VAYU2-3GUC20/4GEC25 Series

Quick Start Guide
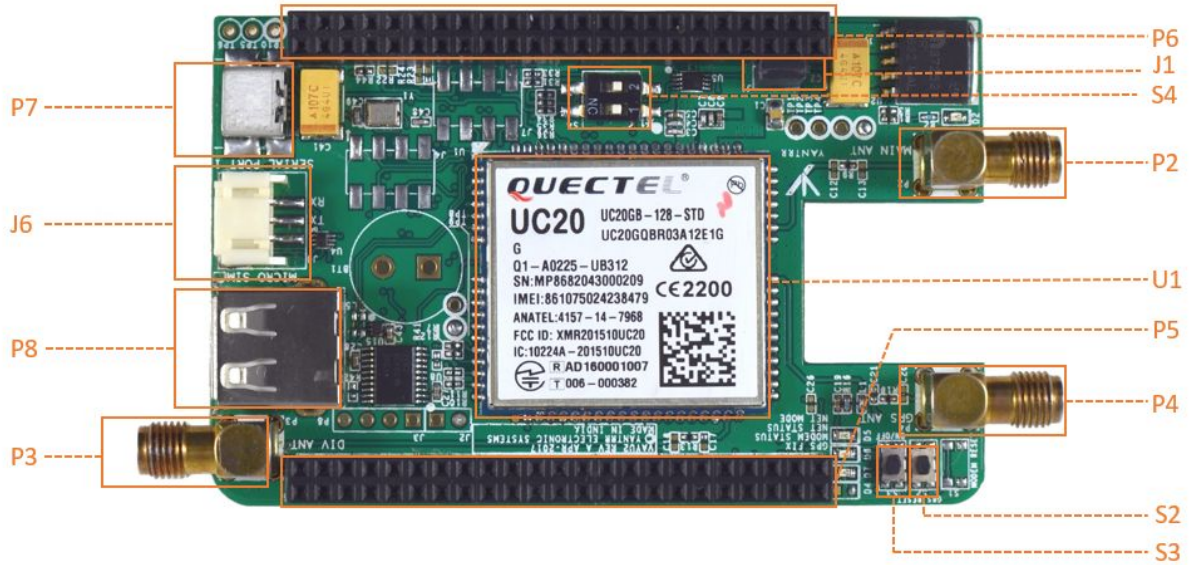
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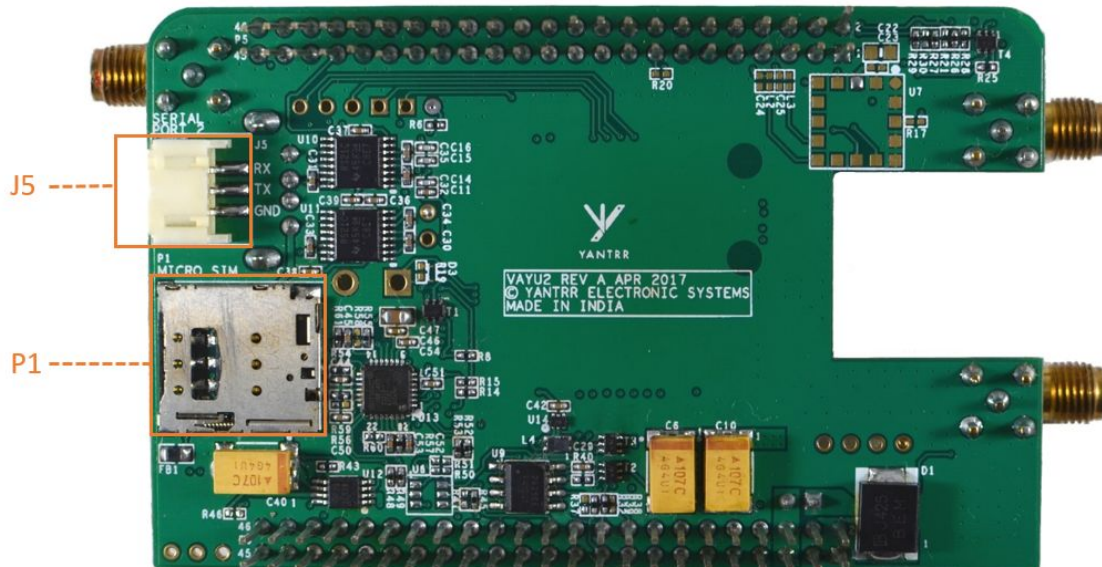New Delhi, 110091
INDIA

