

# OTG15E User Manual

OTG15E is the USB multimedia recording and playing board that can directly record MP3/WAV file, can play and record many kinds of audio formats. Adopt USB OTG technology, with USB interface, can support 120G capacity. All components support the temperature of professional level (-40℃ to 80℃), it is suitable to be used to record and play music in any places. It can be used as the updated product of DR53E.

## ◆ Features

- On-board USB interface and CF card holder, support U disk, USB mobile harddisk, and connecting computer.
- When OTG15E connects with U disk and CF card at the same time, user can copy the files of U disk to CF card and also can copy the files of CF card to U disk.
- Support FAT12, FAT16, and FAT32 universal file formats of DOS or WINDOWS operating systems, completely compatible with computer.
- Support the multimedia files of MP3, WMA all levels and all code flow rate. The highest code stream is 1.44Mbps.
- It is acceptable to record MP3 with different code stream or lossless compression mode, and use standard MP3 or MAV file format. At present, capacity-price ratio is very good, non-loss recording is better for recording effect.
- Built-in real time clock, with temperature detection.
- Built-in T9 strokes and Pinyin input methods, and user mainframe can use simple commands to modify the recorded filename easily.
- Built-in output eliminating noise control circuit, switching is more quiet, sound effect is more excellent, and it is more suitable for the advanced professional application
- Adopt CTB bus, can exchange information with user mainframe quickly, for example music name, display etc.
- With LED display used to indicate playing status.
- Adopt single +5V power supply; inside generate +/-5V used to supply power for operational amplifier, which can get more wide dynamic range.
- Power supply, audio input and output, and communication interface are the same with DR53E's, OTG 15E can replace DR53E as updated product.

## ◆ Application field

- It is easy for Home audio system to be upgraded to the system supporting computer music, which can improve the grade of product.
- The places that need to take long time to record music or speech signal.
- The places that need to play music because of bad environment.
- Other places playing and recording music.



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◆ Relevant technology files

- 《CTB communication bus application attention》-----hsavd305.pdf
- 《OTG series product U disk file format application attention 》-----hsavd306.pdf
- 《OTG series product software introduction》-----hsavd307.pdf

◆ OTG15E harddisk application format

Music files applied by OTG15E are stored in U disk or USB mobile hard disk or CF card. Please note when store files: support many of layers subdirectories, recorded songs only can be stored under the root directory and named as REC\_XX. MP3, as figure No.1 shown below, “XX” is number from 1 to 99, and it means OTG15E can support 99 root directory files at most.

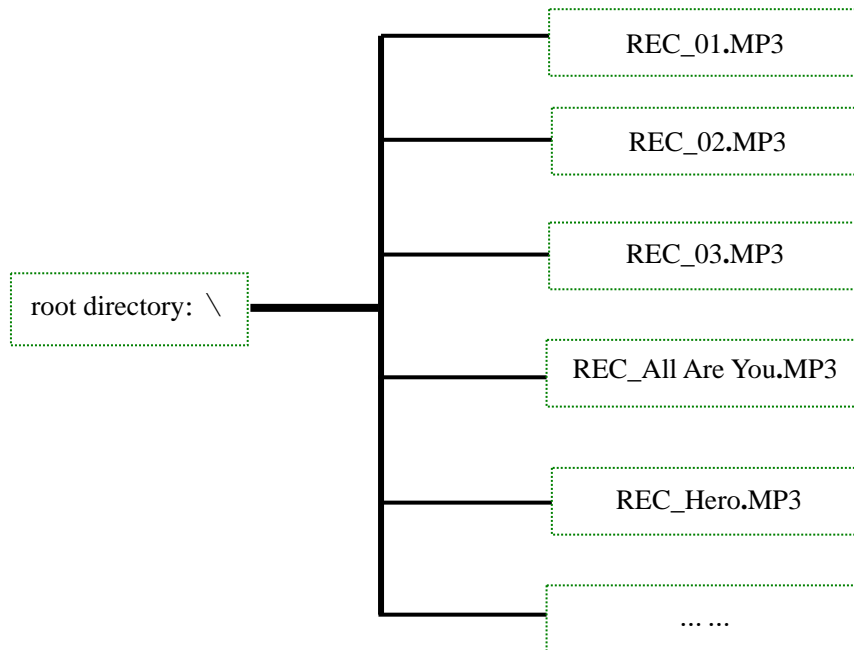


Figure No.1, the structure sketch map of the recorded file

OTG15E can play and record the music files of root directory and the first layer of directory, and every layer of directory can support 99 music files at most, as figure No.2 shown below.

