

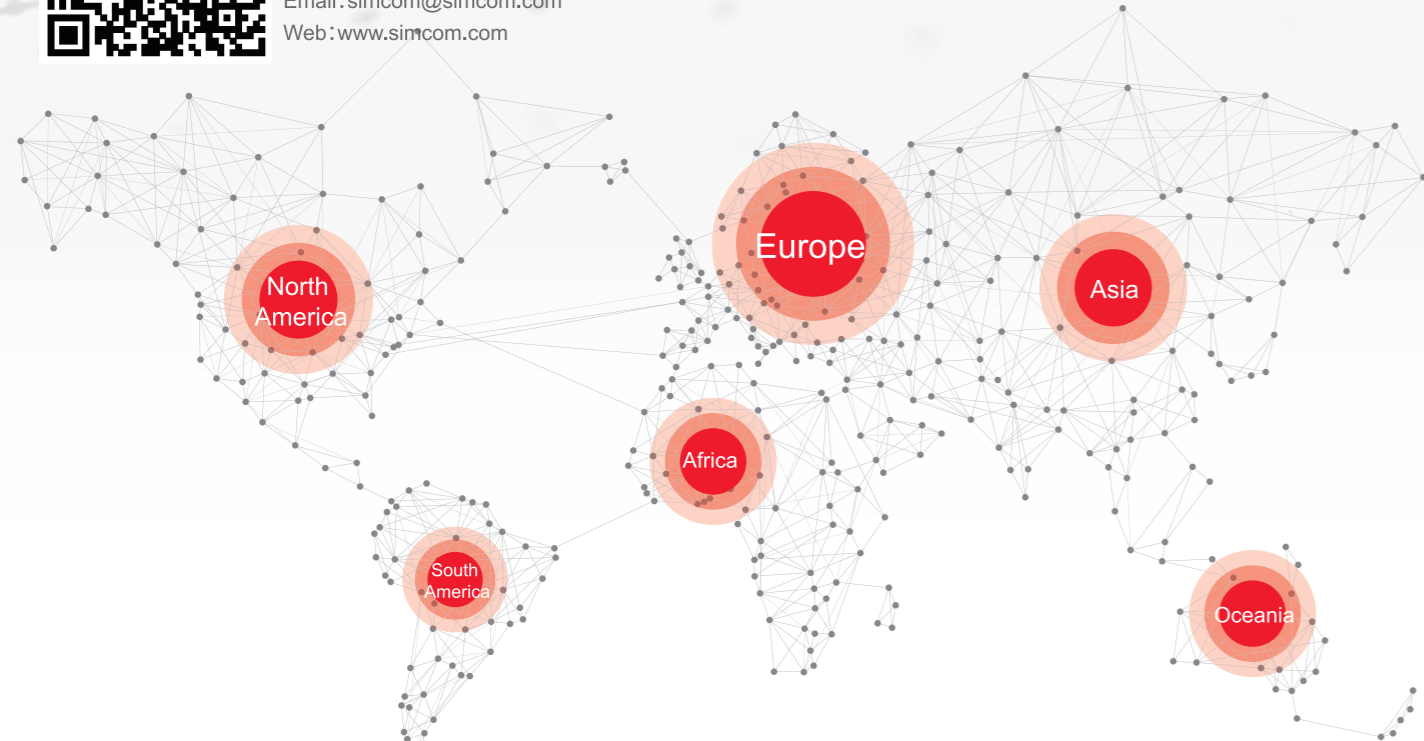


## SIMCom Wireless Solutions Limited

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# INVENTING A SMART FUTURE



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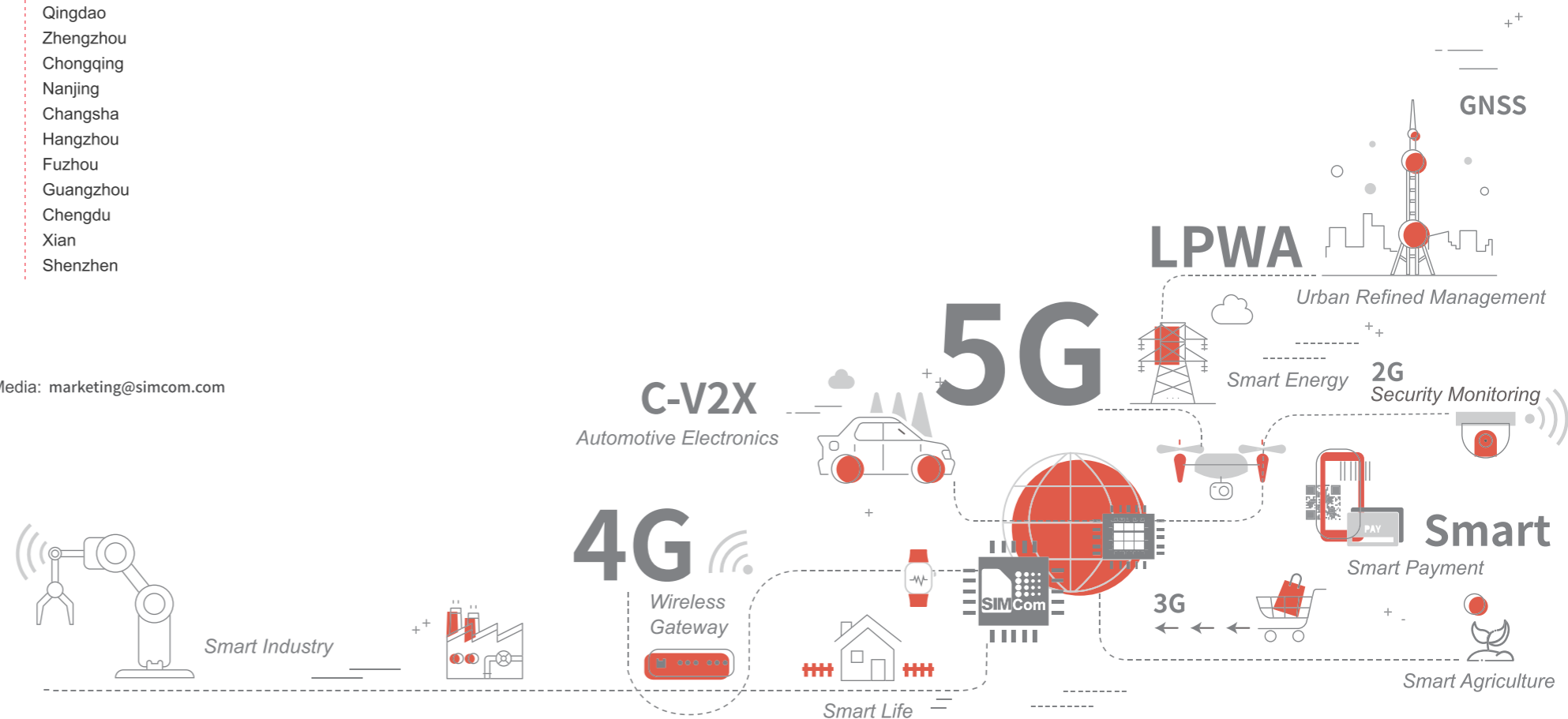


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# PRODUCT PORTFOLIO BROCHURE

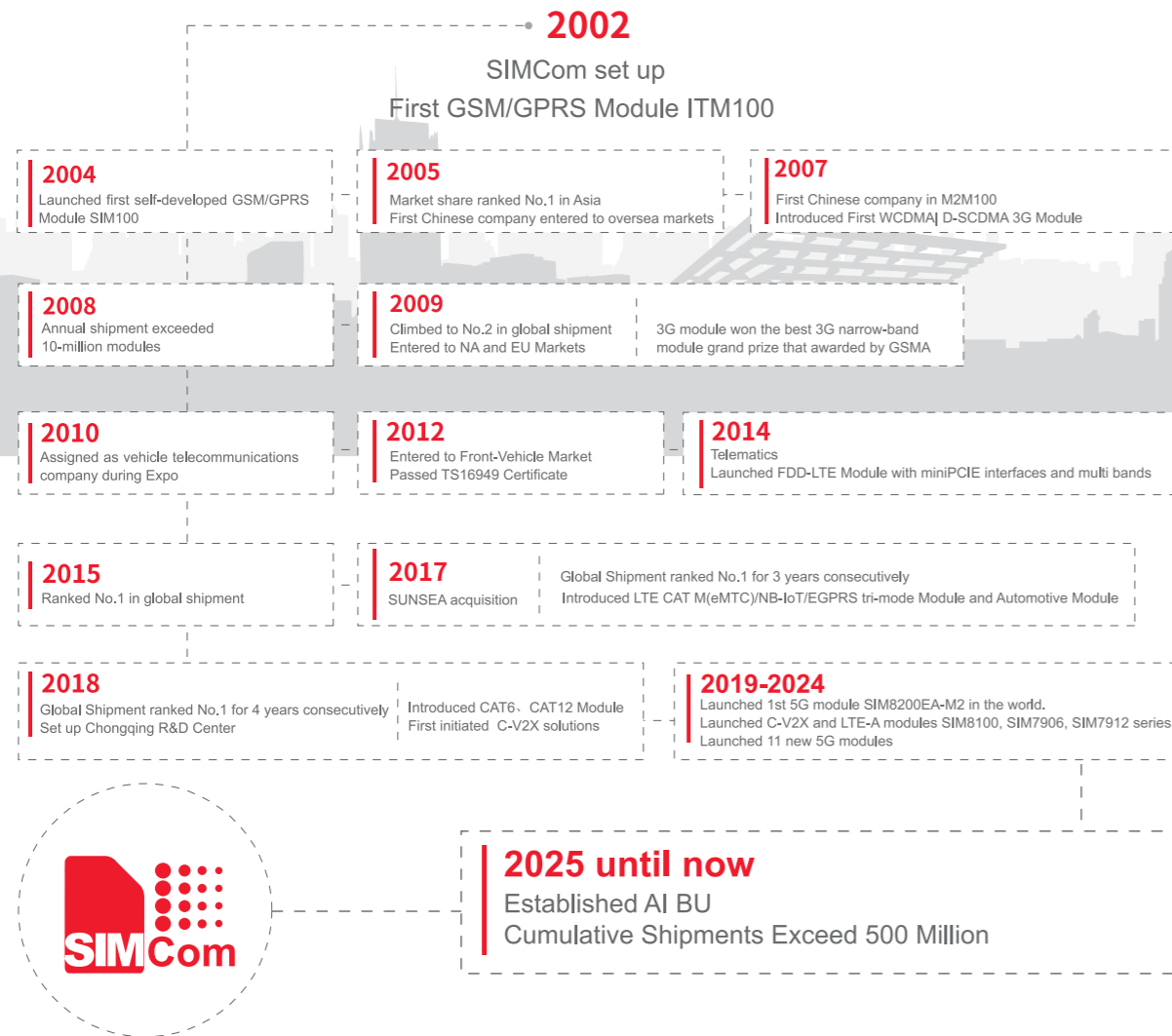






### About SIMCom

SIMCom Wireless Solutions Limited is a global leading IoT wireless modules and solutions supplier. Since established in 2002, SIMCom has been fully committed to providing a variety of wireless modules and terminal level solutions worldwide, such as 5G, 4G, NTN, Smart, LTE-A, LTE-M(CAT-M1), NB-IoT, 3G, 2G, and GNSS satellite positioning technology.

SIMCom insists on providing high-quality modules and industry solutions. With 24 years of professional technical innovation and service experiences, it continuously meets the needs of customers in all industries of the Internet of Things. While deepening the vertical industry, we continue to define advantageous products and build core competitiveness. With the Group's continuous investment in research and development, technology and production, we will continue to innovate and enrich our technology roadmap, and promote the development of the industry in the next few years.






### 5G Module

Technology	3GPP R17		
Product	SIM8270E	SIM8270NA	
Picture			
Form Factor	LGA	LGA	
Dimensions (mm)	46.0*53.0*3.0	46.0*53.0*3.0	
Weight (g)	TBD	TBD	
Mode	NSA/SA	NSA/SA	
Frequency Bands	5G-Sub6G	n1/n3/n5/n7/n8/n20/n26*/n28/n38/n40/n41/n75/n76/n77/n78	n2/n5/n7/n12/n13/n14/n25/n26/n29/n30/n38/n41/n48/n66/n70/n71/n77/n78
	LTE-FDD	B1/B3/B5/B7/B8/B18*/B19*/B20/B26*/B28/B32	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71
	LTE-TDD	B38/B40/B41/B42/B43/B46*	B38/B41/B42/B43/B46/B48
	WCDMA	B1/B5/B8	B2*/B4*/B5*
GNSS	GPS/GLONASS/Beidou/Galileo/QZSS	GPS/GLONASS/Beidou/Galileo/QZSS	
Temperature	-30°C ~ +70°C (Extended Temperature: 40°C ~ +85°C)	-30°C ~ +70°C (Extended Temperature: 40°C ~ +85°C)	
<b>Electrical Features</b>			
Supply Voltage Range	3.3 ~ 4.4V	3.3 ~ 4.4V	
Power Consumption (sleep)(mA)	TBD	TBD	
<b>Data Transfer</b>			
mmWave			
Sub-6G	SA:5.3Gbps(DL)/1Gbps(UL) NSA:5Gbps(DL)/600Mbps(UL)	SA:5.3Gbps(DL)/1Gbps(UL) NSA:5Gbps(DL)/600Mbps(UL)	
LTE CAT 20+	2Gbps(DL)/200Mbps(UL)	2Gbps(DL)/200Mbps(UL)	
<b>Software Features</b>			
Protocol	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	
TLS	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	
DTMF	● (Sending and Receiving)	● (Sending and Receiving)	
FOTA/OTA	●	●	
VoLTE/CSFB/VoNR*	●	●	
Android RIL	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	
USB Driver	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	
RNDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
NDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
PPP	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
MBIM	Win8/Win10	Win8/Win10	
Firmware Upgrade	USB/FOTA	USB/FOTA	
<b>Interface</b>			
USB	3.1 (2.0)	3.1 (2.0)	
UART	●	●	
(U)SIM Card	1.8V/2.95V	1.8V/2.95V	
PCM	●	●	
GPIO	●	●	
I2C	●	●	
PCIe	*3	*3	
SPI			
RGMII	UXGMII*2	UXGMII*2	
SDIO3.0			
PMI			
ADC			
Antenna	4 or 8(8RX)	4 or 8(8RX)	
<b>Certification</b>			
Certification	RoHS*/REACH*/CE*/GCF*	RoHS*/REACH*/FCC*/PTCRB*	
Typical Applications	CPE, MIFI, PC, Gateway, Router, UAV		



\*: Under Development/On-going/Planning

## 5G Module

Technology		RedCap		
Product		SIM8230C	SIM8230E	SIM8230G
Picture				
Form Factor		LGA+LCC	LGA+LCC	LGA+LCC
Dimensions (mm)		30.0*30.0*2.5	30.0*30.0*2.5	30.0*30.0*2.5
Weight (g)		TBD	TBD	TBD
Mode		SA	SA	SA
Frequency Bands	5G-Sub6G	n1/n3/n5/n8/n28/n40/n41/n78/n79	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n30/n38/n40/n41/n48/n66/n70/n71/n77/n78
	LTE-FDD	B1/B3/B5/B8	B1/B3/B5/B7/B8/B20/B28	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B30/B66/B71
	LTE-TDD	B34/B38/B39/B40/B41	B40/B41/B42/B43	B34/B38/B39/B40/B41/B42/B43/B48
GNSS		GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou
Temperature		-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>				
Supply Voltage Range		3.3 ~ 4.4V	3.3 ~ 4.4V	3.3 ~ 4.4V
Power Consumption (sleep)(mA)		TBD	TBD	TBD
<b>Data Transfer</b>				
Sub-6G		Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)
LTE CAT 20+		150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)
<b>Software Features</b>				
Protocol		TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTTS/ DNS
TLS		SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
DTMF		● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)
FOTA/OTA		●	●	●
VoLTE/CSFB/VoNR*		●	●	●
Android RIL		Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0
USB Driver		Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android
RNDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
NDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
PPP		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
MBIM		Win8/Win10	Win8/Win10	Win8/Win10
Firmware Upgrade		USB/FOTA	USB/FOTA	USB/FOTA
<b>Interface</b>				
USB		3.1 (2.0)	3.1 (2.0)	3.1 (2.0)
UART		●	●	●
(U)SIM Card		1.8V/2.95V	1.8V/2.95V	1.8V/2.95V
PCM		●	●	●
GPIO		●	●	●
I2C		●	●	●
PCIe		●	●	●
SPI				
RGMII				
SDIO3.0				
PMI				
ADC				
Antenna		2+1	2+1	2+1
<b>Certification</b>				
Certification		RoHS/REACH/CCC	RoHS/REACH/RCM/CE	RoHS/REACH/RCM/CE
Typical Applications		CPE, MIFI, PC, Gateway, Router, UAV		





\*: Under Development/On-going/Planning

## 5G Module

Technology		RedCap	
Product		SIM8230JP	SIM8230SA
Picture			
Form Factor		LGA+LCC	LGA+LCC
Dimensions (mm)		30.0*30.0*2.5	30.0*30.0*2.5
Weight (g)		TBD	TBD
Mode		SA	SA
Frequency Bands	5G-Sub6G	n3/n28/n41/n77/n78/n79	n2/n5/n7/n8/n28/n38/n40/n66/n71/n78
	LTE-FDD	B1/B3/B5/B8/B18/B19/B26/B28	B2/B4/B5/B7/B8/B26/B28/B66
	LTE-TDD	B41/B42	B38/B40/B42/B43
GNSS		GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou
Temperature		-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>			
Supply Voltage Range		3.3 ~ 4.4V	3.3 ~ 4.4V
Power Consumption (sleep)(mA)		TBD	TBD
<b>Data Transfer</b>			
Sub-6G		Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)
LTE CAT 20+		150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)
<b>Software Features</b>			
Protocol		TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTTS/DNS
TLS		SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
DTMF		● (Sending and Receiving)	● (Sending and Receiving)
FOTA/OTA		●	●
VoLTE/CSFB/VoNR*		●	●
Android RIL		Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0
USB Driver		Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android
RNDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
NDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
PPP		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
MBIM		Win8/Win10	Win8/Win10
Firmware Upgrade		USB/FOTA	USB/FOTA
<b>Interface</b>			
USB		3.1 (2.0)	3.1 (2.0)
UART		●	●
(U)SIM Card		1.8V/2.95V	1.8V/2.95V
PCM		●	●
GPIO		●	●
I2C		●	●
PCIe		●	●
SPI			
RGMII			
SDIO3.0			
PMI			
ADC			
Antenna		2+1	2+1
<b>Certification</b>			
Certification		RoHS/REACH	RoHS*/REACH*
Typical Applications		CPE, MIFI, PC, Gateway, Router, UAV	





\*: Under Development/On-going/Planning

## 5G Module

Technology	RedCap				
Product	SIM8230C-M2	SIM8230E-M2	SIM8230G-M2	SIM8230JP-M2	
Picture					
Form Factor	M2	M2	M2	M2	
Dimensions (mm)	42.0*31.4*3.4	42.0*31.4*3.4	42.0*31.4*3.4	42.0*31.4*3.4	
Weight (g)	TBD	TBD	TBD	TBD	
Mode	SA	SA	SA	SA	
Frequency Bands	5G-Sub6G	n1/n3/n5/n8/n28/n40/n41/n78/n79	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n30/n38/n40/n41/n48/n66/n70/n71/n77/n78	n3/n28/n41/n77/n78/n79
	LTE-FDD	B1/B3/B5/B8	B1/B3/B5/B7/B8/B20/B28	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B30/B66/B71	B1/B3/B5/B8/B18/B19/B26/B28
	LTE-TDD	B34/B38/B39/B40/B41	B40/B41/B42/B43	B34/B38/B39/B40/B41/B42/B43/B48	B41/B42
GNSS	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	
Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	
<b>Electrical Features</b>					
Supply Voltage Range	3.3 ~ 4.4V	3.3 ~ 4.4V	3.3 ~ 4.4V	3.3 ~ 4.4V	
Power Consumption (sleep) (mA)	TBD	TBD	TBD	TBD	
<b>Data Transfer</b>					
Sub-6G	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	
LTE CAT 20+	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	
<b>Software Features</b>					
Protocol	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS / HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS / HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS / HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS / HTTPS/MQTT/DNS	
TLS	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	
DTMF	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)	
FOTA/OTA	●	●	●	●	
VoLTE/CSFB/VoNR*	●	●	●	●	
Android RIL	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	
USB Driver	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	
RNDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
NDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
PPP	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
MBIM	Win8/Win10	Win8/Win10	Win8/Win10	Win8/Win10	
Firm Upgrade	USB/FOTA	USB/FOTA	USB/FOTA	USB/FOTA	
<b>Interface</b>					
USB	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)	
UART	●	●	●	●	
(U)SIM Card	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V	
PCM	●	●	●	●	
GPIO	●	●	●	●	
I2C	●	●	●	●	
PCie	●	●	●	●	
SPI					
RGMII					
SDIO3.0					
PMI					
ADC					
Antenna	2+1	2+1	2+1	2+1	
<b>Certification</b>					
Certification	RoHS/REACH	RoHS/REACH/CE/RCM	RoHS/REACH/RCM/CE	RoHS/REACH	
Typical Applications	CPE, MIFI, PC, Gateway, Router, UAV				




