

Operational Description of HI210

(Please, refer to a block diagram attached)

1. MICROPROCESSOR

S3C440BX RISC microprocessor have the integrated on-chip functions that are described in this document are as follows.

- * 2.5V Static ARM7TDMI CPU core with 8KB cache .
- * 2-ch UART with handshake(IrDA1.0, 16-byte FIFO) / 1-ch SIO
- * 2-ch general DMAs / 2-ch peripheral DMAs with external request pins
- * 5-ch PWM timers & 1-ch internal timer
- * Watch Dog Timer
- * 71 general purpose I/O ports / 8-ch external interrupt source
- * Power control: Normal, Slow, Idle, and Stop mode
- * 8-ch 10-bit ADC.
- refer to : 2.LCD MODULE
- * LCD controller (up to 256 color DSTN) with 1-ch LCD-dedicated DMA.
- refer to : 2.LCD MODULE
- * 1-ch multi-master IIC-BUS controller
- refer to : 3.AUDIO PROCESSOR
- * 1-ch IIS-BUS controller
- refer to : 3.AUDIO PROCESSOR
- * External memory controller. (FP/EDO/SDRAM Control, Chip Select logic)
- refer to : 4. MEMORY
- * RTC with calendar function. On-chip clock generator with PLL.
 - External input CLOCK is 10MHz and microprocessor generate 60MHz MCLK with PLL. External CLOCK for RTC is 32.768KHz.

2. LCD MODULE

LCD MODULE(WD-G48321-6WEGa) integrates with LCD and drive circuit and touch panel and el back-light. Number of LCD dot is 320 * 480.

Frame rate of LCD controller in microprocessor is 166Hz and data bit clock is 3.3MHz. Supply voltage for LCD logic is 3.0V and supply voltage for LCD is 24V.

And supply voltage for el back-light is 155Vac, 255Hz.

3. AUDIO PROCESSOR

The MAS 35x9F is a single-chip, layer 2/3 and MPEG2-AAC audio stereo decoder.

The MAS 35x9F decoding block accepts compressed digital data streams as serial bit-streams, or parallel for-mat and provides serial PCM and/or S/PDIF output 1)

of decompressed audio. In addition to the signal processing function the IC incorporates a high-performance stereo D/A converter, headphone amplifiers, a stereo A/D converter, a microphone amplifier, and two DC/DC converters.

External input CLOCK is 18.432MHz.

Audio processor interface with microprocessor as follows.

- . control interface is IIC
- . mp3 data interface is IIS
- . recording interface is parallel through external buffer and flip flop.

4. MEMORY

Microprocessor has external memory controller and it control 8M BYTE SDRAM, 2M BYTE NOR FLASH, 16M BYTE NAND FLASH and external 256M BYTE expansion memory.

5. POWER

Adapter is for charging and also it is possible to chare while operating.

Adapter input is 100-200Vac, 50/60Hz and output voltage is 5V to supply into charge IC (BQ24007).

Output of BQ24007 supply LI-ion battery, DC/DC (TPS62000,MAX686), LDO(TPS77101) and inverter(HV830).

The TPS62000 is a step down converter operating in a current mode PFM/PWM scheme with a typical switching frequency of 750 kHz. Output voltage is 3V and it is main power.

The switching frequency of max686, which depends on the load, the input voltage, and the output voltage, can be as high as

300kHz. Output voltage is 24V and it is LCD supply.
Output of TPS77101 is 2.5V and it is core supply of microprocessor.

The HV830 is a high-voltage driver designed for driving EL lamps of up to 50nF.

Output voltage is 155Vac, 255Hz and it is supply to LCD EL backlight.

6. USB

The PDIUSBD12 is feature optimized USB device. It is normally used in

Micro-controller based systems and communicates with the system micro-controller over the high-speed general purpose parallel interface.

Input CLOCK is 6MHz and USB speed is 12Mbps.

High-speed (2 Mbytes/s) parallel interface to any external microprocessor.