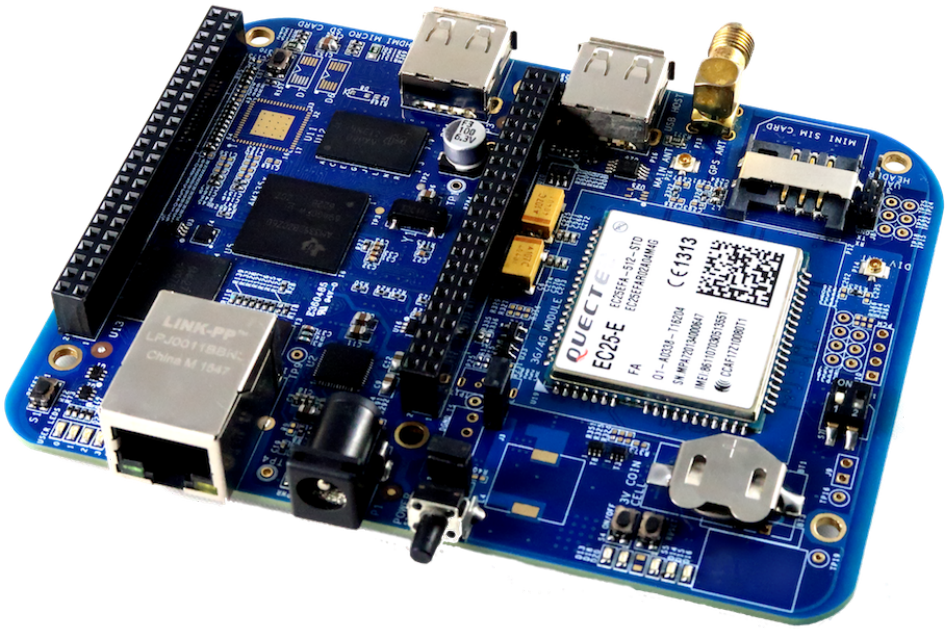
# VIBEQ-3GUC20/4GEC25 Series

Quick Start Guide



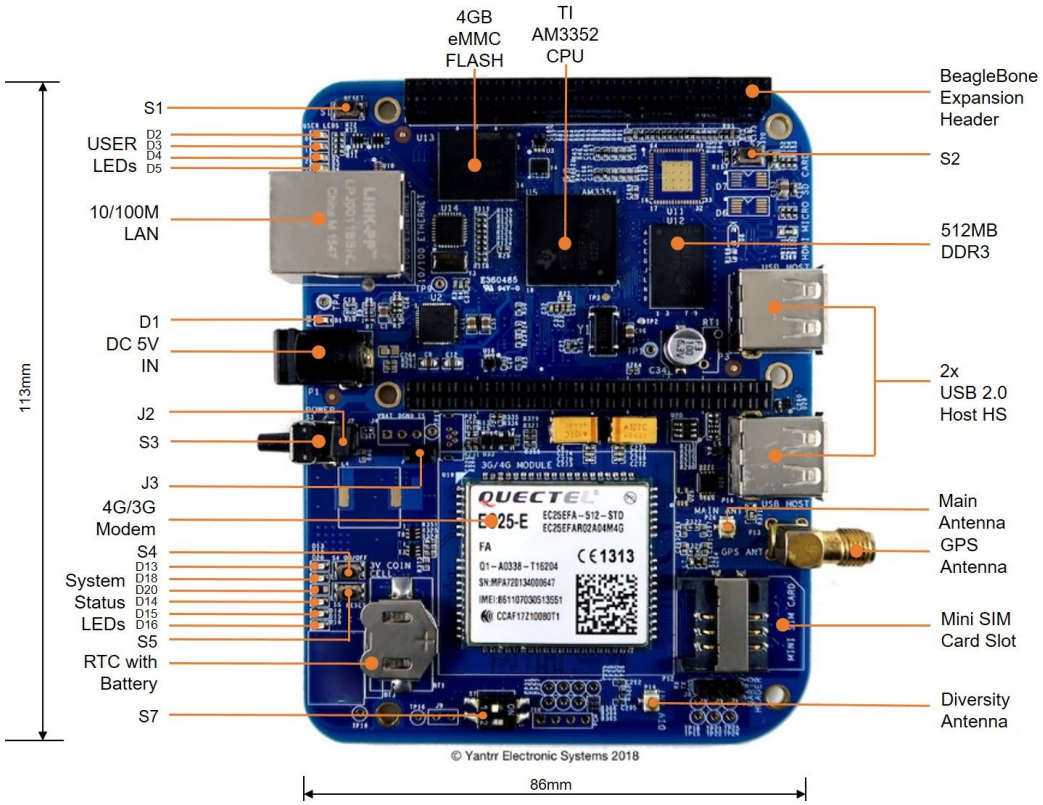




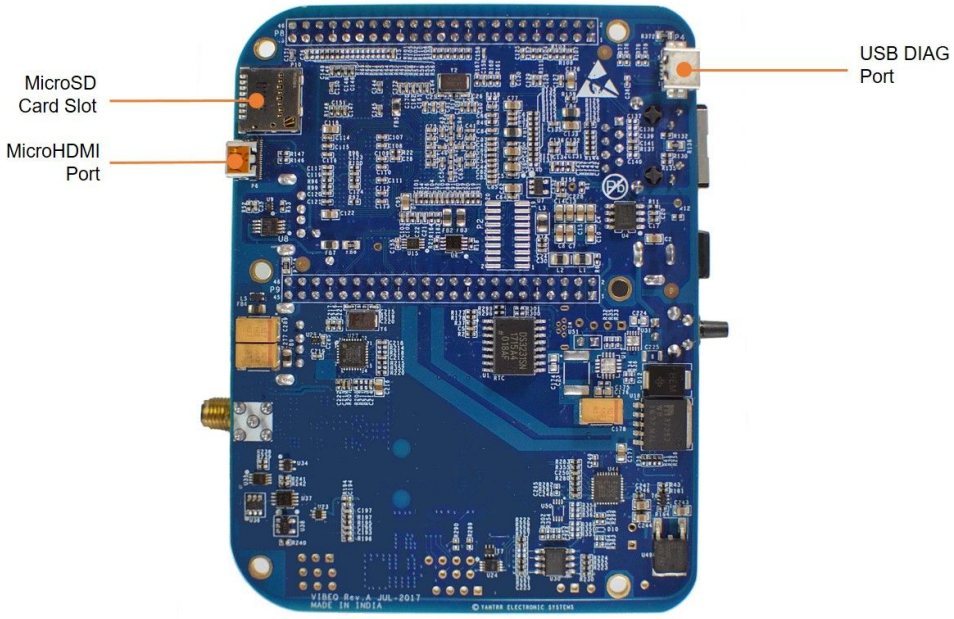
New Delhi, 110091
INDIA

# Board Layout:

## Top View




## Bottom View



# Specifications:

| CPU SYSTEM | |
|---|---|
| Processor | TI Sitara™ ARM® Cortex®-A8 AM3352 (up to 1GHz), On-Chip 64KB Shared SRAM, 32KB Data Cache, 32KB L1 Cache, On-Chip 256 KB L2 Cache |
| SDRAM Memory | 512MB DDR3L 800MHz |
| Flash Storage | 4GB, 8 bit Embedded MMC |
| Real Time Clock | +/- 2ppm accuracy, Automatic calendar compensated up to year 2100, battery backed, +/- 3◦C accurate temperature sensor output |
| Debug Support | CPU console connection through USB device port |
| Power source | 5V, 4A DC Jack (Battery-backed option available) |
| Indicators | 1-Board power, 1-Modem Power, 1-Modem Data, 1-GPS, 1-GPS Fix, 4- User programmable LEDs |
| USB | 2x USB2.0 host ports, Type A socket, 500mA LS/FS/HS |
| LAN | 10/100M, shielded RJ45 |
| User Input Buttons | Reset, Boot, Power, Modem Reset, Modem On/Off, GPS Reset |
| I/O Interfaces | 2x SPI, 2x I2C, 5x UART, 2x CANBus 7xAIN (1.8V max), McASP0, GPIOs (69 max), MMC1, MMC2, LCD 24 bit, GPMC |
| Video Interface | Micro HDMI (optional) |
| Compatibility | Compatible with other BeagleBone industrial capes such as CANBus, RS232, RS485 and most of the LCD capes |

| GNSS System | |
|---|---|
| Connector | SMA (F) |
| Receiver | Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou, Galileo and QZSS) |

