

Figure 1: M2M BeagleBone Cape Architecture

Feature benefits:

- Seamless integration of Beagle bone black with 2G and 3G network
- GPS support available for precise positioning and timing
- GPRS/EDGE only support for low data rate application, sensor network etc.
- 3G (Up to 7.2 Mbps) cellular network ready for high data rate application.
- Precise time synchronization using GPS time
- Network several Beagle bone using cellular data and precise time sync
- Full driver and software support for Debian Wheezy and Angstrom distribution
- M2M ready, high level compatibility with industrial capes

Cape Compatibility Matrix

Vayu M2M Cape is compatible with most of the Beaglebone Black Capes.

The Table below lists compatibility of Vayu M2M Cape with few important Beaglebone Black industrial /sensor capes.

	M2M Cape Versions	Vayu-2G-A	Vayu-2GP-A	Vayu-3GH-A	Vayu-3GHP-A	Vayu-P
Beaglebone Black Cape						
TT3201		x	x	✓	✓	✓
CAN Bus		x	x	✓	✓	✓
RS232		✓	✓	✓	✓	✓
RS485		x	x	✓	x	x
Weather		✓	✓	✓	✓	✓
Profibus		x	x	✓	x	x
Inertial Navigation System		x	x	x	x	✓

*More information on compatibility of Beaglebone black capes with Vayu M2M cape will be provided on request.

Software support

- Full Driver support for Debian Wheezy and Angstrom distribution.
- Full Software support including NTP server, GPSD, PPP and other packages provided.
- Downloadable SD card images available for Debian Wheezy and Angstrom distribution.
- Application Notes available for easy usage of Cape with Beaglebone Black. (will be released before shipment begins)

Application Use Cases

NTP Server on BBB

A simple application will be that running a NTP Server on BBB helps you to set the time on the Beaglebone Black on a once-off basis.

Another application can be that the NTP server running on BBB (which is using GPS NMEA messages, 1 pps time sync signal or online pool of NTP servers) reads the actual time from a reference clock (GPS master clock) and distributes this information to clients/devices connected to this BBB. Thus this BBB with VAYU M2M Cape will be working as a Time Server.

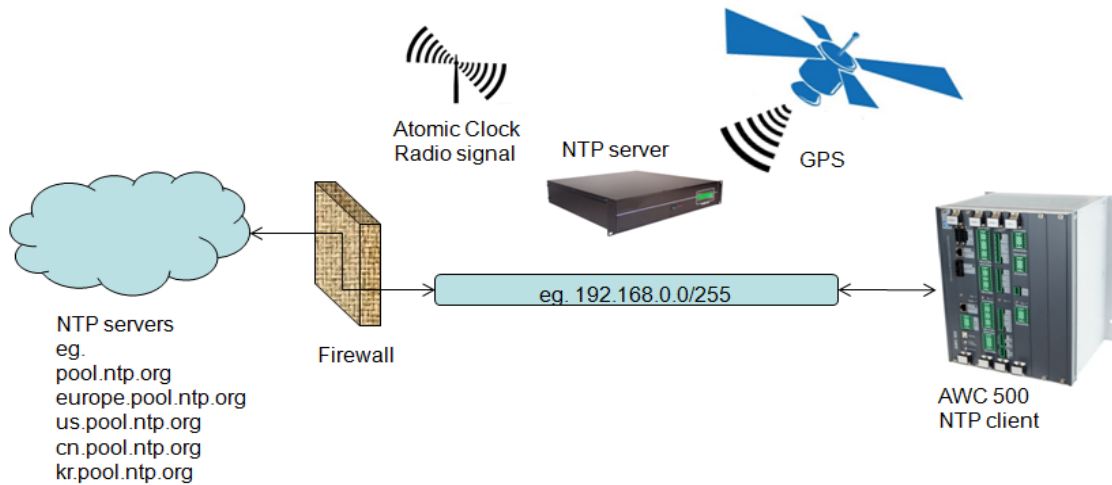


Figure 2: GPS based NTP server

4th Generation SCADA

In industrial process control applications, there is a frequent requirement to observe and control industrial processes which are remotely located. These remote sites can be placed several tens or even hundreds of kilometres away from the main SCADA center(s). The proliferation of public wireless networks (GSM AND CDMA, 2G/3G) into remote areas with data capability approaching several millions of bits per second is providing a viable alternative to connect RTUs and SCADA systems, a typical application of Machine-2-Machine (M2M) systems.

One such application can be transmitting serial data from a device (RTU) connected to this BBB using Vayu M2M Cape over the internet using 3G to a central monitoring location (SCADA centers). The serial data can be from one device or from multiple devices (upper limit) or multiple devices can be connected to BBB and sending serial data over the internet. The serial data can be any sensor data like temperature readings etc. or some industrial log data which is sent periodically to the central monitoring location.

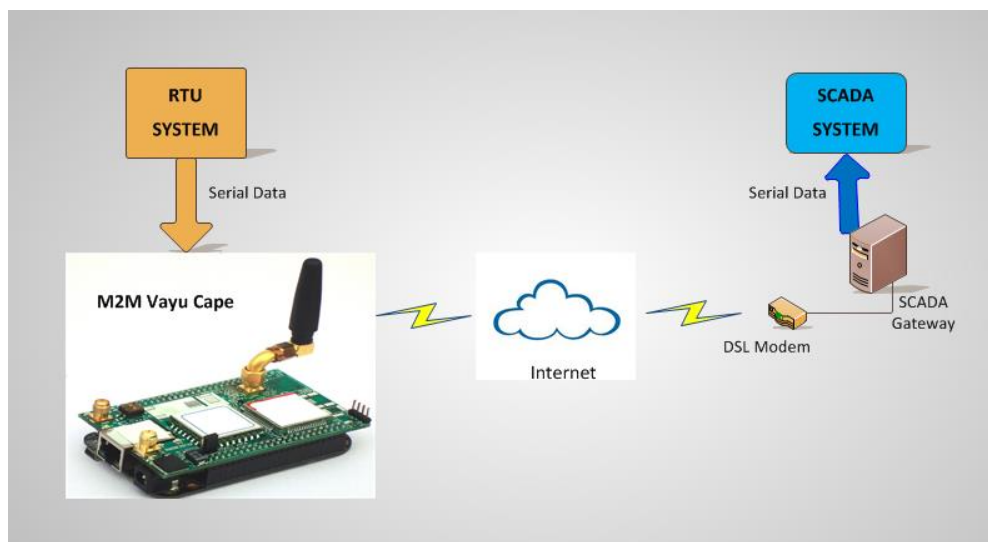


Figure 3: Rudimentary SCADA architecture (Conceptual)