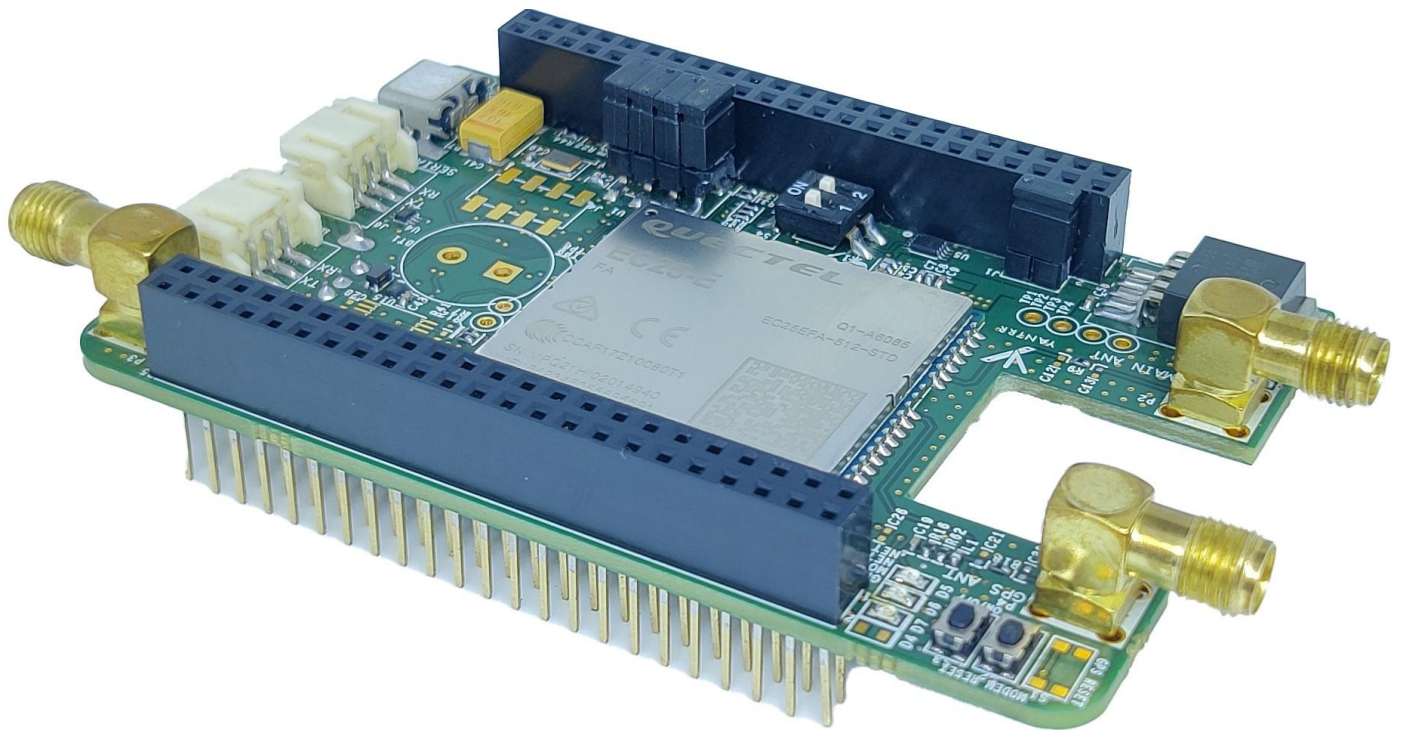




## VAYU2-3GUC20/4GEC25 Series

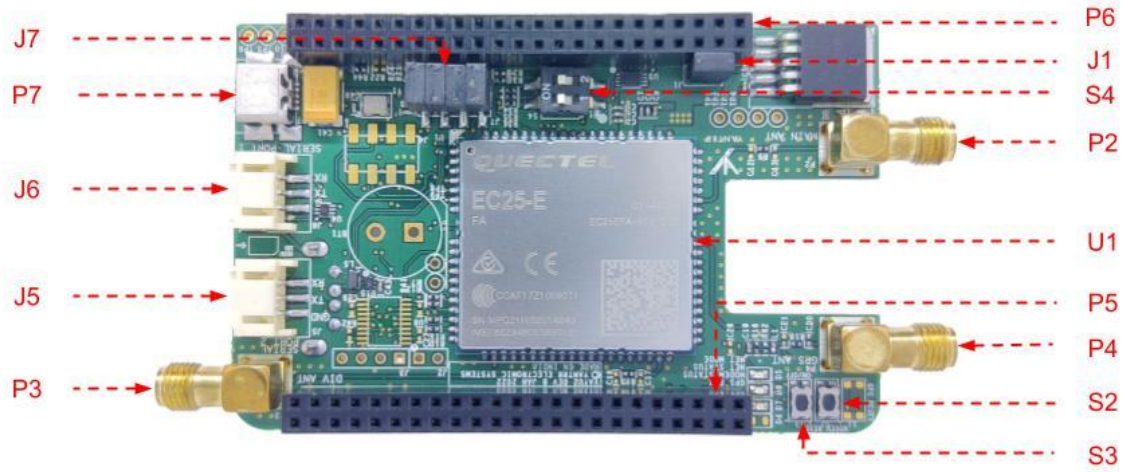
Quick Start Guide V1.0



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New Delhi, 110091  
INDIA

# Board Layout:

## TOP SIDE



## BOTTOM SIDE



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
P5	Stacking connector with Beaglebone cape
P6	Stacking connector with Beaglebone cape
P7	MINI USB Device Port Connector
P8	Alternate USB-A Port Connector
J1	5V Power Jumper for cape
J5	RS232 Serial Port-2
J6	RS232 Serial Port-1
J7	RS232 Serial Port Enable/Disable Jumper
S2	Switch for Module Reset
S3	Switch for Module Power ON/OFF
S4	DIP switch for cape

## Specifications:

### Module:

	UC20-G	UC20-E	UC20-A	EC25-E
<b>Bands</b>	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
<b>Data</b>	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)
<b>Temperature</b>	-40°C ~ +85°C	
<b>Supply Voltage</b>	3.3V~4.3V, 3.8V Typ.	
<b>GNSS</b>	Qualcomm gpsOne Gen8 with 16 GPS channels and 14 GLONASS channels with dedicated GNSS AT Commands	GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)
<b>General</b>	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
<b>Approval</b>	RoHS Compliant CE/GCF/Vodafone (Europe) DoC (Russia) FCC/PTCRB/AT&T (North America) RCM (Australia) ICASA (South Africa) SRRRC/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 Connectors for the user to access.

- P7 (MINI USB Device Port Connector) is to connect the cape to the Beaglebone CPU USB host port P3.
- P8 (Alternate USB-A Port Connector) is a Hi-Speed USB Port, Max 500 mA, Type-A. For the USB ports enumeration of the module, please refer to the VAYU2 Wiki Page.

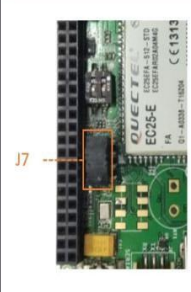
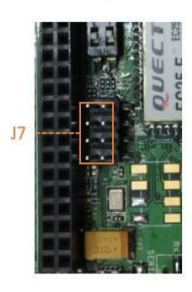

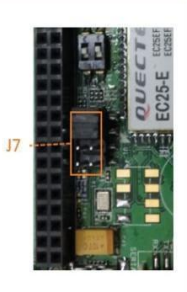
