LYNX BT432 FUNCTIONAL BLOCK DIAGRAM

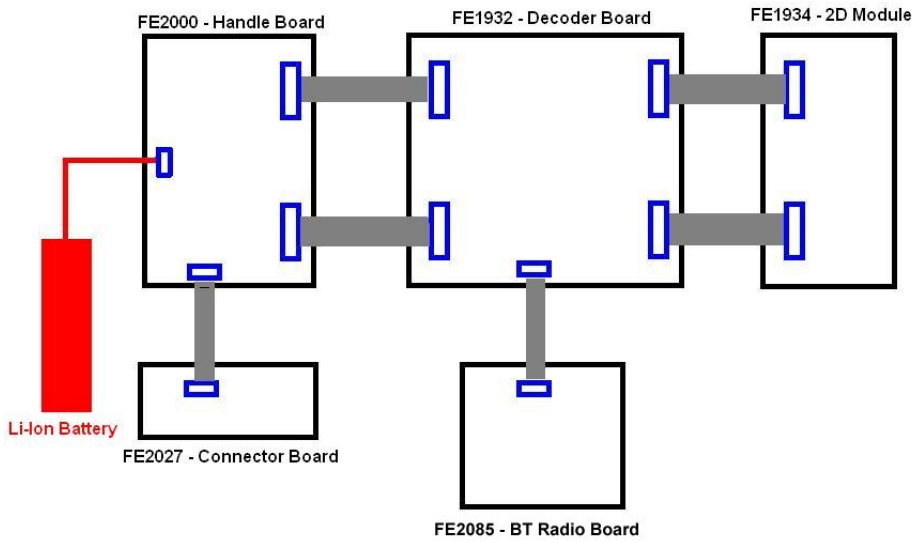

Fig. 1 BT432 PCBs BLOCK DIAGRAM

BT432 unit includes 5 printed circuit boards (PCBs):

1) FE2000 (GEL-2707) handle board
2) FE1932 (GEL-2704) decoder board
3) FE1934 (GEL-2477) 2D module
4) FE2085 (GEL-2693) Bluetooth radio module
5) FE2027 (GEL-2610) Connector board

The BT432 is powered by a single Li-Ion cell based battery pack BT-1 connected to the handle board; GEL-2707 includes:

- Power section:
  - Battery charger LTC-4002 500KHz switching powered by an external 12V supply provided by C-1000/OM-1000 cradle when the gun BT432 is inserted into the base station.
  - Step-up MAX1763 DC/DC 1MHz switching converter to provide a 5V for the decoder board.
- Trigger control section:
  - A button for the reader trigger and gun powering
  - PIC Microchip 10F200 (internal oscillator 4MHz) for aim control

The handle boards is interconnected to the contact board GEL2610 for interfacing with cradle unit and with the decoder board GEL2704.
The BT432 communicates with OM-1000 by using a serial interface (TTL electrical levels) through the cradle connector on the GEL2610.