| Cellular Modem Options | | | | | |
|---|---|---|---|---|---|
| | **3GUC20-G** | **4GEC25-E** | **4GEC25-A** | **4GEC25-V** | **4GEC25-AUT, 4GEC25-AU** |
| Network | GSM/GPRS/EDGE/WCDMA/HSPA+ | 4G/LTE (Fallback to GSM/3G wherever available) | | | |
| Bands | UMTS: 800/850/900/1900/2100MHz GSM: 850/900/1800/1900MHz | GSM: B3/B8, WCDMA: B1/B5/B8, FDD-LTE: B1/B3/B5/B7/B8/B20, TDD LTE: B38/B40/B41 | WCDMA: B2/B4/B5, FDD-LTE: B2/B4/B12 | FDD LTE: B4/B13 | (AUT) WCDMA: B1/B5, FDD-LTE: B1/B3/B5/B7/B28 (AU) GSM: B2/B3/B5/B8, WCDMA: B1/ B2/ B5/ B8, FDD-LTE: B1/ B2/ B3/ B4/ B5/ B7/ B8/ B28, TDD LTE: B40 |
| Max Data Rate (DL/UL) Mbps | 14.4/5.76 | 150/50 | | | |
| Software Interface | PPP, AT command set, USSD, SMS | | | | |
| SIM Card | Mini SIM | | | | |
| Antenna Connector | Main and Diversity u.FL sockets | | | | |
| Modular Approvals | ANATEL/ AT&T/ CE/ FCC/ IC/ JATE/ NBTC/ PTCRB/ RCM/ Rogers/ TELEC | CE/ GCF/ KC/ SKT/ NBTC/ Vodafone/ FAC | FCC/ PTCRB/ IC/ Rogers/ AT&T | FCC/ GCF/ Verizon | RCM/ NCC/ Anatel |

# Switches:

| Switch | Description |
|---|---|
| S1 | Reset switch |
| S2 | Boot switch |
| S3 | Power switch |

| | |
|---|---|
| S4 | Modem ON/OFF switch |
| S5 | Modem Reset switch |
| S7 | Cape address switch |

## Jumpers:

| Jumper | Description |
|---|---|
| J2 | Battery connection bypass jumper, for non BATT-UPG configurations this jumper should be closed. |
| J3 | Boost section bypass jumper, for non BATT-UPG configurations this jumper should be closed. |

## LEDs:

| LED | Description |
|---|---|
| D1 | Power LED |
| D2 | User LED 0 |
| D3 | User LED 1 |
| D4 | User LED 2 |
| D5 | User LED 3 |
| D13 | Modem Power LED |
| D14 | Modem operation status LED |
| D15 | Modem network activity status LED |
| D16 | Modem network registration mode LED |
| D18 | Cape Side Power LED |
| D20 | Diagnostic status LED |

## Setting up the system:

1. Place 3V coin cell (provided with VIBEQ) in the holder for RTC.
2. Place a data-enabled mini-SIM in the SIM card slot and connect a GSM antenna to the respective main antenna connector.
3. Ensure that the power jumpers J2 and J3 on VIBEQ are in place and EEPROM address set at 0x54 using DIP switch S7
4. Power up VIBEQ using the 5V/5A DC adapter (provided with VIBEQ).
5. After powering up and bootup, login into VIBEQ by any of the following option :