## RS232 Ports:

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:

The 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			
				
<b>Port 1</b>	✓	✗	✗	✓
<b>Port 2</b>	✓	✗	✓	✗

## Setting up the system:

1. Place a micro-SIM in the SIM card slot and connect the respective antennas to the SMA connectors.  
(P2&P3 are SMA connectors for connecting GSM antennas, P4 is for the 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 the BeagleBone system's barrel jack. The 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 the 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 a USB cable alone. Always power up the system with a DC adapter. Also while disconnecting power, the USB cable should be removed before the DC adapter.



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

### Useful Links :

<http://www.yantr.com/wiki/VAYU2>

[http://elinux.org/Beagleboard:BeagleBoneBlack\\_Debian](http://elinux.org/Beagleboard:BeagleBoneBlack_Debian)

<http://www.quectel.com/product/ec25.htm>

<http://www.quectel.com/product/uc20.htm>

### FCC Compliance Statement:

1. This product has not undergone tests to certify compliance with FCC Rule 15 Part B.
2. This product is provided to the buyers in the USA as an engineering sample only for evaluation in the buyer's facilities.
3. This product cannot be further sold in the USA or used for any other purpose other than evaluation by the original buyer.
4. Yantr Electronic Systems will not be responsible for loss or damage resulting from any use of this product other than as an engineering sample for evaluation purposes.

### Still Have Questions or Technical Issues?

Please post your queries in the online helpdesk portal at <http://support.yantr.com> or email us at [support@yantr.com](mailto:support@yantr.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