AccordPlus Control Board

User Manual

Version 1.6

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This is Preliminary Data from STMicroelectronic. Details are subject to change without notice.

Release History:

Version	Release Date	Comment
1.0	April.3th,2006	
1.1	May. 28th,2006	Add 'Display Software Version'; Add 'Figure 2' and the use of Jumper 14 and 15
1.2	Aug.13th,2006	Change the key for FastForward, FastBackward; Add key for Source Change command and new DV Test Function 'Thermal shock endurance'; Add the use of Jumper 16 in Figure 2
1.3	Aug.30th,2006	Update Figure 1 for Key Matrix Part; Update the use of Jumper 15 and Jumper 16 in Figure 2
1.4	September 13, 2006	Update Figure 1; Add key for Text Information
1.5	Jan 1st,2007	Add Function 26
1.6	Jan 20th, 2007	Add one Figure of connection between Servo module and Control Board.

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Chapter 1: Introduction

AccordoPlus control board (Hardware version: V1.3) is designed for the dedicated customers who use ST AccordoPlus chip TDA1052 to produce car CD/MP3 module. By this board, you can implement basic CD/MP3 test very easily.

Chapter 2: Details
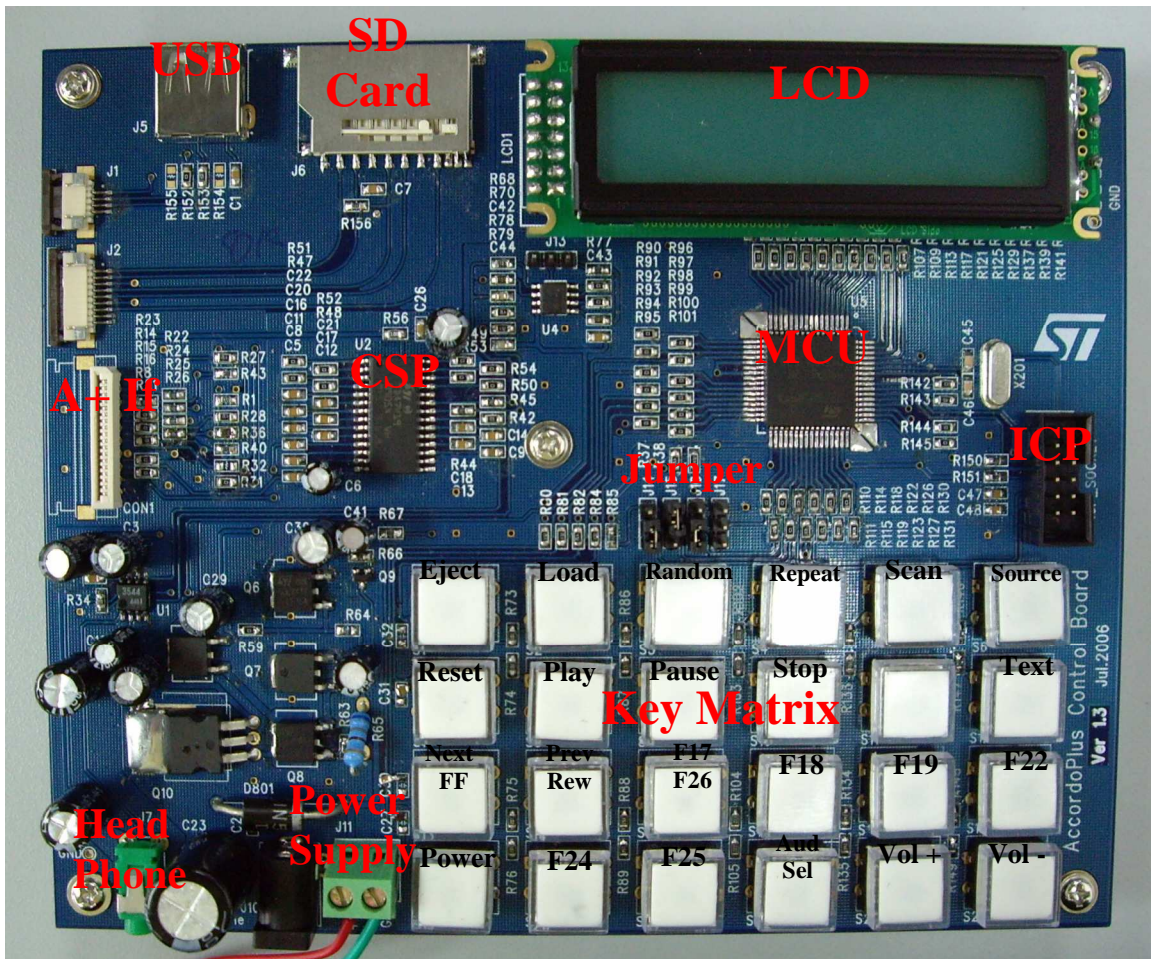
2.1   Hardware Overview:

