Function Block Diagram

Pre Amp. : Since the signal from microphone is typically small (50mVpp max), so we need to amplify it to become a line signal(1Vpp max), the signal for better signal to noise ratio performance.

Buffer Amp: to make the line input high impedance. No amplification indeed.

Analog switch: 5 inputs(1 mic in and 4 line in) are switched with control from the DSP. The output of the switch will be the desired channel while all the other channels are grounded.

Sum Amp: sum up the signals from the 5 inputs.

BPF: Band Pass Filter with bandwidth 200Hz to 3.5kHz.

AGC: Automatic gain control, limits the signal strength to 1.8Vpp which is the dynamic range of the codec.

Codec: (A/D and D/A converter): converts the signal to 13 bit PCM with a sampling frequency of 8k.

DSP: encoding job.

UART: parallel to serial / serial to parallel conversions. Flow control signals(RTS, CTS) and other signalling(CD, DTR, DSR)