

# ALL POINTS PRINTER

## Operational /Technical Description.

The All Points Printer, APP, is located in the check-out lane of retail outlets and interfaces to a Point of Sale register to monitor transactions. Based on transaction content coupons may print, audio is played and LED's may light up.

Consumers may identify themselves by means of a Mifare RFID tag at the end of the transaction. The Mifare reader antenna is located in the front of the top cover. The APP will link transactions with specific consumer ID's and upload the data over the internet to a host system for processing. As a result the host system will send instructions to the APP to print coupons, display images or play audio (mp3) files. For printing a standard off the shelf Star GT100 printer is integrated into the unit.

## Main Circuit Functions.

### Power Supply:

24V input from an external power supply is converted into 1.0V, 1.8 V, 3.3V, 5V and 9V with controlled power up sequence. An early loss of power signal is provided.

### Processor :

AT91SAM9M10 chip running at 400 MHz with 32 kB internal RAM and 18.432 MHz on chip oscillator.

### External Memory

- 2 MB NOR Flash
- 2 GB RAM (LPDDR)
- 8 GB uSD

### RF-ID:

Build around MFRC530 processor a highly integrated reader IC for contactless communication at 13.56 MHz. The receiver module provides efficient demodulation/decoding circuitry implementation for compatible transponder signals. The digital module manages the complete ISO/IEC 14443A standard framing and error detection (parity and CRC). The internal transmitter module directly drives an antenna designed for a proximity operating distance up to 100 mm without any additional active circuitry. The antenna is implemented by means of copper traces on a separate Flex PCB.

### Audio Driver:

The DAC circuit converts a 16 bit 44.1 kHz input stream to drive a single chip amplifier delivering 1.1 Watt into 8 Ohm speaker.

### I/O ports:

- Serial Ports (3):
  - Ser 1 and 3: 2 wire serial ports RX / TX
  - Ser 2: BI directional RS 232 with CTS and RTS
- Ethernet (1): 10/100 Mbps
- USB (4)
  - Device port external USB-B
  - Host port external, USB-A
  - Host port internal on 5 pin header. This connection is used for the Star GT100 printer.
- Card reader Interface for 3 track magnetic stripe cards on internal header

### Display/Keypad Options:

- Keypad with LED
- LCD Touchpad with magnetic stripe reader.