

6710 Bertram Place
Victoria, BC
Canada V8M 1Z6
TEL 250 544 4091
FAX 250 544 4100
www.ivl.com



OKH08 ON-KEY Karaoke Player

Functional Description

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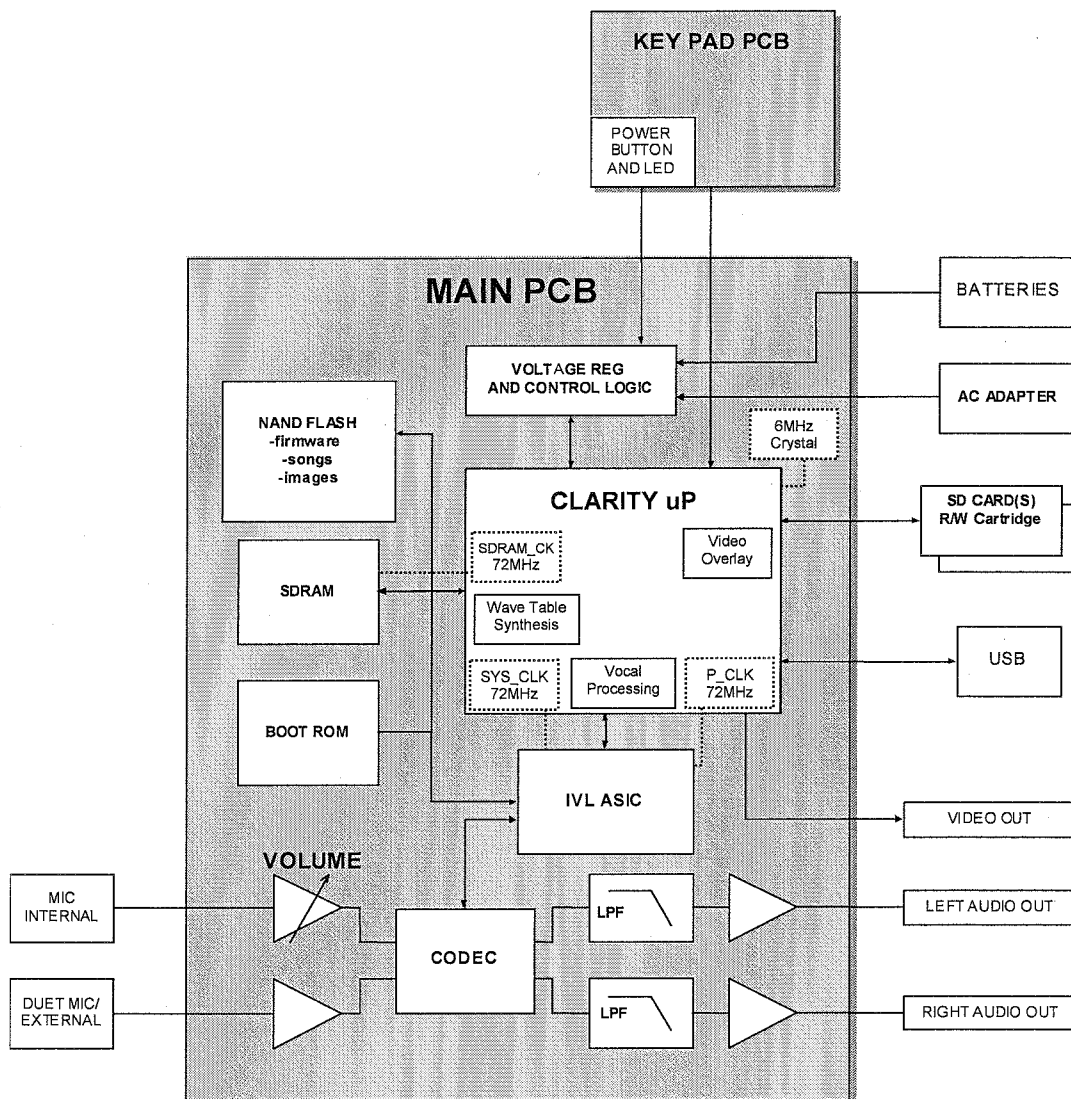
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Revision	Author	Date	Comments
1.000	A. d'Estrubé	September 20, 2004	Document Created
2.000	A. d'Estrubé	September 24, 2004	Clocks added to block diagram

1. SYSTEM BLOCK DIAGRAM



2. ANALOG CIRCUITRY

2.1 Microphone Audio Input (Mic Internal)

A 9.7 mm Emkay microphone element (or equivalent) is incorporated into the OKH08 as the main microphone. The signal from this element is amplified, subject to the setting of the volume potentiometer, before being passed to the CODEC.

2.2 Duet Microphone Input (Duet Mic/ External)

The OKH08 is equipped with a stereo audio jack for a duet microphone. The signal from the duet mic jack is amplified before being passed to the CODEC. Note that this signal is not subject to the same amount of voice effects processing as the main audio input.

2.3 Volume Potentiometer

This user-adjustable variable resistor controls the amplification of the main audio input signal.

2.4 Output

The OKH08 transmits video and audio to a television or other audiovisual device via an A/V cable.

2.5 Power Supply and Control

The OKH08 may receive power from four AA batteries or a regulated DC power jack. The unit will automatically power down after 12 minutes of inactivity.

3. DIGITAL CIRCUITRY

3.1.1 Processor

The central processor is a Clarity 4.1. All UI, video, and audio processing occurs here. The Clarity runs at 72Mhz.

3.1.2 CODEC

The OKH08 contains a CD quality 16-bit audio CODEC for A/D and D/A conversion.

3.1.3 Internal Memory

The OKH08 contains three internal memory devices- a boot ROM, an SD RAM, and a NAND Flash.

3.1.3.1 Boot ROM

Contains initialization code for the Clarity processor, and instructs the Clarity to move the Flash contents into the SDRAM for normal operation.

3.1.3.2 SDRAM

64Mb SDRAM. Volatile storage for Clarity code, wave tables, graphical images, and music content. Select contents of the NAND Flash are loaded into the SDRAM upon power up.

3.1.3.3 NAND FLASH

128 Mbit NAND Flash. This memory contains the OKH08 firmware, including wave tables, graphical images, and music content (including any downloaded music). Flash contents are preserved when the unit is powered down.

3.1.4 ASIC

First generation IVL ASIC. This gate array interfaces the CODEC to the Clarity and decrypts proprietary IVL formatted music.

3.1.5 SD Card Interface

Music content can be stored on external, IVL formatted SD cards. The OKH08 contains a push-pull SD card slot for this purpose.

3.1.6 USB Interface

Series mini-B USB port. This interface allows the user to download music by connecting the OKH08 to an internet-capable computer.

3.1.7 Keypad Interface

A user interface consisting of a cell-phone style button array. The keypad also features an LED that indicates when the unit is powered up.