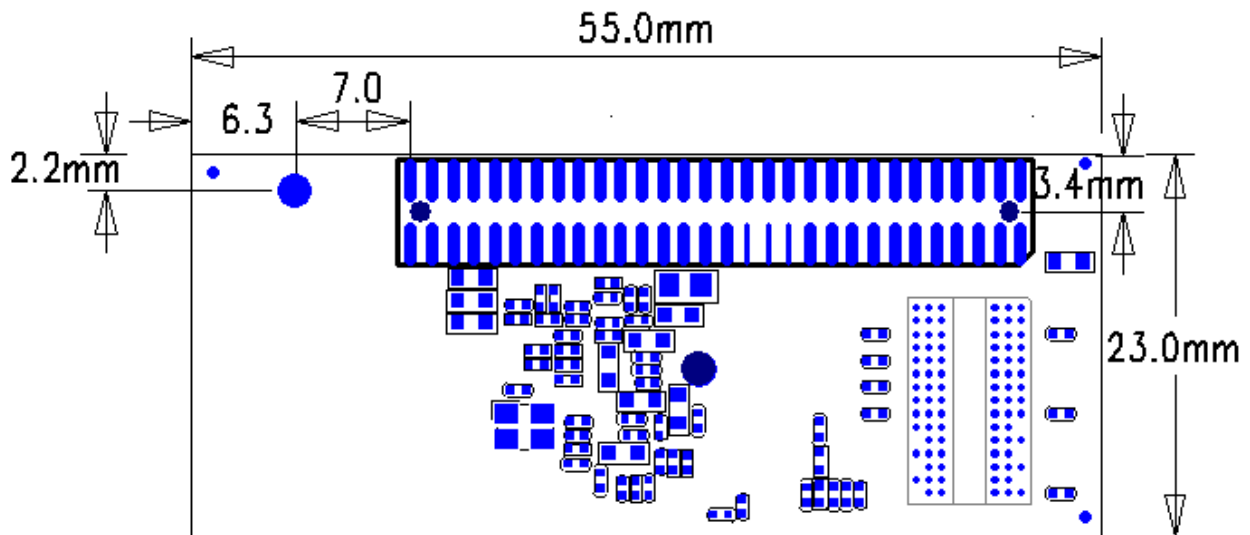
Pin No.	Pin name	Description
1	PORT1_RX+	Ethernet port
2	PORT1_TX+	Ethernet port
3	PORT1_RX-	Ethernet port
4	PORT1_TX-	Ethernet port
5	PORT2_RX+	Ethernet port
6	NC	No Connect
7	PORT2_RX-	Ethernet port
8	NC	No Connect
9	PORT2_TX+	Ethernet port
10	LINK2	Port #2 activity LED, GPIO#42
11	PORT2_TX-	Ethernet port
12	LINK3	Port #3 activity LED, GPIO#43
13	PORT 3_TX+	Ethernet port
14	LINK4	Port #4 activity LED, GPIO#44
15	PORT 3_TX-	Ethernet port
16	NC	No Connect
17	PORT 3_RX+	Ethernet port
18	NC	No Connect
19	PORT 3_RX-	Ethernet port
20	NC	No Connect
21	GND	Ground
22	VDD_3.3V	3.3V input 600mA, recommended voltage 3.3V, Min2.97V, MAX 3.63V
23	PORT0_RX+	Ethernet Wan port
24	NC	No Connect
25	PORT0_RX-	Ethernet Wan port
26	NC	No Connect

27	PORT0_TX+	Ethernet Wan port
28	NC	No Connect
29	PORT0_TX-	Ethernet Wan port
30	NC	No Connect
31	PORT4_RX+	Ethernet port
32	RESET	resets the firmware to its default configuration , GPIO#1
33	PORT4_RX-	Ethernet port :
34	WPS_PBC	WPS Input Pin, GPIO#2
35	PORT4_TX+	Ethernet port
36	USB +	USB signal, carries USB data to and from the USB 2.0 PHY
37	PORT4_TX-	Ethernet port
38	USB -	USB signal, carries USB data to and from the USB 2.0 PHY
39	GND	Ground
40	NC	No Connect
41	NC	No Connect
42	GPIO0	GPO0(output only)
43	NC	No Connect
44	RESET	resets the firmware to its default configuration, GPIO#1
45	GND	Ground
46	WPS_PBC	WPS Input Pin, GPIO#2
47	NC	No Connect
48	GND	Ground
49	NC	No Connect
50	VDD_3.3V	3.3V input 600mA, recommended voltage 3.3V,Min2.97V, MAX 3.63V
51	NC	No Connect
52	VDD_3.3V	3.3V input 600mA, recommended voltage 3.3V, Min2.97V, MAX 3.63V



