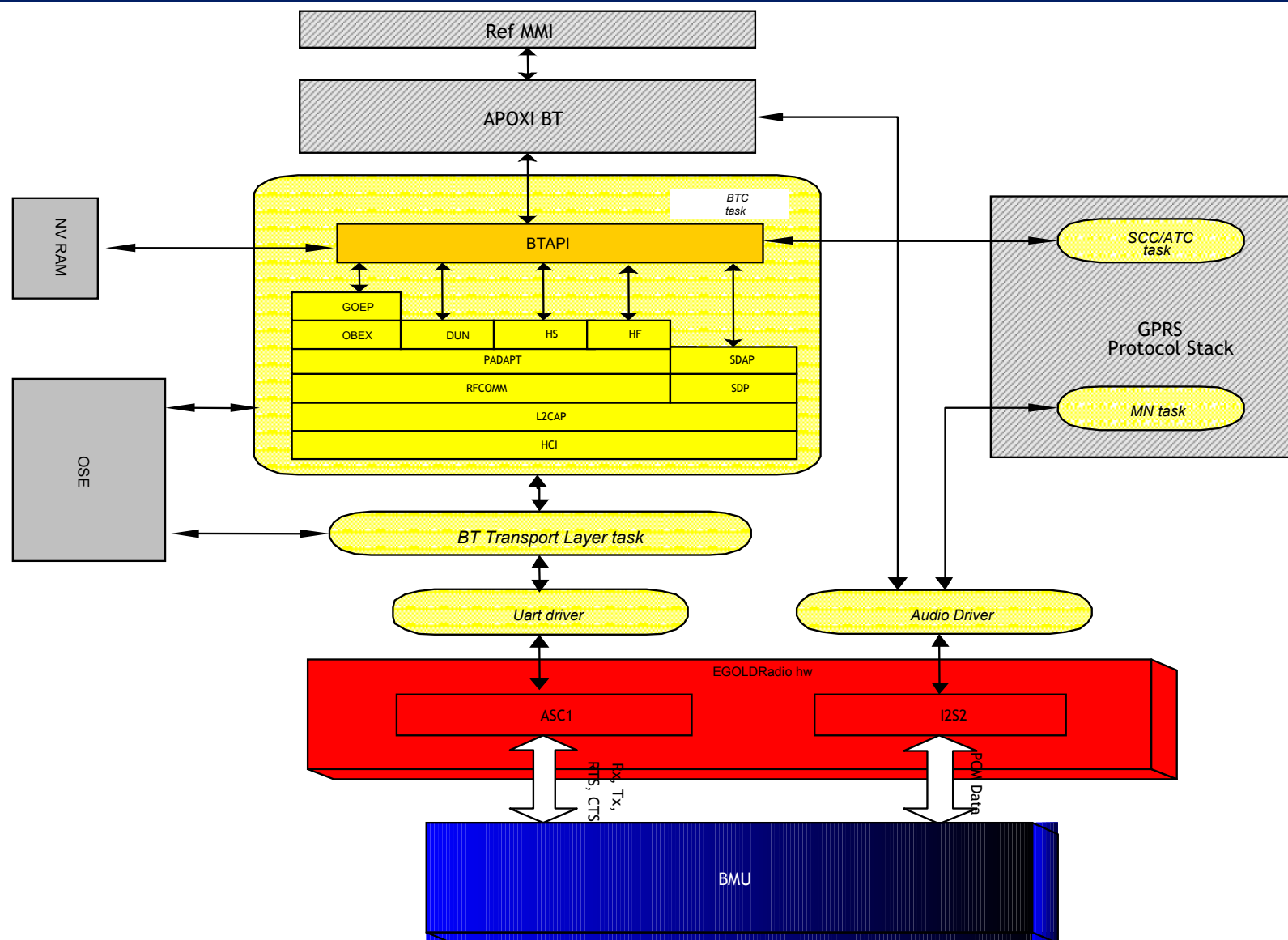# Bluetooth Presentation

Antonio Giordano

Bluetooth – Hardware Part

- Infineon BlueMoon UniCellular PMB8753

- Infineon E-GOLDradio PMB7870

- BlueMoon UniCellular firmware part: implements Bluetooth

  Core System Package Controller part

- E-GOLDradio firmware part strictly related to Bluetooth:

  audio I2Sx/y interface firmware

Bluetooth Architecture

Bluetooth Architecture – Description (1/3)

- Interactions between the user and the Bluetooth functionalities through MMI layer

- MMI layer is based on APOXI framework which is interfaced with Mecel Bluetooth protocol stack SW through BTAPI (top layer of the stack)

- BTAPI: there are all SW interface for the managing of the Bluetooth profiles:
  - HandsFree
  - HeadSet
  - DialUp Network
  - Generic Obex Exchange profiles

Bluetooth Architecture – Description (2/3)

- Profiles and protocols of Bluetooth stack run in BTC task under OSE operating system

- BlueTooth Transport Layer (BTTL) manages I/O functions for writing and reading to the UART port of E-GOLDradio

- Data flow from BlueTooth Host to the BlueTooth Controller is based on UART1 ➔ configured to support HCI 4Wire interface of BMU

Bluetooth Architecture – Description (3/3)

- All profiles lain on Serial Port Profile can interact with Protocol Stack through SSC/AT stack

- Audio path is based on I2S interface at the E-GOLDradio side

- PCM interface is based at the BMU side

  - Setting, Activation and Deactivation done through HCI commands (for BlueMoon UniCellular) and DSP (for E-GOLDradio)

Requirements – HCI and BlueMoon UniCellular

- UART1 configured to support HCI 4 Wire protocol plus Infineon extensions for Lower Power Mode

- UART speed for BlueMoon UniCellular chipset startup is 115200 bps, 8N1

- Speeds after BlueMoon UniCellular inizialization: 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600 (allways 8N1)

- BlueMoon UniCellular Inizialization

  – Done with HCI manufacturer command Infineon_Write_BD_Data

  – With the default parameters

- See Bluetooth Technical Specification for major details

Requirements – PCM interface and Lower Power Mode

- **■ To be set:**
  - – I2S interface (on E-GOLDradio)
  - – PCM interface (on BlueMoon UniCellular)

- **■ PCM burst mode:**
  - – E-GOLDradio is the master
  - – BlueMoon UniCellular is the slave
  - – PCM clock frequency is 128 KHz, 16 bit frame length, one channel

- **■ BlueMoon UniCellular HCI 4 Wire Lower Power Mode type**

- **■ For Major details, see BlueTooth Technical Specification**

References

- [1]   Bluetooth Specification version 2.0 + EDR, 4 Novermber 2004

- [2]   Infineon Tecnology AG, T8753-V2_04-P7-R1-7600 System Release Note, December 2005

- [3]   Bluetooth Technical Specification Rev 1.0