\*: Under Development/On-going/Planning

## 5G Module

Technology	RedCap				
Product	SIM8230C-PCIE	SIM8230E-PCIE	SIM8230G-PCIE	SIM8230JP-PCIE	
Picture					
Form Factor	PCIE	PCIE	PCIE	PCIE	
Dimensions (mm)	50.8*31.0*3.6	50.8*31.0*3.6	50.8*31.0*3.6	50.8*31.0*3.6	
Weight (g)	TBD	TBD	TBD	TBD	
Mode	SA	SA	SA	SA	
Frequency Bands	5G-Sub6G	n1/n3/n5/n8/n28/n40/n41/n78/n79	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n30/n38/n40/n41/n48/n66/n70/n71/n77/n78	n3/n28/n41/n77/n78/n79
	LTE-FDD	B1/B3/B5/B8	B1/B3/B5/B7/B8/B20/B28	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B30/B66/B71	B1/B3/B5/B8/B18/B19/B26/B28
	LTE-TDD	B34/B38/B39/B40/B41	B40/B41/B42/B43	B34/B38/B39/B40/B41/B42/B43/B48	B41/B42
GNSS	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	GPS/GLONASS/BeiDou	
Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	
<b>Electrical Features</b>					
Supply Voltage Range	3.0 ~ 3.6,type 3.3(With DC-DC Boost Function) 3.3 ~ 4.4,type 3.8(Without DC-DC Boost Function)	3.0 ~ 3.6,type 3.3(With DC-DC Boost Function) 3.3 ~ 4.4,type 3.8(Without DC-DC Boost Function)	3.0 ~ 3.6,type 3.3(With DC-DC Boost Function) 3.3 ~ 4.4,type 3.8(Without DC-DC Boost Function)	3.0 ~ 3.6,type 3.3(With DC-DC Boost Function) 3.3 ~ 4.4,type 3.8(Without DC-DC Boost Function)	
Power Consumption(sleep) (mA)	TBD	TBD	TBD	TBD	
<b>Data Transfer</b>					
Sub-6G	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	Up to 220Mbps(DL)/100Mbps(UL)	
LTE CAT 20+	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	150Mbps(DL)/50Mbps(UL)	
<b>Software Features</b>					
Protocol	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	
TLS	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	
DTMF	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)	
FOTA/OTA	●	●	●	●	
VoLTE/CSFB/VoNR*	●	●	●	●	
Android RIL	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	
USB Driver	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	
RNDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
NDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
PPP	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
MBIM	Win8/Win10	Win8/Win10	Win8/Win10	Win8/Win10	
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA	USB/FOTA	
<b>Interface</b>					
USB	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)	
UART	●	●	●	●	
(U)SIM Card	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V	
PCM	●	●	●	●	
GPIO	●	●	●	●	
I2C	●	●	●	●	
PCie	●	●	●	●	
SPI					
RGMII					
SDIO3.0					
PMI					
ADC					
Antenna	2+1	2+1	2+1	2+1	
<b>Certification</b>					
Certification	RoHS/REACH	RoHS/REACH/RCM/CE	RoHS/REACH/CE/RCM	RoHS/REACH	
Typical Applications	CPE, MIFI, PC, Gateway, Router, UAV				




\*: Under Development/On-going/Planning

## 5G Module

Technology	3GPP R16			
Product	SIM8260E	SIM8260A	SIM8260C	
Picture				
Form Factor	LGA	LGA	LGA	
Dimensions (mm)	41.0*43.6*2.8	41.0*43.6*2.8	41.0*43.6*2.8	
Weight (g)	11.17g±0.1g	11.17g±0.1g	11.17g±0.1g	
Mode	NSA/SA	NSA/SA	NSA/SA	
Frequency Bands	5G-Sub6G	n1/n3/n5/n7/n8/n20/n26/n28/n38/n40/n41/n48/n77/n78/n79	n1/n2/n5/n7/n12/n13/n14/n25/n26/n29/n30/n38/n41/n48/n66/n71/n77/n78/n79	n1/n3/n5*/n7*/n8*/n20*/n28/n38*/n40*/n41/n48*/n77*/n78/n79
	LTE-FDD	B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32	B1/B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71	B1/B3/B5/B7/B8/B20/B28
	LTE-TDD	B38/B39/B40/B41/B42/B43/B46*/B48	B38/B41/B42/B43/B46*/B48	B34/B38/B39/B40/B41/B42*/B43*/B48*
	WCDMA	B1/B5/B8	B1/B2/B4/B5	B1/B3*/B5/B8
GNSS	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)	
Temperature	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C	
<b>Electrical Features</b>				
Supply Voltage Range	3.3 ~ 4.4V	3.3 ~ 4.4V	3.3 ~ 4.4V	
Power Consumption(sleep) (mA)	TBD	TBD	TBD	
<b>Data Transfer</b>				
Sub-6G	2.4Gbps(DL)/1Gbps(UL)	2.4Gbps(DL)/1Gbps(UL)	2.1Gbps(DL)/900Mbps(UL)	
LTE CAT 20+	1.6Gbps(DL)/200Mbps(UL)	1.6Gbps(DL)/200Mbps(UL)	1Gbps(DL)/150Mbps(UL)	
<b>Software Features</b>				
Protocol	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	
TLS	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	
DTMF	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)	
FOTA/OTA	●	●	●	
VoLTE/CSFB/VoNR*	●	●	●	
Android RIL	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	
USB Driver	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android	
RNDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
NDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
PPP	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
MBIM	Win8/Win10	Win8/Win10	Win8/Win10	
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA	
<b>Interface</b>				
USB	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)	
UART	●	●	●	
(U)SIM Card	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V	
PCM	●	●	●	
GPIO	●	●	●	
I2C	●	●	●	
PCIe	●	●	●	
SPI				
RGMII				
SDIO3.0				
PMI				
ADC				
Antenna	4	4	4	
<b>Certification</b>				
Certification	CE(RE)/GCF/RoHS/REACH/TELEC/JATE/Deutsche Telekom/Orange*	PTCRB/GCF/IC/FCC/RoHS/REACH/T-Mobile /Verizon*	CCC/SRRC/CTA	
Typical Applications	CPE, MIFI, PC, Gateway, Router, UAV			



\*: Under Development/On-going/Planning

## 5G Module

Technology	3GPP R16			
Product	SIM8260E-M2 V2.01	SIM8260A-M2 V2.01	SIM8260G-M2 V2.01	
Picture				
Form Factor	M.2	M.2	M.2	
Dimensions (mm)	30.0*52.0*2.3	30.0*52.0*2.3	30.0*52.0*2.3	
Weight (g)	8.3g±0.1g	8.3g±0.1g	8.3g±0.1g	
Mode	NSA/SA	NSA/SA	NSA/SA	
Frequency Bands	5G-Sub6G	n1/n3/n5/n7/n8/n20/n26/n28/n38/n40/n41/n48/n75/n76/n77/n78	n2/n5/n7/n12/n13/n14/n25/n26/n29/n30/n38/n41/n48/n66/n70/n71/n77/n78	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n75/n76/n77/n78/n79
	LTE-FDD	B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71
	LTE-TDD	B38/B40/B41/B42/B43/B48	B38/B41/B42/B43/B46/B48	B34/B38/B39/B40/B41/B42/B43/B46/B48
	WCDMA	B1/B5/B8	B2/B4/B5	B1/B2/B4/B5/B8/B19
GNSS	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5*)	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)	
Temperature	-30°C ~ +70°C (Extended temperature:-40°C ~ +85°C)	-30°C ~ +70°C (Extended temperature:-40°C ~ +85°C)	-30°C ~ +70°C (Extended temperature:-40°C ~ +85°C)	
<b>Electrical Features</b>				
Supply Voltage Range	3.135 ~ 4.4V	3.135 ~ 4.4V	3.135 ~ 4.4V	
Power Consumption (sleep) (mA)	TBD	TBD	TBD	
<b>Data Transfer</b>				
Sub-6G	SA 2.4Gbps(DL)/0.9Gbps(UL) NSA 3.4Gbps(DL)/550Mbps(UL)	SA 2.4Gbps(DL)/0.9Gbps(UL) NSA 3.4Gbps(DL)/550Mbps(UL)	SA 2.4Gbps(DL)/0.9Gbps(UL) NSA 3.4Gbps(DL)/550Mbps(UL)	
LTE CAT 20+	1.6Gbps(DL)/200Mbps(UL)	1Gbps(DL)/150Mbps(UL)	1.6Gbps(DL)/200Mbps(UL)	
<b>Software Features</b>				
Protocol	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	
TLS	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	
DTMF	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)	
FOTA/OTA	●	●	●	
VoLTE/CSFB/VoNR*	●	●	●	
Android RIL	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	
USB Driver	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	
RNDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
NDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
PPP	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	
MBIM	Win8/Win10	Win8/Win10	Win8/Win10	
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA	
<b>Interface</b>				
USB	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)	
UART	●	●	●	
(U)SIM Card	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V	
PCM	●	●	●	
GPIO	●	●	●	
I2C	●	●	●	
PCIe	●	●	●	
SPI				
RGMII				
SDIO3.0				
PMI				
ADC				
Antenna	4	5	4	
<b>Certification</b>				
Certification	CE/RoHS/REACH/RCM	FCC/RoHS/REACH	CE/FCC/RoHS/REACH/JATE/TELECOM/RCM/UKCA/IC	
Typical Applications	CPE, MIFI, PC, Gateway, Router, UAV			


\*: Under Development/On-going/Planning

## 5G Module

Technology		3GPP R16	
Product		SIM8260C-M2	SIM8260G-M2
Picture			
Form Factor		M.2	M.2
Dimensions (mm)		30.0*52.0*2.3	30.0*52.0*2.3
Weight (g)		8.3g±0.1g	8.3g±0.1g
Mode		NSA/SA	NSA/SA
Frequency Bands	5G-Sub6G	n1/n3/n5*/n7*/n8*/n20*/n28/n38*/n40*/n41/n48*/n77*/n78/n79	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79
	LTE-FDD	B1/B3/B5/B7/B8/B20/B28	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71
	LTE-TDD	B34/B38/B39/B40/B41/B42*	B34/B38/B39/B40/B41/B42/B43/B46/B48
	WCDMA	B1/B3*/B5/B8	B1/B2/B4/B5/B8/B19
GNSS		GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5*)	GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)
Temperature		-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)	-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)
<b>Electrical Features</b>			
Supply Voltage Range		3.135 ~ 4.4V	3.135 ~ 4.4V
Power Consumption (sleep)(mA)		TBD	TBD
<b>Data Transfer</b>			
Sub-6G		2.1Gbps(DL)/900Mbps(UL)	SA:2.5Gbps(DL)/0.9Gbps(UL) NSA:3.25Gbps(DL)/460Mbps(UL)
LTE CAT 20+		1Gbps(DL)/150Mbps(UL)	1.6Gbps(DL)/200Mbps(UL)
<b>Software Features</b>			
Protocol		TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS
TLS		SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
DTMF		● (Sending and Receiving)	● (Sending and Receiving)
FOTA/OTA		●	●
VoLTE/CSFB/VoNR*		●	●
Android RIL		Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0
USB Driver		Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android
RNDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
NDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
PPP		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
MBIM		Win8/Win10	Win8/Win10
Firmware Upgrade		USB/FOTA	USB/FOTA
<b>Interface</b>			
USB		3.1 (2.0)	3.1 (2.0)
UART		●	●
(U)SIM Card		1.8V/2.95V	1.8V/2.95V
PCM		●	●
GPIO		●	●
I2C		●	●
PCIe		●	●
SPI			
RGMII			
SDIO3.0			
PMI			
ADC			
Antenna		5	4
<b>Certification</b>			
Certification		CCC/SRRC/CTA/Chinamobile	CE(REDFCC/IC/RCM/UKCA/JATE/TELEC/RoHS/REACH
Typical Applications		CPE, MIFI, PC, Gateway, Router, UAV	


\*: Under Development/On-going/Planning

## 5G Module

Technology		3GPP R16	
Product		SIM8262E-M2	
Picture			
Form Factor		M.2	
Dimensions (mm)		30.0*42.0*2.3	
Weight (g)		6.8g±0.1g	
Mode		NSA/SA	
Frequency Bands	5G-Sub6G	n1/n3/n5/n7/n8/n18/n20/n26/n28/n38/n40/n41/n48/n66/n77/n78/n79	
	LTE-FDD	B1/B3/B4/B5/B7/B8/B18/B19/B20/B26/B28/B32/B66	
	LTE-TDD	B38/B39/B40/B41/B42/B43/B48	
	WCDMA	B1/B5/B8	
GNSS		GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)	
Temperature		-30°C ~ +70°C (Extended temperature:-40°C ~ +85°C)	
<b>Electrical Features</b>			
Supply Voltage Range		3.135 ~ 4.4V	
Power Consumption (sleep)(mA)		TBD	
<b>Data Transfer</b>			
Sub-6G		2.4Gbps(DL)/1Gbps(UL)	
LTE CAT 20+		1.6Gbps(DL)/200Mbps(UL)	
<b>Software Features</b>			
Protocol		TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	
TLS		SSL3.0/TLS1.0/TLS1.2	
DTMF		● (Sending and Receiving)	
FOTA/OTA		●	
VoLTE/CSFB/VoNR*		●	
Android RIL		Android 6.0/7.0/8.0/9.0	
USB Driver		Microsoft Windows Win7/Win8/Win10/ Linux /Android	
RNDIS		Linux/Win7/Win8/Win10	
NDIS		Linux/Win7/Win8/Win10	
PPP		Linux/Win7/Win8/Win10	
MBIM		Win8/Win10	
Firmware Upgrade		USB/FOTA	
<b>Interface</b>			
USB		3.1 (2.0)	
UART		●	
(U)SIM Card		1.8V/2.95V	
PCM		●	
GPIO		●	
I2C		●	
PCIe		●	
SPI			
RGMII			
SDIO3.0			
PMI			
ADC			
Antenna		4	
<b>Certification</b>			
Certification		CE(REDFCC/IC/RCM/UKCA/JATE/TELEC/GCF/Deutsche Telekom/OCD	
Typical Applications		CPE, MIFI, PC, Gateway, Router, UAV	




\*: Under Development/On-going/Planning

## 5G Module

Technology		3GPP R16
Product		SIM8380G-M2
Picture		
Form Factor		M.2
Dimensions(mm)		30.0*52.0*2.3
Weight(g)		8.3g±0.1g
Mode		NSA/SA
Frequency Bands	5G-Sub6G	n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79
	5G-mmWave	n257/n258/n260/n261
	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71
	LTE-TDD	B34/B38/B39/B40/B41/B42/B43/B46/B48
	WCDMA	B1/B2/B4/B5/B8/B19
GNSS		GPS/GLONASS/BeiDou (Dedicated GNSS L1 and L5)
Temperature		-30°C ~ +70°C (Extended temprature:-40°C ~ +85°C)
Extended Temperature		-40°C ~ +85°C
<b>Electrical Features</b>		
Supply Voltge Range		3.135 ~ 4.4V
Power Consumption (sleep)(mA)		TBD
<b>Data Transfer</b>		
mmWave		8.76Gbps(DL)/2.69Gbps(UL)
Sub-6G		SA:6.2Gbps(DL)/0.9Gbps(UL) NSA:4.92Gbps(DL)/660Mbps(UL)
LTE CAT 20+		2Gbps(DL)/200Mbps(UL)
<b>Software Features</b>		
Protocol		TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS
TLS		SSL3.0/TLS1.0/TLS1.2
DTMF		● (Sending and Receiving)
FOTA		●
VoLTE/CSFB/VoNR*		●
Android RIL		Android 6.0/7.0/8.0/9.0
USB Driver		Microsoft Windows Win7/Win8/Win10/ Linux /Android
RNDIS		Linux/Win7/Win8/Win10
NDIS		Linux/Win7/Win8/Win10
PPP		Linux/Win7/Win8/Win10
MBIM		Win8/Win10
Firmware Upgrade		USB/FOTA
<b>Interface</b>		
USB		3.1 (2.0)
UART		●
(U)SIM Card		1.8V/2.95V
PCM		●
GPIO		●
I2C		●
PCIe		●
SPI		
RGMII		
SDIO3.0		
PMI		
ADC		
Antenna		8
<b>Certification</b>		
Certification		CE(REDF)/FCC/IC/RCM/UKCA/JATE/TELEC/TIM/RoHS/REACH
Typical Applications		CPE, MIFI, PC, Gateway, Router, UAV




\*: Under Development/On-going/Planning

## 5G Module

Technology		3GPP R16		
Product		A8200E	A8200C	A8200SA
Picture				
Form Factor		LGA	LGA	LGA
Dimensions (mm)		41.0*44.0*2.85	41.0*44.0*2.85	41.0*44.0*2.85
Weight (g)		TBD	TBD	TBD
Mode		NSA/SA	NSA/SA	NSA/SA
Frequency Bands	5G-Sub6G	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n1/n3/n5/n8/n28/n41/n77/n78/n79	n2/n5/n7/n8/n28/n38/n40/n66/n71/n78
	LTE-FDD	B1/B3/B5/B7/B8/B20/B28	B1/B3/B5/B8	B2/B4/B5/B7/B8/B26/B28/B66/B71
	LTE-TDD	B38/B40/B41/B42/B43	B34/B38/B39/B40/B41	B38/B40/B42/B43
	WCDMA	B1/B5/B8	B1/B5/B8	B2/B4/B5
Temperature		-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C
<b>Electrical Features</b>				
Supply Voltage Range		3.3 ~ 4.4V	3.3 ~ 4.4V	3.3 ~ 4.4V
Power Consumption (sleep)(mA)		TBD	TBD	TBD
<b>Data Transfer</b>				
Sub-6G		NSA 2.15Gbps(DL)/550Mbps(UL) SA 4Gbps(DL)/1Gbps(UL)	NSA 2.15Gbps(DL)/550Mbps(UL) SA 4Gbps(DL)/1Gbps(UL)	NSA 2.15Gbps(DL)/550Mbps(UL) SA 4Gbps(DL)/1Gbps(UL)
LTE CAT 20+		300Mbps(DL)/50Mbps(UL)	300Mbps(DL)/50Mbps(UL)	300Mbps(DL)/50Mbps(UL)
<b>Software Features</b>				
Protocol		TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/MQTT/DNS
TLS		SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
DTMF		● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)
FOTA/OTA		●	●	●
VoLTE/CSFB/VoNR*		●	●	●
Android RIL		Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0
USB Driver		Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android
RNDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
NDIS		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
PPP		Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
MBIM		Win8/Win10	Win8/Win10	Win8/Win10
Firmware Upgrade		USB/FOTA	USB/FOTA	USB/FOTA
<b>Interface</b>				
USB		3.1 (2.0)	3.1 (2.0)	3.1 (2.0)
UART		●	●	●
(U)SIM Card		1.8V/2.95V	1.8V/2.95V	1.8V/2.95V
PCM		●	●	●
GPIO		●	●	●
I2C		●	●	●
PCIe		●	●	●
SPI				
RGMII		●	●	●
SDIO3.0				
PMI				
ADC				
Antenna		4	4	4
<b>Certification</b>				
Certification		RoHS*/REACH*/CE*	RoHS*/REACH*/CCC*/TA*/CTA*	RoHS*/REACH*
Typical Applications		CPE, MIFI, PC, Gateway, Router, UAV		