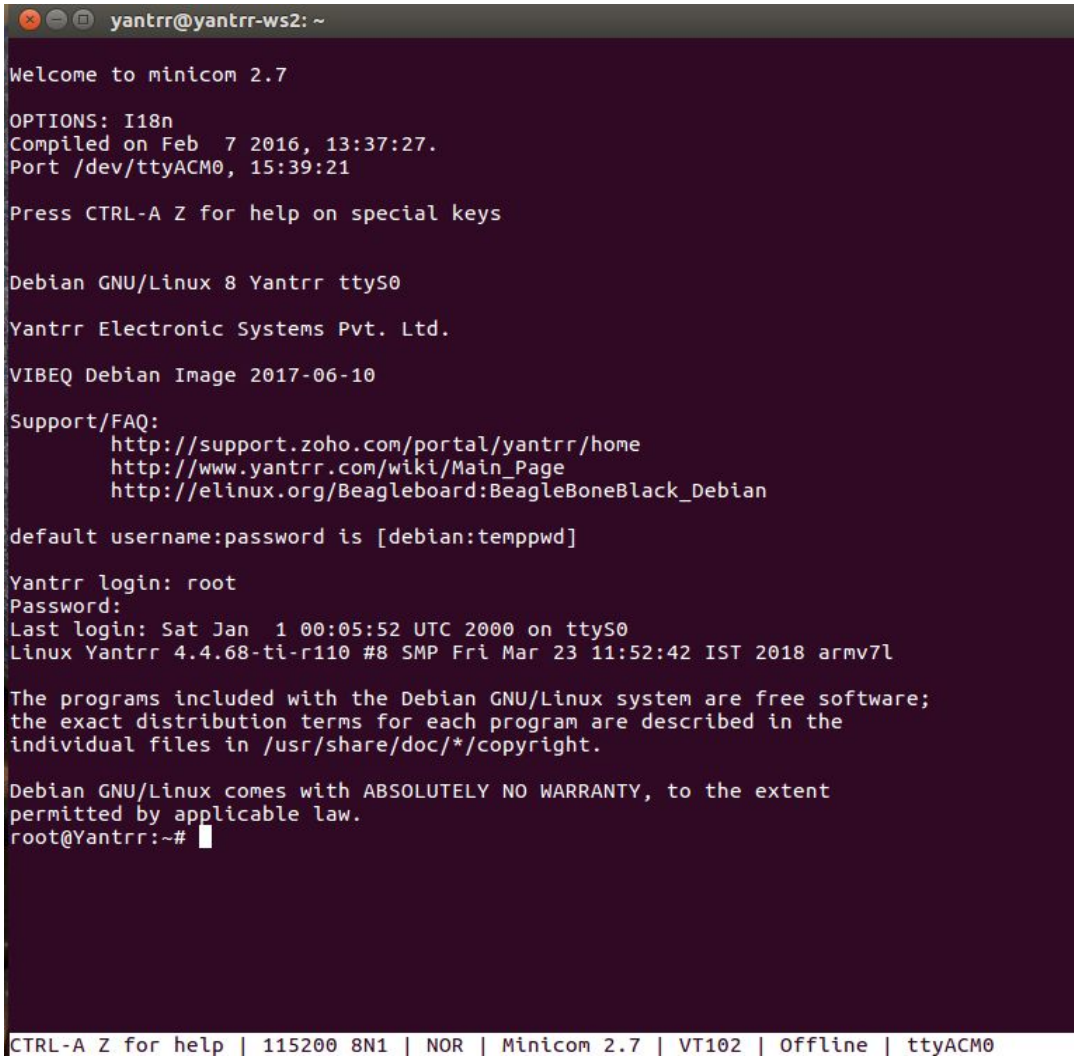
**a.** Through Diagnostic Port using Mini-USB cable.
**b.** Through Ethernet Cable (at IP 192.168.1.150 for preflashed eMMC images)

Username for root login is ***root*** and password is ***root***. For user login, username is ***debian*** and password is ***temppwd***.

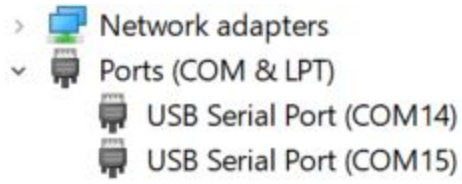
## a. Through Diagnostic Port using Mini-USB cable

The diagnostic port (P4 at the back side of USER LEDs) will gives debug-console access to VIBEQ. Connect a Mini-USB cable between VIBEQ's diagnostic port and Desktop USB port. Once connected to Desktop system two virtual ports are created on the desktop. Depending on Desktop OS, ports name will be different.

