



MEETING TIME AND LOCATION

Thursday, October 12, 2006, network at 6:30, dinner (optional) at 7:00 PM, presentation at 8:00 PM.

Denny's Restaurant
3315 N. Scottsdale Rd.
Scottsdale, AZ

PRESIDENT'S MESSAGE

by Vaughn Treude

Lately I've been working on an embedded project, in which I not only had to do the software but to design a board to run it on. I've done this before, but it's been many years. That was when you did it on a big sheet of plastic on a lighted table, manually placing black tape lines and component stickers on a magnified version of the layout.

Now, of course, people use computers to do this. I know that there are popular commercial electronic design automation (EDA) programs such as Cadence and Mentor Graphics. Unfortunately, these cost thousands of dollars. So I decided to look for an open-source alternative.

I discovered the gEDA, project, which

stands for GPL (GNU General Public License) Electronic Design Automation. This is a suite which has tools for schematic capture, PCB design, circuit simulation, and other related tasks. This is all free for downloading at www.geda.seul.org. They have versions for three popular versions of Linux (Red Hat, SuSE, and Debian) plus Max OS X. There is currently no version for Windows. But the source is available, and is based on the GTK+ graphics libraries (which have a Windows version), so Windows aficionados are encouraged to download the code and give it a try.

As with all open source software, there are difficulties to be overcome, but I was pleasantly surprised. Installation, often a nightmare in the open-source world, was quite easy. (I'm using CentOS, a free variant of Red Hat Enterprise Linux.) So far I've used three pieces of the suite: the schematic capture program gschem, the schematic conversion program gnetlist, and the printed circuit board design program pcb. The gschem and pcb programs have graphic user interfaces which generally work well, though there are some non-standard implementations that take some getting used to. (Admittedly the concept of "Linux standards" is an oxymoron.) But gschem and pcb were powerful and seldom crashed. The gnetlist program is a command line tool which produces net

(connection) lists in many formats, and also does design-rule checking.

I first did the circuit design in gschem, converted it to a list using gnetlist, and laid out the board using pcb. There is an automatic router in pcb which works passably well; it was able to make all but ten of about four hundred connections on a two-layer board. (The program supports up to 8 layers.) These last ten connections I did manually. I then spent a few hours cleaning up problems like over-long traces, lines that were separated only the minimum distance despite ample free space, and power traces that needed to be widened. Had I been more experienced in computer-based circuit design it would have been a much quicker process, but I eventually got it done. Best of all, the pcb program has support for exporting layout files in the “gerber” file formats widely used by board manufactures.

Like many open-source efforts, the best thing was its community support. I joined their mailing list (geda-user@morja.seul.org).

Despite its shortcomings, I think that the gEDA project is among the ten best open-source products I've encountered. I strongly encourage those of you who are Linux and Mac users to check it out, if you have any need for circuit design or board layout capabilities. It's not the most user-friendly, but it's powerful and the price is right.

I hope to see everyone at the PACN meeting this week, where David Everett (son of long-time PACN member Paul Everett) son will speak about accounting practices for small businesses. By the way, author Alan Korwin, who will be speaking

at our January meeting, was a guest on the Charles Goyette radio show (6-9 AM weekdays on 1100 kHz.) They spoke about Korwin's extensive knowledge of gun-related topics. It was a fascinating discussion and I wish it could have lasted at least an hour longer than it did.

Vaughn Treude

EDITOR'S MESSAGE

by Clark Jones

I'm glad that Vaughn has told us about an open-source CAD solution for designing printed circuit boards. Once in a while, maybe every two or three years, I run into a project (often, though not always, ham radio related) that could benefit from something like this. But at on the order of \$1000, I'm not about to spring for the software, just to design a board that I only need one or two of, and which I expect to cost less than \$100, half of which is making the PCBs.

Since last month's issue of *The Advisor*, there has been an announcement that several (fifteen, as I recall) planets have been discovered by the Hubble Space Telescope. I haven't had time to research it on the net, but what was said on TV suggests that they were discovered due to occultation events, that is, that the planet passed directly between its star and the earth, dropping the brightness slightly. This is very encouraging for the Kepler project, which will put a spacecraft in solar orbit to specifically look for occultation events, looking simultaneously at thousands of stars, and being capable of detecting planets the size of the earth around stars similar to

our sun. In my (not always so) humble opinion, I think that the Kepler mission could prove to be historically the most important mission of the early 21st century.

I probably won't make it to the November meeting, however, if I can get Vaughn to

get me a "President's Message" by Oct. 30, I should be able to get *The Advisor* out for November.

See you all Thursday!

Clark Jones

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IEEE Phoenix Area Consultants Network October Meeting: Financial Reporting for Small Businesses

Date: Thursday, October 12, 2006

Time: Networking begins at 6:30 pm

Dinner begins at 7:00 pm

Program starts at 8:00 pm

Place: Denny's Restaurant

3315 N. Scottsdale Rd. (at Osborn)

Scottsdale, Arizona 85251

Abstract: David Everett will discuss the basics of financial reporting and analysis. Topics will include the difference between cash basis accounting and accrual accounting, the anatomy of the income statement and balance sheet and some practical approaches for small businesses to implement a useful financial reporting system.

David P. Everett, CPA, MBA has over ten year' s experience in the audit, financial services, retail, manufacturing and media industries and is currently the Corporate Controller at Village Voice Media, the largest publisher of alternative newsweeklies in the nation.

For more information, contact Vaughn Treude, vaughn@nakota-software.com, or see the IEEE PACN website, ieeepacn.com.

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