
M5661 EV-Board User Manual

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Revision History

Version	Date
1.12	Mar. 4, 2005

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History

Date	Version	Description	Who
9/15/2004	0.9	First release	David Chiu
12/15/2004	1.0	Update features	David Chiu
2/24/2005	1.1	Update features	Vicky Hsu
2/24/2005	1.11	Modify	David Chiu
3/04/2005	1.12	Add appendix	John JR Fang

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1 Features

- Support internal memory (NAND flash) and external memory card
 - NAND flash type:

Brand	Part Number	Capacity
Samsung	K9F1208U0A	64 MB
	K9F1G08U0M	128 MB
	K9K1G08U0M	128 MB
	K9F2G08U0M	256 MB
	K9K2G08U0M	256 MB
	K9K4G08U0M	512 MB
	K9G4G08U0M	512 MB
Toshiba	TC58512FT	64 MB
	TH58100FT	128 MB
	TC58NVG0S3AFT00	128 MB
	TH58NVG1S3AFT00	256 MB
	TC58NVG1D4BTG00	256 MB
	TC58NVG2D4BTG00	512 MB
SanDisk	SDTNGCHE0-512	64 MB
	SDTNGEHE0-1024	128 MB
	SDTNGEHE0-2048	256 MB
Hynix	HY27US08121M	64 MB
	HY27UA081G1M	128 MB
	HY27UF081G2M	128 MB
ST	NAND512W3A	64 MB
	NAND01GW3A	128 MB

- External memory card type: SD, MMC,
- Player:
 - Playback source: internal memory or external memory card
 - Support MP3 decoding:
 - ◆ Bit rate: 8K bps ~ 320K bps
 - ◆ Sampling rate: 8K ~48K
 - ◆ Channel: Stereo
 - Support WMA decoding:
 - ◆ Bit rate: 5K bps ~ 320K bps
 - ◆ Sampling rate: 8K ~48K
 - ◆ Channel: Stereo

- Support IMA-ADPCM decoding:
 - ◆ Bit rate: 32K bps
 - ◆ Sampling rate: 8K
 - ◆ Channel: Mono
 - Support Lyrics display from
 - ◆ LRC text file format
 - Support artist/ title/ album display from
 - ◆ MP3 tag: V1.0, V2.2, V2.3, V2.4
 - ◆ WMA content description object
 - Support A-B repeat.
 - Support adjustable playback rate.
 - Support fast forward / backward playback.
 - Support long file-name file/folder listing and browsing.
 - Selectable repeat mode: no repeat, single repeat, repeat all, and random all.
 - Selectable equalizer mode: Normal / Pop / Rock / Classic / Jazz / Bass / User EQ.
 - Selectable virtual surround mode: enable or disable.
- Voice Recorder
 - Record source: Line-In, or MIC, or FM
 - Record target: internal memory or external memory card
 - Selectable record mode: high quality, normal quality, or long-time mode
 - Support four type of MP3 encoding:
 - (1) 128K bps, 44.1K, stereo
 - (2) 64K bps, 22.05K, stereo
 - (3) 32K bps, 16K, mono
 - (4) 16K bps, 12K, mono
 - Support one IMA-ADPCM encoding mode:
 - (1) 32K bps, 8K, mono
 - The summary of file format with different source and quality mode

	Line In/ FM	MIC
High	MP3, 128K bps, 44.1K, stereo	MP3, 32K bps, 16K, mono
Normal	MP3, 64K bps, 22.05K, stereo	MP3, 16K bps, 12K, mono
Long time	MP3, 32K bps, 16K, mono	ADPCM, 32K bps, 8K, mono
 - Support VAD in MP3 encoding mode.
 - FM Tuner
 - Frequency: 87.5 ~108 MHz
 - Tuner can adjust step by step or automatically search
 - User can set 10 preset bands
 - Clock
 - Time
 - Alarm
 - LCD
 - Selectable contrast
 - Selectable backlight time

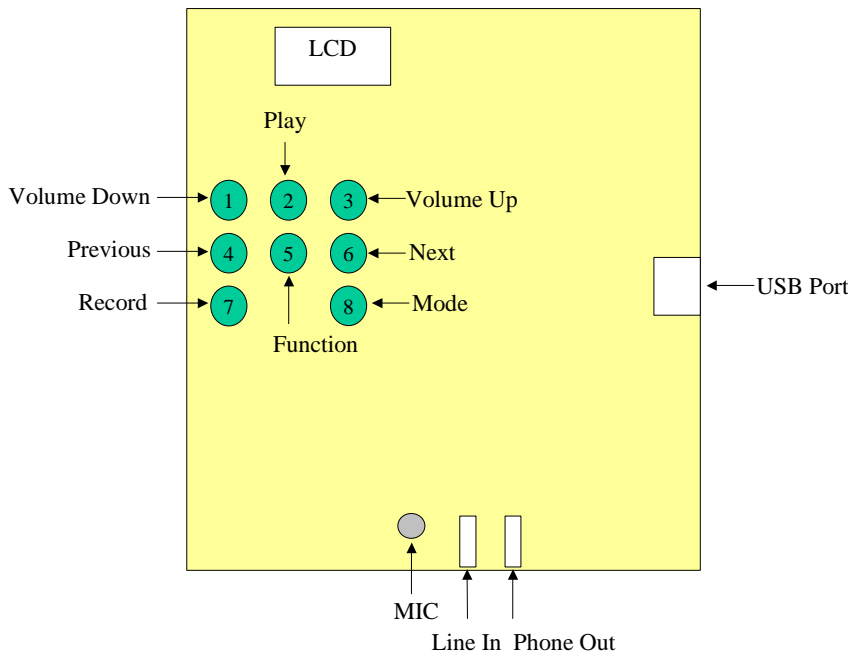
- Automatic power off
 - Selectable power off time
 - Enable or disable power off function in playback is selectable
- Multi-language
 - Support Unicode
 - User interface can select Traditional Chinese, Simplified Chinese, or English.
- Return to the environment last time automatically when power on

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2 Overview

M5661 can operate in two types: USB flash disk or digital audio device.

