

# The Well-Stocked Toolbox

*Some Handy Resources To Keep You Up To Date.*

**D**uring the initial planning for this column, in thinking about what would be a good analog related theme, we came up with the idea of those **Tools and Tips** which an analog engineer finds useful. That moniker then became the name of this column. Let's spend some space on what this can mean to the reader.

First, to keep a flavor of diversity, the tools and tips need not always be electronic circuits related, but rather any topic which could, directly or indirectly, be a useful analog engineering tool. And, what the heck, it also can be for just fun now and then, since we're all human.

This thinking first evolved into the Internet-related columns, which not only provide useful information on getting started and communicating effectively, but hopefully also allow you to enjoy the process. But more importantly, these kinds of tools and tips open an avenue for you. The path leads to some of the greatest sources of information, ones which it would seem downright careless to disregard. Sure, it takes some extra work, and perhaps learning a few new computer tricks, but the end result is worthwhile. This topic reiterates a broader point from above—it often takes some real work to survive in today's world.

Other tool examples are books and software, which will be discussed more specifically from time to time, particularly when a new or important development takes place.

Speaking generally, traditional textbooks and other key technical literature are obviously important tools in the analog engineer's bag of tricks. And, this is another area in which you will need to keep updated on an ongoing basis. A staple of key analog design references should be part of your library, headed up at the top by textbooks and handbooks of analog design techniques. You also should be reading and filing magazines with analog design related content, such as *Electronic Design*, as well as its *Special Analog Supplements*.

**TIP:** You also can supplement this

with archival information from the *ED* website.<sup>1</sup> Some companies also publish their own technical journals, containing worthwhile tutorial information in addition to standard product information. Examples here would be such publications as Hewlett-Packard's *Hewlett-Packard Journal*, (<http://hwww.hp.com/>) and *Analog Dialogue* from Analog Devices.

Whenever you can, try to attend manufacturers' seminars. They offer closer insight into the techniques and technology behind the latest parts. Also, they are unusually good opportunities to meet factory personnel, and to query them firsthand on the latest devices. Having participated in several Analog Devices seminar tours over the last few years, I can say that they are well-timed occasions for bringing designers in the field and application engineers together. They also can establish dialogues useful to both parties.<sup>2</sup>

These sources should be supplemented by manufacturers' catalogs, application notes, and seminar books. Since many manufacturers are now deemphasizing the huge printed catalog required for a large product line, you'll also want to supplement your printed catalogs. Three ways to supplement your cache of catalogs are with CD-ROM versions, vendors' fax-back services, or World Wide Web site acquired data sheets. Component manufacturers' and distributors' web sites also can provide great sources of much broader technical information.

**TIP:** A useful resource which has numerous semiconductor homepage links is Gray Creager's website: <http://www.scruznet.com/~gcreager/index.htm>. The links of Dan Burke's site let you bypass top level stuff and go directly to the relevant data sheet search engine page. See: <http://www.crhc.uiuc.edu/~dburke/databookshelf.html>.

You also can establish one-on-one contact with vendor application engi-

neers for specific technical support on their products. Here "specific" is intended to convey that this type of support is meant to help you in the most effective application of the manufacturer's part. It is not intended to be a general open-ended consultation source (no one would ever try to misuse application resources like that, would they?). Check your vendor's catalog or web site for specifics on contacting them by phone, fax or e-mail. You'll probably find that the array of extra help that's potentially available to customers is definitely not something that will make you wish for the "good old days." For example, availability of the complex modern evaluation and demo boards for IC parts is something relatively unheard of until recently, and these boards can definitely make your design job both faster and easier.

Your electronic distributors can be useful in many ways, beyond the basic availability of parts. They also are a continuous source of catalog information on their various lines, so get to know your distributors.

**TIP:** A useful website with links to many U.S. distributors (complete with URLs and other contact information) can be found at: <http://hwww.hitex.com/chipdir/dist/us.htm>.

So, those are some of the **tool and tip** necessities related to analog design and its support. This article is but a start, and you may have some additional input or comments for a future column. Feel free to write and share your thoughts on these or other analog issues.

## References:

1. The Electronic Design site is at <http://www.penton.com/ed/resource/index.html>.
2. The Analog Devices website at <http://www.analog.com> has the contents of recent seminars and *Analog Dialogue* on line.

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