\*: Under Development/On-going/Planning

## 5G Module

Technology	3GPP R16		
Product	A8200E-M2	A8200C-M2	A8200C-PCIE
Picture			
Form Factor	M.2	M.2	PCIE
Dimensions (mm)	30.0*52.0*2.3	30.0*52.0*2.3	50.8*29.9*4.1
Weight (g)	TBD	TBD	TBD
Mode	NSA/SA	NSA/SA	NSA/SA
Frequency Bands	5G-Sub6G	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n1/n3/n5/n8/n28/n41/n77/n78/n79
	5G-mmWave	B1/B3/B5/B7/B8/B20/B28/B32	B1/B3/B5/B8
	LTE-FDD	B38/B40/B41/B42/B43	B34/B38/B39/B40/B41
	LTE-TDD	B1/B5/B8	B1/B5/B8
Temperature	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C
<b>Electrical Features</b>			
Supply Voltage Range	3.135 ~ 4.4V	3.135 ~ 4.4V	3.3 ~ 4.4V
Power Consumption (sleep) (mA)	TBD	TBD	TBD
<b>Data Transfer</b>			
Sub-6G	NSA 2.15Gbps(DL)/550Mbps(UL) SA 4Gbps(DL)/1Gbps(UL)	NSA 2.15Gbps(DL)/550Mbps(UL) SA 4Gbps(DL)/1Gbps(UL)	NSA 2.15Gbps(DL)/550Mbps(UL) SA 4Gbps(DL)/1Gbps(UL)
LTE CAT 20+	300Mbps(DL)/50Mbps(UL)	300Mbps(DL)/50Mbps(UL)	300Mbps(DL)/50Mbps(UL)
<b>Software Features</b>			
Protocol	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS	TCP/IP/IPV4/IPV6/Multi - PDP/FTPS /HTTPS/ MQTTS/DNS
TLS	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
DTMF	● (Sending and Receiving)	● (Sending and Receiving)	● (Sending and Receiving)
FOTA/OTA	●	●	●
VoLTE/CSFB/VoNR*	●	●	●
Android RIL	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0	Android 6.0/7.0/8.0/9.0
USB Driver	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android	Microsoft Windows Win7/Win8/Win10/ Linux / Android
RNDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
NDIS	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
PPP	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10	Linux/Win7/Win8/Win10
MBIM	Win8/Win10	Win8/Win10	Win8/Win10
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA
<b>Interface</b>			
USB	3.1 (2.0)	3.1 (2.0)	3.1 (2.0)
UART	●	●	●
(U)SIM Card	1.8V/2.95V	1.8V/2.95V	1.8V/2.95V
PCM	●	●	●
GPIO	●	●	●
I2C	●	●	●
PCIe	●	●	●
SPI			
RGMII	●	●	●
SDIO3.0			
PMI			
ADC			
Antenna	4	4	4
<b>Certification</b>			
Certification	RoHS*/REACH*/CE*	RoHS*/REACH*/CCC*/TA*/CTA*	RoHS*/REACH*/CCC*/TA*/CTA*
Typical Applications	CPE, MIFI, PC, Gateway, Router, UAV		


\*: Under Development/On-going/Planning

## LPWA Module

Technology	eMTC & NB-IoT & GSM	
Product	SIM7000X	SIM7070X
Picture		
Form Factor	LCC, 68PIN	LCC, 68PIN
Dimensions (mm)	24.0*24.0*2.6	24.0*24.0*2.3
Weight (g)	3±0.1	2.9±0.1
Frequency Bands	- A(North America): CAT-NB1&CAT-M: B2/B4/B12/B13  - E(Europe/Africa/Australia/Southeast Asia) CAT-NB1&CAT-M: B3/B8/B20/B28 GPRS/EDGE: 900/1800Mhz  - JC(Japan) CAT-M: B1/B3/B5/B8/B18/B19/B26 CAT-NB1: B1/B3/B5/B8/B18/B19/B26 ( no GPRS)  - G(Global) CAT-M: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28/B39; CAT-NB1: B1/B2/B3/B5/B8/B12/B13/B17/B18/B19/B20/B26/B28; GSM: 850/900/1800/1900MHz	- E(Europe/Africa/Australia/Southeast Asia) CAT-M: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B31/ B66/B72/B73/B85/B87/B88 CAT-NB1/NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B31/B66/B73/ B85/B87/B88 GSM/GPRS: 850/900/1800/1900MHz  - G(Global): CAT-M: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/ B85 CAT-NB1/NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71/B85 GSM/GPRS: 850/900/1800/1900MHz
RF Power Class	PC3	PC5
BLE	NA	NA
GNSS	○	○
Temperature	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>		
Supply Voltage Range	3.2V- 4.3V	SIM7070G:3V-4.6V SIM7070E:3.2V-4.2V
Power Consumption	PSM	9uA@PSM
	Sleep	1.2mA
Network RegistrationTime (s)	12(Preferred Band)	12(Preferred Band)
Receive Sensitivity	-108dB@eMTC -126dB@NB-IoT 15KHz	-108dB@eMTC -126dB@NB-IoT 15KHz
<b>Data Transfer</b>		
LTE CAT. NB(Kbps)	34(DL)/66(UL)	127(DL)/158.5(UL)
LTE CAT. M1(Kbps)	300(DL)/375(UL)	589(DL)/1119(UL)
EDGE(Kbps)	236.8(DL)/236.8(UL)	236.8(DL)/236.8(UL)
GPRS(Kbps)	85.6(DL)/85.6(UL)	85.6(DL)/85.6(UL)
SMS	●	●
<b>Software Features</b>		
Protocol	TCP/UDP/LWM2M/COAP/MQTT/FTP/HTTP/TLS/DTLS/NTP/Ayla Cloud	TCP/UDP/HTTP/HTTPS/TLS/DTLS/PING/LWM2M/COAP/MQTT/Ayla Cloud
VoLTE	○	●
Embedded AT	●	●
FOTA	●	●
TLS	●	●
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	
Firmware Upgrade	USB	USB
<b>Interface</b>		
UART	Two wire serial port	
	Full function UART	●
USB	●	●
PCM	○	○
Status Indicator	●	●
GPIO	●	●
SPI	○	○
I2C	●	●
<b>Certification</b>		
Certification	A: RoHS/REACH/GCF/FCC/PTCRB/AT&T/Verizon/IC C: RoHS/REACH/CCC/NAL/SRRC/Mobile/Unicom/Telecom E: RoHS/REACH/KC/KT/LGU+*/IMDA/RCM/Telstra/Spark/CE(RED)/GCF/ Deutsche Telekom/Vodafone* JC: RoHS/REACH/JATE/Telec/Docomo/KDDI G: RoHS/REACH/CCC/RCM/CE(RED)/GCF/Deutsche Telekom/UKCA/FCC/ IC/OCD(Anatel)	E:RoHS/REACH/CE(RED)/GCF/FCC/OCD(Anatel) G:RoHS/REACH/CCC/NAL/SRRC/NCC/JATE/Telec/KC*/RCM/Telstra*/ CE(RED)/GCF/Orange*/TIM*/Deutsche Telekom/Telefonica*/Vodafone*/ UKCA/FCC/PTCRB/AT&T*/Verizon/T-mobile/US Cellular/IC/OCD(Anatel)
Typical Applications	Home Security and Automation, Telematics, Smart Meters, Vending, Fleet Management, Asset Tracking	



\*: Under Development/On-going/Planning

## LPWA Module

Technology		Cat-M & NB-IoT & IoT-NTN	
Product		SIM7070G-HP	
Picture			
Form Factor		LCC, 68PIN	
Dimensions (mm)		24.0*24.0*2.3	
Weight (g)		2.8±0.1	
Frequency Bands		CAT-M: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B85*  CAT-NB1/NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71*/B85*  (-s) IoT-NTN: B23/B255/B256	
RF Power Class		PC3	
BLE		NA	
GNSS		○	
Temperature		-40°C ~+85°C	
<b>Electrical Features</b>			
Supply Voltage Range		2.9V-4.5V	
Power Consumption	PSM	3.5uA@PSM	
	Sleep	0.35mA	
Network Registration Time (s)		12(Preferred Band)	
Receive Sensitivity		-108dB@eMTC -126dB@NB-IoT 15KHz	
<b>Data Transfer</b>			
LTE CAT. NB(Kbps)		127(DL)/158.5(UL)	
LTE CAT. M1(Kbps)		589(DL)/1119(UL)	
EDGE(Kbps)		NA	
GPRS(Kbps)		NA	
SMS		●	
<b>Software Features</b>			
Protocol		TCP/UDP/HTTP/HTTPS/FTP/TLS/DTLS/PING/LWM2M/COAP/MQTT	
VoLTE		●	
Embedded AT		●	
FOTA		●	
TLS		●	
USB Driver			
Firmware Upgrade		USB	
<b>Interface</b>			
UART	Two wire serial port		
	Full function uart	●	
USB		●	
PCM		○	
Status Indicator		●	
GPIO		●	
SPI		○	
I2C		●	
<b>Certification</b>			
Certification		RoHS/REACH/KC/LGU*/RCM/Telstra*/CE(RED)*/GCF	
Typical Applications		Home Security and Automation, Telematics, Smart Meters, Vending, Fleet Management, Asset Tracking	





o: Optional \* : Under Development/On-going/Planning

## LPWA Module

Technology		NB-IoT & GNSS		NB-IoT & 2G	
Product		Y7080E		E7080	
Picture					
Form Factor		LCC+LGA 77PIN		LCC+LGA 77PIN	
Dimensions (mm)		17.6* 15.7* 2.4		17.6* 15.7* 2.4	
Weight (g)		1.2±0.1		1.2±0.1	
Frequency Bands		-E(Europe/ Africa/Australia/ Southeast Asia Cat-NB1/NB2: B3/B5/B8/B20/B28		CAT-NB2: B1/B3/B5/B8/B20/B28  CAT-NB1/NB2: B3/B5/B8/B20/B28 GSM 900/1800MHz	
RF Powr Class		PC3		PC3	
GNSS		○		○	
Temperature		-40°C ~+85°C		-40°C ~+85°C	
Temperature		-40°C ~+85°C		-20°C ~+70°C	
<b>Electrical Features</b>					
Supply Voltage Range		3.0V~4.2V [NB+GNSS] 2.2V~4.2V [NB only]		3.0V~4.5V [NB+GNSS] 2.1V~4.5V [NB only]	
Power Consumption	PSM	1.7uA@PSM		1.9 uA@PSM	
	Sleep	/		/	
Network Registration Time (s)		12(Preferred Band)		12(Preferred Band)	
Receive Sensitivity		-128dbm@NBlot 15kHz		-128dbm@NBlot 15kHz	
<b>Data Transfer</b>					
LTE CAT. NB(Kbps)		127(DL)/159(UL)		127(DL)/159(UL)	
LTE CAT. M1(Kbps)					
EDGE(Kbps)					
GPRS(Kbps)				171.2Kbps(DL),171.2Kbps(UL)	
SMS		●		●	
<b>Software Features</b>					
Protocol		TCP/UDP/HTTP/DNS/NTP/PING/TLS*/DTLS*/LWM2M*/COAP/MQTTOneNET/AEP/DFOTA		IPv4, IPv6 and non-IP TCP/UDP/SMS/NTP/HTTP/ PING/MQTT/DTLS*/TLS*/COAP*/LwM2M*/ PPP*/OneNet*/AEP(CTWING)* *: Optional(Not supported by default)	
Embedded AT		●		●	
FOTA		●		●	
TLS		●		●	
Firmware Upgrade		UART		UART	
<b>Interface</b>					
UART	Two wire serial port	●		●	
	Full function uart			○	
PCM					
Status Indicator		●		●	
GPIO		●		●	
SPI		○		●	
I2C		●		●	
<b>Certification</b>					
Certification		RoHS/REACH/NAL/SRRC/Mobile/Unicom*/Telecom/CE(RED)/GCF/Orange/TIM*/Deutsche Telekom/Telefonica/Vodafone Spain/UKCA/OCD(Anatel)		SRRC*/NAL*/RoHS*/REACH*/CE/GCF/Orange*/ TIM*/Telefonica*/Deutsche Telekom*/ Vodafone Spain*/Anatel*/Telecom*/Mobile* RoHS/REACH/CE	
Typical Applications		Home Security and Automation, Telematics, Smart Meters, Vending, Fleet Management, Asset Tracking			


o: Optional \* : Under Development/On-going/Planning

## LPWA Module

Technology	Cat-M & NB-IoT		NB-IoT	
Product	SIM7080G	SIM7090G	SIM7022	Y7028
Picture				
Form Factor	LCC+LGA, 77PIN	LGA, 101PIN	LCC, 42PIN	LCC, 44PIN
Dimensions(mm)	17.6*15.7*2.4	14.8*12.8*2.0	17.6*15.7*2.3	17.6*15.7*2.1
Weight(g)	1.4±0.1	0.8±0.1	1.3±0.1	1.0g±0.2g
Frequency Bands	- G(Global): CAT.NB2&CAT.M1: B1/B2/B3/B4/B5/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B27/B28/B39/B66/B71/B85	- G(Global): CAT-M1: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B85 CAT-NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71/B85	- G(Global): CAT-NB2: B1/B2/B3/B4/B5/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B66/B70/B85	- E(Europe/Africa/Australia/Southeast Asia): Cat-NB1/NB2 B3/B5/B8/B20/B28
RF Power Class	PC5	PC5	PC3	PC3
BLE	NA	NA	NA	NA
GNSS	○	○	NA	NA
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>				
Supply Voltage Range	2.7V-4.8V	2.7V-4.8V	2.2V-4.3V	2.2V ~ 4.2V
Power Consumption	PSM	3uA@PSM	3uA@PSM	0.8 uA @ PSM
	Sleep	1.2mA	0.78mA	2uA
Network Registration Time(s)	12(Preferred band)	12(Preferred band)	12(Preferred band)	12(Preferred band)
Receive Sensitivity	-108dB@eMTC -126dB@NB-IoT 15KHz	-108dB@eMTC -126dB@NB-IoT 15KHz	-126dbm@NB-IoT 15KHz	-128dbm@NB-IoT 15KHz
<b>Data Transfer</b>				
LTE CAT.NB(Kbps)	127(DL)/158.5(UL)	127(DL)/158.5(UL)	127Kbps(DL)/159Kbps(UL)	127(DL)/159(UL)
LTE CAT.M1(Kbps)	589(DL)/1119(UL)	589(DL)/1119(UL)	NA	NA
EDGE(Kbps)	NA	NA	NA	NA
GPRS(Kbps)	NA	NA	NA	NA
SMS	●	●	●	●
<b>Software Features</b>				
Protocols	TCP/UDP/HTTP/HTTPS/TLS/DTLS/PING/LWM2M/COAP/MQTT/Ayla Cloud	TCP/UDP/HTTP/HTTPS/TLS/DTLS/PING/LWM2M/COAP/MQTT/Ayla Cloud	TCP/UDP/HTTP/TLS*/DTLS*/DNS/NTP/PING/LWM2M/COAP/MQTT/DFOTA*	TCP/UDP/HTTP/DNS/NTP/PING/TLS*/DTLS*/LWM2M*/COAP/MQTT/OneNET/AEP/DFOTA
VoLTE	●	●		
Embedded AT	●	●	●	●
FOTA	●	●	●	●
TLS	●	●	●	●
Firmware Upgrade	USB	USB	UART	UART
<b>Interfaces</b>				
UART	Two wire serial port			●
	Full Function Uart	●	●	
USB	●	●		
PCM	○	○		
Status Indicator	●	●	●	●
GPIO	●	●	●	●
SPI	○	○		●
I2C	●	●		●
<b>Certification</b>				
Certification	RoHS/REACH/NCC/JATE/Telecom/Docomo*/KDDI/Softbank/KC/RCM/CE(RED)/GCF/Orange*/TIM/Deutsche Telekom/Telefonica/UKCA/FCC/PTCRB/AT&T/Verizon/T-mobile/US Cellular/IC/OCD(Anatel)	RoHS/REACH/JATE/Telecom/CE(RED)/GCF/Orange/Deutsche Telekom/FCC/PTCRB/AT&T/Verizon*/T-mobile/US Cellular/IC/OCD(Anatel)	RoHS/REACH/NCC/RCM/CE/GCF/Orange/TIM/Deutsche Telekom/Telefonica/Vodafone Spain/UKCA/FCC/PTCRB/AT&T*/Verizon*/T-mobile*	RoHS/REACH/CE
Typical Applications	Home Security and Automation, Telematics, Smart Meters, Vending, Fleet Management, Asset Tracking			



o: Optional \* : Under Development/On-going/Planning

## LPWA Module

Technology	NB-IoT & BLE	
Product	E7025 R3	
Picture		
Form Factor	LCC+LGA, 58PIN	
Dimensions (mm)	15.7*17.6*2.1	
Weight (g)	1.1±0.1	
Frequency Bands	- Low band CAT-NB1/NB2: B5/B8 - Full band CAT-NB2: B1/B3/B5/B8/B20/B28	
RF Power Class	PC3	
GNSS	/	
BLE	○	
Temperature	-40°C ~+85°C	
<b>Electrical Features</b>		
Supply Voltage Range	2.2V ~ 4.5V	
Power Consumption PSM	1.9 uA@PSM	
Network Registration Time (s)	12(Preferred Band)	
Receive Sensitivity	-128dbm@NB-IoT 15KHz	
<b>Data Transfer</b>		
LTE CAT. NB(Kbps)	126(DL)/158.5(UL)	
LTE CAT. M1(Kbps)		
EDGE(Kbps)		
GPRS(Kbps)		
BT	BLE5.4 1Mbps/2Mbps	
SMS	●	
<b>Software Features</b>		
Protocol	IPv4, IPv6 and non-IP ONENET/CTWING/TCP/UDP/HTTP/PING/DTLS*/TLS*/MQTT/COAP/Lwm2M*/FOTA	
VoLTE		
Embedded AT	●	
FOTA	●	
TLS	●	
USB Driver		
Firmware Upgrade	UART	
<b>Interface</b>		
UART	Two wire serial port	●
	Full function uart	○
USB		
PCM		
Status Indicator	●	
GPIO	●	
SPI	●	
I2C	●	
<b>Certification</b>		
Certification	NAL*/SRRC*/Mobile*/Unicom*/Telecom*	
Typical Applications	Home Security and Automation, Telematics, Smart Meters, Vending, Fleet Management, Asset Tracking	



o: Optional \* : Under Development/On-going/Planning

## LTE-A Module

Technology		LTE CAT12	
Product		SIM7912X(E/A/G)-M2(X12)	SIM7912X(E/A)(X12)
Picture			
Form Factor		M.2	LGA
Dimensions (mm)		42.0*30.0*2.3	39.5*37.0*2.8
Weight (g)		6.1±0.1	6.1±0.1
Frequency Bands	-E(Europe/Africa/Australia/Southeast Asia)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42*/B43*/B46*/B48* WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42*/B43*/B46*/B48* WCDMA: B1/B3/B5/B8
	-SA(New Zealand/Australia/South America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B66 LTE-TDD: B40/B41/B42*/B43*/B46*/B48* WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B66/B71 LTE-TDD: B40/B41/B42*/B43*/B46*/B48* WCDMA: B2/B4/B5
	-G(Global)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/ B20/B25/B26/B28/B29/B30/B32/B66/B71* LTE-TDD: B34/B38/B39/B40/B41/B42*/B43*/B46*/B48* WCDMA: B1/B2/B3/B4/B5/B8/B9/B19	
GNSS		Beidou/GPS/GLONASS/QZSS	Beidou/GPS/GLONASS/Galileo/QZSS
Temperature		-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)	-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)
<b>Electrical Features</b>			
Supply Voltage Range		3.135V~ 4.4V, 3.7V(typ)	3.1V~ 4.4V, 3.3V(typ)
Power Consumption (sleep)		TBD	TBD
<b>Data Transfer</b>			
LTE CAT 6			
LTE CAT 12		600Mbps(DL)/150Mbps (UL)	600Mbps(DL)/150Mbps (UL)
<b>Software Features</b>			
Protocol		TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/DNS*	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS /HTTP/HTTPS/DNS*
TLS		SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
FOTA		●	●
Android RIL		Android 2.3/4/5/6/7	Android 6/7/8/9
USB Driver		Microsoft Windows2000/XP/Vista/Win7/Win8/Win10/ Linux / Android	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10 /Linux /Android
Firmware Upgrade		USB	USB/FOTA
<b>Interface</b>			
USB3.0		1	1
PCIE		1	1
PCM		1	1
GPIO		1	1
I2C		1	1
Antenna		3	5
<b>Certification</b>			
Certification		FCC/CE(RED)/RoHS/REACH/PTCRB/GCF	FCC/CE(RED)/RoHS/REACH/PTCRB/GCF
Typical Applications		Video Surveillance, Gateway, Industrial PDA, Router	



