

On June 30, 1990, we held a formal CBMART conference with Kent Sullivan (71350,3376) of Dr. Evil Laboratories.

Dr. Evil manufactures the SID Symphony Stereo Cartridge, which adds a SID chip to your 64 or 128, giving your computer six voices instead of three. Stereo Sidplayer and SID Editor programs are available.

Dr. Evil also manufactures the SwiftLink-232 RS-232 interface, which supports baud rates up to 38,400 bps. (You supply your own modem, however.)

The conference started at 6:00 PM Pacific (9 PM Eastern) and ended about an hour and a half later. The following people attended the CO:

User	User ID	Nod	Area	Name
1w	76703,4032	WER	Rm 18	Sysop/Ed Flinn
2w	76703,4037	SEC	Rm 18	Sysop/Betty
3	71350,3376	SEC	Rm 18	Dr. Evil
4w	76703,4244	DTW	Rm 18	Sysop Steve
5w	76703,3051	SEA	Rm 18	Sysop/ToddH
6	76703,3050	TTO	Rm 18	Gary Farmaner
7	76166,762	CGU	Rm 18	Esther Olson
10	76703,4243	TTC	Rm 18	Malcolm

Sysop Steve: Welcome, all, to this conference with Kent Sullivan of Dr. Evil Labs -- the place which gives you the Stereo SID Chip plug-in module (neat). Before we get rolling, are there any questions how the formal COs unfold? Speak up now if so!

Sysop Steve: Otaay, I have a question or two to get the show on the road. Kent, thanks for being able to visit with us. Is your plug-in Stereo SID chip the only one on the market or is there competition out there?

Dr. Evil: Well, there was another cartridge for a time (they advertised in RUN in 1988), but I don't think they're around any longer. Their product was home-made and not engineered properly. Many people add a SID chip inside their CPUs, though I don't know how many.

Sysop Steve: Yes I know there are schematics in one of our data libraries outlining how to add a second SID chip. I imagine, though, that most people would rather plug in a cartridge (myself included). So your motivation was to fill a need in the Commodore 8-bit community?

Sysop/Ed Flinn: ?

Dr. Evil: Our motivation was to give me a second SID without soldering another chip in! :-)

Sysop Steve: Gotcha! Ed, a question? <ga>

Dr. Evil: Seriously, that's how it started one summer...

Sysop/Ed Flinn: As I understand it, some of the info on rolling your own stereo is likely outdated now, since the great C64 chip rationalization. I think an awful lot of chips have been combined. <ga>

Dr. Evil: Well, they changed the chip from the 6581 to the 6582 in the newest C-64s (64cs). As for the connections, I'm not sure.

Sysop Steve: Which chip does your cartridge utilize?

Dr. Evil: 6582 -- 9 volt model.

Sysop Steve: Ok. Ed, follow up?

Sysop/Ed Flinn: Not followup, new question, though. Does the Dr. Evil cart work with all 64's? I know there are some unusual things about some of the early ones. <ga>

Dr. Evil: Yes. All 64s and 128s. There are no internal connections.

Sysop Steve: I have an early 64 with the original ROM.

Dr. Evil: Early 64s had video problems -- nothing audio.

Sysop Steve: The cartridge worked/works great in it. I'm struck by the utter simplicity of installation. You hear talk of adding an extra chip and all but it's just plug in the cartridge and away ya go! The most difficult part was stringing the audio wire across the living room!

Dr. Evil: :-) The cart is of course portable -- take it to a friend's house!

Esther Olson: Just to tell you that I'm new at this but I had to buy a stereo!

Sysop/Ed Flinn: ?

Sysop Steve: Right! You bought a stereo? I was thinking that perhaps a low cost alternative might be to go the library, get an electronics project book, and build two small watt amps for the 'puter room with Shack parts! Ed?? <ga>

Sysop/Ed Flinn: I'm very attached <g> to my 1750 REU, any hints on using Aprospand or whatnot to avoid having to plug/unplug all the time? <ga>

Dr. Evil: Ok. First, Steve: Radio Shack sells a nice small amp perfect for this sort of thing. Second, Ed: I don't have any trouble using the two together as is. They live at different locations in memory. Right now I am using the SwiftLink and the REU.

Sysop Steve: Esther, did you want to "amplify" (sorry!) on your comment?

Esther Olson: Not for now, except I love my SID stereo cartridge.

Sysop/ToddH: ?

Sysop Steve: Ok, I'm sure Kent's glad to hear that! Todd, ga!

Sysop/ToddH: Kent: So far we've been talking mostly about hardware. What I wanted to ask is this. Are many people writing stereo songs? And is there a source for stereo songs? I mean, might you sell a disk or something? <ga>

Dr. Evil: Ok. We distribute a disk with the latest StereoPlayer plus 39 songs for \$1.00. We can't include it in the cart price because...

Esther Olson: I am using a program called Stereo Editor -- gives you all six voices on the screen at once.

Dr. Evil: ...of possible legal problems from Compute!. And then there is the Stereo Editor that Esther mentioned. You need to own Compute!'s Music System to use it though (depends on a file). <ga>

Sysop Steve: Follow up, Todd?

Sysop/Betty: !

