What is a MIDIbox

The MIDIbox DIY-projects consist of hardware (MBHP) and software (MIOS + Application). Some projects have special designed modules, others only require a Core module. Every device needs at least one Core.

The normal way to build a MIDIbox MIDI controller or synthesizer is:

- Build the hardware (starting with a Core Module)
- Build the necessary I/O modules (eg LCD, DIN, DOUT)
- Connect the modules and add additional hardware (knobs, faders, encoders, buttons...)
- Burn the bootloader onto the microchip or get yourself a chip with a preburned bootloader from SmashTV or Mike
- Upload MIOS, the operating system (by MIDI; sometimes MIOS is already on the chip!)
- Upload the necessary application (eg MIDIbox64e.syx) by MIDI

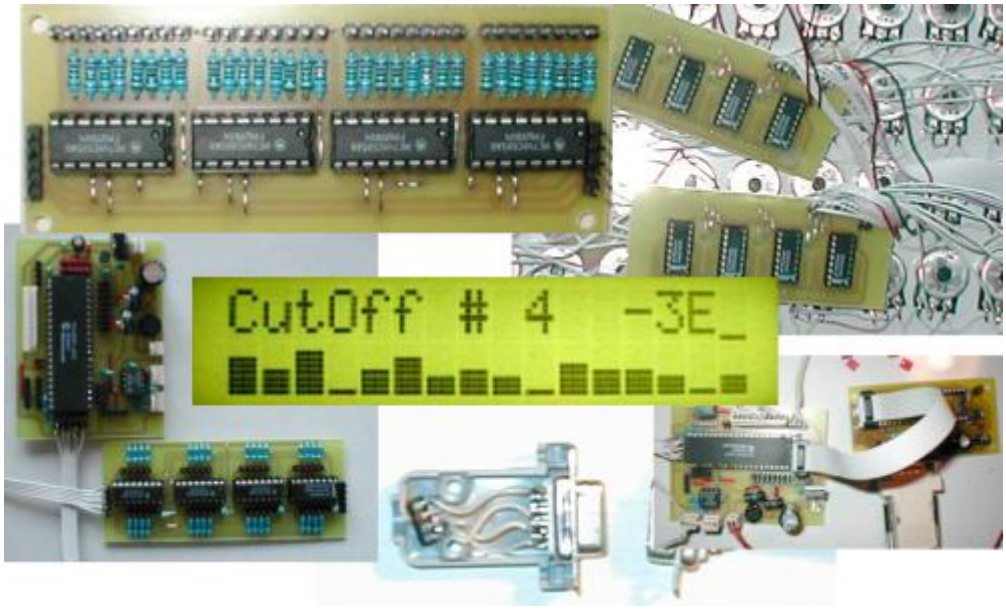


If you have problems understanding the structure of a MIDIbox, just think of your PC:

- Processor ⇒ PIC18F
- Mainboard ⇒ Core Module
- Keyboard ⇒ DIN Module
- Soundcard ⇒ FM (OPL3) or SID Module
- Graphics Card ⇒ DOUT Module (with connected LEDs)
- Display ⇒ LCD Module (Liquid Crysal Display)
- BIOS ⇒ the Bootloader
- Operating Sytem (Windows, Linux, Macintosh) ⇒ MIOS.hex (MIDIbox Operating System)
- The application you work with ⇒ for example MB64e.hex, MBSID.hex, MBSeq.hex

Luckily - just as in the example - you don't need to open up your case and desolder the processor just to update “Word”: all Applications can be uploaded via MIDI by SysEx commands. You can even update new MIOS versions without having to burn a microcontroller! No PIC burning at all is required if you order your PIC Microcontrollers from SmashTV or Mike.

MBHP - The MIDIbox Hardware Platform



The MIDIbox Hardware Platform is the consequential continuation of Thorsten Klose's work on MIDI controllers in the last years. It brings down every design to one standardized environment with reusable and exchangeable modules.