\*: Under Development/On-going/Planning

## LTE-A Module

Technology		LTE CAT6	
Product		SIM7906X(E/A)	SIM7906X(E/A/G)
Picture			
Form Factor		LGA	M.2
Dimensions (mm)		39.5*37.0*2.8	42.0*30.0*2.3
Weight (g)		6.1±0.1	6.1±0.1
Frequency Bands	-E(Europe/Africa/Australia/Southeast Asia)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42*/B43*/B46*/B48* WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42*/B43*/B46*/B48* WCDMA: B1/B3/B5/B8
	-SA(New Zealand/Australia/South America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B66/B71 LTE-TDD: B40/B41/B42*/B43*/B46*/B48* WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B66 LTE-TDD: B40/B41/B42*/B43*/B46*/B48* WCDMA: B2/B4/B5
	-G(Global)		LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/ B20/B25/B26/B28/B29/B30/B32/B66/B71* LTE-TDD: B34/B38/B39/B40/B41/B42*/B43*/B46*/B48* WCDMA: B1/B2/B3/B4/B5/B8/B9/B19
GNSS		Beidou/GPS/GLONASS/Galileo/QZSS	Beidou/GPS/GLONASS/Galileo/QZSS
Temperature		-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)	-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)
<b>Electrical Features</b>			
Supply Voltage Range		3.1V~ 4.4V, 3.3V(typ)	3.1V~ 4.4V, 3.3V(typ)
Power Consumption (sleep)		TBD	TBD
<b>Data Transfer</b>			
LTE CAT 6		300Mbps(DL)/50Mbps (UL)	300Mbps(DL)/50Mbps (UL)
LTE CAT 12			
<b>Software Features</b>			
Protocol		TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS /HTTP/HTTPS/DNS*	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS /HTTP/HTTPS/DNS*
TLS		SSL3.0/TLS1.0/TLS1.2	SSL3.0/TLS1.0/TLS1.2
FOTA		●	●
Android RIL		Android 6/7/8/9	Android 6/7/8/9
USB Driver		Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10 /Linux /Android	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10 /Linux /Android
Firmware Upgrade		USB/FOTA	USB/FOTA
<b>Interface</b>			
USB3.0		1	1
PCIE		1	1
PCM		1	1
GPIO		1	1
I2C		1	1
Antenna		5	3
<b>Certification</b>			
Certification		FCC/CE(RED)/RoHS/REACH/PTCRB*/GCF	FCC/CE(RED)/RoHS/REACH/PTCRB*/GCF
Typical Applications		Video Surveillance, Gateway, Industrial PDA, Router	



\*: Under Development/On-going/Planning

## LTE-A Module

Technology	LTE CAT6	
Product	A7908E/SA-M2	A7908E/SA
Picture		
Form Factor	M.2	LGA
Dimensions (mm)	42.0*30.0*2.3	39.5*37.0*2.8
Weight (g)	6.1±0.1	6.1±0.1
Frequency Bands	<p>- E(Europe/Africa/Australia/Southeast Asia)</p> <p>LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B40/B41/B42*/B43* WCDMA: B1/B5/B8</p> <p>-SA(New Zealand/Australia/South America)</p> <p>LTE-FDD: B2/B4/B5/B7/B8/B28/B66 LTE-TDD: B38/B40/B42*/B43* WCDMA: B2/B4/B5</p>	<p>LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B40/B41/B42*/B43* WCDMA: B1/B5/B8</p> <p>LTE-FDD: B2/B4/B5/B7/B8/B28/B66 LTE-TDD: B38/B40/B42*/B43* WCDMA: B2/B4/B5</p>
GNSS	NA	NA
Temperature	-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)	-30°C ~ +70°C (Extended temperature: 40°C ~ +85°C)
<b>Electrical Features</b>		
Supply Voltage Range	3.1V~ 4.4V, 3.3V	3.1V~ 4.4V, 3.3V
Power Consumption (sleep)	TBD	TBD
<b>Data Transfer</b>		
LTE CAT 6	300Mbps(DL)/50Mbps(UL)	300Mbps(DL)/100Mbps(UL)
LTE CAT 12		
<b>Software Features</b>		
Protocol	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/MQTT/DNS	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/MQTT/DNS
TLS	SSL3.0	SSL3.0
FOTA	●	●
Android RIL	Android 6/7/8/9	Android 6/7/8/9
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10 /Linux /Android	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10 /Linux /Android
Firmware Upgrade	USB	USB
<b>Interface</b>		
USB3.0	●	●
PCIE	●	●
PCM	●	●
GPIO	●	●
I2C	●	●
Antenna	●	●
<b>Certification</b>		
Certification	ROHS*/Anatel*/REACH*/CE*/UKCA*/RCM*	ROHS*/Anatel*/REACH*/CE*/UKCA*/RCM*
Typical Applications	Video Surveillance, Gateway, Industrial PDA, Router	



\*: Under Development/On-going/Planning

## Automotive Module

Technology	5G+C-V2X	ITS AP
Product	SIM8800X(CE/E)	SIM8150
Picture		
Form Factor	LGA; 524pin	LGA, 208PIN
Dimensions(mm)	53*54.5*3.45	33.0 *33.5* 3.3
Memory (Flash+DDR)	8+8Gb	4+4Gb
Weight(g)	TBD	TBD
Frequency Bands	<p>CE: 5G FDD: n1/n3/n8/n28 5G TDD: n41/n77/n78/n79 LTE-FDD: B1/B3/B5/B7/B8 C-V2X:B47</p> <p>LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 GSM: 900/1800MHz</p> <p>E: 5G FDD: n1/n3/n8/n20/ n28 5G TDD: n41/n78/n79 LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 C-V2X:B47</p> <p>LTE-TDD: B38/B40/B41/B42 WCDMA: B1/B3/B5/B6/B8 GSM: 900/1800MHz</p>	NA
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/QZSS	NA
Bluetooth	BT5.2(with BT module)	NA
Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>		
Supply Voltge Range	3.3V~ 4.3V	3.3V~4.3V
Power Consumption (sleep)(mA)	3mA@WCDMA DRX=2.56s 2.14mA@LTE-FDD DRX=2.56s 3.5mA@NR-FDD DRX=2.56s	TBD
<b>Data Transfer</b>		
GPRS Slot	class 12	N/A
5G(Gbps)	2.4Gbps (DL)/ 550 Mbps (UL)	N/A
LTE(Mbps)	LTE-FDD: 1.6 Gbps (DL)/ 200 Mbps (UL) LTE-TDD: 1.4 Gbps (DL)/ 120 Mbps (UL)	N/A
WCDMA/HSPA/HSPA+(Mbps)	DC-HSDPA: MAX 42 Mbps HSUPA: MAX 5.76 Mbps WCDMA: MAX 384 kbps (DL/UL)	N/A
EDGE(Kbps)	296(DL)/236.8(UL)	N/A
<b>Software Features</b>		
Protocol	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/ SMTP/ SSL/ TLS/ MMS/ NTP/ FILE/ QMI	N/A
eCall	●	N/A
Open Linux	●	●
Multi-APN	●	N/A
SDIO	●	●
UART2	●	●
FOTA	●	N/A
temperature monitor	●	N/A
TLS	●	N/A
File System	●	N/A
Audio Record/Play	●	N/A
TTS	●	N/A
DTMF	●	N/A
LBS	●	N/A
ECM	●	N/A
QMI_WWAN Driver	●	N/A
RIL Driver	Android 6.0/7.0/8.0/9.0/10.0	N/A
Security	SELinux/Trustzone/Secure boot	●
Routing policy	5G,WIFI and Ethernet port	N/A
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/ Linux /Android	N/A
NDIS/RNDIS	●	N/A
Embedded AT	●	N/A
Firmware Upgrade	USB /FOTA	USB
Wi-Fi	2.4G/5G	N/A
<b>Interface</b>		
RGMII	10M/100M/1000M base-T1/Tx	10M/100M/1000M base-T1/Tx
UART	3*UART	●
USB	1*2.0/3.1	1*2.0/3.1; 1* USB2.0 only for debug
ADC	2*ADC	2*ADC
OTG	●	N/A
HSIC	●	N/A
PCIE	●	●
PCM	1	N/A
Analog Audio	○	N/A
GPIO	11*GPIO	10*GPIO
SDIO	●	●
SD Card	SD card(1.8V or 3.0V)	SD3.0
SPI	1*SPI	2*SPI
I2C	1*I2C	2*I2C
Antenna	4*Main&1*2*V2X&1*GNSS&2*DSDA	N/A
<b>Certification</b>		
Certification	CE: 3C*/SRRC*/CTA*/RoHS*/REACH* E: CE(RED)*/RoHS*/REACH*	RoHS*/REACH*
Typical Applications	Vehicle Tracking, OBD, Vehicle DVR, T-BoX	



o: Optional \*: Under Development/On-going/Planning

## Automotive Module

Technology	4G	
Product	SIM7800X(CE/E)	SIM7805X(CE/E/SA)
Picture		
Form Factor	LGA, 282 PIN	LGA, 299PIN
Dimensions (mm)	34.0*40.0*3.1	33.0*37.5*2.95
Memory (Flash+DDR)	4+2Gb	4+2Gb
Weight (g)	8.7±0.1	8.0±0.1
Frequency Bands	CE: LTE-FDD: B1/B3/B5/B8 WCDMA: B1/B8 TD-SCDMA: B34/B39 GSM: 900/1800 MHz E: LTE-FDD: B1/B3/B5/B7/B8/B20 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: 900/1800 MHz	LTE-TDD: B34/B38/B39/B40/B41 TD-SCDMA B34/B39 GSM: 900/1800 MHz E: TDD-LTE: B38/B40/B41 FDD-LTE: B1/B3/B5/B7/B8/B20/B28 UMTS/HSPA+ B1/B5/B8 SA-TDD-LTE B40 UMTS/HSPA+ B1/B2/B4/B5/B8 GSM/GPRS/EDGE 900/1800 MHz
GNSS	Beidou/GPS/GLONASS/Galileo/QZSS	Beidou/GPS/GLONASS/Galileo/QZSS
Bluetooth	BT4.2(with W59)	BT4.2 (with W55)
Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>		
Supply Voltage Range	3.3V~ 4.3V	3.3V~ 4.3V
Power Consumption (sleep) (ma)	1.8mA@GSM,BS_PA_MFRMS=2 3.3mA@WCDMA, DRX=9 1.84mA@LTE-FDD	1.8mA@GSM,BS_PA_MFRMS=2 3.3mA@WCDMA, DRX=9 1.84mA@LTE-FDD
<b>Data Transfer</b>		
GPRS Slot	class 12	class 12
5G Sub-6G	NA	NA
LTE(Mbps)	LTE CAT 4: 150 (DL)/50(UL)	LTE CAT 4: 150 (DL)/50(UL)
WCDMA/HSPA/HSPA+(Mbps)	42.2(DL)/5.76(UL)	42.2(DL)/11.5(UL)
TD-SCDMA(Mbps)	2.8(DL)/2.2(UL)	2.8(DL)/2.2(UL)
CDMA EV-DO(Mbps)	3.1(DL)/1.8(UL)	3.1(DL)/1.8(UL)
EDGE(Kbps)	296(DL)/236.8(UL)	296(DL)/236.8(UL)
<b>Software Features</b>		
Protocol	TCP/IP/IPV4/IPV6/MultiPDP/FTP/FTPS/HTTP/HTTPS/DNS/SMT/SMTPS/NTP/PING/SSL	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/DTMF*/FILE/QMI
eCall	●	●
Open Linux	●	●
Multi-APN	●	●
SDIO	●	●
UART2	●	●
FOTA	●	●
Temperature Control	●	●
TLS	●	●
File System	●	●
Audio Record/Play	●	●
TTS	●	●
DTMF	●	●
LBS	●	●
ECM	●	●
QMI_WWAN Driver	●	●
RIL Driver	Android 6/7/8/9/10	Android 6/7/8/9/10
Security	SELinux/Trustzone/Secure boot	SELinux/Trustzone/Secure boot
Routing Policy	4G, Wi-Fi and Ethernet port	4G, Wi-Fi and Ethernet port
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/ Linux /Android	Microsoft Windows Win7/Win8/Win10/ Linux /Android
NDIS/RNDIS	●	●
Embedded AT	●	●
Firmware Upgrade	USB /FOTA	USB /FOTA
Wi-Fi	2.4G/5G(with W59)	2.4G/5G(with W55)
<b>Interface</b>		
SGMII	10M/100M/1000M base-T1/Tx	10M/100M/100M Ethernet
RGMII	N/A	NA
UART	3*UART	4*UART
USB	1*2.0	1*2.0
ADC	3*ADC	3*ADC
OTG	●	●
HSIC	●	●
PCIE	NA	NA
PCM	1*I2S	1
Analog Audio	○	○
GPIO	5*GPIO	8*GPIO
SDIO	SDIO3.0 (200MHz Max)	*1SDIO
SD 卡	SD3.0 (128G Max)	SD3.0
SPI	1*SPI	2*SPI(configured via UART)
I2C	1*I2C	1*I2C
Antenna	1*Main&1*Diversity&1*GNSS	1*Main&1*Diversity&1*GNSS
<b>Certification</b>		
Certification	CE: 3C/SRRC/CTA E: CE(RED)*/RoHS/REACH	CE: CCC/TA/CTA* E: CE(RED)/RoHS/REACH
<b>Typical Applications</b>	Vehicle Tracking, OBD, Vehicle DVR, T-Box	




o: Optional \*: Under Development/On-going/Planning

## Automotive Module

Technology	4G	
Product	A7805X(C/E)	A7805X(C/E)-TMVQ
Picture		
Form Factor	LGA, 299PIN	LGA, 299PIN
Dimensions (mm)	33.0×37.5×3.0	33.0×37.5×3.0
Memory (Flash+DDR)	2+2Gb	4+4Gb
Weight(g)	8.0±0.1	8.0±0.1
Frequency Bands	C: LTE FDD: B1/B3/B5/B8 WCDMA: B1/B8 E: TDD-LTE: B38/B40/B41 UMTS/HSPA+ B1/B5/B8	LTE-TDD: B34/B38/B39/B40/B41 GSM: 900/1800MHz FDD-LTE : B1/B3/B5/B7/B8/B20/B28 GSM/GPRS/EDGE 900/1800 MHz
GNSS	C:GPS/GLONASS/Beidou E: GPS/GLONASS/GALILEO	C:GPS/GLONASS/Beidou E: GPS/GLONASS/GALILEO
Bluetooth	BT 4.2(with EWN-8821CSB1AA)	BT 4.2(with EWN-8821CSB1AA)
Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>		
Supply Voltage Range	3.3V~ 4.3V	3.3V~ 4.3V
Power Consumption (sleep) (ma)	1.29mA@GSM DRX =9 1.52mA@WCDMA PF=256 1.35mA@LTE-FDD PF=256	1.29mA@GSM DRX =9 1.52mA@WCDMA PF=256 1.35mA@LTE-FDD PF=256
<b>Data Transfer</b>		
GPRS Slot	class 12	class 12
LTE(Mbps)	LTE CAT 4: 150 (DL)/50(UL)	LTE CAT 4: 150 (DL)/50(UL)
WCDMA/HSPA/HSPA+(Mbps)	21.1(DL)/5.76(UL)	21.1(DL)/5.76(UL)
TD-SCDMA(Mbps)	NA	NA
CDMA EV-DO(Mbps)	NA	NA
EDGE(Kbps)	296(DL)/236.8(UL)	296(DL)/236.8(UL)
<b>Software Features</b>		
Protocol	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS /HTTP/HTTPS/DNS	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS /HTTP/HTTPS/DNS
eCall	● (ecall&NG-ecall)	● (ecall&NG-ecall)
Open Linux	● (Open WRT)	● (Open WRT)
Multi-APN	●	●
SDIO	●	●
UART2	●	●
FOTA	●	●
Temperature Control	●	●
TLS	●	●
File System	●	●
Audio Record/Play	●	●
TTS	●	●
DTMF	○	○
LBS	●	●
ECM	●	●
QMI_WWAN Driver	NA	NA
RIL Driver	Android 6.0/7.0/8.0/9.0/10.0	Android 6.0/7.0/8.0/9.0/10.0
Security	SELinux/Trustzone/Secure boot	SELinux/Trustzone/Secure boot
Routing Policy	4G, Wi-Fi and Ethernet port	4G, Wi-Fi and Ethernet port
USB Driver	Microsoft Windows 7/8/10/Linux/Android	Microsoft Windows 7/8/10/Linux/Android
NDIS/RNDIS	●	●
Embedded AT	●	●
Firmware Upgrade	USB /FOTA	USB /FOTA
Wi-Fi	2.4G/5G(with EWN-8821CSB1AA)	2.4G/5G(with EWN-8821CSB1AA)
<b>Interface</b>		
SGMII	NA	NA
RGMII	●	●
UART	3*UART	3*UART
USB	1*2.0	1*2.0
ADC	3*ADC	3*ADC
OTG	●	●
HSIC	N/A	N/A
PCIE	N/A	N/A
PCM	1/I2S	1/I2S
Analog Audio	●	●
GPIO	8*GPIO	8*GPIO
SDIO	2*SDIO	2*SDIO
SD Card	SD3.0	SD3.0
SPI	1*SPI	1*SPI
I2C	2*I2C	2*I2C
Antenna	1*Main&1*Diversity&1*GNSS	1*Main&1*Diversity&1*GNSS
<b>Certification</b>		
Certification	CE: CCC/ TA/CTA* E: RoHS/REACH/CE(RED)	CE: CCC/ TA/CTA* E: RoHS/REACH/CE(RED)
<b>Typical Applications</b>	Vehicle Tracking, OBD, Vehicle DVR, T-Box	



o: Optional \*: Under Development/On-going/Planning

## Smart Module

Technology	Smart Module		
Product	SIM9650L	SIM8666	SIM8668
Picture			
Form Factor	LGA 636PIN	LCC+LGA 382PIN	LCC+LGA 382PIN
Dimension(mm)	42.5*56.5*2.95	43*44*3.2	43*44*3.2
Weight(g)	15±0.1	13.6±0.1	13.6±0.1
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B5/B8 GSM: 900/1800MHz	
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: 850/900/1800 MHz	
GNSS	GPS/ GLONASS/ BDS		
WLAN	WiFi 6E(2.4G/5G, 2x2 MU MIMO, 802.11 a/b/g/n/ac/ax)		
CPU	QCS6490 ,ARM V-8 cores 1 Core Kryo Gold plus up to 2.7GHz 3 Cores Kryo Gold up to 2.4GHz 4 Core Kryo Sliver up to 1.9GHz	RockChip lot RK3566 up to 1.8GHz	RockChip lot RK3568 up to 2.0GHz
GPU	Adreno 643 GPU at 812MHz	ARM Mali-G52 GPU	ARM Mali-G52 GPU
AI TOPS	12 TOPS	1 TOPS	1 TOPS
Memory	8GB LPDDR4x RAM +128GB UFS	16GB eMMC + 2GB LPDDR4	16GB eMMC + 2GB LPDDR4
Supply Voltage Range	3.5V~ 4.4V	3.3V~ 3.5V	3.3V~ 3.5V
Temperature	-30°C ~ +75°C	-10°C ~ +75°C	-10°C ~ +75°C
<b>Data Transfer</b>			
LTE(Mbps)	LTE CAT 4 - 150(DL)/50(UL)		
WCDMA/HSPA/HSPA+(Mbps)	42.2(DL)/5.76(UL)		
GPRS(Kbps)	Max 107(DL)/85.6(UL)		
EDGE(Kbps)	Max 296(DL)/236.8(UL)		
<b>Media</b>			
Display	4-lane MIPI_DSI, DP over USB Type-C FHD 2520*1080 60fps	Support MIPI DSI/LVDS/eDP/HDMI/ BT656TX/BT1120TX 8-Lane MIPI DSI 1.2 2560*1600 60Hz 2*4-Lane MIPI DSI 1.2 1920*1080 60Hz 4-Lane eDP 1.3 2560*1600 60Hz 4-Lane LVDS 1280*800 60Hz	Support MIPI DSI/LVDS/eDP/HDMI/ BT656TX/BT1120TX 8-Lane MIPI DSI 1.2 2560*1600 60Hz 8-Lane LVDS 1920*1080 60Hz 2*4-Lane MIPI DSI 1.2 1920*1080 60Hz 4-Lane eDP 1.3 2560*1600 60Hz 4-Lane LVDS 1280*800 60Hz
Camera	4-Lane MIPI_CSI*4, with Three ISPs Up to 3*27 MP@24fps or 3*22 MP@30fps; 36MP + 27MP@24fps or 36MP + 22MP@30 fps; 36MP@30fps	1*4-Lane MIPI_CSI up to 8MP or 2*2-Lane MIPI_CIS	1*4-Lane MIPI_CSI up to 8MP or 2*2-Lane MIPI_CIS
Video Performance	Encode: 4K@30 H.264/H.265 Decode: 4K@60 H.264/H.265/VP9 Wireless display(decode + encode): 1080p60 D +1080p60 E or 4K30 D + 1080p30 E	Encode: 1080P @ 60 fps H.264/ AVC BP/ MP/ HP @ level4.2, H.265/ HEVC MP @ level4.1 Decode: 4K @ 60 fps H.265 HEVC/ MVC Main10 Profile yuv420 @ L5.1 H.264 AVC/ MVC Main10 Profile yuv400/ yuv422 @ L5.1	Encode: 1080P @ 60 fps H.264/ AVC BP/ MP/ HP @ level4.2, H.265/ HEVC MP @ level4.1 Decode: 4K @ 60 fps H.265 HEVC/ MVC Main10 Profile yuv420 @ L5.1 H.264 AVC/ MVC Main10 Profile yuv400/ yuv422 @ L5.1
Analog Audio	2 Digital MICs	1 Input & 2 Outputs	1 Input & 2 Outputs
Audio Codec	Speech Decode + Encode: EVRC, EVRC-B, EVRC-WB, G.711, G.729, PCM,EVS; GSM-FR, GSM-EFR, GSM-HR; AMR-NB, AMR-WB, QCELP	PCM	PCM
<b>Interface</b>			
UART	*12	*8	*8
PCIe	*1, 2-lane PCIe Gen 3, support NVMe	PCIe V2.1 1-Lane, RC only, Gen1/Gen2	PCIe1: 1-Lane PCIe2.0, RC only PCIe2: 2-Lane PCIe3.0, RC & EP
USB	USB3.1/2.0/Type-C/OTG	*4	*4
UIM	*1	*2	*2
GPIO	At Least 35 GPIO	At Least 20*GPIO	At Least 20*GPIO
SD Card	●	●	●
SPI	●	●	●
I2C	*13	*5	*5
ADC	*4	*2	*5
Motor Drive	●		
WLED Sink	●		
Flash Drive	●		
Others			
Antenna	4*4 MIMO&GNSS&Wi-Fi/BT	RGMI/SATA	RGMI/SATA
<b>Software Features</b>			
Operating System	Android 14	Android/Linux	Android/Linux
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/ Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/ Win8/Win10/Linux
Bluetooth	BT 5.x BLE		
Dual LCD	●	● (Synchronous Dual Displays)	● (Asynchronous Three Displays)
DSDS	●		
Charge Function	●		
Firmware Upgrade	USB/OTA/TF card	USB/TF card	USB/TF card
<b>Certification</b>			
Certification	RoHS*/REACH*/CCC*	RoHS/REACH/CCC*/CE*/FCC*/IC*	RoHS/REACH/CCC*/CE*/FCC*/IC*
Typical Applications	POS, Security, Networking, Telematics, Retail		



