Product Specification

Product Name: Smart Gateway

Product Model: DSGW-090J

Revision History

Specification		Sect.	Update Description	By
Rev.	Date			
1.0	2023-12-12		New version release	Yu
1.1	2023-12-19		Change the LTE function	WX
1.2	2024-1-17		Add the description of WakeUp pin	WX
1.3	2024-5-16		Modify model and update parameters	YU

Approvals

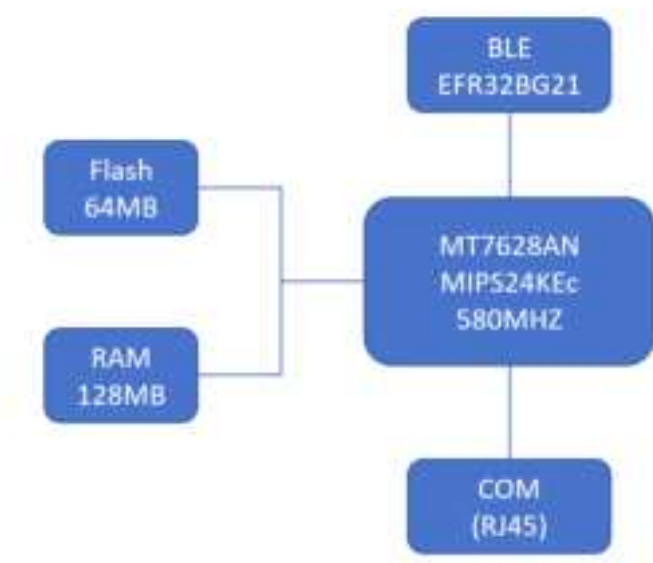| Organization	Name	Title	Date

Contents

1. Product Description

1.1. Purpose and Description

The DSGW-090J is a Smart Gateway utilized in smart healthcare, pension service applications and smart home systems. Serving as a central gateway, it supports various wireless protocols, including Wi-Fi 2.4G and BLE 5.2. This allows users to connect to the network through Wi-Fi. Additionally, it facilitates the integration of smart sensors by supporting their connection via its multi-protocol features.
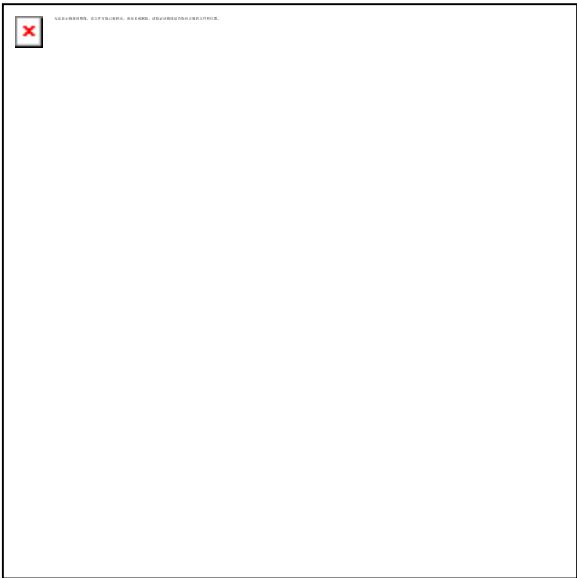
1.2. Product Feature Summary

- OS: OpenWrt
- USB 5V type C Power supply and 50-17V power supply through RJ45
- Processor: MT7628AN, MIPS24KEc, 580MHZ
- RAM: 128MB
- Flash:64MB
- Support IEEE802.11n, IEEE802.11g, IEEE 802.11b Protocol
- Support Bluetooth 5.2
- One RJ45 supports UART, Hardware Signal, Power supply