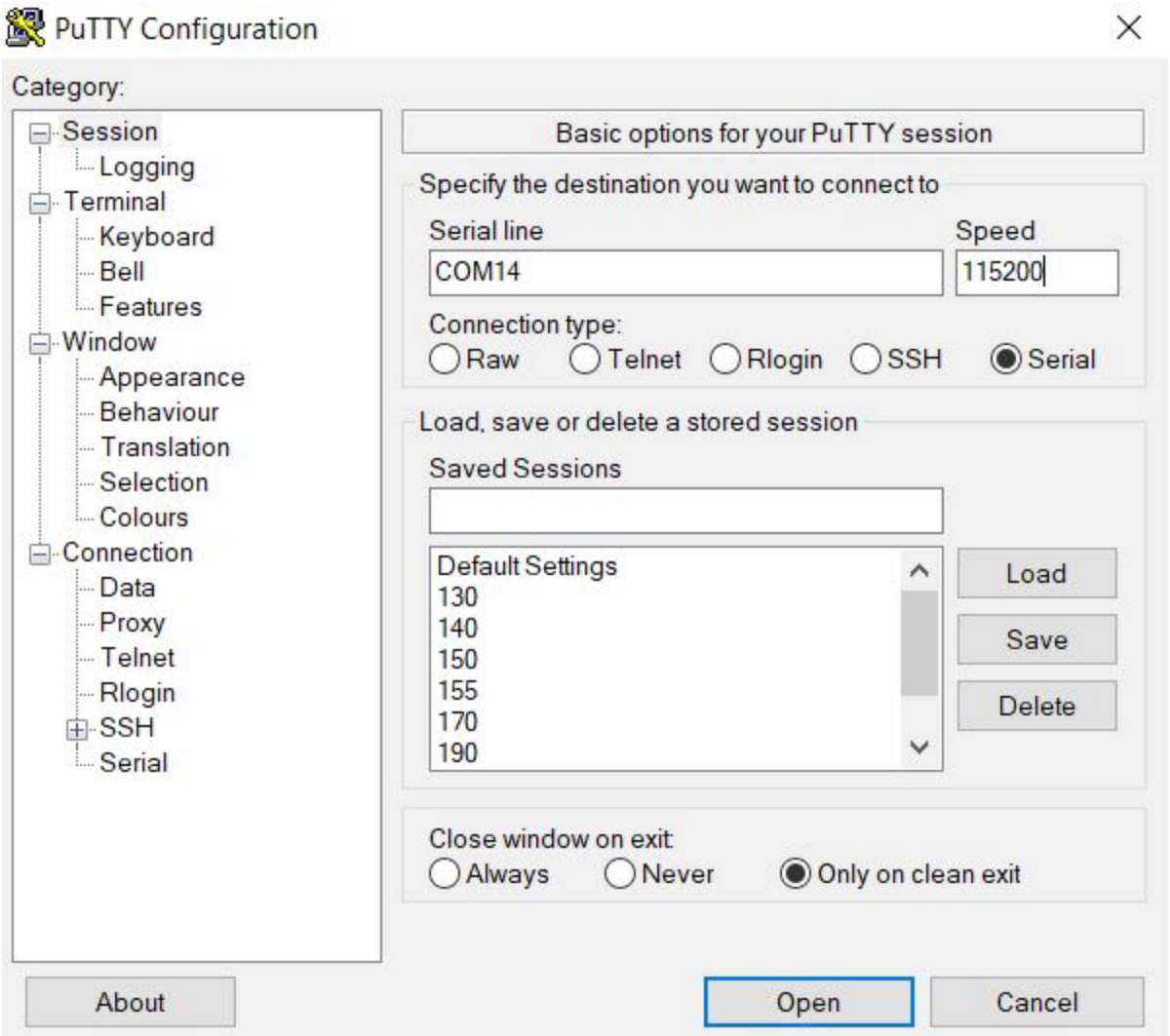
- On Linux, it will create port /dev/ttyACM0 and /dev/ttyACM1. Use minicom or similar application for accessing serial port /dev/ttyACM0 with baud rate of 115200
  **`sudo minicom -D /dev/ttyACM0`**



- On Windows, first check the serial port names using Windows Device Manager Utility




Here, Diagnostic Port of VIBEQ is accessible on port COM14, now use putty client to access it.




Once login prompt comes, use the above provided username and password to login.

## b. Through Ethernet cable

Pre-flashed image on VIBEQ has the fixed IP address as 192.168.1.150 with gateway 192.168.1.1 SSH into the system over ethernet :

```
ssh -l root 192.168.1.150
```

*Note: Before powering up ensure correct software image is loaded in VIBEQ*

Before proceeding further ensure D1 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 facing open sky for better accuracy and faster time to fix.

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*.

## Precompiled Firmware Images:

- **Debian MicroSD card Image** : VIBEQ_4.4_debian8_2303018.img.xz

## Useful Links :

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

## FCC Declaration of Conformity:

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 USA as an engineering sample only for evaluation in the buyer's facilities.
3. This product cannot be further sold in USA or used for any other purpose other than evaluation by the original buyer.
4. Yantrr Electronic Systems will not be responsible 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.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