Crystals and Oscillators

: Update this section like the others

Here you'll find information on the crystals and oscillators used in various MBHP projects.
You'll also find information on what you can do if you can't find the right crystal or oscillator.

But First, we answer the simple question.

What type of crystal should I buy?

Crystals with parallel cut are optimized for parallel resonance with the oscillator. If you use a crystal with serial cut (which can mostly be found in radio modules), the PIC won't run with the correct frequency. For the PIC to run correctly at 40 MHz, a **10 MHz crystal** is required, otherwise the MIDI baudrate will be wrong. Unfortunately every distributor has its own way of identifying the crystal type. If the crystal type is not specified, it's most likely a parallel cut crystal.

There is a forum thread pertaining to crystals which worked with MIDIbox projects:

Successfully Tested Crystals

And here is a table detailing what type of crystal is required for each MidiBox project:

CrystalsforBoxes

I have a crystal from X soundcard, but I'm not sure if it is correct. What do I do?

If your crystal has the correct frequency marked on the casing, but the incorrect number of legs, this can be remedied using a Pierce Oscillator.

http://en.wikipedia.org/wiki/Pierce_oscillator

Often, if an FM soundcard has a 2-pin oscillator, the neccessary parts to form a pierce oscillator will be found nearby.
Look for:

- The 2 pin oscillator (14.318MHz for an OPL3)
- An inverter IC (74xx04)
- A resistor (quite likely SMD)
- two capacitors (quite likely SMDs)

In some cases, you can hack this oscillator circuit right off the soundcard with a hacksaw!
Pictures soon!

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