Figure 1

The main device used in the board include LCD module, MCU, on board EEPROM, audio processor, headphone amplifier, USB and SD card interface. Please refer to the BOM list to find the exact device part number. For power supply, please use +12V DC, it has internal power regulator to generate the suitable voltage for different part.

MCU, using ST72F321/521, can be updated with the latest control software by ICP.

This board is featured with a headphone amplifier. Customer can monitor the output with a headphone, and can also connect it to an active loud speaker.
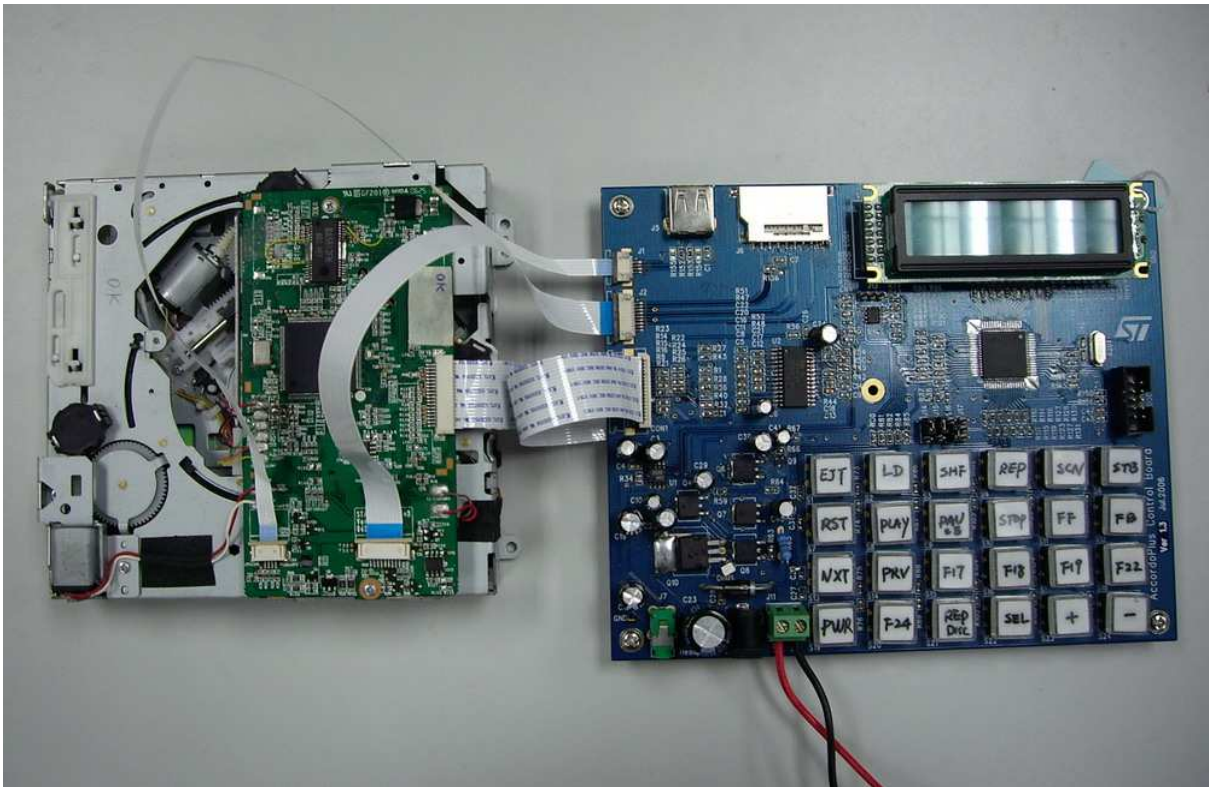
Figure 2