If plugged to PC, it will become an USB flash disk. When it is stand-alone, it will become a portable digital audio device.



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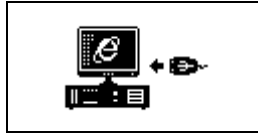
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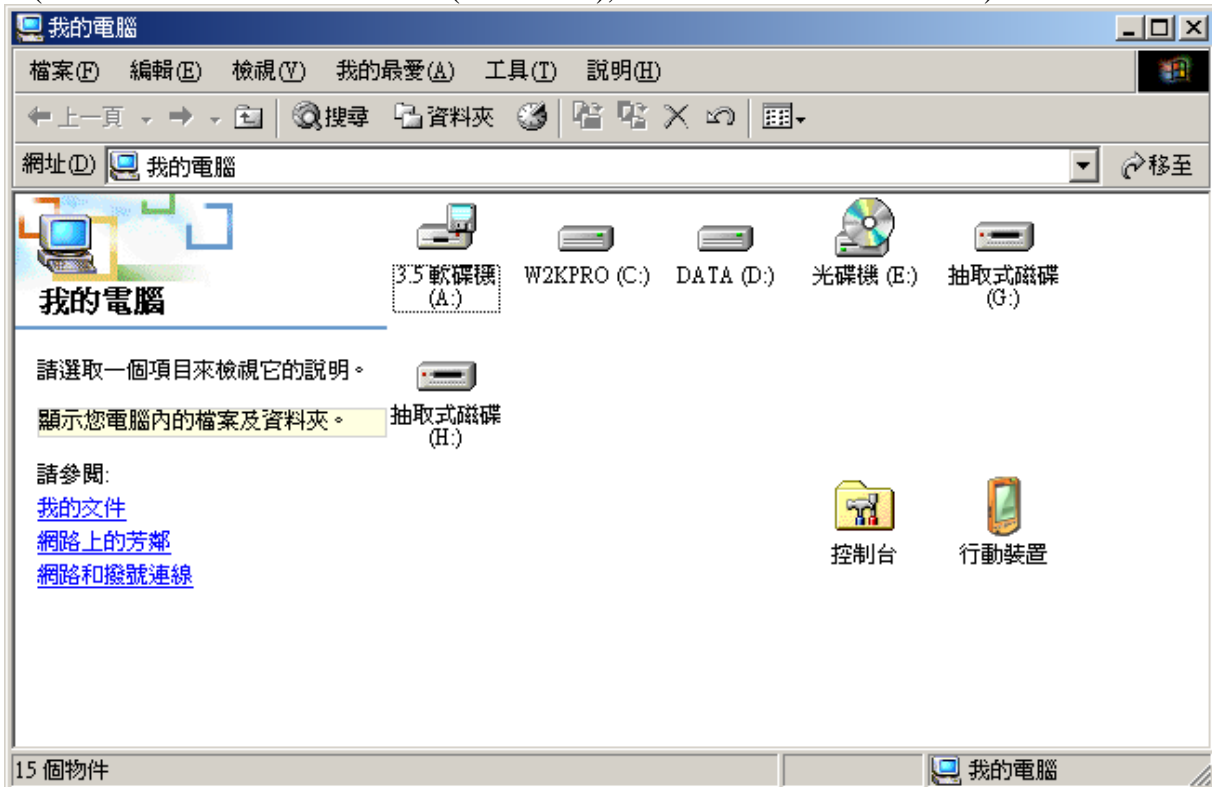
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3 USB Flash Disk

Plug the device to PC's USB port, the LCD panel will display the following icon:



And the removable disk(s) icons will show up on "My Computer":
 (If External Flash Disk enabled (MMC/SD), there will be two disk icons)



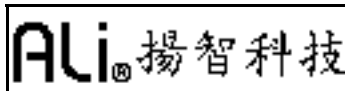
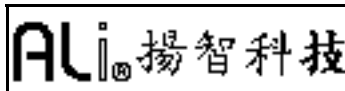
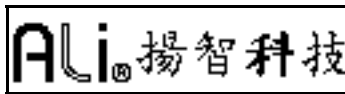
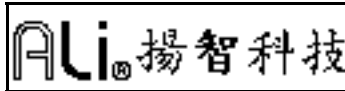
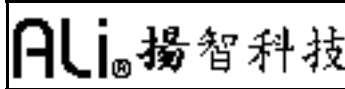
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4 Digital Audio Device

4.1 Power On/Off

Press the play button (key2) can turn on the device, and press and hold this button will turn off the device.

When power on, the LCD panel will display the following animation:



Then it will go to the mode directly (Music, Voice, FM, or Setup) when user powered off the device last time.

Note:

1. The device can memorize the last mode. If it was turned off from FM mode, it will return to FM mode when turning on.
2. The default mode is Music mode.