1.3. Hardware Block Diagram

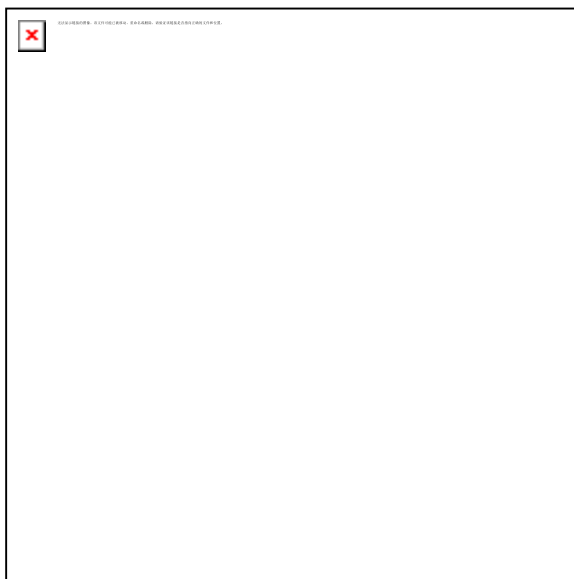
2. Mechanical Requirement

3. Specification

3.1. Technical Specification

Category	Specifications

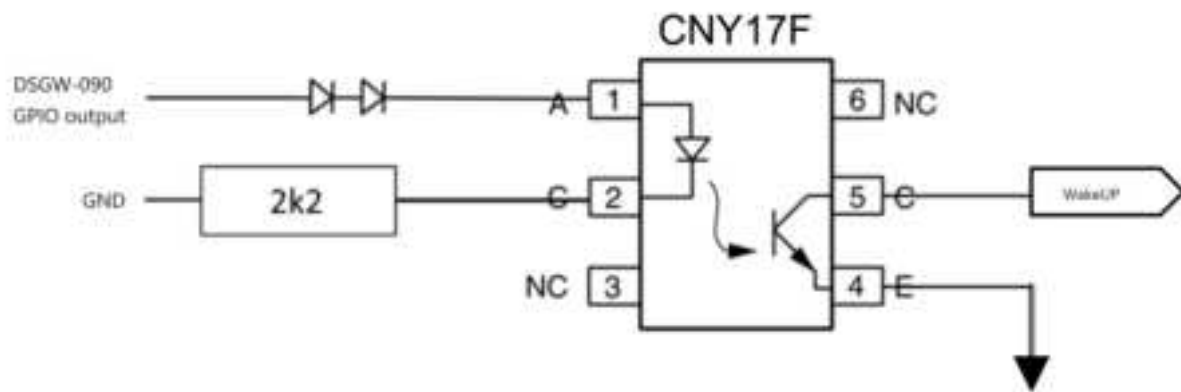| CPU	MT7628AN, MIPS24KEc, 580MHZ
System	OpenWrt
RAM	128MB
Storage	64MB SPI Flash
Power Supply	USB Type-C 5V/2A, RJ45 50-17V
Indicator LEDs	1). Power LED 2). Network Sate 3) Control Box State
Antenna	FPC Antenna
Interface	TF Card Slot x 1, SIM Card Slot x 2
RJ45	UART, Hardware Signal, Power
Reset	Factory reset button. To reset the Gateway to its original factory settings, press and hold it for more than 10 seconds
Installation method	Flat, bed frame via mounting bracket
Operating Temperature	-10℃~55℃
Storage Temperature	-20℃~65℃
Operating humidity	10%~90%
IP rating	IP22

3.2. Cable Pinout

CO61 Side Pin #	CO61 Side Pin Functionality	Color	Bridge Side Pin Functionality	Bridge Side Pin #
1	v_perm, 50v – 17v	Black	Power	1
2	GND	Red	GND	2
3	WakeUp/UBL HW Signal	Orange	Wakeup Signal	3
4	(Not Populated)	—	(Not Populated)	4
5	(Not Populated)	—	(Not Populated)	5

6	(Not Populated)	—	(Not Populated)	6
7	RXD 3.3v (White)	White	URT—TXD	7
8	TXD 3.3v (Blue)	Blue	URT—RXD	8
9	(Not Populated)	—	(Not Populated)	—
10	(Not Populated)	—	(Not Populated)	—

Remark：   The Wakeup signal from Bridge shall be isolated ,The isolation circuitry is designed into the bridge (DSGW-090J).   Wakeup volatage up to 50V .

3.3. Performance Requirement

Performance Requirement	
Wi-Fi Performance	- IEEE Wireless LAN standard: IEEE802.11n, IEEE802.11g, IEEE802.11b - Data Rate: IEEE 802.11b Standard Mode:1,2,5.5,11Mbps IEEE 802.11g Standard Mode:6,9,12,18,24,36,48,54 Mbps IEEE 802.11n: MCS0~MCS7 @ HT20/ 2.4GHz band MCS0~MCS7 @ HT40/ 2.4GHz band - Sensitivity: HT40 MCS7: -70dBm@10% PER(MCS7) /2.4GHz band HT20 MCS7 :-71dBm@10% PER(MCS7) /2.4GHz band - Transmit Power: IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHzband IEEE 802.11g: 16dBm @54MHz IEEE 802.11b: 18dBm@11MHz - Wireless Security: WPA/WPA2, WEP, TKIP, and AES - Working mode: Bridge, AP Client - Range: 50 meters maximum, open field - Transmit Power:17dBm - Highest Transmission Rate: 300Mbps - Frequency offset: +/- 50KHZ - Frequency Range (MHz): 2412.0~2483.5 - Low Frequency (MHz):2400 - High Frequency (MHz):2483.5 - E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW - Bandwidth (MHz):20MHz/40MHz - Modulation: BPSK/QPSK, FHSSCCK/DSSS, 64QAM/OFDM
Bluetooth Performance	- TX Power: 19.5dBm - Range: 120 meters maximum, open filed - Receiving Sensibility: -92dBm@0.1%BER, 1Mbps - Frequency offset: +/-30KHZ - Frequency Range (MHz):2401.0~2483.5 - Low Frequency (MHz):2400 - High Frequency (MHz):2483.5 - E.i.r.p (Equivalent Isotopically Radiated power) (mW)<10mW - Bandwidth (MHz):2MHz - Modulation: GFSK

4. Regulatory & Compliance

1	FCC	Yes
2	ESD Testing	Yes
3	RF Antenna Analysis	Yes
4	Environmental Testing	Yes
5	Reliability Testing	Yes
6	IEC 60601-1-2	Yes

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.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 or more 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.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

Radiation Exposure Statement
To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 20cm from your body.