Figure 2 illustrate the connection between Servo Module and Control Board. The 18-pin connector is the communication interface. 4-pin connector is for USB, and 9-pin connector is for SD-Card.

2.2   Jumper Configuration:
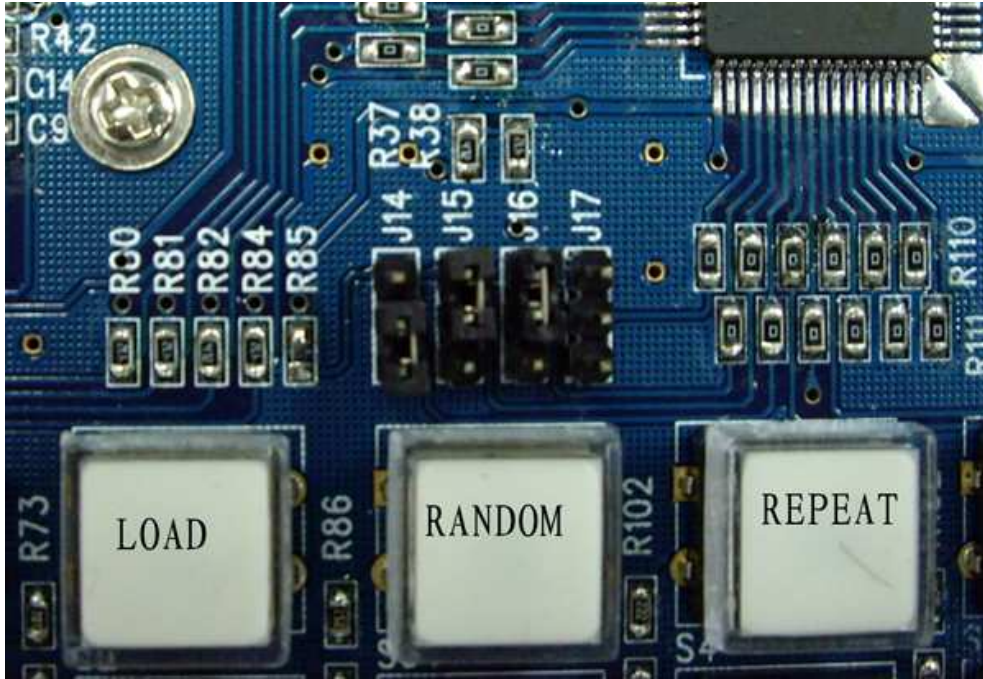

Figure 3

a): Jumper 14 is used to select '5s relaunch' function.
                Enable: connect to 5V(Location in figure 3)
                Disable: connect to GND

        There are seven combined items (F17, F18, F19, F22, F24, F25, F26) that require continuously test of certain functions. In case of communication failure, '5s relaunch' will resend the command when the Control Board does not receive return message from AccordoPlus within 5 seconds.

b): Jumper 15 and Jumper 16 are used to select different communication protocol version of Control Board.

        Enable CIS 0.08 version (For V505): connect Jumper 15 to 5V and Jumper 16 to GND.
        Enable CIS 0.09 version (For MV28): connect both Jumper 15 and Jumper 16 to 5V.