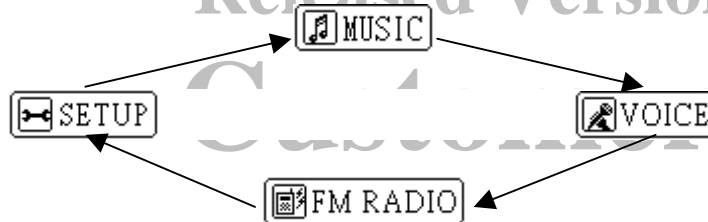
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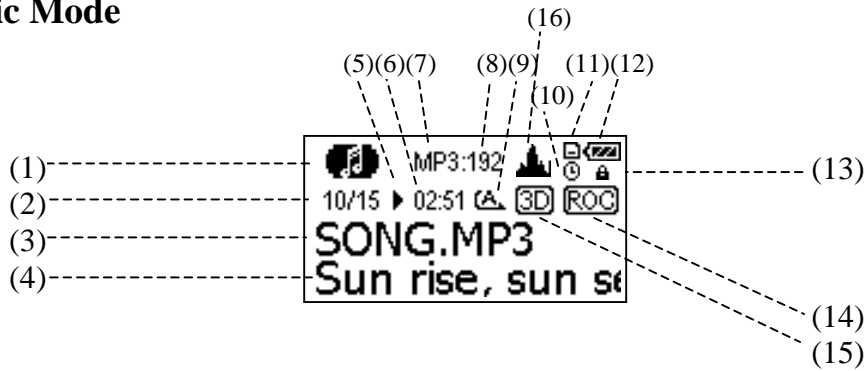
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4.2 Change mode

Press the mode button (key 8) can change the mode, and the change sequence is as followed:



5 Music Mode



- (1) Music mode icon
- (2) Current file number/Number of total files
- (3) Title/Artist/Album or filename
- (4) Lyrics
- (5) Status:
 - Stop ■
 - Playback ▶
 - Pause ||
 - Fast Forward ▶▶
 - Fast Backward ◀◀

- (6) Time
- (7) File format
- (8) Bit rate
- (9) Repeat: No repeat
 - Single repeat ⏮
 - All Repeat ⏮⏮
 - Random repeat ⏮⏮
 - A-B repeat A+B

- (10) Alarm
- (11) External memory card
- (12) Battery
- (13) Key hold
- (14) Equalizer: Normal
 - Pop POP
 - Rock ROCK
 - Classic CLS
 - Jazz JAZ
 - Bass BAS
 - User EQ USR
- (15) Virtual surround
- (16) Volume indicator

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5.1 Playback

When the device status is stop or pause, press the play button (key 2) to playback.

5.2 Pause

When the device status is playback, press the play button (key 2) will pause it.

5.3 Stop

When the device status is playback or pause, long press the function button (key 5) to stop it.

5.4 Select folder/file

Long press the function button (key 5) will enter folder/file browsing. User can browse all files in the current folder. Using the previous button (key 4) and the next button (key 6) to move the cursor up/down to the target object, then press the play button (key 2) to select the file. Then, the device will go to playback mode and play audio from the selected file.(i.e. play from the folder which has the selected file.). Press the function button (key 5) can abort browsing folder/file, and go back to the playback mode.

5.5 Select file

Press the previous button (key 4) to select previous file, and press the next button (key 6) to select next file. User can select previous or next file in any status.

5.6 Fast backward/forward

When the device status is playback, long press the previous button (key 4) or the next button (key 6) will fast play backward/forward the current file.

5.7 Playback Sub Menu

When the device status is playback, press the function key (key 5) will go to playback sub-menu. Then, press previous button (key 4) or next button (key 6) to select an item, and press play button (key5) to select it. The items of sub-menu include: repeat, equalizer, 3D surround and play rate.

(1) Change Repeat Mode

Go to the playback sub-menu and select Repeat mode, there are four repeat modes on the list:

No Repeat: Just play the current file. Stop playback when done.

All: Repeatedly play all files, (starting from current file)

Single: Repeatedly play current file.

Random all: Repeatedly play a random file (randomly selected from all).

(2) Change Equalizer Mode

Go to the playback sub-menu and select Equalizer mode, there are seven Equalizer modes on the list: **Normal, Pop, Rock, Classic, Jazz, Bass, and User define.**

