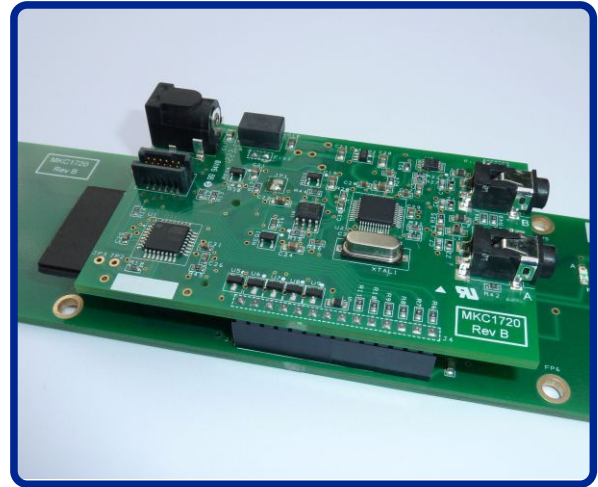


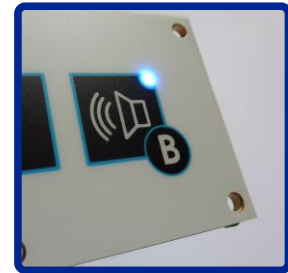
High Quality Front Panel Audio decoder

A RECENT PROJECT THAT MKC COMPLETED IN RECORD TIME INTEGRATED AN MP3 DECODER WITHIN A MEMBRANE KEYBOARD FRONT PANEL TO PROVIDE A HIGH QUALITY SWITCHABLE STEREO OUTPUT LOCALLY DECODED FROM .MP3 FILES STORED ON AN SD CARD.



Applications

- Interactive exhibits / Museums / Visitor Centres
- Adding Audio interaction for user interfaces
- Help Menus
- Pre defined warning messages
- Audio demonstration equipment



If your project has limited visual I/O or processing, this solution can enable high quality audio to be generated from easily accessed .Mp3 files stored on an SD card. The DSP hardware processing the compressed audio files in real time, while freeing the control processor for other tasks. As files are stored on a standard SD card, generating/editing/updating (for instance for other language variants) is a straightforward task. Development is speeded up using this proven hardware which has been through CE certification.

The PCB measures 80x42mm and can be rear mounted to a custom front panel membrane keyboard PCB (typ up to 9 keys and up to 5 LED indicators).

Contact us if you would like to discuss a particular project.

email: ben@membrane-keyboards.com

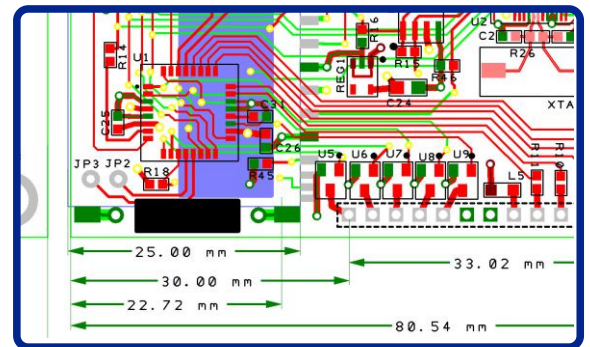
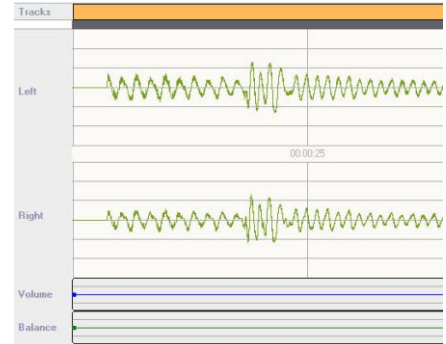
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Project background

A project meeting highlighted that the client required production hardware to be delivered in volume around 12 weeks from initial discussion's and specification creation, considering that the following milestones needed to be carried out within this very limited time:

Project Milestones

- Hardware Design
- Prototype component sourcing & construction
- Prototype testing / code development / modification
- Customer approval of prototype
- PCB / Mechanical design & Layout
- Production PCB manufacture & testing
- CE testing
- Updates for manufacture
- Final PCB hardware sample manufacture



Approach for minimum time to Production

MKC started to source components at the initial hardware design stage to ensure that no long lead time components were being designed in.

By co-ordinating the manufacturing phase whilst product development was underway we were able to deliver production hardware at the 12 week deadline.



MANUFACTURED IN MULTIPLES OF 4



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High Quality Front Panel Audio decoder

Technicalities

Our solution uses a high-performance, low-power DSP based system capable of reading and decoding the .MP3 input datastream at high bitrates.

Using an 18-bit oversampling, multi-bit, sigmadelta digital to analog convertor at the output stage ensures a high quality stereo audio output with no phase error between L/R channels.

Software controlled volume levels for L & R outputs is supported if needed.

An Atmel AVR single chip processor takes care of the user keypad inputs, LED indicators on the front panel, control of the decoder and output audio signal routing to one of 2 stereo outputs.

Source files are encoded in Mp3 format (up to 320k bit rate),

Also supported: WMA, AAC, AAC+, Ogg Vorbis, FLAC and MIDI

A Standard size SD card socket fitted on the PCB, supporting FAT16 *

(*NTSC file format not supported).

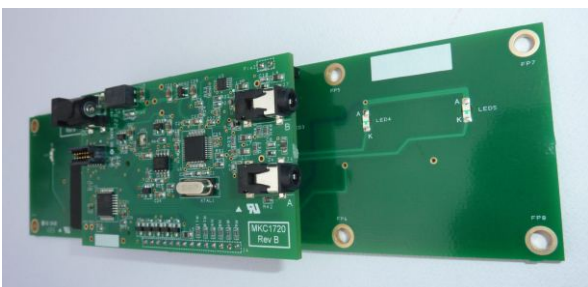
Connectors

2x Stereo 3.5mm jack sockets for A + B audio output

2,1mm power jack for 5v power

Header for ISP and serial downloading of code (processor & DSP)

Power requirement- 5v D.C (An on board regulator provides the 4 different voltage rails required and a voltage monitor ensures that the unit will always reset reliably after a power rail interruption).



ELECTRONICS FITTED TO REAR OF
MEMBRANE KEYPAD FRONT BOARD

INFORMATION PROVIDED AS AN EXAMPLE
ONLY. MOST SOLUTIONS ARE CUSTOM
DESIGNED FOR YOUR APPLICATION SO PLEASE
GET IN TOUCH FOR MORE IN DEPTH
TECHNICAL INFORMATION OR A QUOTATION