These jumpers cannot be opened.

2.3   Key Matrix table and Description:
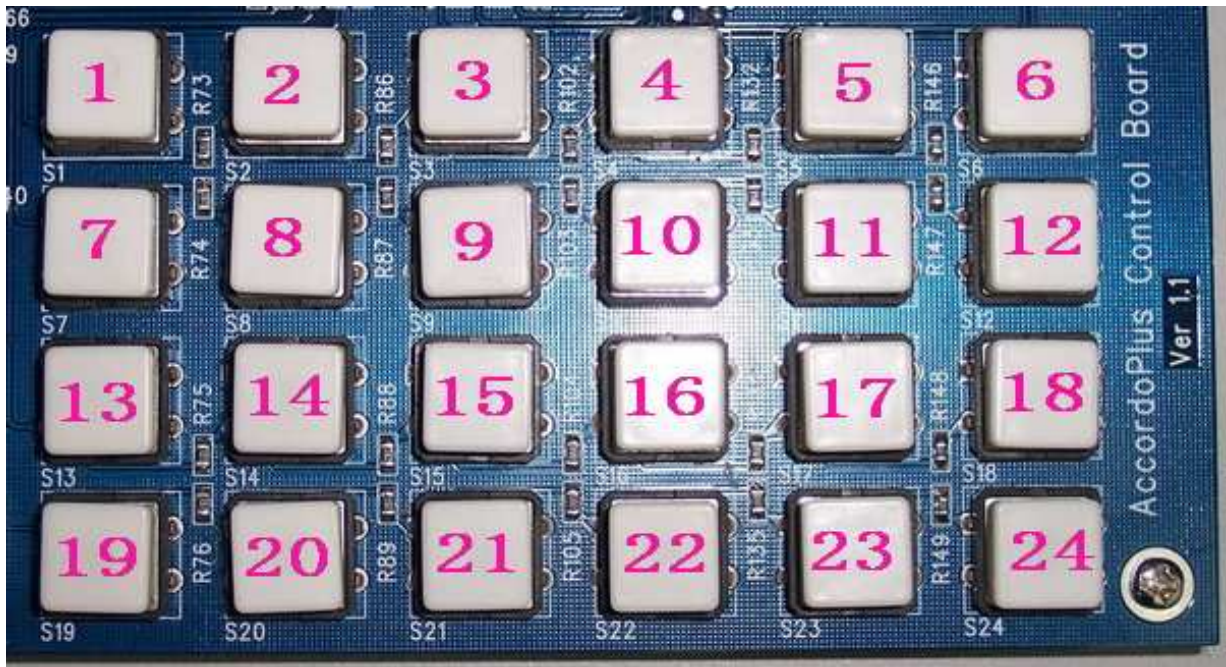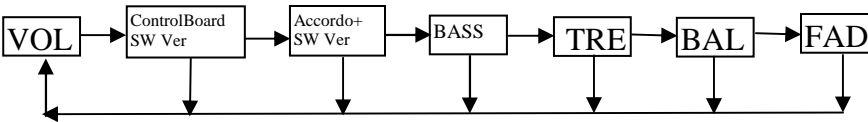

Figure 4

Figure 3 illustrates the key matrix table. For detailed information, please refer to the following key description part.

Key description

1. EJECT	Press this key to **EJECT** the CD/MP3 player disc.
2. LOAD	Press this key to **LOAD** the CD/MP3 player disc. Disc can also be loaded by user push-back or auto-load after a timeout. (default is 10s)
3. SHUF	Press this key to toggle the **RANDOM** mode ON/OFF. When ON, the player plays track randomly.
4. REPEAT	Press this key to toggle **Repeat** media mode ON/OFF. When ON, the last played track repeats continuously.(Not implemented now)
5. SCAN	Press this key to toggle the **SCAN** mode ON/OFF. When ON, the first 15 seconds of all playable items will be played according to the physically sequence on the disc. At the end of the disc the **SCAN** mode will be deactivated automatically.