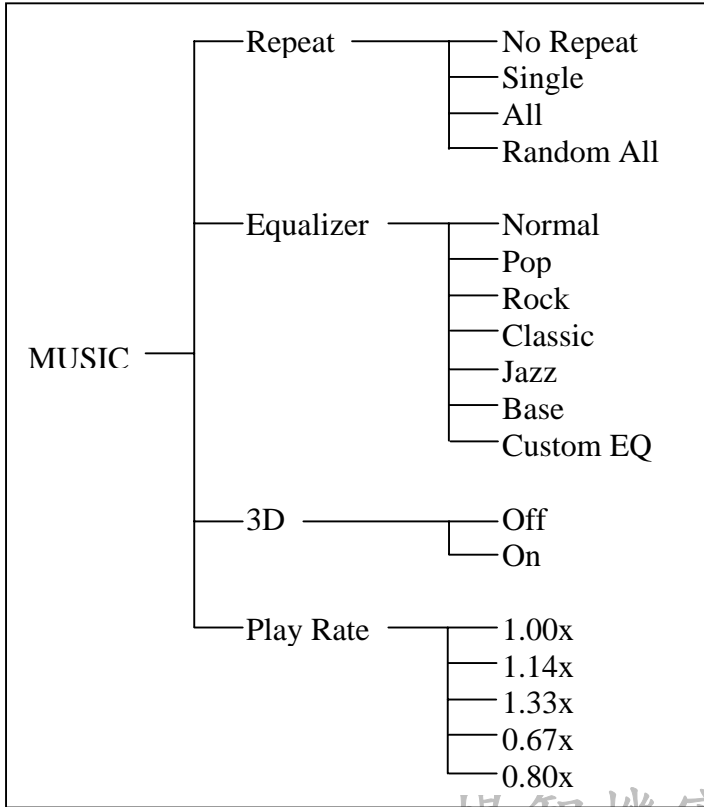
(3) Virtual Surround

Go to the playback sub-menu and select Virtual Surround mode, user can enable or disable the Virtual Surround function.

(4) Change Play Rate

Go to the playback sub-menu and select Play Rate item, user can adjust the play rate. The range of play rate is 0.67x ~ 1.33x.

The topology of playback sub-menu function



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5.8 A-B Repeat

During playback, press the record button (key 7) to set the start point of the repeat section, and press this button again can set the end point of the repeat section. The device will play the section repeatedly. After that, press the same button again will cancel the A-B repeat mode.

5.9 Adjust Volume

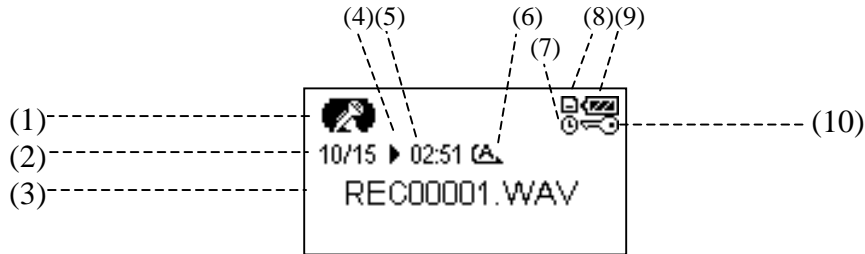
In any state, press the volume down button (key 1) to decrease the volume, or press the volume up button (key 3) to increase volume.













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6 Voice Recording Mode

In Voice Recording mode, user can record sound from Line In or MIC to digital files, and play these files.



- (1) Voice mode icon
- (2) Current file number/Number of total files
or source indicator during recording: Line In 
Mic 
- (3) Filename
- (4) Status: Stop 
Playback 
Pause 
Record  (blinking)
Fast Forward 
Fast Backward 
- (5) Time
- (6) Repeat: No repeat
Single repeat 
All Repeat 
Random repeat 
A-B repeat 
- (7) Alarm
- (8) External memory card
- (9) Battery
- (10) Key hold

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6.1 Record to a File

(1) General Recording Function

When the device status is stop or pause, press record button (key 7) will start recording. During recording, press record button (key 7) can pause it, and press the same button (key 7) again will continue recording. Finally, press function button (key 5) to stop recording and save the recording file.

(2) The Recording Folder and Filename format

The recording file will be saved in different folders, according to the recording quality and voice source.

For example, the FM recording files will be saved in “FMIN” folder.

And, the recording filename contains the following information, voice source, serial number, and file type.

It has the unified filename format: "MIC" / "LINE" + series number + ".MP3" / ".WAV", such as “MIC00001.WAV”, “MIC00002.MP3”, “LINE0003.WAV”, “FM000001.MP3” ...

(3) Auto Inset Recording Serial Number Name.

The serial number of recording filename increases every time. When filename already exists, it will search for next available serial number to make up its filename.

(4) VAD Recording Function

When the recording voice is quieter than background sound, the device automatically pauses recording and the icon ● will disappear. Then, if the recording voice is louder than background sound, it will automatically record and Blink the item ● again. The background sound means that the first sound after pressing the record button (key 7).

6.2 Recording Sub-Menu

When the device status is stop, long press the function button (key 7) will go into the recording sub-menu. Then press previous button (key 4) or next button (key 6) to move item, and press play button (key 2) to select it or press function button (key 5) to abort it. The items of sub-menu are: Source, Quality and VAD.

(1) Change the Source

Go to the recording sub-menu and select source item. Under this item, user can select “Line In” or “Mic” as the source.

(2) Change the Quality

Go to the recording sub-menu and select quality item. Under this item, user can select three degree of quality: Long-time, Normal quality, and High quality.

(3) VAD Function Selection

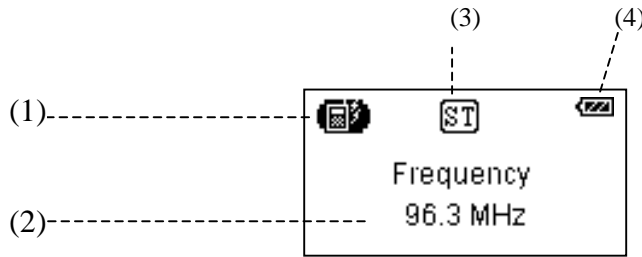
Go to the recording sub-menu and select VAD item. Under this item, user can select whether using VAD(voice active detection) function.

6.3 Play the recorded file

The operation of playback is as music mode.

