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# **Preparation**

## **Tools**

### **Software**

### **Software Development**

MPLab IDE CodeBlocks C IDE GPUtils SDCC

ActiveState ActivePerl

UltraEdit32 - Not a freebie, but worth the money IMO, and I don't say that often.

### **Hardware Development**

Eagle Layout Editor
Eagle 3D
POV-Ray
Schaeffer Front Panel Designer
Google SketchUp 3D
InkScape Vector Graphics Editor

http://www.electronics2000.co.uk/ Electronics Assistant Calculators http://www.miscel.dk/ MiscEl Miscellaneous Electronics Calculators Linear Technology Corporation LTspice/SwitcherCAD III Circuit Emulator

#### **MIDIBox Control**

Sun Java RE JSynthLib MIOS Studio

#### Misc

Adobe Acrobat Reader
PDF Creator
Microsoft Internet Explorer

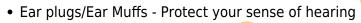
#### WIKI

Microsoft Office MSWord to DokuWiki Converter

### **Hardware**

### Safety

- Workbench Protect your house, have a proper work area
- Safety Glasses Protect your sense of sight





• Face mask - Protect your lungs



• Fire Extinguisher - Don't let your soldering iron start a fire you can't put out



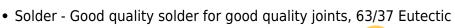
• Fire Blanket - As above



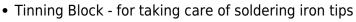
- Storage Unit Put your tools and components somewhere safe
- Small Plastic Cup Somewhere to put things temporarily. Don't leave your kit lying around.
- Soldering Smoke Absorber/Ventilator MMmmm, Lead smoke. Mmmmm, Cancer. Mmmm, Insanity. Mmm.... I think not.

### Soldering

- Soldering Iron Temperature controlled
- Soldering Iron Stand Put it where it belongs
- Soldering Iron Tip Cleaner Take care of your tools







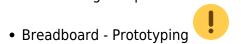


• PCB Holders - Make soldering easier and cleaner





• Desoldering Pump - As above



#### **Electronics**

Multimeter - For testing circuitry. RS232 connected Autoranging DMM

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• Oscilloscope - For testing signals. Dual trace



Power Supply - Regulated lab power supply



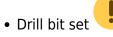
• Digital Camera - For taking snaps to share with other MIDIBoxers

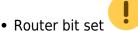




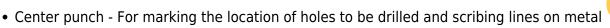
### **Drilling**

- Rotary Tool
- Drill Press For accurate drilling of PCB's and faceplates





- Nibbling tool for making odd shaped holes (Careful! These can be savage)
- Reamer for making odd shaped holes





### **Abrasive/Cutting**

• File Set - Flat, round, half round, rasp and needle



• Hacksaw - For cutting solid objects



• Spare Hacksaw Blades - For use by hand

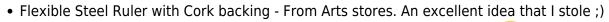


Coping Saw - For cutting holes in cases



• Razor Knife - Stanley/X-Acto, etc. NOT for use on plastic cases unless you have a death wish

#### Measurement





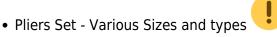
- Calipers For measuring drill bits, shaft diameters, and hole diameters
- Clamps/Vices Various sizes and shapes, for holding things still while you drill/saw/bust them up



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### **Trimming and Fastening**

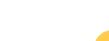
Wire Strippers - For stripping insulation from cabling







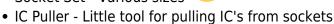
• Screwdriver Set - Various sizes



• Spanner Set - Various sizes, including shifter spanners



• Socket Set - Various sizes



- IC Placer Little tool for putting IC's in sockets, spreads even pressure over all the pins.
- Claw One of those little pens with a three-fingered claw for grabbing loose bits from where fingers can't reach

#### **Accessories**

• Mirror - Little mirror on a telescopic shaft for peeking where your eyes can't reach



- Compressed Air Can For cleaning stuff by blasting off dust
- PC/Mac For surfing ucapps.de, the forum, this wiki, etc, for printing stuff, for talking to the DMM
- Printer For everything from doco to PCB screens...

Please note that I haven't mentioned any PCB creation tools... I don't make my own PCB's yet, so Internet Explorer (pointed at Smash's Shop) is the only tool I need for this. I don't think that will last due to some other projects I'm doing (I haven't given upon the SRAM yet!), so I will put PCB tools up here one day, but until then, please feel free to add them yourself!

Items with a just mean that I am yet to cross them off - this isn't just here for your info, it's also my shopping list;)

# **Thoughts**

A MIDIBox is a serious project. Thanks to the efforts of TK and a few assistants, it is accessible to anyone who wishes for one, but don't be fooled into thinking it's going to be a walk in the park.

The forum is not school. It is not warranty. It is not tech support. It is a place where you can find a bunch of people just like you. It is a place where everyone should help everyone else as much as possible. If you have a question, ask it! Don't worry if your response is not forthoming in a short time, be patient, help will come along. If someone on the forum says to 'go and read ucapps.de' or 'search the forum' or 'google it', please don't be offended. They aren't trying to get rid of you:) It just means

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that they know that the perfectly documented and most easily understood response to your question exists elsewhere, and they want you to know where you can find it. If they answered in the forum, they'd probably just be giving you a less complete answer than the one elsewhere. If you've read something that says it is your answer, but you don't understand it, first try googling it and then come ask on the forum. Don't be shy, but don't be lazy either:)

A MIDIBox is not a cheap way out. If you're thinking "Heck, why buy one when I can build one of my own for half price?" then you are barking up the wrong tree. Your first project will involve not only the purchase of a large range of expensive tools, but a collosal investment of your time and efforts. Even if you only earna few bucks an hour, you're FAR better off investing your time in a second job or some extra shifts, and saving that money to buy a commercial offering.

Take your time. If you're in a rush, go buy a commercial offering. Do not be fooled, a MIDIBox will take at least a couple of months to build, with the exception of some of the very simple devices like the clockbox. Talk to your wife and kids about this thing, or they might wonder if you're having an affair or something;)

Read. READ. READ!!! Read until your eyes can't take it any more. If you think you've read enough to get started, go and read it again. Seriously, information is imperative. I personally spend around 2 hours every day (at least - it's not unusual for me to spend over 20 hours in a weekend) reading and learning about the electronics involved - but I do this for fun, not the end result.

Use the right tool for the job. Get all the tools you need. Don't be a cheapskate, get what you need. This doesn't mean you have to spend a fortune, but you will get what you pay for.

Be safe. Don't F\*&% around with safety, tools, your workspace, etc - you can do anything from stripping a screw to killing yourself. Take every single safety measure available to you. Seriously, you never know... a tiny piece of scrap plastic can get flicked into your eye when you sneeze and leave you blind for life. There is absolutely NO need to be paranoid or concerned about this, PROVIDED that you don't be lax and you DON'T F\*CK AROUND !!!!!!

Thanks to these websites for saving me having to think about this:

http://www.makezine.com/blog/archive/2006/01/10 most needed tools for the e.html

http://www.diylive.net/index.php/2006/01/11/ten-most-needed-tools-for-the-electronics-diyer/

http://www.makezine.com/blog/archive/2005/12/makes\_mostly\_under\_100\_gift\_gu.html

http://www.headwize.com/ubb/showpage5.php?fnum=3&tid=532

http://tangentsoft.net/audio/new-diyer.html

http://www.devrs.com/e/

http://www.streettech.com/archives\_DIY/stToolkit.html

http://www.i-hacked.com/content/view/191/94/

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http://tangentsoft.net/audio/

There are more, but that about covers it :)

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