53	LINK1	Port #1 activity LED, GPIO#41
54	LINK0	Port #0 activity LED, GPIO#40
55	WIRELESS_L	Wireless LED, GPIO#72
56	NC	No Connect
57	UART_TX	Serial data out, GPIO#15
58	UART_RX	Serial data in, GPIO#16
59	GND	Ground
60	GND	Ground

## 8. PCB Footprint and Dimensions



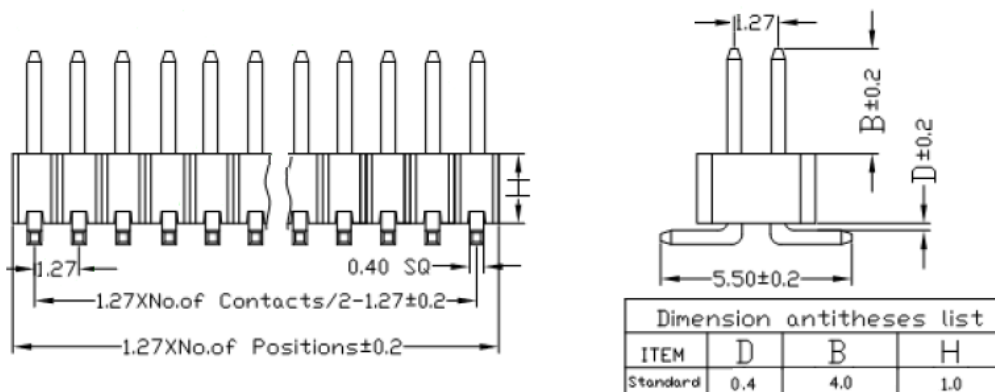


Figure 6: SKW75 Recommend PCB Footprint

## 9. Electrical Characteristics

### a) Absolute Maximum Ratings

Parameter	Condition	Min	Typ.	Max.	Unit
Storage temperature range		-40		125	°C
ESD Protection	VESD	/		2000	V
Supply voltage	VDD_3.3V	0		3.6	V
Voltage on any I/O pin		-0.3		3.63	V

Table9-1: Absolute Maximum Ratings

### b) Recommended Operation Ratings

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Extended temp.	TA	-20		55	°C
Power Supply	VDD_3.3V	2.97	3.3	3.63	V
Input Low Voltage	VIL	-0.3		0.8	V
Input High Voltage	VIH	2		3.63	V

Table9-2: Operating Conditions

### c) Measurement Conditions

System state	Current (Typ.)@3.3V
Standby	190 mA
Transmit (2.4g; +15 dBm @ TX HT20 MCS7.)	410 mA
Transmit (2.4g; +18 dBm @ 11b 11Mbps.)	460 mA

Table9-3: Power Consumption in Different States

## 10. Ordering Information

Module No.	Antenna Connector Type	SPI Flash Size
SKW75_E8	IPEX Connector	8M Bytes
SKW75_E16	IPEX Connector	16M Bytes

## 11. Contact Information

Skylab M&C Technology Co., Ltd.

深圳市天工测控技术有限公司

Address: 6 Floor, No.9 Building, Lijincheng Scientific & Technical park, Gongye East Road,  
Longhua District, Shenzhen, Guangdong, China

Phone: 86-755 8340 8210 ( Sales Support )

Phone: 86-755 8340 8510 ( Technical Support )

Fax: 86-755-8340 8560

E-Mail: sales1@skylab.com.cn

Website: www.skylab.com.cn      [www.skylabmodule.com](http://www.skylabmodule.com)