Board Layout:

TOP SIDE

P7

J6

P8

P3

QUECTEL

UC20 UC20GB-128-STD
G UC20GQBR03A12E1G
Q1-A0225-UB312
SN:MP8682043000209
IMEI:861075024238479
ANATEL:4157-14-7968
FCC ID: XMR201510UC20
IC:10224A-201510UC20
CE 2200
R AD160001007
T 006-000382

P6
J1
S4

P2

U1

P5

P4

S2
S3

BOTTOM SIDE

J5

RX
TX
GND

P1

VAYU2 REV A APR 2017
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MADE IN INDIA

Identifier	Description
U1	3G/4G Module
P1	Micro SIM Card Holder
P2	MAIN Antenna SMA Connector
P3	DIV Antenna SMA Connector
P4	GNSS Antenna SMA Connector
P7	MINI USB Device Port Connector
P8	Alternate USB-A Port Connector
P5	Stacking connector with Beaglebone cape
P6	Stacking connector with Beaglebone cape
J1	5V Power Jumper for cape
J6	RS232 Serial Port-1
J5	RS232 Serial Port-2
S4	DIP switch for cape
S2	Switch for Module Reset
S3	Switch for Module Power ON/OFF

Specifications:

Module:

	UC20-G	UC20-E	UC20-A	EC25-E
Bands	UC20-G: 800/850/900/1900/ 2100MHz @UMTS 850/900/1800/1900 MHz @GSM	900/2100MHz @UMTS 850/900/1800/1900 MHz@GSM	850/1900MHz @UMTS, 3G Only	LTE FDD: B1/B3/B5/B7/B8/B20 LTE TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM: B3/B8
Data	HSPA+: Max.14.4Mbps (DL)/Max.5.76Mbps (UL) UMTS: Max.384Kbps (DL)/Max.384Kbps (UL) EDGE: Max.236.8Kbps (DL)/Max.236.8Kbps (UL) GPRS: Max. 85.6Kbps(DL)/ Max. 85.6Kbps(UL) CSD: 14.4Kbps			LTE: LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL) LTE TDD: Max 130Mbps (DL)/Max 35Mbps (UL) DC-HSPA+: Max 42Mbps (DL)/Max 5.76Mbps (UL) UMTS: Max 384Kbps (DL)/Max 384Kbps (UL) TD-SCDMA: Max 4.2Mbps (DL)/Max 2.2Mbps (UL) EDGE: Max 236.8Kbps (DL)/Max 236.8Kbps (UL)

		GPRS: Max 85.6Kbps (DL)/Max 85.6Kbps (UL
Temperature	-40°C ~ +85°C	
Supply Voltage	3.3V~4.3V, 3.8V Typ.	
GNSS	Qualcomm gpsOne Gen8 with 16 GPS channels and 14 GLONASS channels with dedicated GNSS AT Commands	GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)
General	HSPA+: Release 5/6 (UL Category 6, DL CAtegory 10) GPRS/EDGE: Multi-Slot Class 12 (10 by default) WCDMA: Release 99 GSM: Release 99/4 3GPP TS27.007, 3GPP TS27.005 and Quectel Enhanced AT Commands	3GPP E-UTRA Release 11 3GPP TS27.007 and Enhanced AT Commands
Approval	RoHS Compliant CE/GCF/Vodafone (Europe) DoC (Russia) FCC/PTCRB/AT&T (North America) RCM (Australia) ICASA (South Africa) SRRC/NAL/OFCA (China) JATE & TELEC (Japan) NCC (Taiwan) KC/SKT (Korea) IC/Rogers (Canada) Anatel (Brazil) NBTC (Thailand)	RoHS Compliant CE/GCF/Vodafone* (Europe) FCC/PTCRB/AT&T*/Verizon* (North America) RCM/Telstra* (Australia) JATE/TELEC/DOCOMO*/Softbank* (Japan) NCC (Taiwan) KC/SKT/KT*/LGU+* (Korea) IC/Rogers (Canada) NBTC (Thailand) Anatel* (Brazil) * Under Development

USB Ports:

Cape has two USB Connector for the user to access.