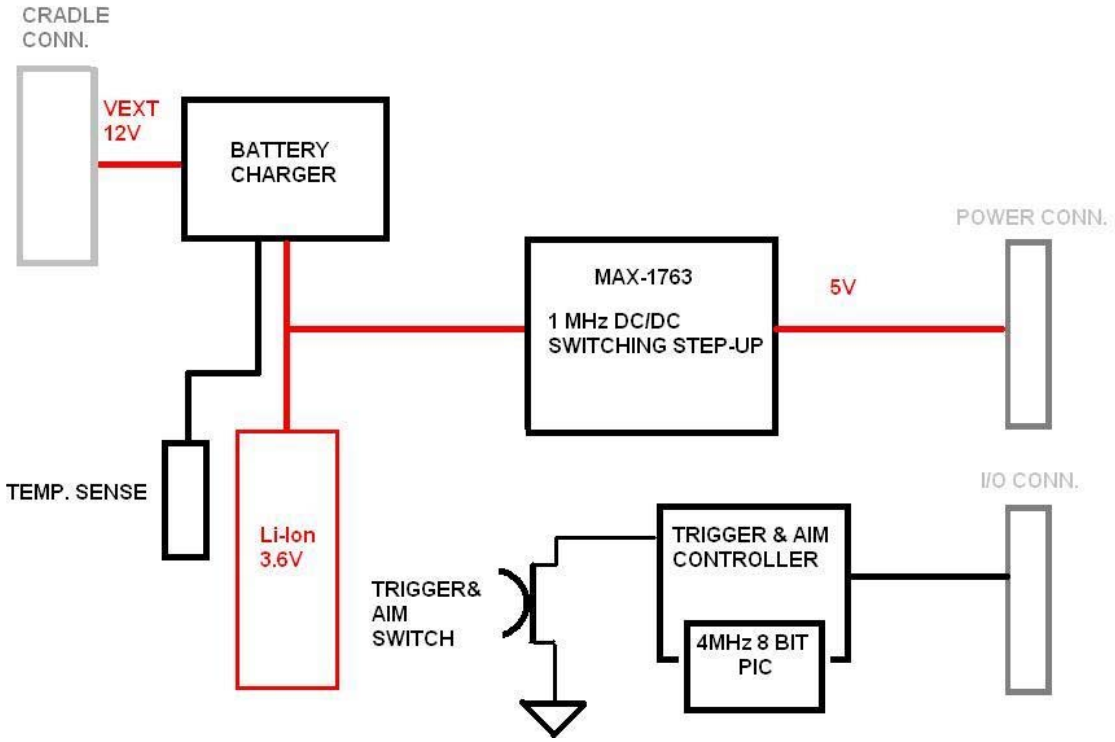

Fig. 2 – BT432 FE2000 BLOCK DIAGRAM

The decoder board (FE1932, GEL2704) includes the digital control unit for the reader management, communications and image processing.
The digital core of the board is based on a:

- Intel XSCALE 200 MHz PXA255 microprocessor (clocked at 100MHz when in power save mode)
- 16 Mbyte 32 bit SDRAM (clocked at 100MHz)
- 2 Mbyte 16 bit Flash (not synchronous)

The interface with the camera sensor module is implemented by an FPGA device (Altera EP1C3 family): it allows the frame synchronization and capturing from the cmos sensor, the configuration of the sensor via I2C bus, the laser aim pointer control, the led illuminator control and the image transfer to SDRAM via DMA controller. The FPGA is clocked externally by a 27 MHz oscillator.