o: Optional \*: Under Development/On-going/Planning

## Smart Module

Technology	Smart Module	
Product	SIM8965X	SIM8966X
Picture		
Form Factor	LCC+LGA 286PIN	LCC+LGA 286PIN
Dimension(mm)	40.5*40.5*3.0	40.5*40.5*3.0
Weight(g)	10.5	11.5±0.1
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B8 GSM: 900/1800MHz
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900 MHz
G (Global)	LTE-FDD: B1/2/3/4/5/7/8/12/13/17/18/19/20/25/26/28/66/71 LTE-TDD: B34/38/39/40/41 WCDMA:B1/2/3/4/5/6/8/9/19 GSM:850/900/1800/1900 MHz	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B8 GSM: 900/1800MHz
	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B18/B19/B20/B25/B26/B28/B66 LTE-TDD: B34/38/39/40/41 WCDMA:B1/B2/B3/B4/B5/B6/B8/B9/B19 GSM:850/900/1800/1900 MHz	
GNSS	GPS/BeiDou/GLONASS/Galileo/ QZSS	GPS/BeiDou/GLONASS/Galileo/ QZSS
WLAN	2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac
CPU	SM6115 ,Octa ARM kryo260 cores up to 2.0GHz	SM6115 ,Octa ARM kryo260 cores up to 2.0GHz
GPU	Adreno 610 GPU	Adreno 610 GPU
Memory	4GB LPDDR4X RAM +64GB UFS 4GB LPDDR4X RAM +64GB EMMC	4GB LPDDR4X RAM +64GB EMMC
Supply Voltage Range	3.5V~ 4.2V	3.5V~ 4.2V
Temperature	-30°C ~ +75°C	-30°C ~ +75°C
<b>Data Transfer</b>		
LTE(Mbps)	LTE CAT 4 - 150(DL)/50(UL)	LTE CAT 4 - 150(DL)/50(UL)
WCDMA/HSPA/HSPA+(Mbps)	42.2(DL)/5.76(UL)	42.2(DL)/5.76(UL)
GPRS(Kbps)	Max 107(DL)/85.6(UL)	Max 107(DL)/85.6(UL)
EDGE(Kbps)	Max 296(DL)/236.8(UL)	Max 296(DL)/236.8(UL)
<b>Media</b>		
Display	4-lane MIPI_DSI, FHD 2520*1080 60fps	4-lane MIPI_DSI, FHD 2520*1080 60fps
Camera	MIPI_CSI*2 Support 2 Cameras Up to 25MP with Dual ISPs	4-Lane MIPI_CSI*2 ,2-Lane MIPI_CIS*1, Support 3 Cameras Up to 25MP with Three ISPs
Video Performance	Encode: 1080p 60fps(H.264,MPEG4,H.263) Decode: 1080p 60fps(H.264,MPEG4,VP8) Decode + Encode: 1080p 30 decode + 1080p 30 encode	Encode: 1080p 60fps(H.264,MPEG4,H.263) Decode: 1080p 60fps(H.264,MPEG4,VP8) Decode + Encode: 1080p 30 decode + 1080p 30 encode
Analog Audio	3 Inputs & 3 Outputs	3 Inputs & 3 Outputs
Audio Codec	Speech Decode + Encode: EVS, EVRC, EVRC-B, EVRC-WB G.711 and G.729A/AB GSM-FR, GSM-EFR, and GSM-HR AMR-NB and AMR-WB Audio Decode + Encode: MP3; AAC; HE AAC v1, v2; FLAC; APE; ALAC; AIF	Speech Decode + Encode: EVS, EVRC, EVRC-B, EVRC-WB G.711 and G.729A/AB GSM-FR, GSM-EFR, and GSM-HR AMR-NB and AMR-WB Audio Decode + Encode: MP3; AAC; HE AAC v1, v2; FLAC; APE; ALAC; AIF
<b>Interface</b>		
UART	*3	*3
USB	USB3.1/2.0/Type-C/OTG	USB3.1/2.0/Type-C/OTG
UIM	*2	*2
GPIO	At Least 20*GPIO	At Least 20*GPIO
SD Card	●	●
SPI	●	●
I2C	*8	*8
ADC	*1	*1
Antenna	Main&Diversity&GNSS&Wi-Fi/BT	Main&Diversity&GNSS&Wi-Fi/BT
<b>Software Features</b>		
Operating System	Android 14/16	Android 14/16
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux
Bluetooth	5.0 BR/EDR/BLE	5.0 BR/EDR/BLE
DSDS	●	●
Charge Function	●	●
Firmware Upgrade	USB/OTA/TF card	USB/OTA/TF card
<b>Certification</b>		
Certification	RoHS/REACH/CCC*/CE*/FCC*/IC*	RoHS/REACH/CCC*/CE*/FCC*/IC*
Typical Applications	POS, Security, Networking, Telematics, Retail	



o: Optional \*: Under Development/On-going/Planning

## Smart Module

Technology	Smart Module		
Product	SIM8905X(C/E/A-R2)	SIM8400CE/EU	
Picture			
Form Factor	LCC+LGA 210PIN	LCC+LGA 168PIN	
Dimension(mm)	40.5*40.5*2.8	30*40*2.65	
Weight(g)	10.6±0.1	9.6±0.1	
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8      LTE-TDD: B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B5/B8      EVDO: BC0 TD-SCDMA: B34/B39      EDGE/GPRS/GSM: 900/1800 MHz	LTE-FDD: B1/B3/B5/B8      LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B5/B8      EDGE/GPRS/GSM: 900/1800 MHz
	A/NA(North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B17/B25/B26      LTE-TDD: B41 WCDMA: B1/B2/B4/B5/B8      EDGE/GPRS/GSM: 850/900/1900 MHz	
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20      LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B5/B8      GSM: 850/900/1800/1900 MHz	LTE-FDD: B1/B3/B5/B7/B8/B20      LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8      GSM: 900/1800 MHz
GNSS	BeiDou/GPS/GLONASS	BeiDou/GPS/GLONASS	
WLAN	2.4G/5G (Optional), 802.11 b/g/n/a (Optional)	2.4G 802.11 b/g/n	
CPU	MSM8909, Quad ARM Cortex-A7 cores up to 1.1GHz	SL8521E, Dual Arm Cortex-A53 cores up to 1.3GHz	
GPU		Mali T820 MP1 at 384MHz	
Memory	1GB LPDDR3 RAM +8GB eMMC Flash	4GB eMMC + 2GB LPDDR2	
Supply Voltage Range	3.4V~ 4.4V	3.4V ~ 4.4V	
Temperature	-35°C ~ +75°C	-35°C ~ +75°C	
<b>Data Transfer</b>			
LTE(Mbps)	LTE CAT 4 - 150(DL)/50(UL)	LTE CAT 4 - 150(DL)/50(UL)	
WCDMA/HSPA/HSPA+(Mbps)	42.2(DL)/5.76(UL)	21(DL)/11(UL)	
TD-SCDMA(Mbps)	2.8(DL)/2.2(UL)		
CDMA EV-DO(Mbps)	3.1(DL)/1.8(UL)		
CDMA 1xRTT(Kbps)	153.6(DL)/153.6(UL)		
GPRS(Kbps)	Max 107(DL)/85.6(UL)	Max 107(DL)/85.6(UL)	
EDGE(Kbps)	Max 296(DL)/236.8(UL)	Max 296(DL)/236.8(UL)	
<b>Media</b>			
Display	4-lane MIPI_DSI HD(720P), 60fps	SPI port supports QVGA 320*240 Max      MIPI port supports VGA 800*480 Max	
Camera	MIPI_CSI * 2      Primary camera: 2-lane MIPI_CSI, up to 8MP Secondary camera: 1-lane MIPI_CSI, up to 5MP	MIPI_CSI *1      up to 5MP	
Video Performance	Encode: H.264 BP/MP - 720p, 30 fps; MPEG-4 SP/H.263 P0 - WVGA, 30 fps;      VP8 - WVGA, 30 fps; Decode: H.264 BP/MP/HP - 1080p, 30 fps; MPEG-4 SP/ASP - 1080p, 30 fps;      DivX 4x/5x/6x - 1080p, 30 fps; H.263 P0 - WVGA, 30 fps;      VP8 - 1080p, 30 fps; (HEVC) H.265 MP 8 bit - 1080p, 30 fps;	Encode: 720p 30fps(H.264,MPEG4) Decode: 720p 30fps(H.264,MPEG4,H263,VP8)	
Analog Audio	2 Inputs & 3 Outputs	3 Inputs & 3 Outputs	
Audio Codec	G711; Raw PCM; QCELP; EVRC; EVRC-B; EVRC-WB; AMR-NB; AMR-WB; GSM-EFR; GSM-FR; GSM-HR MP3; AAC; AAC+; eAAC; AMR-NB; ARM-WB; G.711; WMA 9/10 Pro	Support MP3/AAC/AAC+ / AMR-NB/AMR WB/PCM/ADPCM decoding Audio recording codec support MP3/AMR/ACC format	
<b>Interface</b>			
UART	*2	*3	
USB	USB2.0	USB2.0	
UIM	*2	*2	
GPIO	At Least 21*GPIO	At Least 40*GPIO	
SD Card	●	●	
SPI	●	●	
I2C	*4	*1	
ADC	*1	*2	
Motor Drive	*1	*1	
Antenna	Main&Diversity&GNSS&Wi-Fi/BT	Main&Diversity&GNSS&Wi-Fi/BT	
<b>Software Features</b>			
Operating System	Android 5.1/7.1/8.1/Linux 3.18	linux(Yacto)	
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	
Bluetooth	BT 2.1+EDR/3.0/4.1 LE	BT 4.2	
DSDS	●	●	
Charge Function	●	●	
Firmware Upgrade	USB/OTA/TF card	USB/OTA/TF card	
<b>Certification</b>			
Certification	C:RoHS/REACH/CCC/SRRC      A:RoHS/REACH/FCC/PTCRB/AT&T/IC E:RoHS/REACH/CE(RED)	RoHS/REACH/CE	
<b>Typical Applications</b>			
Typical Applications	POS, Security, Networking, Telematics, Retail		




o: Optional \* : Under Development/On-going/Planning

## Smart Module

Technology	Smart Module		
Product	SIM8500E/CE	SIM8502X(CE/EA/SA)	
Picture			
Form Factor	LCC+LGA 286PIN	LCC+LGA 286PIN	
Dimension(mm)	40.5*40.5*2.85	40.5*40.5*2.85	
Weight(g)	10.6±0.1	10.6±0.1	
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8      LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B5/B8      EDGE/GPRS/GSM: 900/1800 MHz	LTE-FDD: B1/B3/B5/B8      LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B5/B8      EDGE/GPRS/GSM: 900/1800 MHz
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28      LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B5/B8      GSM: 850/900/1800/1900 MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28      LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B4/B5/B8      GSM: 850/900/1800/1900 MHz
	SA(New Zealand/Australia/South America)		LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66      LTE-TDD: B40 WCDMA: B1/B2/B5/B8      GSM: 850/900/1800/1900 MHz
GNSS	BeiDou/GPS/GLONASS	BeiDou/GPS/GLONASS	
WLAN	2.4G 802.11 b/g/n(a,c 可选)	2.4G/5G, 802.11a/b/g/n/ac	
CPU	SL8541E, Quad ARM Cortex-A53 cores up to 1.4GHz	SL8541E, Quad ARM Cortex-A53 cores up to 1.4GHz	
GPU	Mali-T820 MP1 GPU at 680 MHz	Mali-T820 MP1 GPU at 680 MHz	
Memory	1GB LPDDR3 RAM +8GB eMMC Flash	1GB LPDDR3 RAM +8GB eMMC Flash	
Supply Voltage Range	3.5V~ 4.4V	3.5V~ 4.4V	
Temperature	-35°C ~ +75°C	-35°C ~ +75°C	
<b>Data Transfer</b>			
LTE(Mbps)	LTE CAT 4 - 150(DL)/50(UL)	LTE CAT 4 - 150(DL)/50(UL)	
WCDMA/HSPA/HSPA+(Mbps)	21(DL)/11(UL)	21(DL)/11(UL)	
GPRS(Kbps)	Max 107(DL)/85.6(UL)	Max 107(DL)/85.6(UL)	
EDGE(Kbps)	Max 296(DL)/236.8(UL)	Max 296(DL)/236.8(UL)	
<b>Media</b>			
Display	4-lane MIPI_DSI      HD(1440*720), 60fps	4-lane MIPI_DSI      HD(1440*720), 60fps	
Camera	MIPI_CSI * 2      Primary camera: 4-lane MIPI_CSI, up to 13MP Secondary camera: 4-lane MIPI_CSI, up to 8MP	MIPI_CSI * 2      Primary camera: 4-lane MIPI_CSI, up to 13MP Secondary camera: 4-lane MIPI_CSI, up to 8MP	
Video Performance	Encode: 1080p 30fps(H.264,MPEG4,H.263) Decode: 1080p 30fps(H.264,MPEG4,VP8)	Encode: 1080p 30fps(H.264,MPEG4,H.263) Decode: 1080p 30fps(H.264,MPEG4,VP8)	
Analog Audio	3 Inputs & 3 Outputs	3 Inputs & 3 Outputs	
Audio Codec	Voice Codec: GSM-FR; GSM-EFR; GSM-HR; AMR-NB; AMR-WB; EVS-NB; EVS-WB; EVS-SWB Audio Codec: MP3 AAC; AAC+ AMR-NB	Voice Codec: GSM-FR; GSM-EFR; GSM-HR; AMR-NB; AMR-WB; EVS-NB; EVS-WB; EVS-SWB Audio Codec: MP3 AAC; AAC+ AMR-NB	
<b>Interface</b>			
UART	*2	*2	
USB	USB2.0	USB2.0	
UIM	*2	*2	
GPIO	At Least 25*GPIO	At Least 25*GPIO	
SD Card	●	●	
SPI	●	●	
I2C	*4	*4	
ADC	*1	*1	
Motor Drive	*1	*1	
Antenna	Main&Diversity&GNSS&Wi-Fi/BT	Main&Diversity&GNSS&Wi-Fi/BT	
<b>Software Features</b>			
Operating System	Android 10	Android 10	
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	
Bluetooth	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	
DSDS	●	●	
Charge Function	●	●	
Firmware Upgrade	USB/OTA/TF card	USB/OTA/TF card	
<b>Certification</b>			
Certification	RoHS/REACH/CCC/CE	RoHS/REACH/CCC/CE*	
<b>Typical Applications</b>			
Typical Applications	POS, Security, Networking, Telematics, Retail		



o: Optional \* : Under Development/On-going/Planning

## Smart Module

Technology	Smart Module			
Product	SIM8580X(CE/EA)	SIM6600X(CE/EA)	SIM8950X(EC/AC)	
Picture				
Form Factor	LCC+LGA 344PIN	LCC+LGA 286PIN	LCC+LGA 232PIN	
Dimension(mm)	44.1*45.6*2.9	40.5*40.5*2.85	44.1*45.6*2.8	
Weight(g)	12.0±0.1	10.6±0.1	12.5±0.1	
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B5/B8 GSM: 900/1800MHz	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B8 EDGE/GPRS/GSM: 900/1800 MHz	LTE-FDD: B2/B4/B5/B12/B13/B14/B25/B26 LTE-TDD: B41 WCDMA: B2/B4/B5 EDGE/GPRS/GSM: 850/1900 MHz
	A/NA(North America)			LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41 WCDMA: B2/B4/B5
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: 850/900/1800 MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900	LTE-FDD: B1/B3/B5/B7/B8/B20 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: 900/1800 MHz
	G(Global)			2.4G/5G, 802.11a/b/g/n/ac BT4.2
GNSS	BeiDou/GPS/GLONASS	BeiDou/GPS/GLONASS	BeiDou/GPS/GLONASS	
WLAN	2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac	
CPU	SL8581E, Octa ARM Cortex-A55 cores up to 1.6GHz.	MTK8766, Quad ARM Cortex-A53 cores up to 2.0GHz	SDM450, Octa ARM Cortex-A53 cores up to 1.8GHz	
GPU	PowerVR Fentale GE8322 at 550 MHz	GE8300 GPU at 660MHz	Adreno 506 GPU at 680MHz	
Memory	2GB LPDDR4 RAM +16GB eMMC Flash	2GB LPDDR3 RAM +16GB eMMC Flash	2GB LPDDR3 RAM +16GB eMMC Flash	
Supply Voltage Range	3.5V~ 4.2V	3.4V~ 4.4V	3.4V~ 4.4V	
Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	
<b>Data Transfer</b>				
LTE(Mbps)	LTE CAT 4 - 150(DL)/50(UL)	LTE CAT 4 - 150(DL)/50(UL)	LTE CAT 4 - 150(DL)/50(UL)	
WCDMA/HSPA/HSPA+(Mbps)	21(DL)/11(UL)	42.2(DL)/5.76(UL)	42.2(DL)/5.76(UL)	
GPRS(Kbps)	Max 107(DL)/85.6(UL)	Max 107(DL)/85.6(UL)	Max 107(DL)/85.6(UL)	
EDGE(Kbps)	Max 296(DL)/236.8(UL)	Max 296(DL)/236.8(UL)	Max 296(DL)/236.8(UL)	
<b>Media</b>				
Display	4-lane MIPI_DSI FHD 2160*1080 60fps	4-lane MIPI_DSI HD+(1280*800), 60fps	4-lane MIPI_DSI * 2 FHD 1920*1200 60fps	
Camera	MIPI_CSI * 3 Primary camera: 4-lane MIPI_CSI, up to 16MP Secondary camera: 4-lane MIPI_CSI, up to 16MP	MIPI_CSI * 2 Primary camera: 4-lane MIPI_CSI, up to 13MP Secondary camera: 4-lane MIPI_CSI, up to 8MP	MIPI_CSI * 2 Primary camera: 4-lane MIPI_CSI, up to 21MP Secondary camera: 2-lane MIPI_CSI, up to 8MP	
Video Performance	Encode: 1080p60, H.264, H.265, VP8 Decode: 1080p60, H.264, H.265, VP8, VP9 Wireless Display (Encode+Decode) : 1080p60 Dec + 1080p30 Enc	Encode: 1080p 30fps(H.264) Decode: 1080p 30fps(H.264, MPEG4, VP9, HEVC) Encode+Decode: 1080p 30 fps + 720p 30 fps	Encode: 1080p60, H.264, H.265, VP8 Decode: 1080p60, H.264, H.265, VP8, VP9 Wireless Display (Decode+Encode) : 1080p60 Dec + 1080p30 Enc"	
Analog Audio	3 Inputs & 3 Outputs	3 Inputs & 3 Outputs	2 Inputs & 4 Outputs	
Audio Codec	G711;QCELP;EVRC;EVRC-B, EVRC-WB;AMR-NB, AMR-WB;GSM-EFT, GSM-FT, GSM-HR	Voice codec: AMR FR, AMR HR, AMR-WB, EVS_WB, FR, HR, EFR Audio encode: AMR-NB, AMRWB, AAC, OGG, ADPCM Audio decode: WAV, MP3, MP2, AAC, AMR-NB, AMR-WB, MIDI, Vorbis, APE, AAC-plus v1, v2; FLAC, WMA, ADPCM	G711;QCELP;EVRC;EVRC-B, EVRC-WB;AMR-NB, AMR-WB;GSM-EFT, GSM-FT, GSM-HR	
<b>Interface</b>				
UART	*4	*2	*4	
USB	*2 USB 2.0	USB2.0	USB3.0/2.0/Type-C/OTG	
UIM	*2	*2	*2	
GPIO	At Least 40*GPIO	At Least 25*GPIO	At Least 22*GPIO	
SD Card	●	●	●	
SPI	●	●	●	
I2C	*5	*5	*3	
ADC	*1	*1	*1	
Motor Drive	*1	*1	○	
WLED Sink	●	●	○	
Flash Drive	●	●	○	
Antenna	Main&Diversity&GNSS&Wi-Fi/BT	Main&Diversity&GNSS&Wi-Fi/BT	Main&Diversity&GNSS&Wi-Fi/BT	
<b>Software Features</b>				
Operating System	Android 10	Android 11	Android 7.1/8.1/9.1/10.1	
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	
Bluetooth	BT 5.0	BT 5.0	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	
Dual LCD	●	●	●	
DSDS	●	●	●	
Charge Function	●	●	○	
Firmware Upgrade	USB/OTA/TF card	USB/OTA/TF card	USB/OTA/TF card	
<b>Certification</b>				
Certification	RoHS/REACH/CCC*/CE*	RoHS*/REACH*/CCC*/CE*	RoHS/REACH/CE(RED)	
Typical Applications	POS, Security, Networking, Telematics, Retail			