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7 FM Mode



- (1) FM mode icon
- (2) Current frequency
- (3) Stereo indicator
- (4) Battery

7.1 Adjust Frequency

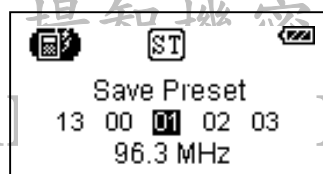
Press previous button (key 4) to decrease the frequency, and press next button (key 5) to increase the frequency. Each step is 0.1 MHz.

7.2 Automatic Search

Long press previous button (key 4) will decrease the frequency and search a radio station automatically. Long press next button (key 6) will search band will increase the frequency to search a radio station.

7.3 Edit Preset Frequency

Long press function key (key 5) and the LCD panel will display preset number and frequency.



As the operation of “Adjust Frequency” or “Automatic Search”, to select a frequency, and press the record button (key 7) to save the frequency to current preset number. After that, the preset number will go to the next automatically, and let user to save next preset frequency. If user want to edit specific preset number, press play button (key 2) to change the preset number. Finally, press the function button (key5) to close the edit mode.

7.4 Select Preset Frequency

After edit preset frequency, user can change the frequency directly by select the preset number. Just press the play button (key 2) to select the preset number.

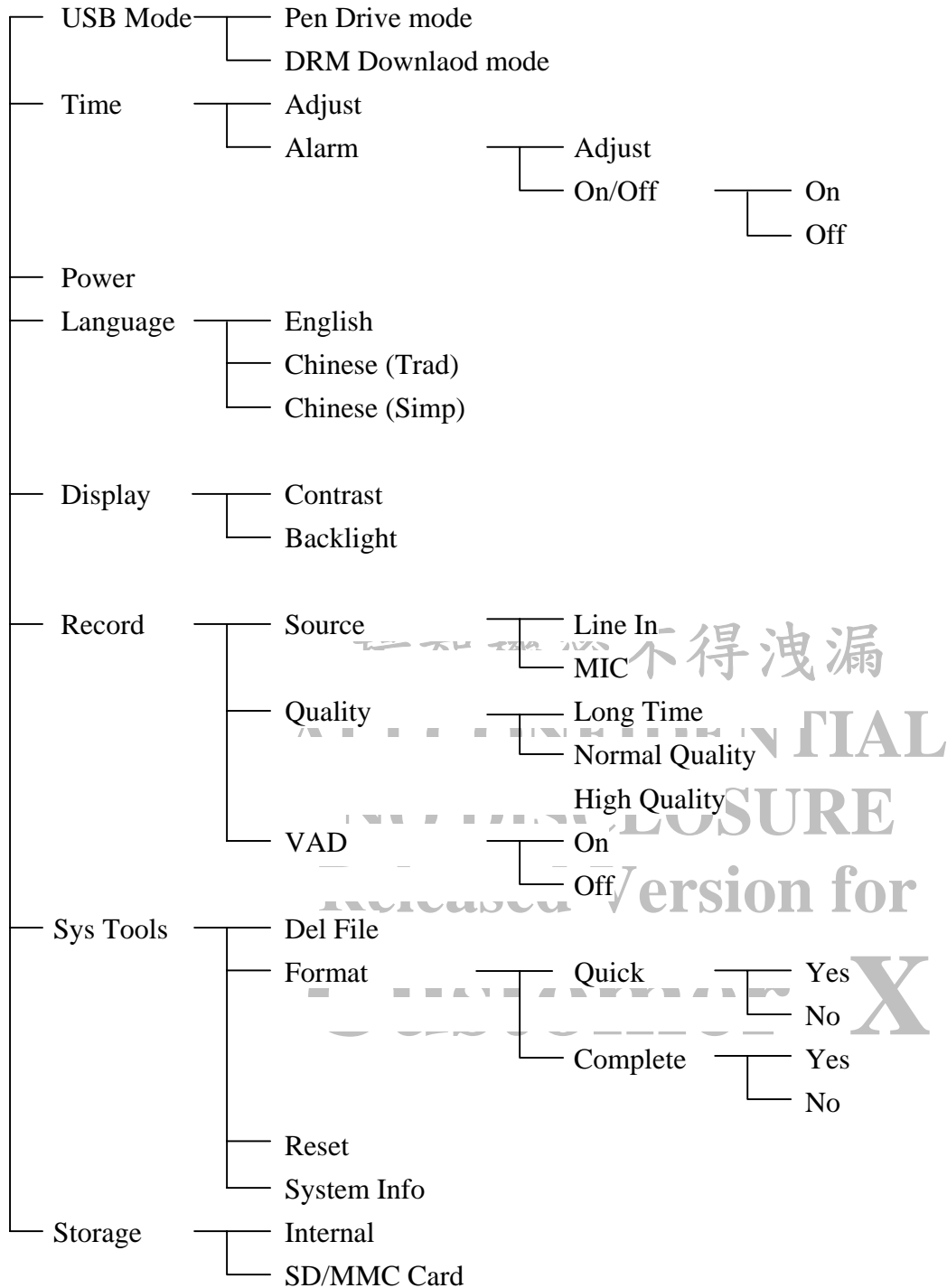
7.5 Adjust Volume

In any state, press the volume down button (key 1) to decrease the volume, or press the volume up button (key 3) to increase volume.

8 Setup Mode

In setup mode, user can change the system settings. The common operation of this mode is to press the play button (key 2) to select, press the function button (key 5) to cancel, and press the previous button (key 4) or the next button (key 6) to move item.