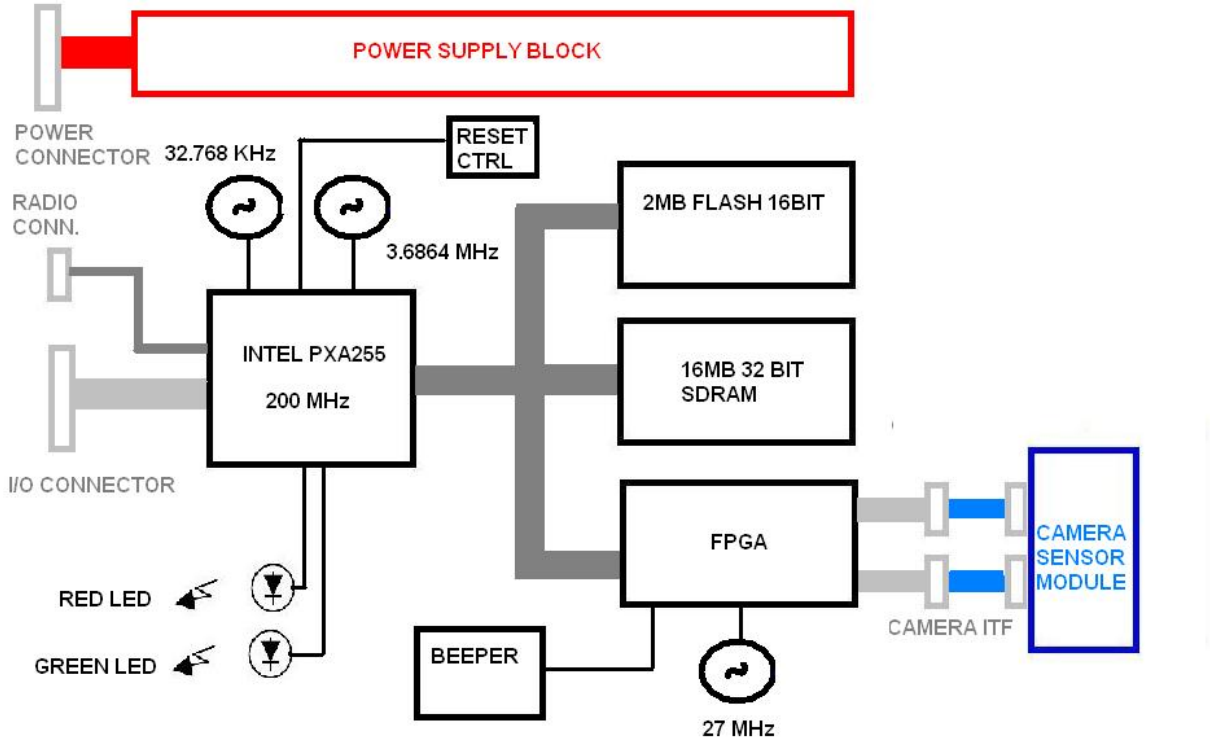

Fig. 3 – GEL2704 decoder board block diagram

The decoder board is powered by the 5V DC supply provided by GEL2707 handle board. The following power supplies are instead generated on-board:

- 3.3V for digital I/O section, ttl interfaces, led control, sdram.
- 1.15 V for Xcale core
- 1.5V for Altera EP1C3 core

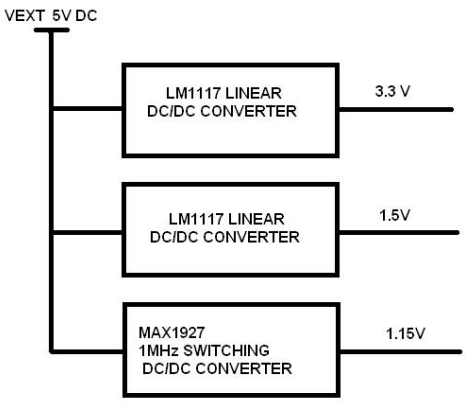

Fig. 4 – GEL2704 power supplies block diagram

The 2D camera module GEL2477 includes:

1) the cmos image sensor (VGA array) with on-chip video amplifier and A/D converter
2) the 3-state bus transceiver for pixel data bus from sensor.
3) The linear dc/dc converter for 3.3V on-board generation from external 5V supply
4) The led driver and led illuminator
5) The laser driver and laser diode

The cmos sensor is clocked by a 24MHz oscillator mounted on GEL-2477.