o: Optional \*: Under Development/On-going/Planning

## Smart Module

Technology	Smart Module			
Product	SIM8970X (CE/EU/NA/W)	SIM8971X(CE/EA/NA/JP/W)		
Picture				
Form Factor	LCC+LGA 344PIN	LCC+LGA 327PIN		
Dimension(mm)	44.1*45.6*2.9	43.0*44.0*3.0		
Weight(g)	12.5±0.1	13.6±0.1		
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 EDGE/GPRS/GSM: 900/1800 MHz	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 UMTS/HSDPA/HSPA+: B1/B8 GSM: 900/1800MHz	
	A/NA(North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41 WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B17/B25/B26 LTE-TDD: B41 WCDMA: B2/B4/B5	
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 WCDMA: B1/B5/B8	LTE-TDD: B38/B40/B41 GSM: 900/1800 MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 WCDMA: B1/B5/B8
	JP(Japan)		LTE: B1/B3/B8/B18/B19/B26/B41	
GNSS	BeiDou/GPS/GLONASS	BeiDou/GPS/GLONASS		
WLAN	2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac		
CPU	QCM6125, Octa ARM V-8 cores up to 2.0GHz	QCM6125, Octa ARM V-8 cores up to 2.0GHz		
GPU	Adreno 610 GPU at 950MHz	Adreno 610 GPU at 950MHz		
Memory	4GB LPDDR4 RAM +64GB eMMC Flash	4GB LPDDR4 RAM +64GB UFS Flash		
Supply Voltage Range	3.5V~ 4.4V	3.4V~ 4.4V		
Temperature	-30°C ~ +75°C	-30°C ~ +75°C		
<b>Data Transfer</b>				
LTE(Mbps)	LTE CAT 6 - 300(DL)/50(UL)	LTE CAT 4 - 150(DL)/50(UL)		
WCDMA/HSPA/HSPA+(Mbps)	42.2(DL)/5.76(UL)	42.2(DL)/5.76(UL)		
GPRS(Kbps)	Max 107(DL)/85.6(UL)	Max 107(DL)/85.6(UL)		
EDGE(Kbps)	Max 296(DL)/236.8(UL)	Max 296(DL)/236.8(UL)		
<b>Media</b>				
Display	4-lane MIPI_DSI, DP over USB Type-C FHD 2520*1080 60fps	4-lane MIPI_DSI, DP over USB Type-C FHD 2520*1080 60fps		
Camera	MIPI_CSI*3 Support 3 or 4 Cameras Up to 25MP with Dual ISPs	MIPI_CSI*3 Support 3 or 4 Cameras Up to 25MP with Dual ISPs		
Video Performance	Encode: 4K30 HEVC/H264/VP8/MPEG4 Decode: 4K30 8-bit: H.264/VP8/VP9 4K30 10-bit: HEVC Wireless display(decode + encode): 4Kp30 Dec + 1080p30 Enc	Encode: 4K30 HEVC/H264/VP8/MPEG4 Decode: 4K30 8-bit: H.264/VP8/VP9 4K30 10-bit: HEVC Wireless display(decode + encode): 4Kp30 Dec + 1080p30 Enc		
Analog Audio	3 Inputs & 4 Outputs	3 Inputs & 3 Outputs		
Audio Codec	G.711, G.729A/AB; EVRC, EVRC-B, EVRC-WB; AMR-NB, AMR-WB, AMR-eAMR, AMR-BeAMR; GSM-EFR/-FR/-HR; MP3; AAC; He-AAC v1, v2; WMA 9/Pro; Dolby AC-3, eAC-3, DTS-HD, FLAC, APE, ALAC, AIFF	MP3; AAC; He-AAC v1,v2; WMA 9/Pro; Dolby AC-3, eAC-3, DTS-HD, FLAC, APE, ALAC, AIFF, and EVS		
<b>Interface</b>				
UART	*6	*5		
USB	USB3.1/2.0/Type-C/OTG	USB3.1/2.0/Type-C/OTG		
UIM	*2	*2		
GPIO	At Least 40*GPIO	At Least 40*GPIO		
SD Card	●	●		
SPI	●	●		
I2C	*10	*9		
ADC	*2	*2		
Motor Drive	●	●		
WLED Sink	●	●		
Flash Drive	●	●		
Antenna	Main&Diversity&GNSS&Wi-Fi/BT	Main&Diversity&GNSS&Wi-Fi/BT		
<b>Software Features</b>				
Operating System	Android 10/11/13	Android 10/11/13		
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux		
Bluetooth	BT 5.x BLE	BT 5.x BLE		
Dual LCD	●	●		
DSDS	●	●		
Charge Function	●	●		
Firmware Upgrade	USB/OTA/TF card	USB/OTA/TF card		
<b>Certification</b>				
Certification	EU:RoHS/REACH/CE(RED) CE:CCC	RoHS/REACH/CCC*/CE/TELEC/JATE/FCC/IC		
Typical Applications	POS, Security, Networking, Telematics, Retail			




o: Optional \*: Under Development/On-going/Planning

## Smart Module

Technology	Smart Module	
Product	SIM8918X(CE/EA/NA/SA/JP/W)	
Picture		
Form Factor	LCC+LGA 286PIN	
Dimension(mm)	40.5*40.5*2.85	
Weight(g)	10.5±0.1	
Frequency Bands	CE(China)	LTE-FDD: B1/B3/B5/B8    LTE-TDD: B34/B38/B39/B40/B41    WCDMA: B1/B8    EDGE/GPRS/GSM: 900/1800 MHz
	A/NA(North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B17/B25/B26/B66/B71    LTE-TDD: B41    WCDMA: B2/B4/B5
	E/EA(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28    LTE-TDD: B38/B40/B41    WCDMA: B1/B2/B4/B5/B8    GSM: 850/900/1800/1900 MHz
	SA(New Zealand/Australia/South America)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66    LTE-TDD: B40    WCDMA: B1/B2/B5/B8    GSM: 850/900/1800/1900 MHz
	JP(Japan)	LTE-FDD: B1/B3/B8/B18/B19/B26/B28    LTE-TDD: B41
	G(Global)	2.4G/5G, 802.11a/b/g/n/ac    BT5.0
GNSS	BeiDou/GPS/GLONASS	
WLAN	2.4G/5G, 802.11a/b/g/n/ac	
CPU	QCM2290 ,Quad ARM Cortex-A53 cores up to 2.0GHz	
GPU	Adreno 702 GPU at 845MHz	
Memory	2GB LPDDR4 RAM +16GB eMMC Flash	
Supply Voltage Range	3.4V~ 4.4V	
Temperature	-35°C ~ +75°C	
<b>Data Transfer</b>		
LTE(Mbps)	LTE CAT 4 - 150(DL)/50(UL)	
WCDMA/HSPA/HSPA+(Mbps)	42.2(DL)/5.76(UL)	
GPRS(Kbps)	Max 107(DL)/85.6(UL)	
EDGE(Kbps)	Max 296(DL)/236.8(UL)	
<b>Media</b>		
Display	4-lane MIPI_DSI    HD(1680*720), 60fps	
Camera	MIPI_CSI * 2    Primary camera: 4-lane MIPI_CSI, up to 13MP    Secondary camera: 4-lane MIPI_CSI, up to 13MP	
Video Performance	Encode: 1080p 30 fps (H.264)    Decode: 1080p 30 fps(HEVC,H.264 and VP8) Encode+Decode: 1080p 30 fps + 720p 30 fps	
Analog Audio	3 Inputs & 3 Outputs	
Audio Codec	EVS, EVRC, EVRC-B, EVRC-WB G.711 and G.729A/AB GSM-FR, GSM-EFR, and GSM-HR AMR-NB and AMR-WBMP3; AAC; HE AAC v1, v2; FLAC; APE; ALAC; AIF	
<b>Interface</b>		
UART	*3	
USB	USB3.1/2.0/Type-C/OTG	
UIM	*2	
GPIO	At Least 25*GPIO	
SD Card	●	
SPI	*2	
I2C	*8	
ADC	*1	
Motor Drive	*1	
Antenna	Main&Diversity&GNSS&Wi-Fi/BT	
<b>Software Features</b>		
Operating System	Android 11/12/13/14/linux5.4	
USB Driver	Microsoft Windows 2000/XP/Vista/Win7/Win8/Win10/Linux	
Bluetooth	BT5.0	
DSDS	●	
Charge Function	●	
Firmware Upgrade	USB/OTA/TF card	
<b>Certification</b>		
Certification	RoHS/REACH/CE(RED)/UKCA/FCC/IC/Jate&Telec	
Typical Applications	POS, Security, Networking, Telematics, Retail	


o: Optional    \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT4		
Product	A7602E-H	A7608SA-H	A7606E-H
Picture			
Form Factor	LCC+LGA, 172PIN	LCC+LGA, 172PIN	LCC+LGA,185PIN
Dimensions(mm)	30.0*30.0*2.5	30.0*30.0*2.5	30.0*30.0
Weight(g)	4.6±0.1	4.6±0.1	4.6±0.1
Frequency Bands	-E(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28* LTE-TDD: B38/B40/B41 UMTS/HSPA+ B1/B5*/B8 GSM/GPRS/EDGE:900/1800 MHz	LTE-FDD: B1/B3/B5/B7/B8/B20/B28* LTE-TDD: B38/B40/B41 UMTS/HSPA+ B1/B5/B8 GSM/GPRS/EDGE:900/1800 MHz
	-SA(New Zealand/Australia/South America)		LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28/B66 LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B5/B8 GSM: 850/900/1800/1900MHz
GNSS	○	○	○
Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>			
Supply Voltage Range	3.4V~ 4.2V	3.4V~ 4.2V	3.4V~ 4.2V
Power Consumption(mA)	2.8@GSM,BS_PA_MFRMS=2 3.3@WCDMA, DRX=9    2.5@LTE	2.8@GSM,BS_PA_MFRMS=2 3.3@WCDMA, DRX=9    2.5@LTE	2.9@GSM,BS_PA_MFRMS=2 2.7@WCDMA, DRX=9    3.0@LTE
<b>Data Transfer</b>			
LTE(Mbps)	150(DL)/50(UL)	150(DL)/50(UL)	150(DL)/50(UL)
WCDMA/HSPA+(Mbps)	21(DL)/5.76(UL)	21(DL)/5.76(UL)	21(DL)/5.76(UL)
GPRS/EDGE(Kbps)	236.8(DL)/236.8(UL)	236.8(DL)/236.8(UL)	236.8(DL)/236.8(UL)
SMS	●	●	●
<b>Software Features</b>			
Protocol	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/DNS	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/DNS	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/DNS
TLS	●	●	●
File System	●	●	●
Audio Record/Play	●	●	●
TTS	○	○	○
DTMF	●	●	●
LBS	●	●	●
FOTA	●	●	●
Android RIL	Android6.0/7.0/8.0/9.0/10.0/11.0/12.0	Android6.0/7.0/8.0/9.0/10.0/11.0/12.0	Android6.0/7.0/8.0/9.0/10.0/11.0/12.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android	Microsoft Windows 7/8/10 Linux/Android	Microsoft Windows 7/8/10 Linux/Android
WWAN (RNDIS)	●	●	●
ECM	●	●	●
MBIM	●	●	●
Embedded AT	○	○	○
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA
<b>Interfaces</b>			
SIM Card	1.8V/3.0V	1.8V/3.0V	1.8V/3.0V
UART	●	●	●
USB	●	●	●
PCM	○	○	○
Mic/Reciever	●	●	●
ADC	●	●	●
GPIO	●	●	●
SD Card	●	●	●
SPI	●	●	●
I2C	●	●	●
Diversity Receiver	○	○	○
<b>Certification</b>			
Certification	E:CE(RED)/RCM/RoHS/REACH/UKCA/Deutsche Telekom	SA:Anatel/FCC/RoHS/REACH	CE*/RoHS*/REACH*
Typical Applications	Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway		



o: Optional    \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT4
Product	SIM7600X-H
Picture	
Form Factor	LCC, 87PIN
Dimensions(mm)	30.0*30.0*2.9
Weight(g)	5.7±0.1
Frequency Bands	<p>-E(Europe/Middle East/Africa/Korea/Thailand) LTE-FDD: B1/B3/B5/B7/B8/B20 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: 900/1800MHz</p> <p>-SA(New Zealand/Australia/South America) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 LTE-TDD: B40 WCDMA: B1/B2/B5/B8 GSM: 850/900/1800/1900MHz</p> <p>-JC/JE(Japan) JC: LTE-FDD: B1/B3/B8/B18/B19/B26</p> <p>-NA(North America) LTE-FDD: B2/B4/B5/B12/B13/B14/B25/B26/B66/B71 LTE-TDD: B41</p> <p>-G(Global) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: 850/900/1800/1900MHz</p>
GNSS	○
Temperature	-40°C ~ +85°C
<b>Electrical Features</b>	
Supply Voltage Range	3.4V~ 4.2V
Power Consumption(mA)	2.8@GSM,BS_PA_MFRMS=2 3.3@WCDMA, DRX=9 2.3@LTE
<b>Data Transfer</b>	
LTE(Mbps)	150(DL)/50(UL)
WCDMA/HSPA+(Mbps)	42(DL)/5.76(UL)
GPRS/EDGE(Kbps)	296(DL)/236.8(UL)
SMS	●
<b>Software Features</b>	
Protocol	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/ HTTP/HTTPS/SMTP/SMTPS/DNS
TLS	●
File System	●
Audio Record/Play	○
TTS	○
DTMF	○
LBS	●
FOTA	●
Jamming Detection	●
Android RIL	Android6.0/7.0/8.0/9.0/10.0/11.0/12.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android
WWAN (RNDIS)	●
ECM	●
MBIM	Win8/Win10
NDIS	Linux/Windows 7/8/10
Embedded AT	○
Firmware Upgrade	USB/FOTA
<b>Interfaces</b>	
SIM Card	1.8V/3.0V
UART	●
USB	●
PCM	○
ADC	●
GPIO	●
SD Card	●
SPI	○
I2C	●
Diversity Receiver	●
<b>Certification</b>	
Certification	E: RoHS/REACH/NCC/IMDA/CE(RED)/UKCA/GCF/Deutsche Telekom/Vodafone*/NBTC JC: RoHS/REACH/JATE/Telec/Docomo/KDDI/Softbank SA: RoHS/REACH/NCC/RCM/CE(RED)/OCD(Anatel)/FCC NA: RoHS/REACH/FCC/IC/GCF/PTCRB/AT&T/Verizon/T-Mobile/US Cellular/Rogers* G: RoHS/REACH/CE(RED)/FCC/IC/CCC/SRRC/JATE/Telec/KC/IMDA/RCM/ICASA/FAC*/Anatel/UKCA/NBTC/GCF/PTCRB/ Deutsche Telekom/AT&T/ Verizon/T-Mobile/US Cellular/Telstra/Orange
Typical Applications	Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway




o: Optional \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT1	
Product	SIM7600X	SIM7500X
Picture		
Form Factor	LCC, 87PIN	LGA, 56PIN
Dimensions(mm)	30.0*30.0*2.9	24.0*27.0*2.75
Weight(g)	5.7±0.1	4.0±0.1
Frequency Bands	<p>-A(North America(AT&amp;T)) LTE-FDD: B2/B4/B5/B12/B13/B14/B25/B26/B66/B71 LTE-TDD: B41</p> <p>-E(Europe/Middle East/Africa/Korea/Thailand) LTE-FDD: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8 GSM: 900/1800 MHz</p> <p>-SA(New Zealand/Australia/South America) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 LTE-TDD: B40 GSM: 850/900/1800/1900 MHz</p> <p>-JC/JE/JP(Japan) JC: LTE-FDD: B1/B18/B19/B26 JE: LTE-FDD: B1/B3/B8</p> <p>-NA(North America) LTE-FDD: B2/B4/B5/B12/B13/B14/B25/B26/B66/B71 LTE-TDD: B41</p> <p>-G(Global) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: 850/900/1800/1900MHz</p>	<p>LTE-FDD: B2/B4/B12 WCDMA: B2/B5</p> <p>LTE-FDD: B1/B3/B7/B8/B20 WCDMA: B1/B8 GSM: 900/1800MHz</p> <p>LTE-FDD: B1/B3/B5/B7/B8/B28 WCDMA: B1/B5</p>
GNSS	○	○
Temperature	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>		
Supply Voltage Range	3.4V~ 4.2V	3.4V~ 4.2V
Power Consumption(mA)	2.8@GSM,BS_PA_MFRMS=2 3.3@WCDMA, DRX=9 2.3@LTE	2.8@GSM,BS_PA_MFRMS=2 3.3@WCDMA, DRX=9 1.6@LTE
<b>Data Transfer</b>		
LTE(Mbps)	10(DL)/5(UL)	10(DL)/5(UL)
WCDMA/HSPA+(Mbps)	42(DL)/5.76(UL)	42(DL)/5.76(UL)
GPRS/EDGE(Kbps)	296(DL)/236.8(UL)	296(DL)/236.8(UL)
SMS	●	●
<b>Software Features</b>		
Protocol	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/DNS	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/HTTP/HTTPS/DNS
TLS	●	●
File System	●	●
Audio Record/Play	○	○
TTS	○	○
DTMF	○	○
LBS	●	●
FOTA	●	●
Jamming Detection	●	●
Android RIL	Android6.0/7.0/8.0/9.0/10.0	Android6.0/7.0/8.0/9.0/10.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android	Microsoft Windows 7/8/10 Linux/Android
WWAN (RNDIS)	●	●
ECM	●	●
MBIM	Win8/Win10	Win8/Win10
NDIS	Linux/Windows 7/8/10	Linux/Windows 7/8/10
Firmware Upgrade	USB/FOTA	USB/FOTA
<b>Interfaces</b>		
SIM Card	1.8V/3.0V	1.8V/3.0V
UART	●	●
USB	●	●
PCM	○	○
ADC	●	●
SPI	○	○
I2C	●	●
Diversity Receiver	●	●
<b>Certification</b>		
Certification	E: RoHS/REACH/KC/IMDA/CE(RED)/UKCA/GCF/Deutsche Telekom/Vodafone*/Orange SA: RoHS/REACH/NCC/RCM/Telstra/CE(RED)/GCF/OCD(Anatel) NA: RoHS/REACH/FCC/IC/GCF/PTCRB/AT&T/Verizon/T-Mobile/US Cellular JC: RoHS/REACH/TELEC/JATE/DoCoMo/KDDI JE: RoHS/REACH/TELEC/JATE/Softbank G: RoHS/REACH/CE(RED)/FCC/IC/CCC/SRRC/JATE/Telec/IMDA/RCM/ICASA/FAC*/Anatel/UKCA/GCF/PTCRB/Deutsche Telekom/AT&T/Verizon/T-Mobile/US Cellular/Orange	A: RoHS/REACH/FCC/PTCRB/AT&T/IC/Rogers E: RoHS/REACH/SRRC/CE(RED)/Deutsche Telekom JC: RoHS/REACH/TELEC/JATE/DoCoMo/KDDI JE: RoHS/REACH/TELEC/JATE/Softbank SA: RoHS/REACH/RCM/Telstra/CE(RED)/NCC
Typical Applications	Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway	