6. Source Change	Press this key to **change media source** cyclically. Disc→USB→SD
7. RESET	Press the key to **RESET** the CD/MP3 servo.
8. PLAY	Press this key to enter the **PLAY** state.
9. PAUSE	Press this key to enter the **PAUSE** state When in this state, playback will freeze, and mute the audio output.
10. STOP	Press this key to enter the **STOP** state.
12. Text	Press this key in play mode, text information (including Album, Title, Artist) of current file will be displayed on the screen.
13. NEXT, FastFW (Long Press[*1]**)**	Press this key to execute jump to **NEXT** playable item. At last track of the media device press next key, the player will enter pause state. Long press this key to enter **FastForward** state. When in this state, the player will search forward at 4x speed.
14. PREVIOUS, FastBW (Long Press)	Press this key to execute jump to **PREVIOUS** playable item. At first track of the media device press previous key, the player will enter pause state. Long press this key to enter **FastBackward** state. When in this state, the player will search backward at 4x speed.
15. Functionality Evaluation Cycle (Test Item 17) **Powered Thermal Cycle** (Test Item 26, **Long Press**)	Press this key to enter Load disc – Play disc for 1 min – Eject disc cycle. After press this key, the Functionality Evaluation Cycle will be continuously executed until other keys are pressed. Long press this key to enter Powered Thermal Cycle test. The detailed function is described as below: 1. Continuously do: Load Disc -> Play the disc for 1 min -> Eject Disc for 5 hours 2. Stop 3 hours. 3. Repeat the upper two steps for 30 times.
16. Functional Check (Test Item 18)	Press this key to enter Load disc – Play disc for 20 secs – FFW to Track 2 – FBW to Track 1 – Play Track 1 for 10 secs – Eject disc cycle. After press this key, the Functional Check will be continuously executed until other keys are pressed.
17. Monitored Operation (Test Item 19)	Press this key to enter Load disc – Play all tracks of disc – Eject disc cycle. After press this key, the Monitored Operation will be continuously

	executed until other keys are pressed.
18. Power Thermal Cycle 2 (Test Item 22)	Press this key to enter Load disc – Eject disc cycle. After press this key, the Power Thermal Cycle will be continuously executed until other keys are pressed.
19. POWER	Press this key to **POWER ON/OFF** the control board.
20. Cycle Durability Cycle (Test Item 24)	Press this key to enter 15,000 cycles durability cycle. The detailed function is described as below: 1. Load disc and play Track 1 for 3 seconds 2. FFW for 3 seconds and then play for 3 seconds 3. Jump to Track 10 and play for 3 seconds 4. Jump to Track 2 and play for 3 seconds 5. FBW for 10 seconds into Track 1 and play for 3 seconds 6. Eject disc Press any other key; the servo will exit from this cycle.
21. Thermal Shock Endurance (Test Item 25)	Press this key to enter Thermal Shock Endurance Test. The detailed function is described as below. 1. Continuously Load / Eject disc for 5 hours 2. Stop the mecha for 3 hours 3. Repeat step 1
22. Version Display & AUDIOSEL	Press the key to switch the audio function cyclically: VOL, ControlBoard Software Version, Accordo+ Software Version, BASS, TREBLE, BALANCE and FADER. VOL → ControlBoard SW Ver → Accordo+ SW Ver → BASS → TRE → BAL → FAD Use VOL+/VOL- to adjust the setting value except for ControlBoard Software Version and Accordo+ Software Version The default function VOL is restored after 5 sec.
23. VOL + **24. VOL -**	**Volume Up** and **Volume Down** keys increment or decrement the setting of current audio function.

*1 Long Press: Press the key for more than one second.

Chapter 3: Reference information

3.1 Schematic:

A+ Board SCH.pdf

3.2 PCB layout:

A+ board PCB.pdf

3.3 BOM list:

A+ control V1.3
BOM.pdf