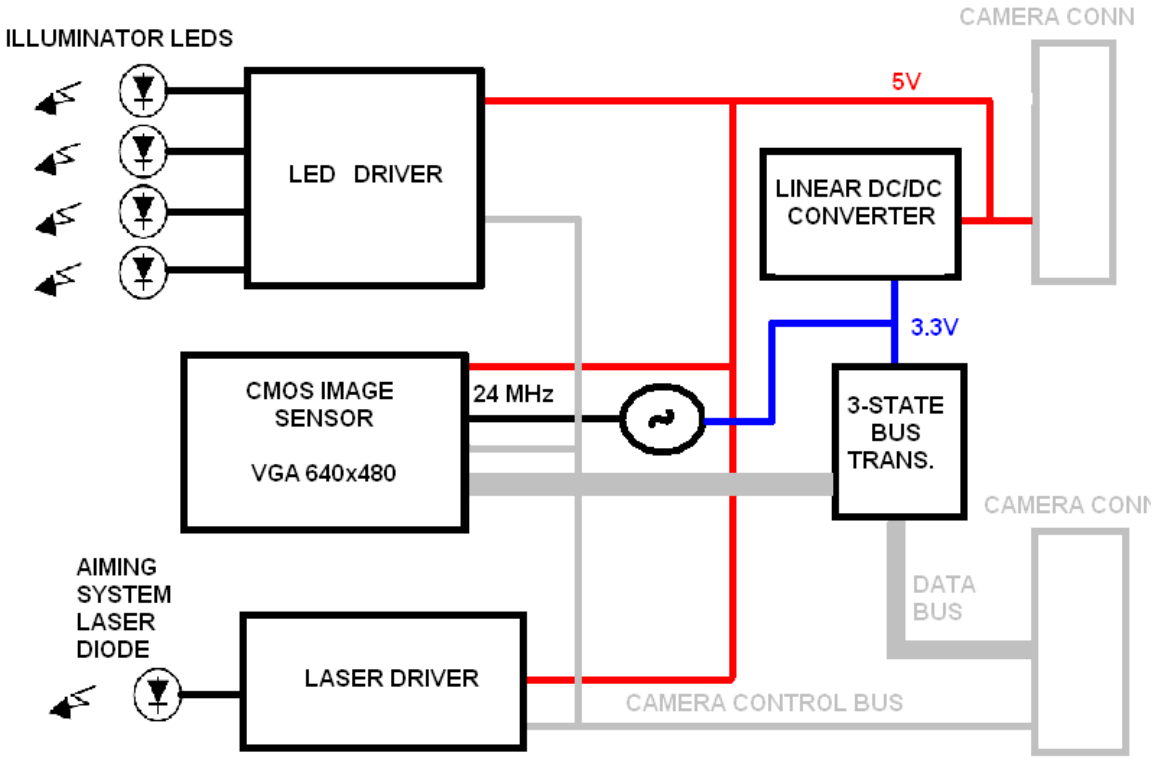

Fig. 5 - 2D Camera cmos sensor block diagram

The decoder board provides a serial interface, a 3.3V power supply and a reset signal for the radio module implemented on GEL2693.

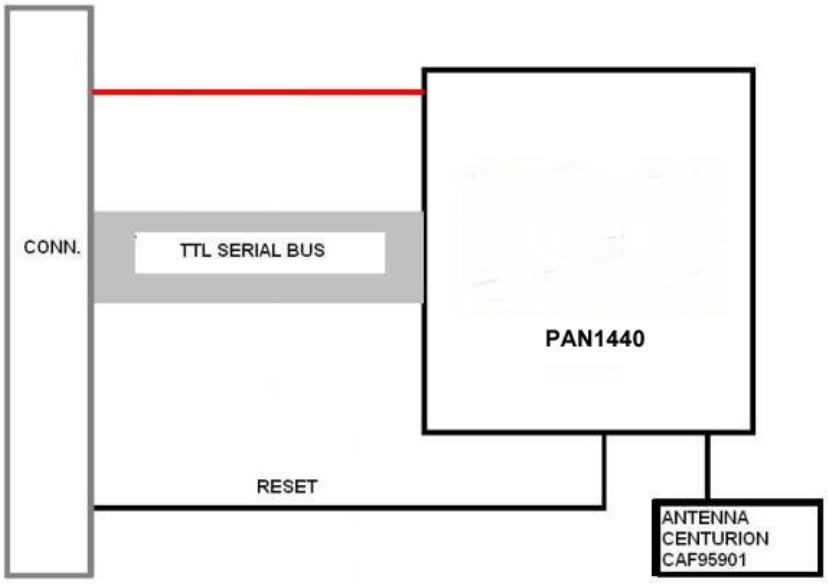

Fig. 6 FE2085 Radio BT module Block Diagram