o: Optional \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT1		
Product	A7676E	A7602E	SIM7672X
Picture			
Form Factor	LCC+LGA, 124PIN	LCC+LGA,143PIN	LCC+LGA,124PIN
Dimensions(mm)	24.0*24.0*2.4	30.0*30.0*2.5	24.0*24.0*2.4
Weight(g)	2.8±0.1	4.6±0.1	2.8±0.1
Frequency Bands	-E(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B8/B20/B28*/B31/B72 GSM/GPRS/EDGE:900/1800MHz	LTE-FDD:B1/B3/B5/B7/B8/B20 GSM/GPRS/EDGE:900/1800MHz
	-S(Vitnam/India)		LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41
	-JC/JE/JP(Japan)		JP: LTE-FDD:B1/B3/B8/B18/B19/B26/B28
	-NA(North America)		LTE-FDD: B2/B4/B5/B12/B13/B14*/B66/B71*
	-G(Global)		LTE-FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/ B19/B20/B25/B26/B28/B66/B71* LTE-TDD: B34/B38/B39/B40/B41
GNSS		○	○
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltge Range	3.4V~ 4.2V	3.4V~ 4.2V	3.4V~ 4.2V
Power Consumption(mA)	2@GSM,BS_PA_MFRMS=2 2@LTE	2@GSM,BS_PA_MFRMS=2 3.9@LTE	1.42@LTE
<b>Data Transfer</b>			
LTE(Mbps)	10(DL)/5(UL)	10(DL)/5(UL)	10(DL)/5(UL)
GPRS/EDGE(Kbps)	236.8(DL)/236.8(UL)	236.8(DL)/236.8(UL)	
SMS	●	●	●
<b>Software Features</b>			
Protocol	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/ MQTTS/HTTP/NTP	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/ MQTTS/HTTP/NTP	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/MQTTS/ HTTP/NTP
TLS	●	●	●
File System	●	●	●
Audio Record/Play	○	●	
TTS	○	●	
DTMF	○	●	
LBS	●	●	●
FOTA	●	●	●
Jamming Detection		●	●
Android RIL	Android6.0/7.0/8.0/9.0/10.0	Android6.0/7.0/8.0/9.0/10.0	Android 6.0/7.0/8.0/9.0/10.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android	Microsoft Windows 7/8/10Linux/Android	Microsoft Windows 7/8/10 Linux/Android
WWAN (RNDIS)	●	●	●
ECM	●	●	●
Embedded AT	○	○	○
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA
<b>Interfaces</b>			
SIM Card	1.8V/3.0V	1.8V/3.0V	1.8V/3.0V
UART	●	●	●
USB	●	●	●
PCM		○	●
Mic/Reciever	●	●	
ADC	●	●	●
SPI	●	●	
I2C	●	●	●
<b>Certification</b>			
Certification	E:RoHS/REACH/CE(RED)/CyberSecurity	RoHS/REACH/CE(RED)/DT/CyberSecurity	E: CE-RED/CyberSecurity/KC/Spark*/DT/GCF*/ RoHS/REACH/ NA:IC/GCF/FCC/PTCRB/AT&T/T-MOBILE/ VERIZON*/ RoHS/REACH/ JP:JATE/Telec/Docomo/KDDI*/KC/RoHS/REACH SA: RoHS/REACH G:CE-RED/FCC/TELEC/JATE/GCF/ PTCRB/RCM*/IC/NCC*/KC/CCC/CTA*/SRRC*/ AT&T/TMOBILE/VERIZON*/RoHS/REACH/ Docomo*/KDDI*/ CyberSecurity
<b>Typical Applications</b>			
Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway			


o: Optional \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT1		
Product	A7672X	A7682E	A7683E
Picture			
Form Factor	LCC+LGA, 124PIN	LGA, 85PIN	LGA, 85PIN
Dimensions(mm)	24.0*24.0*2.4	19.6*19.6*2.4	15.7*17.6*2.4
Weight(g)	2.8±0.1	1.9±0.1	1.4±0.1
Frequency Bands	-E(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28* GSM/GPRS/EDGE: 900/1800 MHz	LTE-FDD: B1/B3/B5/B7/B8/B20 GSM/GPRS/EDGE: 900/1800 MHz
	-SA(New Zealand/Australia/South America)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 GSM: 850/900/1800/1900 MHz	
	-S(Vitnam/India)	LTE-FDD: B1/B3/B5/B8/ LTE-TDD: B34/B38/B39/B40/B41 GSM: 900/1800 MHz	
	-G(Global)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/ B19/B20/B25/B26/B28/B66 LTE-TDD: B34/B38/B39/B40/B41 GSM: 850/900/1800/1900MHz	
	GNSS	○	
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltge Range	3.4V~ 4.2V	3.4V~ 4.2V	3.4V~ 4.2V
Power Consumption(mA)	2.5@GSM,BS_PA_MFRMS=2 1.8@LTE	3@GSM,BS_PA_MFRMS=2 2@LTE	1.72@LTE
<b>Data Transfer</b>			
LTE(Mbps)	10(DL)/5(UL)	10(DL)/5(UL)	10(DL)/5(UL)
GPRS/EDGE(Kbps)	236.8(DL)/236.8(UL)	236.8(DL)/236.8(UL)	
SMS	●	●	●
<b>Software Features</b>			
Protocol	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/MQTTS/HTTP/ NTP	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/ MQTTS/HTTP/NTP	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/ MQTTS/HTTP/NTP
TLS	●	●	●
File System	●	●	●
Audio Record/Play	○	○	○
TTS	○	○	○
DTMF	○	○	○
LBS	●	●	●
FOTA	●	●	●
Jamming Detection	●	○	○
Android RIL	Android6.0/7.0/8.0/9.0/10.0	Android6.0/7.0/8.0/9.0/10.0	Android6.0/7.0/8.0/9.0/10.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android	Microsoft Windows 7/8/10 Linux Android	Microsoft Windows 7/8/10Linux/Android
WWAN (RNDIS)	●	●	●
ECM	●	●	●
Embedded AT	○	○	○
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA
<b>Interfaces</b>			
SIM Card	1.8V/3.0V	1.8V/3.0V	1.8V/3.0V
UART	●	●	●
USB	●	●	●
PCM	○		
Mic/Reciever	●	●	●
ADC	●	●	●
SPI	●		
I2C	●	●	●
<b>Certification</b>			
Certification	E:RoHS/REACH/CE(RED)/DT/CyberSecurity* SA:RoHS/REACH/RCM/CE(RED)/FCC/Anatel G:CCC*/CTA*/SRRC*/FCC/CE(RED)/RoSH/REACH/ CyberSecurity	RoHS/REACH/CE(RED)/Orange/GCF/DT/ CyberSecurity	RoHS/REACH/CE(RED)/Anatel/ CyberSecurity
<b>Typical Applications</b>			
Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway			




o: Optional \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT1
Product	A7663E
Picture	
Form Factor	LGA, 85PIN
Dimensions(mm)	19.6*19.6*2.4
Weight(g)	1.9±0.1
Frequency Bands	-E(Europe/Middle East/Africa/Korea/Thailand) LTE-FDD: B1/B3/B5/B7/B8/B20/B28
GNSS	●
Temperature	-40°C ~+85°C
<b>Electrical Features</b>	
Supply Voltge Range	3.4V~ 4.2V
Power Consumption(mA)	1.69@LTE
<b>Data Transfer</b>	
LTE(Mbps)	10(DL)/5(UL)
GPRS/EDGE(Kbps)	
SMS	●
<b>Software Features</b>	
Protocol	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/MQTTs/HTTP/NTP
TLS	●
File System	●
Audio Record/Play	○
TTS	○
DTMF	○
LBS	●
FOTA	●
Jamming Detection	○
Android RIL	Android6.0/7.0/8.0/9.0/10.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android
WWAN (RNDIS)	●
ECM	●
MBIM	
NDIS	
Embedded AT	○
Firmware Upgrade	USB/FOTA
<b>Interfaces</b>	
SIM Card	1.8V/3.0V
UART	●
USB	●
PCM	
Mic/Reciever	●
ADC	●
SPI	
I2C	●
Diversity Receiver	
<b>Certification</b>	
Certification	RoHS/REACH/CE(RED)/Anatel/CyberSecurity
Typical Applications	Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway


o: Optional \*: Under Development/On-going/Planning

## LTE Module

Technology	LTE CAT1		
Product	A7673X	A7671X	A7681X
Picture			
Form Factor	LCC+LGA, 134PIN	LCC+LGA, 134PIN	LGA, 85PIN
Dimensions(mm)	24.0*24.0*2.4	24.0*24.0*2.4	15.7*17.6*2.1
Weight(g)	2.8±0.1	2.8±0.1	1.1±0.1
Frequency Bands	-E(Europe/Middle East/Africa/Korea/Thailand)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28	LTE-FDD: B1/B3/B5/B7/B8/B20/B28
	-SA(New Zealand/Australia/South America)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66
	-S(Vitnam/India)		LTE-FDD: B1/B3/B5/B8/ LTE-TDD: B34/B38/B39/B40/B41
	-G(Global)		LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/ B19/B20/B25/B26/B28/B66 LTE-TDD: B34/B38/B39/B40/B41
GNSS	○	○	
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltge Range	3.4V~ 4.2V	3.3V~ 4.2V	3.3V~ 4.2V
Power Consumption(mA)	1.92@LTE	1.5@LTE	1.69max@LTE
<b>Data Transfer</b>			
LTE(Mbps)	10(DL)/5(UL)	10(DL)/5(UL)	10(DL)/5(UL)
SMS	●		
<b>Software Features</b>			
Protocol	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/MQTTs/HTTP/NTP	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/MQTTs/HTTP/NTP	TCP/UDP/FTP/FTPS/HTTP/HTTPS/MQTT/MQTTs/HTTP/NTP
TLS	●	●	●
File System	●	●	●
Audio Record/Play	○		
TTS	●		
DTMF	●		
LBS	●	●	●
FOTA	●	●	●
Jamming Detection	○	○	○
Android RIL	Android6.0/7.0/8.0/9.0/10.0	Android6.0/7.0/8.0/9.0/10.0	Android6.0/7.0/8.0/9.0/10.0
USB Driver	Microsoft Windows 7/8/10Linux/Android	Microsoft Windows 7/8/10Linux/Android	Microsoft Windows 7/8/10Linux/Android
WWAN (RNDIS)	●	●	●
ECM	●	●	●
MBIM			
NDIS			
Embedded AT	○	○	○
Firmware Upgrade	USB/FOTA	USB/FOTA	USB/FOTA
<b>Interfaces</b>			
SIM Card	1.8V/3.0V	1.8V/3.0V	1.8V/3.0V
UART	●	●	●
USB	●	●	●
PCM			
Mic/Reciever	●		
ADC	●	●	●
SPI	●	○	○
I2C	●	●	●
Diversity Receiver			
<b>Certification</b>			
Certification	E:RoHS/REACH/CE(RED)/DT*CyberSecurity SA:RoHS/REACH/Anatel	E:RoHS/REACH/CE(RED)/CyberSecurity SA:RoHS*/REACH*/Anatel*	RoHS*/REACH*/CE(RED)*/CyberSecurity
Typical Applications	Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway		




o: Optional \*: Under Development/On-going/Planning

## 3G Module

Technology	3G
Product	A5360G
Picture	
Form Factor	LCC+LGA, 163PIN
Dimensions(mm)	30.0*30.0*2.5
Weight(g)	4.6±0.1
Frequency Bands	WCDMA: B1/B2/B5/B8 GSM: 850/900/1800/1900MHz
GNSS	
Temperature	-40°C ~ +85°C
<b>Electrical Features</b>	
Supply Voltage Range	3.4V~ 4.2V
Power Consumption(mA)	2.8@GSM,BS_PA_MFRMS=2 3.3@WCDMA, DRX=9
<b>Data Transfer</b>	
WCDMA/HSPA+(Mbps)	21(DL)/5.76(UL)
GPRS/EDGE(Kbps)	236.8(DL)/236.8(UL)
SMS	●
<b>Software Features</b>	
Protocol	TCP/IP/IPV4/IPV6/Multi-PDP/FTP/FTPS/ HTTP/HTTPS/DNS
TLS	●
File System	●
Audio Record/Play	●
TTS	○
DTMF	●
LBS	●
FOTA	●
Jamming Detection	
Android RIL	Android6.0/7.0/8.0/9.0/10.0
USB Driver	Microsoft Windows 7/8/10 Linux/Android
WWAN (RNDIS)	●
ECM	●
MBIM	●
NDIS	
Embedded AT	
Firmware Upgrade	USB/FOTA
<b>Interfaces</b>	
SIM Card	1.8V/3.0V
UART	●
USB	●
PCM	○
ADC	●
GPIO	●
SD Card	●
SPI	●
I2C	●
Diversity Receiver	
<b>Certification</b>	
Certification	
Typical Applications	Fleet Management, Telematics, Security, Tracking, Agriculture, Smart Meters, Router, Gateway



○: Optional \* : Under Development/On-going/Planning

## GSM/GPRS Module

Technology	GSM/GPRS		
Product	SIM800C	SIM800F	SIM800C-DS
Picture			
Form Factor	LCC, 42PIN	LCC, 68PIN	LCC& LGA, 77PIN
Dimensions(mm)	17.6*15.7*2.3	24.0*24.0*3.0	17.6*15.7*2.3
Weight(g)	1.3±0.1	3.1±0.1	1.3±0.1
Frequency Bands	GSM: 850/900/1800/1900MHz	GSM: 850/900/1800/1900MHz	GSM: 850/900/1800/1900MHz
Bluetooth	BT 3.0	BT 3.0	BT 3.0
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range	3.4V~4.4V	3.4V~4.4V	3.4V ~ 4.4V
Power Consumption(mA)	1.50@GSM, DRX=2 0.90@GSM, DRX=9	1.30@GSM, DRX=2 0.85@GSM, DRX=9	1.60@GSM, DRX=2 0.93@GSM, DRX=9
<b>Data Transfer</b>			
GPRS Slot	Class 10/12	Class 10/12	Class 10/12
Data Rate(kbps)	85.6(DL&UL)	85.6(DL&UL)	85.6(DL&UL)
<b>Software Features</b>			
Protocols	TCP/UDP/HTTP/FTP/POP3/SMTP/PPP	TCP/UDP/HTTP/FTP/POP3/SMTP/PPP	TCP/UDP/HTTP/FTP/POP3/SMTP/PPP
MMS	●	●	●
TLS	○	○	○
Audio Record/Play	●	●	●
TTS	○	○	○
DTMF	●	●	●
LBS	○	○	○
Jamming Detection	●	●	●
Network Scanning	●	●	●
MUX	●	●	●
Embedded AT	○	○	○
Firmware Upgrade	USB/UART	USB/UART	USB/UART
<b>Specifications for Voice</b>			
Speech Codec Modes	AMR/HR/FR/EFR	AMR/HR/FR/EFR	AMR/HR/FR/EFR
Echo Arithmetic	AEC/EES	AEC/EES	AEC/EES
<b>Interfaces</b>			
UART	●	●	●
USB	●	●	●
SIM Card	1.8V/3.0V	1.8V/3.0V	1.8V/3.0V
PCM		○	○
Analog Audio	1 Input&1 Output	1 Input&1 Output	1 Input&1 Output
ADC	●	●	●
GPIO	At Least 2*GPIO	At Least 3*GPIO	At Least 4*GPIO
SD Card	●	●	●
SPI		○	○
I2C		●	●
<b>Certification</b>			
Certification	RoHS/REACH/CCC/CTA/SRRC/Mobile/Unicom/RCM/CE(RED)/GCF/BQB(Bluetooth)/TIM/Deutsche Telekom/ICASA/FCC/OCD(Anatel)	RoHS/REACH/CE(RED)/GCF/Orange/ICASA/FCC	CE(RED)/RoHS/REACH
Typical Applications	Telematics, Fleet Management, Smart Meters, Security, RMAC		




○: Optional \* : Under Development/On-going/Planning

## GSM/GPRS Module

Technology	GSM/GPRS&GNSS	
Product	SIM868	SIM868E
Picture		
Form Factor	LCC&LGA,77PIN	LCC&LGA,77PIN
Dimensions (mm)	17.6*15.7*2.3	17.6*15.7*2.3
Weight (g)	1.5±0.1	1.5±0.1
Frequency Bands	GSM: 850/900/1800/1900MHz	GSM: 850/900/1800/1900MHz
Bluetooth	BT 3.0	BT 3.0&4.0
GNSS	北斗 /GPS/GLONASS	北斗 /GPS/GLONASS
Temperature	-40°C ~ +85°C	-40°C ~ +85°C
<b>Electrical Features</b>		
Supply Voltage Range	3.4V ~ 4.4V	3.4V ~ 4.4V
Power Consumption (mA)	1.42@GSM, DRX=2 0.86@GSM, DRX=9	1.42@GSM, DRX=2 0.86@GSM, DRX=9
<b>Data Transfer</b>		
GPRS Slot	Class 10/12	Class 10/12
Data Rate (kbps)	85.6 (DL&UL)	85.6 (DL&UL)
<b>Software Features</b>		
Protocol	TCP/UDP/HTTP/FTP/POP3/SMTP/PPP	TCP/UDP/HTTP/FTP/POP3/SMTP/PPP
MMS	●	●
TLS	○	○
Audio Record/Play	●	●
TTS	○	○
DTMF	●	●
LBS	○	○
Jamming Detection	●	●
Network Scanning	●	●
MUX	●	●
Embedded AT	○	○
Firmware Upgrade	USB/UART	USB/UART
<b>Specifications for Voice</b>		
Speech Codec Mode	AMR/HR/FR/EFR	AMR/HR/FR/EFR
Echo Arithmetic	AEC/EES	AEC/EES
<b>Interface</b>		
UART	●	●
USB	●	●
SIM Card	1.8V/3.0V	1.8V/3.0V
PCM	○	○
Analog Audio	1 input&2 output	1 input&2 output
ADC	●	●
GPIO	at least 4*GPIO	at least 4*GPIO
SD Card	●	●
SPI	○	○
I2C	●	●
<b>Certification</b>		
Certification	RoHS/REACH/CCC/CTA/SRRC/Mobile/CE(RE)/GCF*/Deutsche Telekom/ICASA/FCC	BQB(Bluetooth)/CE(RE)/Deutsche Telekom/RoHS/REACH
Typical Applications	Fleet Management,Telematics,Security,Tracking,Agriculture,Smart Meters,Router,Gateway	




o: Optional \* : Under Development/On-going/Planning

## GNSS Module

Technology	GNSS		
Product	SIM66MD	SIM66MD(R)	SIM66D(R)
Picture			
Form Factor	LCC, 18PIN	LCC, 18PIN	LCC, 24PIN
Dimensions(mm)	9.7*10.1*2.5	9.7*10.1*2.5	16.0*12.2*2.4
Weight(g)	0.5	0.5	1
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range	2.1~4.0V	2.1~4.0V	2.7~3.6V
I/O Voltage	Vin-0.3V	Vin-0.3V	3.3V
Power Consumption	Acquisition	25mA	25mA
	Tracking	25mA	25mA
	Sleep	NC	NC
	Backup	60uA	60uA
<b>GNSS Features</b>			
GNSS	L1: GPS/Beidou/GLONASS/Galileo/QZSS L5: GPS/Beidou/ Galileo/QZSS/NavIC	L1: GPS/Beidou/GLONASS/Galileo/QZSS L5: GPS/Beidou/ Galileo/QZSS/NavIC	L1: GPS/Beidou/GLONASS/Galileo/QZSS L5: GPS/Beidou/ Galileo/QZSS/NavIC
A-GPS	●	●	●
Channel Number	L1:75+L5:60	L1:75+L5:60	L1:75+L5:60
SBAS	WAAS/EGNOS/GAGAN/MSAS/SDCM	WAAS/EGNOS/GAGAN/MSAS/SDCM	WAAS/EGNOS/GAGAN/MSAS/SDCM
Sensitivity	Tracking	-166 dBm	-166 dBm
	Cold Start	-150 dBm	-150 dBm
	Reacquisition	-156 dBm	-156 dBm
TTFF(Time to First Fix)	Cold Start	25s	25s
	Warm Start	25s	25s
	Hot Start	<1s	<1s
Accuracy	Position	<1.5m CEP	<5cm CEP
	Velocity	0.1m/s	0.1m/s
Max Update Rate	10Hz	10Hz	10Hz
Baud Rate(default)	115200	115200	115200
Jamming Detection	●	●	●
Anti-jamming	●	●	●
Built-in LNA	●	●	●
RTK		●	●
DR			
<b>Interfaces</b>			
UART	●	●	●
Reset	●	●	●
Time Pulse	●	●	●
Digital I/O	●	●	●
<b>Antenna</b>			
Antenna Type	Active external、 passive external	Active external、 passive external	Active external、 passive external
<b>Certification</b>			
Certification	RoHS/REACH/CE(RE)	RoHS/REACH/CE(RE)	RoHS*/REACH*/CE(RE)*
Typical Applications	Pet Tracking, Asset Tracking		