The topology of System Setup menu



8.1 Usb Mode

(1) Pen Drive

Select “USB Mode→Pen Drive”, the device will act as a USB pen drive when plugging into USB port.

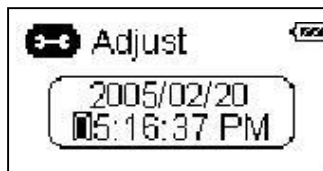
(2) DRM Download

Select “USB Mode→DRM Download”, the device will act as a MTP device when plugging into USB port. It is used to download the Janus-DRM-protected (Digital Right Management) media files and license through WMP 10(Windows Media Player 10), and it only support Windows XP SP1 above.

8.2 Time

(1) Adjust

Select “Time→Adjust”, and the LCD panel will display current time.

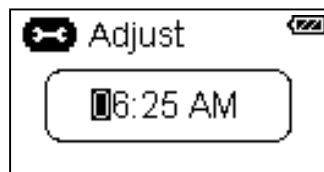


Press the previous button (key 4) or next button (key 6) to move cursor, and then press the volume down (key 1) or the volume up (key 3) to change the value. The time is set while adjusting. In the end, press the play button (key 2) or the function button (key 5) to return to Setup menu.

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(2) Alarm

Select “Time→Alarm→Adjust”, and the LCD panel will display current alarm time.



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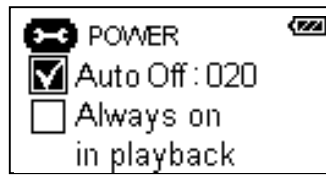
Press the previous button (key 4) or next button (key 6) to move cursor, and then press the volume down (key 1) or the volume up (key 3) to change the value. The alarm time is set while adjusting. In the end, press the play button (key 2) or the function button (key 5) to return to Setup menu.

Select “Time→Alarm→On/Off→On” to enable the alarm function; or select ”Time→Alarm→On/Off→Off” to disable  the alarm function.

When the alarm function is turned on, the LCD panel will display alarm icon to indicate it.

8.3 Power

Select the power item, and the LCD panel will display as follows:



Auto-Off: Auto Power Off setting

Press the previous button (key 4) or next button (key 6) to move cursor, and then press the volume down (key 1) or the volume up (key 3) to change the value. If user adjust the number to “020”, it means the device will power off automatically if the user doesn’t press any key in twenty minutes. When the Auto-Off timer expires, system will check the item ”**Always on in playback**”. If this item is checked and the device is playing songs, system won’t power off the device. This setting is useful for sleeping mode.

When user wants to enjoy music while sleeping, and automatically power off the device when all songs are played out. He can set "Auto Off" timer, and checked the flag "**Always on in playback**"

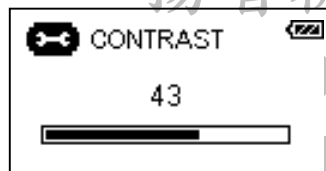
8.4 Language

User can select language to change the system menu and information display. It supports three kinds of languages including English, Chinese (Trad.), Chinese (Simp.).

8.5 Display

(1) Contrast

Select “Display→Contrast”; press the previous button (key 4) or next button (key 6) to change contrast, and then press the play button (key 2) or the function button (key 5) to return to Setup menu.



(2) Backlight

Select “Display→Backlight”; press the previous button (key 4) or next button (key 6) to change the backlight time, and then press the play button (key 2) or the function button (key 5) to return to menu.

8.6 Recording

(1) Recording Source

Select “Record→Source→Line In” to set recording from “Line In” input;
Or select “Record→Source→MIC” to set recording from device’s built-in microphone.

(2) Record Quality

Select “Record→Quality→Long Time” for voice quality and smaller file size.
Select “Record→Quality→Normal Quality” for radio quality and normal file size.
Select “Record→Quality→High Quality” for CD quality and bigger file size.

(3) VAD functional selection

Select “Record→VAD” to turn on/off VAD function.

8.7 Sys tools**(1) Del File**

Select “Sys Tools→Del File” to delete the files in player.

(2) Format

Select “Sys Tools→Format→Quick” to quickly format;

Select “Sys Tools→Format→Complete” to completely format as the FAT16 file system.

(3) Reset

Select “Sys Tools→ Reset” to reset player system to the default setting.


(4) System Info

Select “Sys Tools→System Info” to check the system information: Firmware version, Chip version, and free space of the internal memory .

8.8 Custom EQ

Select the “Custom EQ” item to adjust the custom EQ. Press the previous button (key 4) or next button (key 6) to move cursor, and then press the volume down (key 1) or the volume up (key 3) to change the value.

