A. HE83750 Introduction

HE83750 is a member of 8-bit Micro-controller series developed by King Billion Electronics Ltd. Users can chose any one of combination among 【2048 dots LCD Driver + 16 Bit I/O Port】…【1792 dots LCD Driver + 24 Bit I/O Port】etc. The built-in OP comparator can be used with (light、voice、temperature、humility) sensor and used as battery low detection. And the 7-bit current-type D/A converter and PWM device provide the complete speech output mechanism. The built-in DTMF generator can generate the PSTN dialing tone directly. The 512K ROM Size can be used in the storage of large speech data, graphic, text etc. It can be applicable to the medium systems such as Small-Scale Dictionary, Data Bank, Pocket Dialer, Automatic Dialer Machine, Medium Level Educational Toy, Lower Second Voice Recording System and connect external SRAM or Flash RAM for Higher Second Voice Recording etc..

The instruction set of HE83750 are quite easy to learn and simple to use. Only about thirty instructions with four-type addressing mode are provided. Most of instructions take only 3 oscillator clocks (machine cycles). The processing power is enough to most of battery operation system.

B. HE83750 Feature

- Operation Voltage： 2.4V – 5.5V
- System Clock： DC ~ 8MHz @ 5.0V
  DC ~ 4MHz @ 2.4V
- Internal ROM： 512K Bytes(64K Program ROM, 448K Data ROM)
- Internal RAM： 16K Bytes.
- Dual Clock System ： Normal (Fast) clock： 32.768K ~ 8MHz
  Slow clock： 32.768KHz
- Operation Mode： DUAL、FAST、SLOW、IDLE、SLEEP Mode.
- With WDT (WATCH DOG TIMER) to prevent deadlock condition.
- 16~24 bit Bi-directional I/O port. Mask Option can select PUSH-PULL or OPEN DRAIN output mode for each I/O pin.
- One built-in OP comparator.。
- 2048~1792 dots LCD driver (B TYPE selectable).
- One 7-bit current-type DAC output.
- PWM device.
- Built-in DTMF Generator.
- Two external interrupts and three internal timer interrupts.
- Three 16-bit timer.
- Instruction set： 32 instructions, 4 addressing mode. 14-bit DATA POINTER for RAM and 19-bit TABLE POINTER for ROM.

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C. Application Circuit

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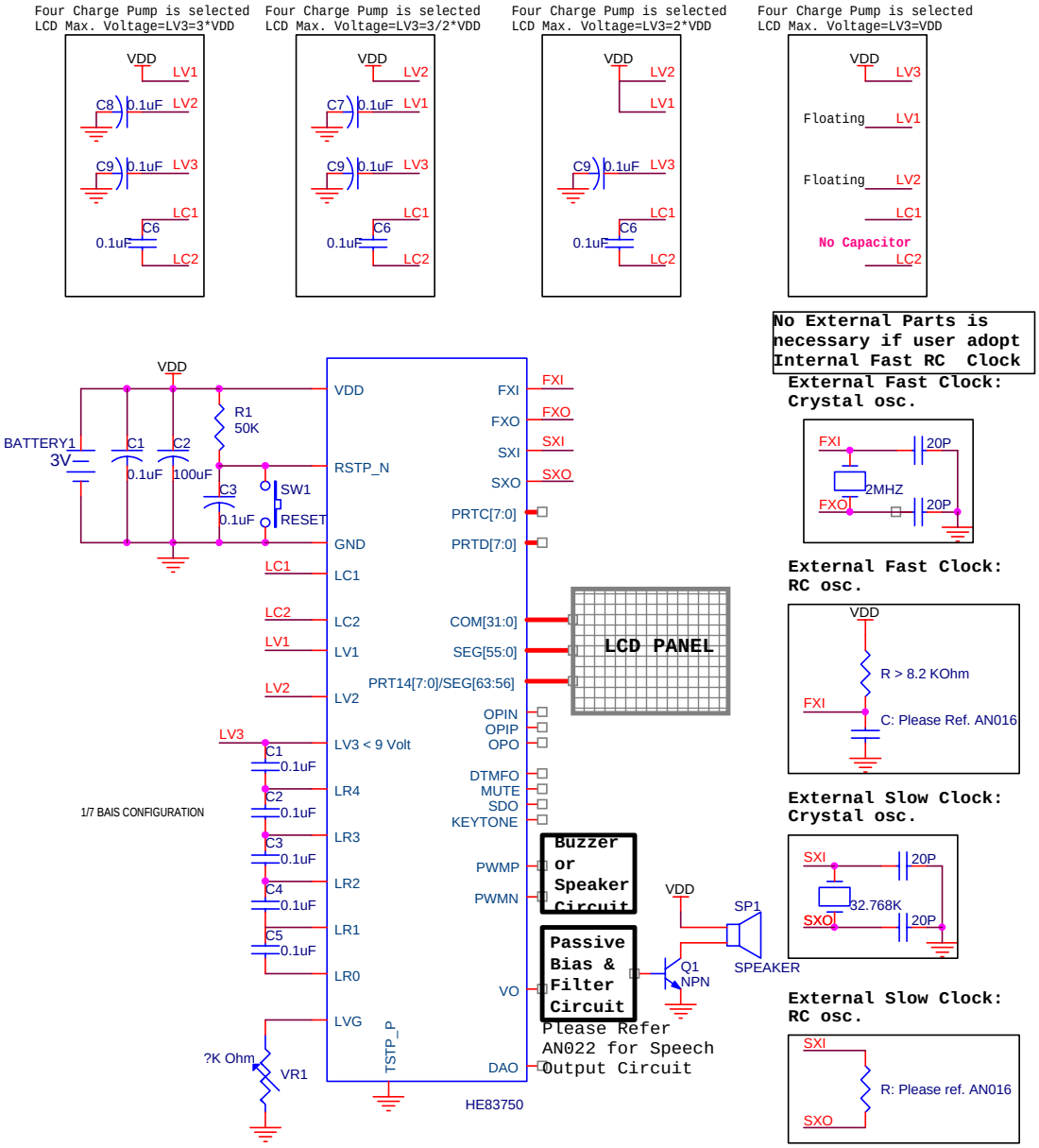

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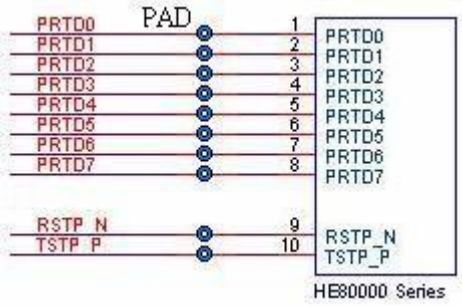
H. Important Note

1. For accessing any address large than 64KB, users must update TPP first, TPH then TPL. Only by this order, the pre-charge circuit of ROM will work correctly. 5us waiting is necessary before LDV instruction is executed since Data ROM is a low speed ROM. Users can not emulate this accessing process in ICE. So 5us delay should be added by firmware.
2. LCD driving circuit must be turn off before IC goes into sleep mode.
3. Please bonds the TSTP_P, RSTP_N and PRTD[7:0] with test point on PCB (can be soldered and probed) as you can, then KB can do some IC testing job on PCB. Neither VDD nor GND connection is necessary for TSTP_P. The following figure is an example (Testing point with through hole).



4. LV3 must small than 9.0 Volt. Otherwise IC may breakdown.

K. Updated Record

Version	Date	Section	Original Content	New Content
V3.2	Dec 14,2001	B, H	2.2V (VDD operation voltage)	2.4V

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