- P7 (MINI USB Device Port Connector) is to be connect the cape to the Beaglebone CPU USB host port P3.
- P8 (Alternate USB-A Port Connector) Hi-Speed USB Port, Max 500 mA, Type-A.

For the USB ports enumeration of module please refer to the VAYU2 Wiki Page.
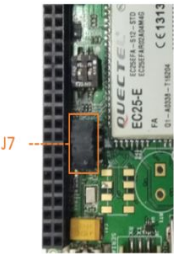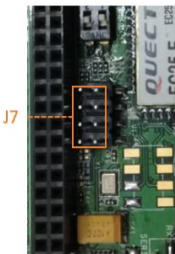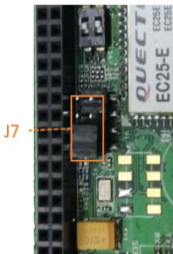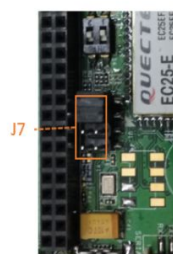
RS232 Ports:

2x RS232 serial ports.

- Pluggable 2 mm 3-pin Terminal Header
- +/- 25V tolerant I/O
- ESD Protection Level Upto +/-15 kV HBM

- Operates up to 250 kbps

Jumper Settings:

User can select the RS232 Communication ports Serial Port-1 or Serial Port-2 by using the Jumper J7. Serial Port 1 is the UART1 of the Beaglebone CPU and Serial Port 2 is the UART2 of the Beaglebone CPU.

RS232 Ports Enabled/Disabled	Jumper J7 Configuration			
Port 1	✔	✘	✘	✔
Port 2	✔	✘	✔	✘

Setting up the system:

1. Place a micro-SIM in the SIM card slot and connect a respective antennas to the SMA connectors. (P2&P3 are SMA Connectors for Connecting GSM antennas, P4 for GNSS antenna).
2. Mount the VAYU2 cape on Beaglebone Black.
3. Ensure the power jumper J1 with other jumpers according to your application.
4. Connect the USB-A to mini-B USB cable provided with the cape between Host port on Beaglebone Black and mini USB device port P7 on Cape.
5. Now power up the full setup using a 5V DC adapter (min 2.5A) to BeagleBone system's barrel jack. D2 LED on the cape will glow along with LEDs on the Beaglebone black.

Note: Before powering up ensure correct software image is loaded in Beaglebone black or VIBE/VIBE2

Before proceeding further ensure D2 LED is glowing properly. Make sure that the adapter being used is of proper rating and has been connected properly.

When using the GNSS Section ensure the GPS Antenna is faced to Open SKY for better accuracy.

Do not try to power up using USB cable alone. Always power up system with a DC adapter. Also while disconnecting power, USB cable should be removed before the DC adapter.

Before powering down the system always ensure to Turn OFF the Module using the PWRKEY turn ON/OFF control pin or using the AT Command *AT+QPOWD*.

Useful Links :

http://www.yantrr.com/wiki/VAYU2
http://elinux.org/Beagleboard:BeagleBoneBlack_Debian
http://www.quectel.com/product/ec25.htm
http://www.quectel.com/product/uc20.htm

FCC Compliance Statement:
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Still Have Questions or Technical Issues?

Please post your queries in the online helpdesk portal at http://support.yantrr.com or email us at support@yantrr.com for any question you might have providing following details:

1. Product model
2. Serial Number
3. Your address, email address and phone contact information
4. Full description of the issue you are facing