8.9 Storage

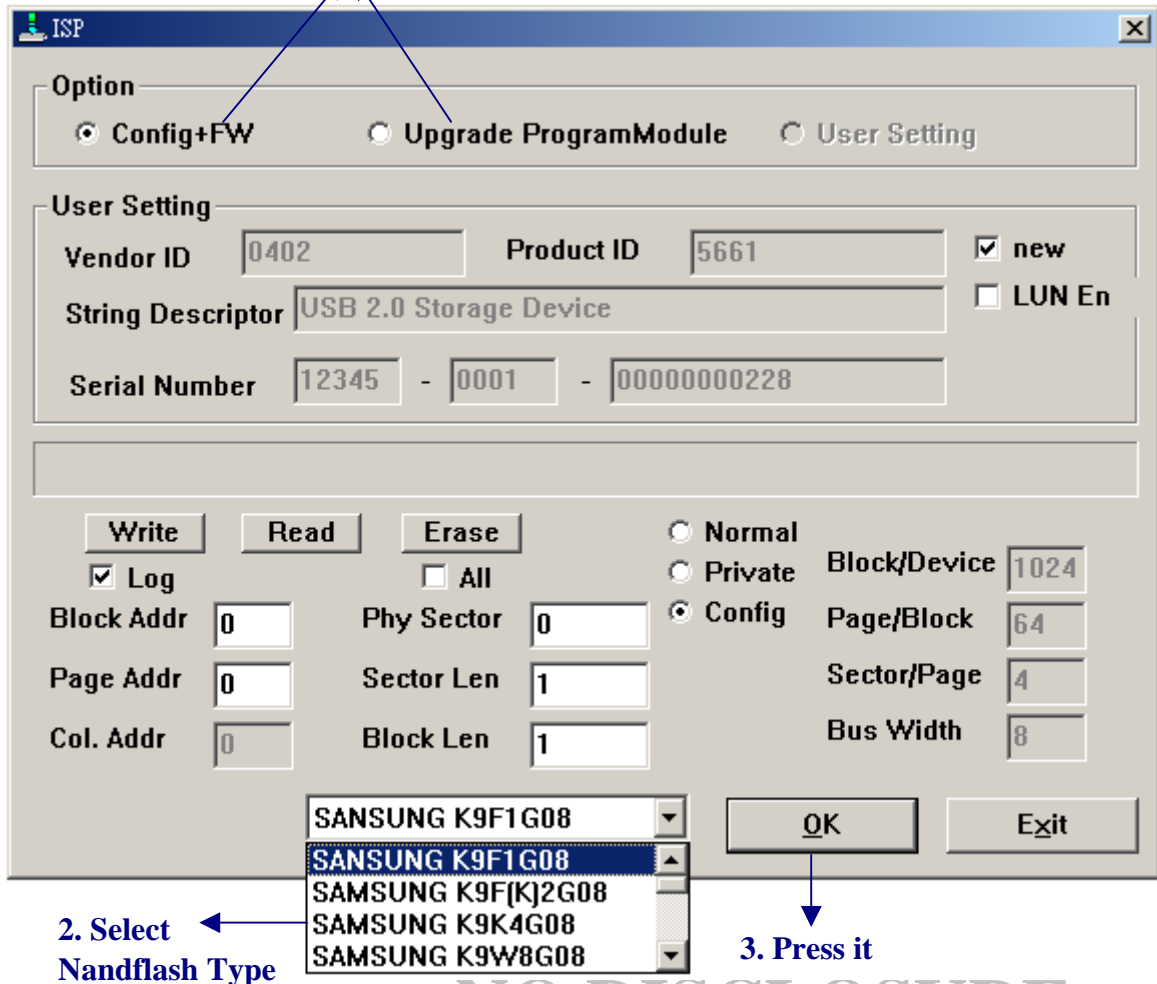
Select “Storage→Internal” to playback from or record to device’s internal memory. Select “Storage→SD/MMC Card” to playback from or record to device’s external SD/MMC card. When the device is selected to use the external memory card to playback or recording, the LCD panel will show a  disk icon to indicate that system is using external memory card.

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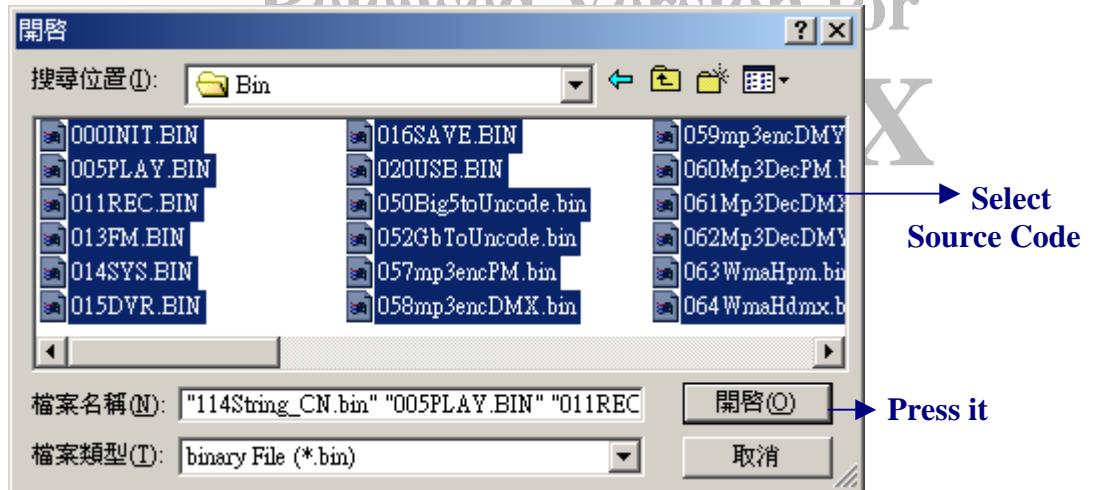
9 Firmware Upgrade

Step1.

1. Select Config + FW or Upgrade ProgramModule only



Step2.