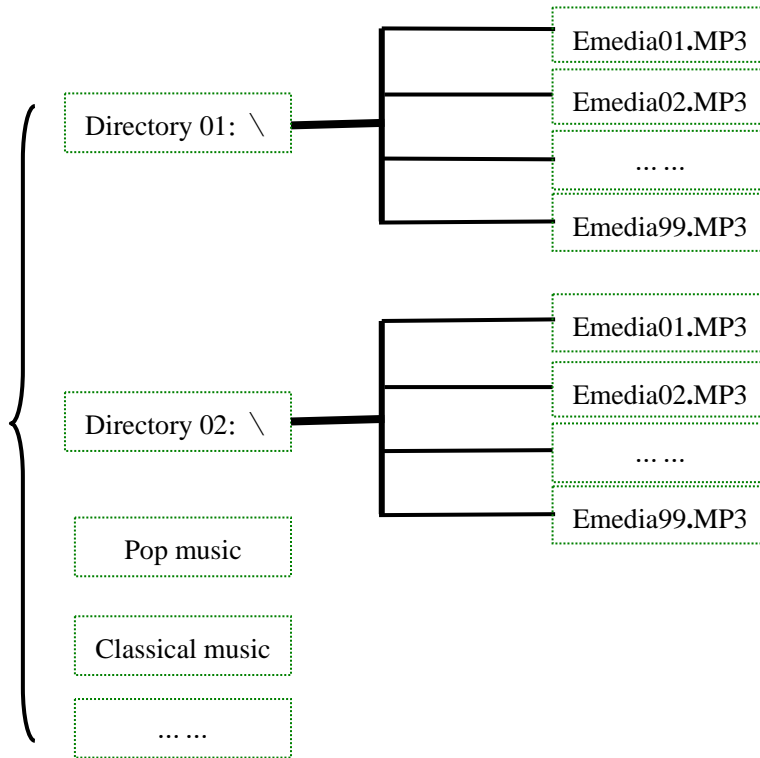
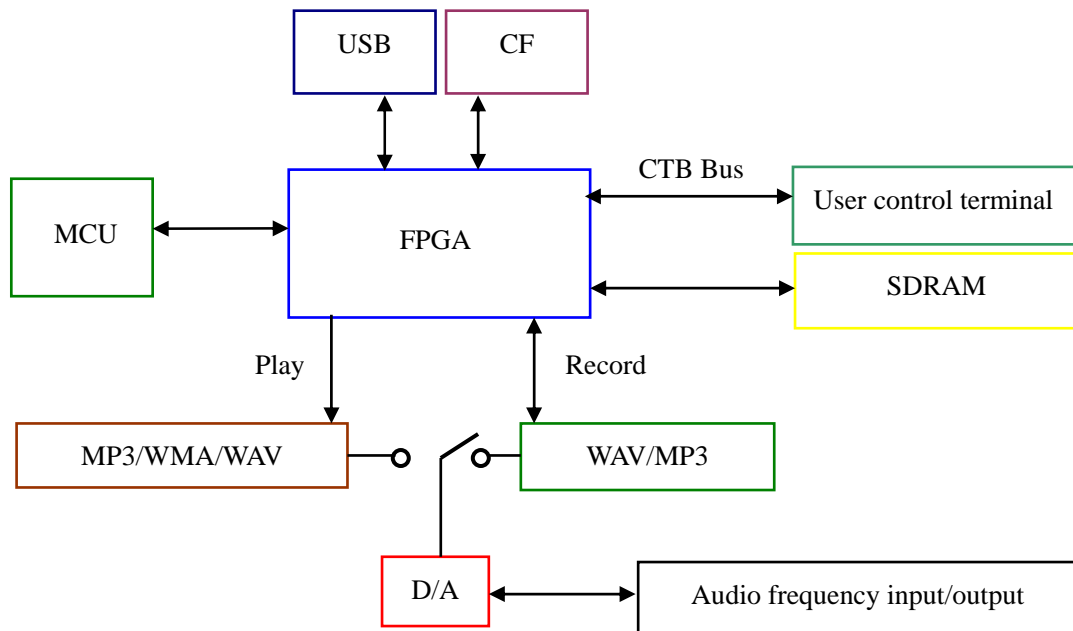
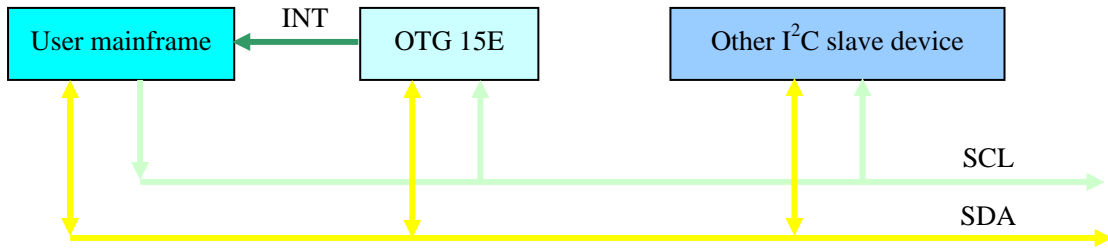


