

# Beagle Sound Productions

## Sound Card Advice

NOTE: Audio Card = Sound Card = Audio Interface = Sound Interface

All equipment advice really depends on a lot of things. Let's look at some of the questions you need to consider when thinking about buying a sound card:

- Budget

Most "prosumer sound cards" start at \$100US

More expensive is not necessarily always better but sometimes they are!

- I/O

How many inputs do you plan to record simultaneously

Will that number change in your future?

What type of inputs do you need?

Do you need analog only?

Do you need line input?

Do you need Mic inputs?

Do you need phantom power?

Digital (i.e. SPDIF)?

MIDI?

- Interface

PCI, PCIe, Cardbus (PCMCIA), Expresscard, Firewire, USB?

Which one is best?

Are there some that I cannot use?

Are there some that I shouldn't use?

Internal or External?

- Latency

Which soundcards have the lowest latency?

Do I care?

Am I monitoring with real time effects or softsynths?

Am I monitoring from the soundcard or from an external mixer?

Am I monitoring from the external soundcard?

Whew! That's a lot to figure out! Well, if you've read this far, then you're better than the average teenager who wants it NOW!

### **Let's take it a little at a time**

#### **Budget:**

I can't help you with this one much except be prepared to spend between \$100 and \$500 for your first "recording" soundcard.

Anything less than \$100 is not likely going to be a good soundcard to buy. Anything over \$500 is likely more than you need unless you're not really a beginner.

#### ***I/O: How many inputs do you plan to record simultaneously?***

This is a pretty straight forward question. Do you plan to record yourself playing guitar, voice, keyboard, acoustic drums, something else? Do you plan to record your band? How many and what type of instruments are in your band? How many vocalists do you have? All of these questions have to be answered before you can figure this out.

#### ***I/O: Will this number change in the future?***

Basically do you think it's possible your needs will need to expand in the future? Will you want to buy new equipment when you expand or do you want to plan for it?

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### ***I/O: What types of inputs do you need?***

Here are some examples:

Voice: 1 MIC input (depending on the mic, you might need phantom power - note: I highly recommend a device with phantom power available)

Acoustic Guitar: 1 or 2 MIC inputs (again - phantom power is recommended)

Acoustic/Electric Guitar: 1 MIC input (w/phantom), 1 LINE input

Electric Guitar or Electric Bass Guitar: 1 or 2 LINE inputs OR 1 INSTRUMENT input - if you use stomp boxes or interfaces you might have stereo output and would need 2 LINE inputs, if you want to record DIRECT, you'll need an INSTRUMENT input on the interface. This gives you the correct impedance for your low output instrument to bring it up to LINE level (internal). Everything must eventually get to LINE level!

Keyboards: MIDI or 1 or 2 LINE inputs. This depends on how you want to record your keyboard. Keyboards are very versatile when it comes to recording. Typically I'll record MIDI first then I might record the AUDIO output of my keyboard from that MIDI. Also, if you play acoustic piano, you'll want to find a digital piano instead to record MIDI and transfer that to an acoustic piano sound in a sound font (more on that later). Recording an acoustic piano is very difficult to do correctly and unless you know what you're doing, I recommend recording MIDI and using a softsynth instead.

Acoustic Drums: This is a tough one to record. You'll need several good mics to record acoustic drums, usually no less than 5 and up to 10. If you want to record acoustic drums you'll also want to record all of those mics on separate channels if you can - this will mean a soundcard with a LOT of inputs! You can mix them down to a stereo mix before going into the soundcard first if you want, but you have less control over the mix when you go to mix the song if you do it that way. MIDI drum softsynths are MUCH easier for those who are just getting started. MIDI drums are much easier for bands getting started. You can record the MIDI instead of multiple mics and then use a softsynth output in your DAW.

### ***I/O: Digital (i.e. SPDIF)***

Most new users don't need digital inputs. But if you know what they are and how to use them then they are very helpful to have on your soundcard. SPDIF allows for 2 digital inputs, ADAT allows for several multiple inputs to be "piped" into the soundcard from another soundcard. It's an easy way to "daisy chain" soundcards. You can't normally daisy chain soundcards unless you have digital I/O on them, or unless they are designed to be used together. More on this later.

### ***Interface: PCI, PCIe, Cardbus (PCMCIA), Expresscard, Firewire, USB?***

PCI and PCIe are both INTERNAL connections, Cardbus & Expresscard are external for LAPTOPS only, Firewire and USB are external and will depend on your computer as to whether or not they are included on your system. I doubt there are any systems less than 10 years old which do not have USB (1.1 or 2.0), but not all computers have Firewire (IEEE 1394).

You must determine first which types of ports your computer has available (for example if you have PCIe, do you have the appropriate PCIe slot open and available?). Only you and/or your computer tech person can determine which ports are available on your system.

### ***Interface: Internal or External?***

Some Internal soundcards come with break out boxes, but if they do not, then they will not likely have anything other than LINE inputs and outputs (there are some exceptions of course).

Most external soundcards will have a variety of MIC, LINE, INSTRUMENT inputs with or without phantom power. They are very versatile and diverse. They can also be monitored directly, while internal soundcards need a breakout box OR an external mixer in order to monitor directly.

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### **Latency:**

Latency is important if you intend to monitor with real time effects (FX) such as amp sims for guitars or vocoders for voice, or if you intend to record MIDI while directly monitoring using softsynths such as Ivory Pianos or EZ Drummer (more about those specific softsynths later).

If you plan to monitor with real time FX or softsynths then you want the lowest latency possible. Latency is the time difference between when you press a key on the keyboard or hit a pad on an electronic drum kit and the time you hear the sound. It's also the difference between the time you strum your guitar and hear the sound with FX enabled in your DAW.

Latency can be as low as 2.5msec Round Trip Latency (all latency in and out of the computer accounted for) or can be very high such as 250msecs. for reference, 250msecs is a quarter of a second.

For further reference:

**2.5msec would sound the same as if you were standing less than 3 feet from your amp when playing guitar or keyboard or singing.**

**250msec would be the same as if you were standing over 280 feet from your amp! That's quite a distance to try to sync your playing to!**

**Latency is not important (mostly) if you intend to monitor direct without real time FX and without softsynths. This can easily be done (unless you're a guitarist that insists he needs the amp sim "sound" to record with!). It can be done with a small mixer or if you have an external soundcard with mixer capabilities.**

Latency tends to be lowest with PCI and PCIe soundcards, but lately the market is pretty mixed in that regard. As a general rule that still stands, and as a general rule Firewire is lower latency than USB, but that's not always the case.

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So, at this point, I'll simply throw out a starter card so that the impatient ones can get what they want and the rest can learn and make an informed decision.

For a starter card, my first recommendation is the M-Audio Audiophile 2496 - complete with a link to an online music store that carries them. They cost about \$100, they have 2 analog inputs, 2 analog outputs and MIDI I/O as well as SPDIF I/O. These are PCI cards and they must be installed in an empty slot inside a desktop computer. Very solid drivers, very good A/D converters, excellent for the price.\* NOTE the addition below regarding m-audio soundcards and vista drivers - I no longer recommend m-audio soundcards if your operating system is Vista. **[See my full soundcard recommendation spreadsheet for details.](#)**

**[Click on the link at the bottom of this webpage for the soundcard spreadsheet!](#)**

### Disclaimer:

I do not work for any of these companies. I do not guarantee any of these cards to work with your computer or your software or both. These are only suggestions.