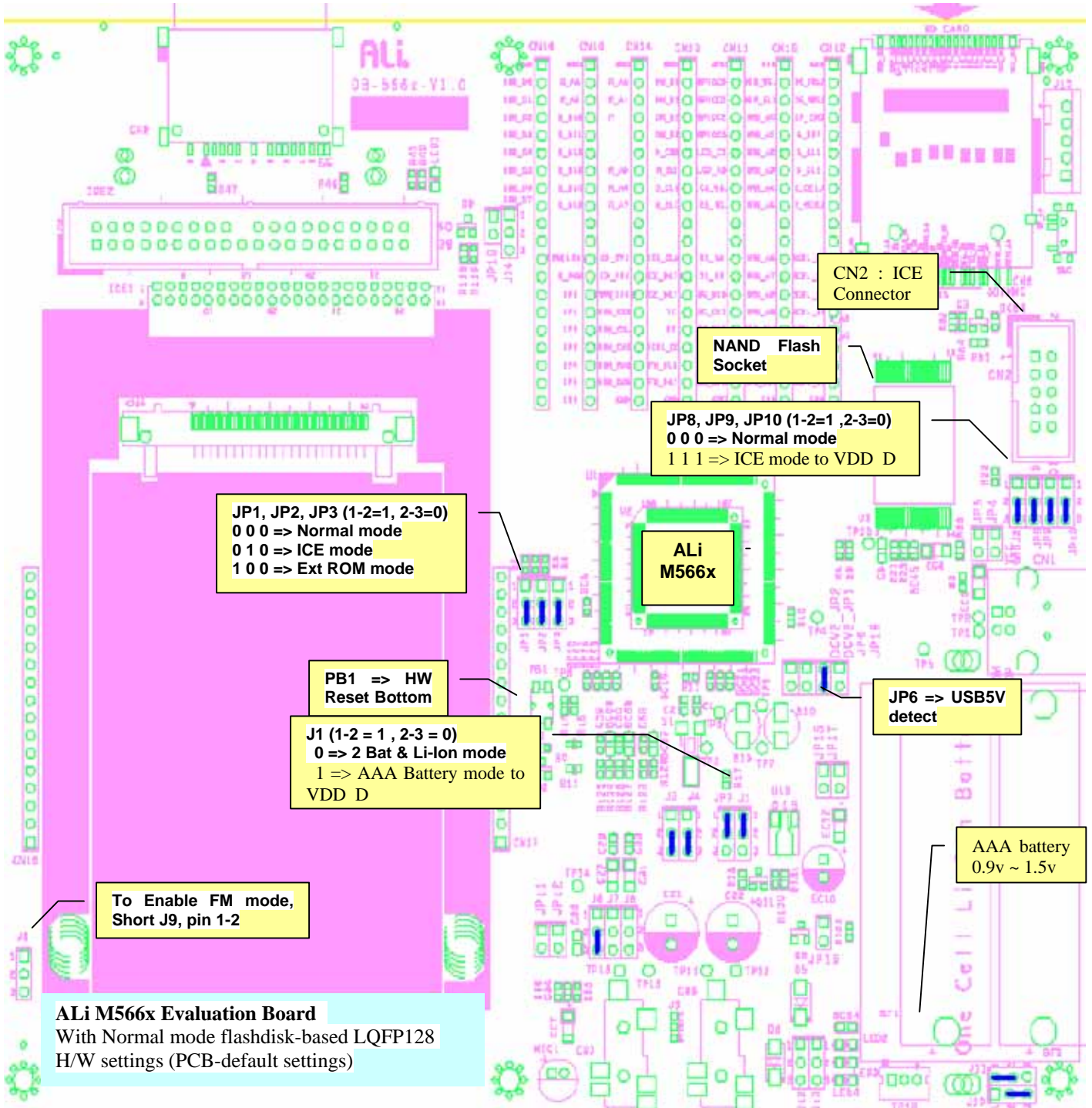
Step3.



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Appendix I:

PCB Configuration for ALi M566x Evaluation Board With Normal mode flashdisk-based LQFP128 H/W settings (PCB-default settings)

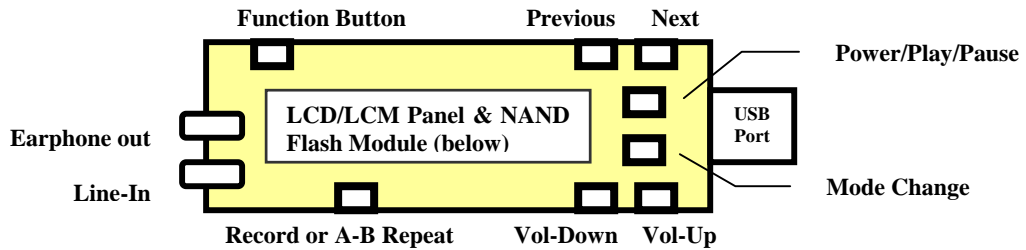


ALi M566x Evaluation Board
 With Normal mode flashdisk-based LQFP128
 H/W settings (PCB-default settings)

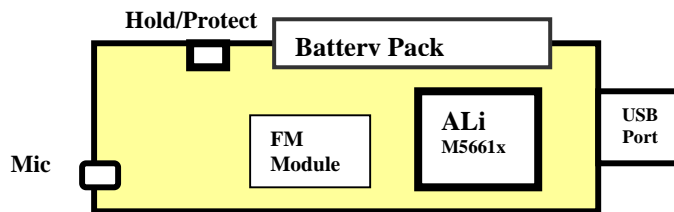
Appendix II:

ALi M5661x small-size demo board configuration

Front Side



Back Side



揚智機密不得洩漏
 ALI CONFIDENTIAL
 NO DISCLOSURE
 Released Version for
 Customer_X