

AGENEWTECH

# H2781SG

Smart Module Specification\_V1.0



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# About the Document

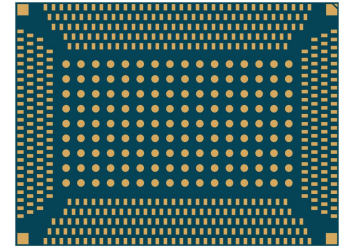
## History

Version	Date	Author	Description
-	2023-12-20	Zhao Mingyi	Initial
1.0	2023-12-28	Zhao Mingyi	Controlled

# H2781SG

Multi-network Smart 5G module

Supports Wi-Fi & BT



H2781SG is a multi-network smart 5G module based on Unisoc's Octa-core R15 NR 6nm processor launched by AgeneW, equipped with Android 11 operating system. Its powerful performance, neon engine processing, 2D/3D graphics acceleration processing capabilities, fully meet the needs of customers for high-speed and multimedia functions in industrial and consumer applications.

H2781SG supports full coverage of the entire network system. It supports Wi-Fi 802.11a/b/g/n/ac and BT5.0 near-field wireless communication. In addition, H2781SG also has audio and video input and output interfaces and rich GPIO interfaces. It supports a wide range of audio and video codecs. The main screen supports up to QHD+ 3360×1440 @60Hz and FHD+ 2520×1080@120fps HDR10+. At the same time, H2781SG supports GPS, GLONASS, BDS and Galileo positioning systems, and the positioning function is fast and accurate.

H2781SG is a SMT module, with a total of 226 pins and 3 BTB camera interface. The module can be attached to the complete base plate or upside down to the perforated bottom plate, with a size of 90mm×39mm×2.75mm, which can be embedded in various M2M product applications through the pad, making it widely used in smart cash registers, smart POS, tax controllers, security monitoring, vehicle equipment, high-end information collection equipment, smart robots, smart homes, smart hardware, industrial smart handheld devices, drones, high-end police or law enforcement equipment, smart intercom equipment, Smart wearables, vending machines, logistics cabinets and other devices used in different industries.



## Main Advantages

- ✓ Comprehensive coverage of multi-network standard
- ✓ Support Wi-Fi 802.11a/b/g/n/ac & Bluetooth 5.0 short-range wireless communication
- ✓ Support GPS/GLONASS/BDS/Galileo satellite positioning
- ✓ Support multiple audio and video codecs
- ✓ Main screen supports up to QHD+ 3360×1440 @60Hz & FHD+ 2520×1080@120fps HDR10+
- ✓ Support 4K video recording and playback
- ✓ Abundant audio/video input and output interfaces and GPIO interfaces



64-bit Processor (Octa-core)



IEEE 802.11 a/b/g/n/ac



Support Android 11



GPS+GLONASS+BDS+Galileo



Powerful Multimedia



BT 5.0

NR	H2781SG
Region/Operator	China
Operating System	Android 11
Memory	64GB + 4GB
Module Dimension (mm)	90 × 39 × 2.75
Packaging	LCC
Welding	Front patch/inverted patch
Temperature Range	
Operation Temperature	Operating temperature range: -20 °C ~ + 80 °C Storage temperature range: -40 °C ~ + 90 °C
Frequency Band Information	
NR	SA: N1/N5/N8/N28/N41/N78 NSA: 3A-N41A/39A-N41A/1A-N41A/1A-N78A/3A-N78A/5A-N78A/8A-N78A/3C-N78A/1C-N78A/ 3C-N78A/1A-3A-N78A
LTE-FDD	B1/B3/B5/B8
LTE-TDD	B34/B38/B39/B40/B41
WCDMA	B1/B2/B5/B8
GSM/EDGE	B2/B3/B5/B8
WLAN	2.4/5GHz, 802.11 a/b/g/n/ac
Bluetooth	BT 5.0
GNSS	GPS + GLONASS + BDS + Galileo (choose 3 out of 4, GPS required)
Certification	
Operator Certification	*
Compulsory Certification	*
Other Certifications	*
Data Rate	
LTE-FDD	390Mbps (DL) / 150Mbps (UL)
LTE-TDD	310Mbps (DL) / 150Mbps (UL)
DC-HSPA+	42Mbps (DL) / 11.2Mbps (UL)
WCDMA	384Kbps (DL) / 384Kbps (UL)
EDGE	236.8Kbps (DL) / 236.8Kbps (UL)
GPRS	85.6Kbps (DL) / 85.6Kbps (UL)
NR SA	3.25Gbps (DL) / 600Mbps (UL)
NR NSA	3.3Gbps (DL) / 700Mbps (UL)
Features	
Multi-network Standard	NR: Release 15, LTE: Release 15, UMTS: Release 9
Bandwidth (MHz)	1.4/3/5/10/15/20
Rx-Diversity	●
SIM Card Detection	●
USB Firmware Update	●
OTA Firmware Update	●

Remark: 1. \*: In progress

2. ●: Supports

3. 3) For specific reference, please refer to the utility model patent "High Compatibility 5G Smart Module and Its Motherboard Structure"

NR	H2781SG
<b>Electrical Specification</b>	
<b>Operating Voltage</b>	3.4~4.4 V, typical 3.8 V
<b>Consumption (Typical)</b>	6mA @ sleep mode, typical
<b>Interface</b>	
<b>LCD</b>	2 × 4-lane MIPI DSI, max support QHD+ 3360*1440@60 fps & FHD+ (2560*1080)@120 fps HDR10+, support DP output
<b>Camera</b>	2.5bps/Lane Support quad camera (4-lane+4-lane+2-lane+1-lane) Up to two cameras working simultaneously (4-lane+2-lane or 4-lane+1-lane)
<b>TP</b>	Capacitive touch screen
<b>Audio</b>	2 × microphones, Lineout interface to external power amplifier, receiver, headphones
<b>USB</b>	USB3.0, support OTG
<b>(U)SIM</b>	× 2
<b>UART</b>	× 3
<b>SD Card</b>	Support SD3.0
<b>ADC</b>	× 3, universal ADC interface, 1 for battery ID
<b>I2C</b>	× 6, I2C interfaces, for TP, Cameras, Sensors, etc.
<b>SPI</b>	× 4, as main device only
<b>I2S</b>	× 3
<b>PWRKEY</b>	Internal pull up to VBAT
<b>GPIO</b>	× 20, reserved
<b>Antenna</b>	RF Antenna × 4, Wi-Fi 2.4G & Bluetooth Antenna × 1, Wi-Fi 5G Antenna × 1, GNSS Antenna × 1