o: Optional \* : Under Development/On-going/Planning

## GNSS Module

Technology	GNSS		
Product	SIM68AD	SIM68D	SIM68I
Picture			
Form Factor	LCC, 24PIN	LCC, 24PIN	LCC, 24PIN
Dimensions(mm)	16.0*12.2*2.4	16.0*12.2*2.4	16.0*12.2*2.4
Weight(g)	1	1	1
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range	2.8~4.3V	2.8~4.5V	2.8~4.5V
I/O Voltage	2.8V/1.8V	2.8V/1.8V	2.8V/1.8V
Power Consumption	Acquisition	30mA	30mA
	Tracking	32mA	32mA
	Sleep	340uA	340uA
	Backup	50uA	50uA
<b>GNSS Features</b>			
GNSS	L1: GPS/Beidou/GLONASS/Galileo/QZSS L5: GPS/Beidou/ Galileo/QZSS	L1: GPS/Beidou/GLONASS/Galileo/QZSS L5: GPS/Beidou/ Galileo/QZSS	L1: GPS/Beidou/GLONASS/Galileo L5: NavIC
A-GPS	●	●	●
Channel Number	L1:75+L5:60	L1:75+L5:60	L1:75+L5:7
SBAS	WAAS/EGNOS/GAGAN/MSAS/SDCM	WAAS/EGNOS/GAGAN/MSAS/SDCM	WAAS/EGNOS/GAGAN/MSAS/SDCM
Sensitivity	Tracking	-165 dBm	-165 dBm
	Cold Start	-148 dBm	-148 dBm
	Reacquisition	-160 dBm	-160 dBm
TTFF(Time to First Fix)	Cold Start	27s	27s
	Warm Start	24s	24s
	Hot Start	<1s	<1s
Accuracy	Position	<1.5m CEP	<1.5m CEP
	Velocity	0.1m/s	0.1m/s
Max Update Rate	1Hz	10Hz	10Hz
Baud Rate(default)	115200	115200	115200
Jamming Detection	●	●	●
Anti-jamming	●	●	●
Built-in LNA	●	●	●
RTK			
DR	●		
<b>Interfaces</b>			
UART	●	●	●
Reset	●	●	●
Time Pulse	●	●	●
Digital I/O	●	●	●
<b>Antenna</b>			
Antenna Type	Active external, passive external	Active external, passive external	Active external, passive external
<b>Certification</b>			
Certification	RoHS*/REACH*/CE(RED)*	RoHS/REACH/CE(RED)/UKCA	RoHS/REACH/CE(RED)*
Typical Applications	Pet Tracking, Asset Tracking		



o: Optional \* : Under Development/On-going/Planning

## GNSS Module

Technology	GNSS		
Product	SIM68MD	SIM68M	SIM66M
Picture			
Form Factor	LCC, 18PIN	LCC, 18PIN	LCC, 18PIN
Dimensions(mm)	9.7*10.1*2.5	9.7*10.1*2.5	9.7*10.1*2.5
Weight(g)	0.5	0.5	0.5
Temperature	-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range	2.8~4.3V	2.8~4.3V	3.2~4.0V
I/O Voltage	2.8V/1.8V	2.8V	Vin-0.3V
Power Consumption	Acquisition	30mA	25mA
	Tracking	32mA	21mA
	Sleep	340uA	340uA
	Backup	50uA	14uA
<b>GNSS Features</b>			
GNSS	L1: GPS/Beidou/GLONASS/Galileo/QZSS L5: GPS/Beidou/ Galileo/QZSS	GPS/GLONASS/Galileo/QZSS	GPS/GLONASS
A-GPS	●	●	●
Channel Number	L1:75+L5:60	33 Track/99 Acq	46 Track/64 Acq
SBAS	WAAS/EGNOS/GAGAN/MSAS/SDCM	WAAS/EGNOS/GAGAN/MSAS	WAAS/EGNOS/GAGAN/MSAS
Sensitivity	Tracking	-157 dBm	-165 dBm
	Cold Start	-141 dBm	-148 dBm
	Reacquisition	-151 dBm	-160 dBm
TTFF(Time to First Fix)	Cold Start	27s	28s
	Warm Start	24s	26s
	Hot Start	<1s	<1s
Accuracy	Position	<1.5m CEP	<2.5m CEP
	Velocity	0.1m/s	0.1m/s
Max Update Rate	10Hz	10Hz	1Hz
Baud Rate(default)	115200	9600/115200	9600/115200
Jamming Detection	●	●	●
Anti-jamming	●	●	●
Built-in LNA		●	●
RTK			
DR			
<b>Interfaces</b>			
UART	●	●	●
Reset	●	●	●
Time Pulse	●	●	●
Digital I/O	●	●	●
<b>Antenna</b>			
Antenna Type	Active external, passive external	Active external, passive external	Active external, passive external
<b>Certification</b>			
Certification	RoHS*/REACH*/CE(RED)*	RoHS/REACH/CE(RED)/ Deutsche Telekom	RoHS/REACH/CE(RED)/UKCA
Typical Applications	Pet Tracking, Asset Tracking		

o: Optional \* : Under Development/On-going/Planning

## GNSS Module

Technology		GNSS	
Product		SIM33EAU	SIM33ELA
Picture			
Form Factor		LCC, 16PIN	LCC, 31PIN
Dimensions(mm)		22.0*22.0*7.5	14.0*9.6*2.15
Weight(g)		8.5	0.5
Temperature		-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range		2.8~4.3V	2.8~4.3V
I/O Voltage		2.8V	2.8V
Power Consumption	Acquisition	38mA	25mA
	Tracking	32mA	20mA
	Sleep	520μA	320μA
	Backup	13μA	14μA
<b>GNSS Features</b>			
GNSS		GPS/GLONASS/Galileo/QZSS	GPS/GLONASS/Galileo/QZSS
A-GPS		●	●
Channel Number		33 Track/99 Acq	33 Track/99 Acq
SBAS		WAAS/EGNOS/GAGAN/MSAS	WAAS/EGNOS/GAGAN/MSAS
Sensitivity	Tracking	-165 dBm	-165 dBm
	Cold Start	-146 dBm	-147 dBm
	Reacquisition	-160 dBm	-160 dBm
TTFF(Time to First Fix)	Cold Start	31s	28s
	Warm Start	26s	26s
	Hot Start	<1s	<1s
Accuracy	Position	<2.5m CEP	<2.5m CEP
	Velocity	0.1m/s	0.1m/s
Max Update Rate		10Hz	10Hz
Baud Rate(default)		9600/115200	9600/115200
Jamming Detection		●	●
Anti-jamming		●	●
Built-in LNA		●	●
RTK			
DR			
<b>Interfaces</b>			
UART		●	●
Reset			
Time Pulse		●	●
Digital I/O		●	●
<b>Antenna</b>			
Antenna Type		passive Internal	passive Internal
<b>Certification</b>			
Certification		RoHS/REACH/CE(RED)	RoHS/REACH/CE(RED)/ Deutsche Telekom
Typical Applications		Pet Tracking, Asset Tracking	




o: Optional \*: Under Development/On-going/Planning

## GNSS Module

Technology		GNSS	
Product		SIM32ELA	SIM32EA
Picture			
Form Factor		LCC, 31PIN	LCC, 12PIN LGA, 24PIN
Dimensions(mm)		14.0*9.6*2.15	16.0*16.0*6.75
Weight(g)		0.5	5.8
Temperature		-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range		2.8~4.3V	1.75~4.3V
I/O Voltage		2.8V	Vin
Power Consumption	Acquisition	13mA	10mA
	Tracking	13mA	10mA
	Sleep	210uA	210uA
	Backup	15μA	15μA
<b>GNSS Features</b>			
GNSS		GPS/GLONASS/BEIDOU/Galileo/QZSS	GPS/GLONASS/Galileo/QZSS
A-GPS		●	●
Channel Number		47	47
SBAS		WAAS/EGNOS/GAGAN/MSAS	WAAS/EGNOS/GAGAN/MSAS
Sensitivity	Tracking	-166 dBm	-166 dBm
	Cold Start	-148 dBm	-148 dBm
	Reacquisition	-158 dBm	-158 dBm
TTFF(Time to First Fix)	Cold Start	20s	20s
	Warm Start	20s	20s
	Hot Start	<1s	<1s
Accuracy	Position	<2m CEP	<2m CEP
	Velocity	0.1m/s	0.1m/s
Max Update Rate		10Hz	10Hz
Baud Rate(default)		115200	115200
Jamming Detection		●	●
Anti-jamming		●	●
Built-in LNA		●	●
RTK			
DR			
<b>Interfaces</b>			
UART		●	●
Reset		●	●
Time Pulse		●	●
Digital I/O		●	●
<b>Antenna</b>			
Antenna Type		passive Internal	passive Internal, Active external
<b>Certification</b>			
Certification		RoHS/REACH/CE(RED)/UKCA	RoHS*/REACH*/CE(RED)*
Typical Applications		Pet Tracking, Asset Tracking	



o: Optional \*: Under Development/On-going/Planning

## GNSS Module

Technology		GNSS		
Product		SIM65M	SIM65M(U)	SIM65M(W)
Picture				
Form Factor		LCC, 18PIN	LCC, 18PIN	LCC, 18PIN
Dimensions(mm)		9.7*10.1*2.5	9.7*10.1*2.5	9.7*10.1*2.5
Weight(g)		0.5	0.5	0.5
Temperature		-40°C ~+85°C	-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>				
Supply Voltage Range		2.8~4.3V	3.0~4.3V	1.75~1.95V
I/O Voltage		2.8V	3.0V	1.8V
Power Consumption	Acquisition	12mA	11mA	15mA
	Tracking	12mA	11mA	15mA
	Sleep	210uA	210uA	210uA
	Backup	15uA	15uA	15uA
<b>GNSS Features</b>				
GNSS		GPS/GLONASS/BEIDOU/Galileo/QZSS	GPS/GLONASS/BEIDOU/Galileo/QZSS	GPS/GLONASS/BEIDOU/Galileo/QZSS
A-GPS		●	●	●
Channel Number		47	47	47
SBAS		WAAS/EGNOS/GAGAN/MSAS	WAAS/EGNOS/GAGAN/MSAS	WAAS/EGNOS/GAGAN/MSAS
Sensitivity	Tracking	-166 dBm	-166 dBm	-166 dBm
	Cold Start	-147 dBm	-147 dBm	-147 dBm
	Reacquisition	-158 dBm	-158 dBm	-158 dBm
TTFF(Time to First Fix)	Cold Start	30s	30s	30s
	Warm Start	25s	25s	25s
	Hot Start	<1s	<1s	<1s
Accuracy	Position	<2m CEP	<2m CEP	<2m CEP
	Velocity	0.1m/s	0.1m/s	0.1m/s
Max Update Rate		10Hz	10Hz	10Hz
Baud Rate(default)		115200	115200	115200
Jamming Detection		●	●	●
Anti-jamming		●	●	●
Built-in LNA		●	●	●
RTK				
DR				
<b>Interfaces</b>				
UART		●	●	●
Reset		●	●	●
Time Pulse		●	●	●
Digital I/O		●	●	●
<b>Antenna</b>				
Antenna Type		Active external, passive external	Active external, passive external	Active external, passive external
<b>Certification</b>				
Certification		RoHS/REACH/CE(RED)/UKCA	RoHS/REACH/CE(RED)/UKCA	RoHS/REACH/CE(RED)/UKCA
Typical Applications		Pet Tracking, Asset Tracking		


o: Optional \* : Under Development/On-going/Planning

## GNSS Module

Technology		GNSS	
Product		SIM65M-C(LDO)	SIM65M-C(DCDC)
Picture			
Form Factor		LCC, 18PIN	LCC, 18PIN
Dimensions(mm)		9.7*10.1*2.5	9.7*10.1*2.5
Weight(g)		0.5	0.5
Temperature		-40°C ~+85°C	-40°C ~+85°C
<b>Electrical Features</b>			
Supply Voltage Range		1.75~3.6V	1.75~3.6V
I/O Voltage		Vin	Vin
Power Consumption	Acquisition	47mA	18mA
	Tracking	33mA	14mA
	Sleep	NC	NC
	Backup	21uA	21uA
<b>GNSS Features</b>			
GNSS		GPS/GLONASS/BEIDOU/Galileo/QZSS	GPS/GLONASS/BEIDOU/Galileo/QZSS
A-GPS		●	●
Channel Number		64	64
SBAS		WAAS/EGNOS/GAGAN/MSAS	WAAS/EGNOS/GAGAN/MSAS
Sensitivity	Tracking	-165 dBm	-165 dBm
	Cold Start	-149 dBm	-149 dBm
	Reacquisition	-159 dBm	-159 dBm
TTFF(Time to First Fix)	Cold Start	20s	20s
	Warm Start	NC	NC
	Hot Start	<1s	<1s
Accuracy	Position	<2m CEP	<2m CEP
	Velocity	0.1m/s	0.1m/s
Max Update Rate		10Hz	10Hz
Baud Rate(default)		115200	115200
Jamming Detection		●	●
Anti-jamming		●	●
Built-in LNA		●	●
RTK			
DR			
<b>Interfaces</b>			
UART		●	●
Reset		●	●
Time Pulse		●	●
Digital I/O		●	●
<b>Antenna</b>			
Antenna Type		Active external, passive external	Active external, passive external
<b>Certification</b>			
Certification		RoHS/REACH/CE(RED)	RoHS/REACH/CE(RED)
Typical Applications		Pet Tracking, Asset Tracking	

o: Optional \* : Under Development/On-going/Planning

## Wi-Fi Module

Technology	WiFi		
Product	W58	W59	W80
Picture			
Form Factor	LCC, 32PIN	LCC, 40PIN	LCC+LGA, 90PIN
Dimensions(mm)	16.6 *13.0*2.1	16.0 *18.3*2.3	17.0 *24.0*2.9
Weight(g)	1.0	1.2	2.1
Bluetooth	BT 3.0& BLE4.1	BT 3.0& BLE4.2	BT 5.1&BLE5.0
Temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
<b>General Features</b>			
Frequency band	2.412 ~ 2.484 GHz 5.15~5.35GHz,5.47~5.85MHz	2.412 ~ 2.484 GHz 5.17~5.825GHz	2.412 ~ 2.484 GHz 5.17~5.825GHz
Supply Voltage	3.2V~ 3.4V	3.2V~ 3.4V	3.3V ~ 4.25V
WLAN Standard	IEEE 802.11 b/g/n/ac	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac/ax
Modulation Mode	DSSS,CCK, OFDM,BPSK,QPSK,16QAM,64QAM,256QAM	DSSS,CCK, OFDM,BPSK,QPSK,16QAM,64QAM,256QAM	CCK, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Encryption Mode	WEP,TKIP/AES/WPA-PSK/WPA2-PSK	WEP,TKIP,AES,WPA-PSK,WPA2-PSK	WPA3
AP (Max Access Point)	30	30	30
Operator Mode	AP/STA	AP/STA	AP/STA
BT Protocol	SPP(BT 4.0)/GATT(BLE 4.1)	SPP(BT 3.0)/GATT(BLE 4.1)	SPP(BT 3.0)/GATT(BLE 4.1)
<b>Data Rate</b>			
802.11b (Mbps)	Max. 11	Max. 11	
802.11g (Mbps)	Max. 54	Max. 54	
802.11n_HT20 (Mbps)	Max. 65	Max. 65	
802.11n_HT40 (Mbps)	Max. 135	Max. 135	
802.11ac_HT40 (Mbps)	Max. 200	Max. 200	
802.11ac_HT80 (Mbps)	Max. 433.3	Max. 433.3	
802.11ax_HT80 (Mbps)			Max.1.775Gbps
BT 4.2 (Mbps)	Max. 24	Max. 24	
<b>Transmitting Power</b>			
802.11b/11Mbps	18dBm	17.75dBm	TBD
802.11g/54Mbps	15dBm	TBD	TBD
802.11n_HT20/65Mbps	15dBm	16dBm	TBD
802.11n_HT40/135Mbps	14dBm	15.78dBm	TBD
<b>Rx Sensitivity</b>			
802.11b/1Mbps	-95dBm	TBD	TBD
802.11b/11Mbps	-94dBm	TBD	TBD
802.11g/6Mbps	-91dBm	TBD	TBD
802.11g/54Mbps	-78dBm	TBD	TBD
802.11n_HT20 MCS0	-90dBm	TBD	TBD
802.11n_HT40 MCS7	-75dBm	TBD	TBD
<b>Interfaces</b>			
SDIO 3.0	*1	*1	
UART	*1	*1	*1
LTE coexistence	*2	*2	*2
BT_EN	*1	*1	*1
WLAN_EN	*1	*1	*1
Antenna	WiFi & BT Antenna	WiFi & BT Antenna *2	WiFi & BT Antenna *2
<b>Certification</b>			
Certification	CE(REDF)/FCC/RCM/Anatel/RoHS/REACH	CE(REDF)*/RoHS*/REACH*	RoHS*/REACH*/CE(REDF)

**Typical Applications** Fleet Management, Telematics, Security, Tracking, Agriculture, Smart City, Smart Health, Router Gateway



\*: Under Development/On-going/Planning

W58: Must be worked together with SIM7600X-H.

W59: Must be worked together with SIM7800E.

W80: Must be worked together with SIM8200G.

## Wi-Fi Module

Technology	WiFi	
Product	W82	W74
Picture		
Form Factor	LCC+LGA, 90PIN	LCC+LGA, 90PIN
Dimensions(mm)	17.0 *24.0*2.9	17.0 *24.0*2.6
Weight(g)	2.1	2.1
Bluetooth	BT 5.2&BLE5.0	BT 5.0&BLE5.0
Temperature	-40°C to +85°C	-30°C to +70°C
<b>General Features</b>		
Frequency band	2.412 ~ 2.484 GHz 5.17~5.825GHz	2.412 ~ 2.484 GHz 5.17~5.825GHz
Supply Voltage	3.3V ~ 4.25V	3.3V ~ 4.25V
WLAN Standard	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac
Modulation Mode	CCK, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM	CCK, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Encryption Mode	WPA3	WPA3
AP (Max Access Point)	30	30
Operator Mode	AP/STA	AP/STA
BT Protocol	SPP(BT 3.0)/GATT(BLE 4.1)	SPP(BT 3.0)/GATT(BLE 4.1)
<b>Data Rate</b>		
802.11b (Mbps)		
802.11g (Mbps)		
802.11n_HT20 (Mbps)		
802.11n_HT40 (Mbps)		
802.11ac_HT40 (Mbps)		
802.11ac_HT80 (Mbps)		
802.11ax_HT80 (Mbps)	Max.3.6Gbps	
BT 4.2 (Mbps)	Max. 2Mbps	Max. 2Mbps
<b>Transmitting Power</b>		
802.11b/11Mbps	TBD	TBD
802.11g/54Mbps	TBD	TBD
802.11n_HT20/65Mbps	TBD	TBD
802.11n_HT40/135Mbps	TBD	TBD
<b>Rx Sensitivity</b>		
802.11b/1Mbps	TBD	TBD
802.11b/11Mbps	TBD	TBD
802.11g/6Mbps	TBD	TBD
802.11g/54Mbps	TBD	TBD
802.11n_HT20 MCS0	TBD	TBD
802.11n_HT40 MCS7	TBD	TBD
<b>Interfaces</b>		
SDIO 3.0		
UART	*1	*1
LTE coexistence	*2	*2
BT_EN	*1	*1
WLAN_EN	*1	*1
Antenna	WiFi & BT Antenna *2	WiFi & BT Antenna *2
<b>Certification</b>		
Certification	RoHS*/REACH*/CE(REDF)/FCC*	RoHS*/REACH*/CE(REDF)*

**Typical Applications** Fleet Management, Telematics, Security, Tracking, Agriculture, Smart City, Smart Health, Router Gateway

\*: Under Development/On-going/Planning

W58: Must be worked together with SIM7600X-H.

W59: Must be worked together with SIM7800E.

W80: Must be worked together with SIM8200G.