Figure No.2, the file structure sketch map when playing and recording file

#### ◆ OTG15E Internal structure Block Diagram

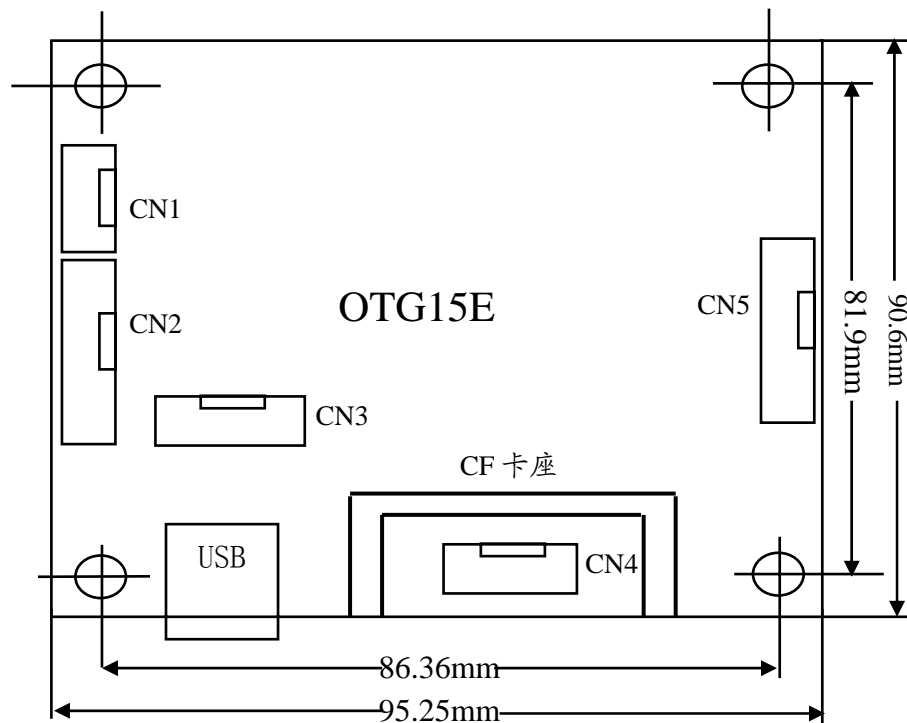


Note: OTG15E can play MP3/WMA/WAV audio files, but only can record WAV/MP3 files.

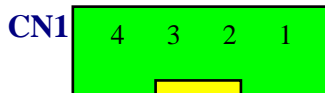


User mainframe and OTG15E communication block diagram

◆ OTG15E dimension diagram and interface instruction



Note: CN3 and CN4 interfaces are used to upgrade program by manufacturer, user can skip over them.



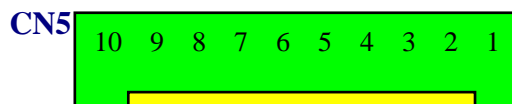
Program upgrade and serial interface extended, user can skip over it in general.

- 1. +5V +5V power output.
- 2. GND Ground wire output.
- 3. DSCL Clock input.
- 4. DSDA Data input.



Singlechip serial interface extended.

1. **GP8** Expansion singlechip I/O port P8, standard bi-directional port, with internal pull-up resistor.
2. **GP7** Expansion singlechip I/O port P7, standard bi-directional port, with internal pull-up resistor.
3. **GP6** Expansion singlechip I/O port P6, standard bi-directional port, with internal pull-up resistor.
4. **GP5** Expansion singlechip I/O port P5, standard bi-directional port, with internal pull-up resistor.
5. **GP4** Expansion singlechip I/O port P4, standard bi-directional port, with internal pull-up resistor.
6. **GP3** Expansion singlechip I/O port P3 standard bi-directional port, with internal pull-up resistor.
7. **GP2** Expansion singlechip I/O port P2, standard bi-directional port, with internal pull-up resistor.
8. **GP1** Expansion singlechip I/O port P1, standard bi-directional port, with internal pull-up resistor.
9. **GP0** Expansion singlechip I/O port P0, standard bi-directional port, with internal pull-up resistor.
10. **GND** Ground input/output.
11. **+5V** +5V input/output.



CTB communication bus interface.

1. **HCLK** Bit clock synchronous signal input of CTB communication bus.
2. **HDAT** CTB communication bus data signal input/output.
3. **THNT** CTB communication bus interrupt and data selection input/output.
4. **+5V** Analog and digital +5V input.
5. **LOUT** Left channel audio signal output.
6. **ROUT** Right channel audio signal output.
7. **DGND** Digital ground wire input.
8. **LIN** Left channel audio signal input.
9. **RIN** Right channel audio signal input.
10. **AGND** Analog ground audio input/output.

**◆ Electrical specifications**

<b>Items</b>	<b>Minimum</b>	<b>Normal</b>	<b>Maximum</b>
Voltage	4.5V	+5V	+5.5V
current (+5V) (do not include CF card)	260mA	280mA	300mA
Output level 1KHz@0dB	-1dB	2V	+1dB
frequency response 20Hz ~ 20KHz	--	+/-1dB	--
Signal-to-noise @0dB(CCIR)	88dB	90dB	93dB
Working temperature	-40°C		80°C