EM728SF Work Flow

EM728SF workflow consists of four sections: Data Access, Audio Playback, FM Transmitting, Voice Recording.

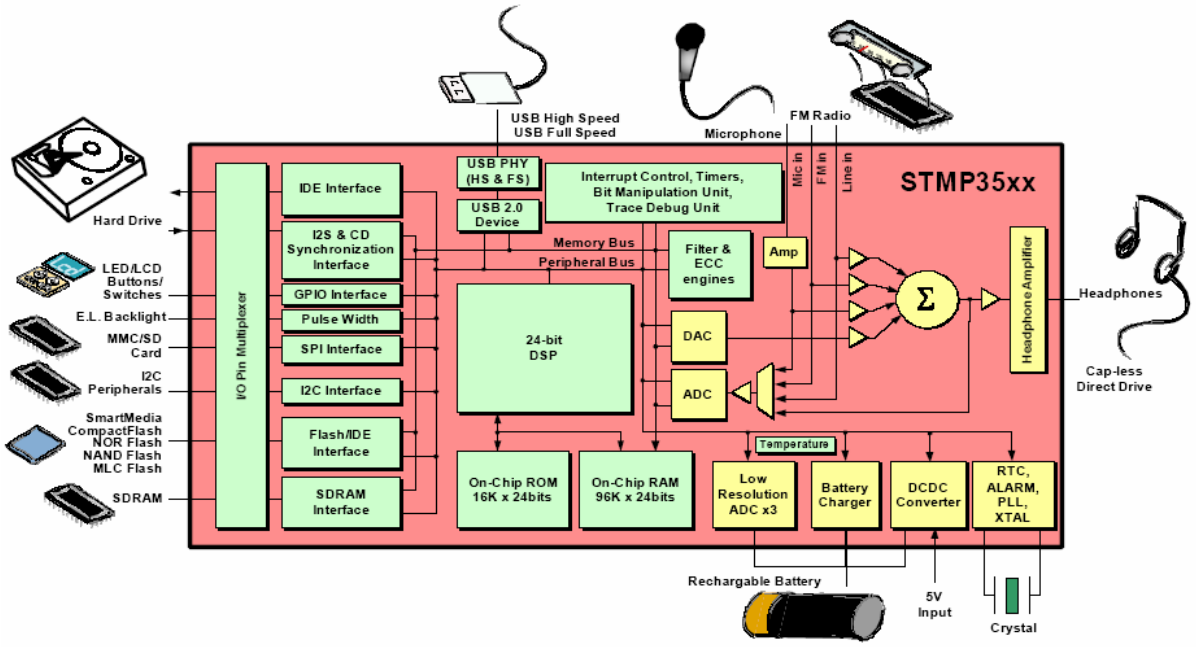
1. Data Access

   When the EM728SF player is connected with the PC, the built-in STMP3502 control chip is ready to transfer data to or from the PC through the USB port.

2. Audio File Playback

   When the power on key is pressed, the control chip starts up the two sets of DC-DC power inside the device. After the player is powered on, the system is initialized and ready to play audio files. At this time, when you press the PLAY key, the system transfers the audio data in the FLASH memory to the on-chip RAM. And then the MP3 decoder converts the audio data into digital audio signals and transfers them to the on-chip DAC module. The DAC module then coverts the digital audio signals into analog signals. In the end, the analog signals are amplified enough to be heard through the headphone amplifier.

2.2. STMP35xx Block Diagram



3. FM Transmitting

   FM Transmitting module consists of the HY1417 chip and some other elements such as radioamplifier, resistor, capacitor etc. When you enable FM transmitting during audio playback, the system will activate MOS and provides power supply for the transmitting module so that the transmitting process works.

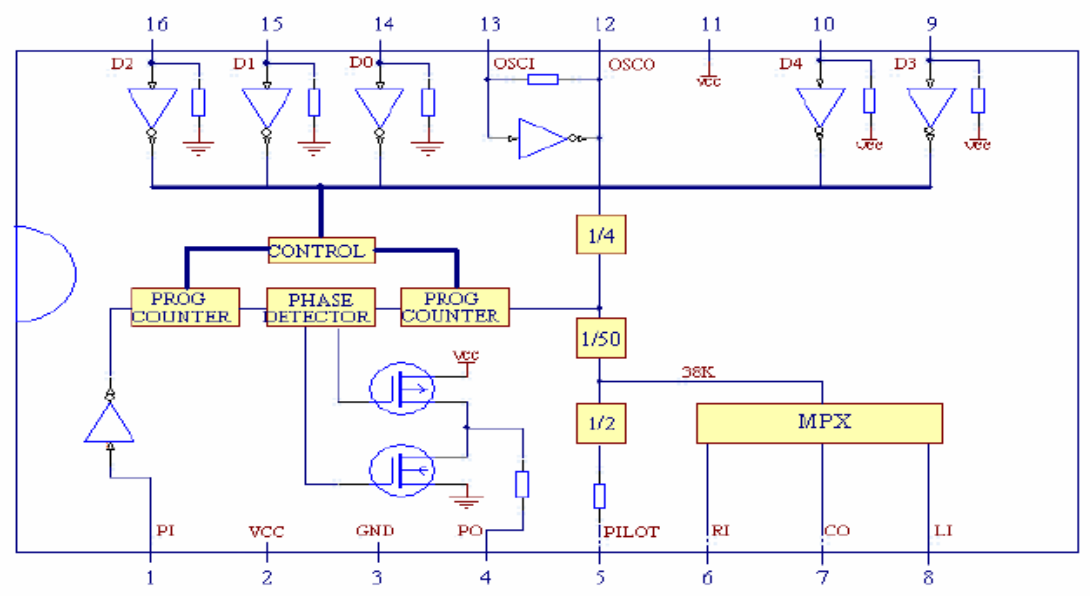
   The HY1417LP consists of a stereo modulator for generating stereo composite signals and PLL (phase lock loop) circuit, and a FM transmitter for broadcasting a FM signal on the air. The HY1417LP IC also has a built-in 38KHZ oscillator circuit and the programmable control circuit.

   Stereo audio signal from STMP3502 (pin 62.65) and the 38KHz signal will be mixed and processed, then this stereo modulated signal will be add to the outside oscillator .The voltage/frequency control pulse signal from pin5 will be add to there too. After amplified by Q202, the modulated 88MHz radio signal be send to space by antenna (The antenna is integrated on the main PCB) at last. Stereo audio signal can also be input from the audio jack which connect to the outside audio player.

   Change the voltage of the programmable control port, the output frequency from antenna could be change into

six points: 88.1MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz, 89.1MHz.

BLOCK DIAGRAM of HY1417LP



4. Voice Recording

When the player is in recording mode, MIC1 converts the external voice into analog signals and transfers them to the built-in ADC. The ADC converts the analog signals into digital signals. Then the encoder on the STMP3502 control chip converts the digital signals into WAV audio files and transfers the WAV files to the external FLASH memory through the FLASH interface to save the files.