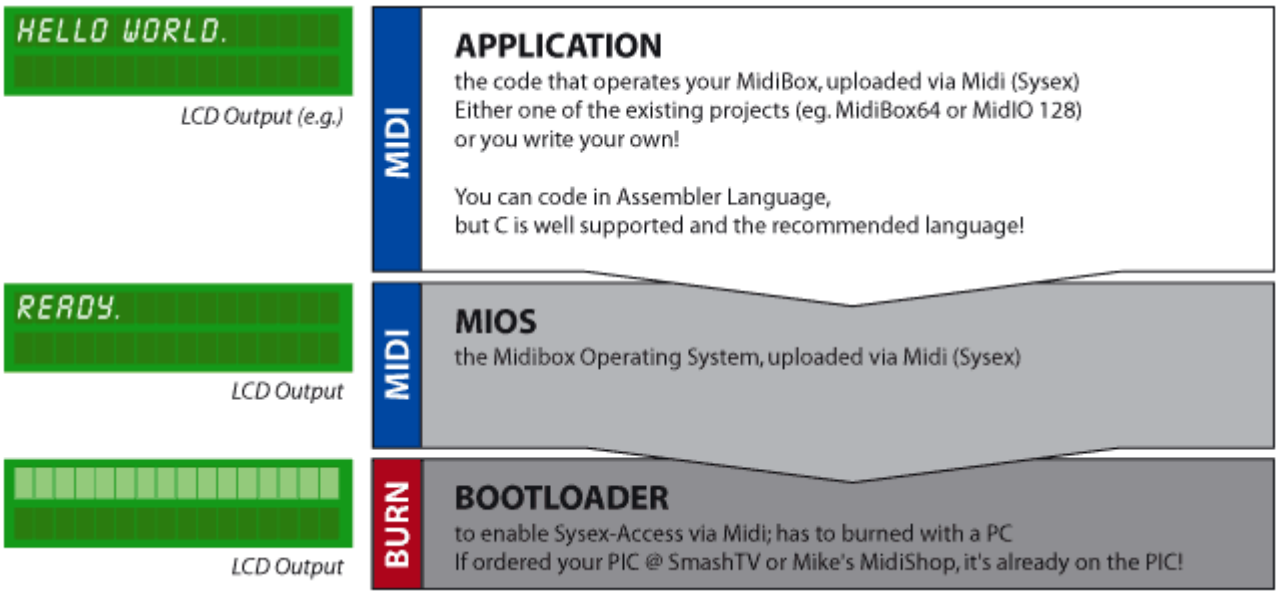
Well, this method is nothing new, did you ever see the inner life of an old television, or a HIFI system, or a computer, or - of course - a modular synthesizer system? All are consisting of smaller or larger units, which interact over dedicated interfaces. This way of thinking, which simplifies the understanding of complex technical applications, is the principle of MBHP.

The focus of the platform:

- well defined and documented modules
- small, uncomplicated circuits
- realizable on PCBs (single-layer) and prototype boards
- PCBs designed with a freeware CAD program
- different firmwares for different configurations
- open for future extensions by other hobbyists
- programming examples in the PRG and MIOS Download section
- NON-COMMERCIAL!

More Informations: MBHP

MIOS - The MIDIbox Operating System



MIOS is the operating system of the microchip. It can be uploaded by SysEx (via MIDI) thanks to a bootstrap loader, a special software that is already burned onto the chip if you order at SmashTV's or Mike's Shop.

MIOS provides the basic functionality for a bunch of different applications. There are dozens of precompiled, ready-to-use apps available, that you can upload to your MIDIbox and start making music! It is also quite easy to develop your own applications if you aren't afraid of coding in C.

Main features:

- Bootloader - no PIC burning required! Applications are uploaded via MIDI
- Easy to update
- Test new or other applications with existing hardware
- Assembly language (ASM) or C
- Application Development is fully cross-platform compatible
- MIOS Studio - an easy-to-use java app for uploading applications to your MIDIbox
- Well defined and documented MIOS functions, no low-level hardcore nerd programming required
- NON-COMMERCIAL!

More Informations: MIOS

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