Sysop/ToddH: Sure. I don't know if you knew, but COMPUTE! was just bought by OMNI magazine. I wonder if OMNI might release some programs into the public domain. It might be worth checking on. <ga>

Esther Olson: Kent: Do you know how to go from one voice to the next while in the parameter mode? Without going back to the edit screen?

Dr. Evil: That's interesting. Yes, I had heard. I'm not sure whether to be more or less afraid of Guccione's mob or ABC'S horde of lawyers! :- ) Also, many more people are making their own stereo songs now that Stereo Editor exists. <ga>

Sysop Steve: Esther, please repeat your question. Then Betty will have a question.

Esther Olson: Using SID editor you switch to the parameter setting screen to set different values but I find I have to switch each time back to the editor screen to scroll to another setting.

Sysop Steve: What is the question concerning that?

Dr. Evil: I'm not very expert with Stereo Editor, I'm afraid! I haven't had much time to create songs.

Esther Olson: Can you scroll to another?

Sysop Steve: I can't answer that since I've never used the Stereo Editor. I just use Craig's original. Can you answer that, Kent?

Sysop/Ed Flinn: ?

Dr. Evil: Well, I would try the cursor keys or pressing a number (1-6).

Sysop Steve: Do you have a follow up, Esther?

Esther Olson: Yep, we tried that. I think I'll write to the fellow that did the editor -- but until you try it -- you don't know what you're missing.

Sysop Steve: I have downloaded it, Esther, but I haven't tried it yet. Perhaps I will...

Dr. Evil: Esther, I'll ask him for you. He's on Q-Link.

Sysop/ToddH: OOOOOH! He said the Q word!

Sysop Steve: ...soon! Ed, you're up! <ga> <<GASP!!>>

Sysop/Ed Flinn: Some months ago we had an IBM PC user here who was interested in trying to adapt a SID chip to his machine. I wonder if you've given any thought to that sort of thing, making SID cards for the less fortunate <grin>? <ga>

Dr. Evil: Someone already has, I'm told. Don't have any details, though. We can't really do PC or Mac products -- conflict of interest (I work for Microsoft).

Sysop/ToddH: ?

Sysop/Ed Flinn: Ah, OK.

Sysop Steve: Let's give it to Todd.

Sysop/ToddH: Kent, I know you've been working on something else -- an article for RUN Magazine. Can you say anything about that?

Dr. Evil: Sure. A friend (Chris Newman) brought over most of the sound/music commands from BASIC 7.0 to BASIC 2.0-- PLAY, ENVELOPE, VOL, TEMPO, FILTER. Didn't do SOUND, though. Should make music creation easier for C-64 folk. And of course, this wedge supports 6 voices optionally! It's called SID BASIC. Should appear in the October issue.

Sysop Steve: Proving once again that the 64 is one versatile machine!

Sysop/ToddH: So now there are two ways to write for the Stereo cartridge.

Dr. Evil: Right. Sidplayer gives you more control but SID BASIC will be fine for many applications, especially BASIC programs you might write.

Sysop Steve: More questions?

Sysop/Ed Flinn: ?

Sysop Steve: Ed?

Sysop/ToddH: ?

Sysop/Ed Flinn: Just a meandering thought -- I use DIGIPLAYER, the program that converts various "other" machine-digitized sound files to a format we can use. I've noticed that there are a lot of Amiga sound files described as stereo. Hope the DIGIPLAYER author buys a Dr. Evil cart! <grin> <ga>

Sysop Steve: Comments, Kent?

Dr. Evil: Well, Mark Dickenson is the author of StereoPlayer and Digiplayer and he is also the person who created the stereo SID concept and published the schematics. He has an Amiga now, obviously! :-)

Sysop/Ed Flinn: Hehehe, guess I'm behind the times!

Sysop Steve: I believe Todd's up. <ga>

Sysop/ToddH: Kent, there are a lot of 64 owners who program in BASIC and ML. If somebody buys the stereo cart, can they write their own programs? What are the technical details?

Esther Olson: Kent: Where can I find Digiplayer -- we found Stereo Editor on shareware.

Sysop/Ed Flinn: Esther, DIGIPLAYER is in our LIB 4, DIGPLY.BIN.

Dr. Evil: The SID chip in our cart behaves exactly like the internal one except that the base address is \$DE00 (by default: it can also be changed to \$DF00 to be more compatible with MIDI carts). The 6582 in the cart has a re-designed filter that is better -- but if you have programmed "around" problems in the 6581 you will want to check the sound on the 6582. <ga>

Sysop Steve: So the 6582 has the bugs removed? Is there a difference in the outputted (is that a word?) sound?

Dr. Evil: There is when the filter is on. Bill Smurthwaite, the engineer on the redesign, told me that the "linear response has been improved". I sort of understand what he means! <ga>

Gary Farmaner: ?

Sysop Steve: Well, the stereo reproduced very well through my system.

Dr. Evil: Oh, the 6582 should be much more consistent across different chips.

Sysop Steve: I was really impressed with it. That's good to hear. Gary? <ga>

Gary Farmaner: What are the problems with the filters on the 6581?

Dr. Evil: There are many and they are varied! :-) If I remember right,

very early on CBM used a filter capacitor value that was incorrect, which caused the filter to be barely audible. Later, the problems were mainly due to wide variances in the chips (tolerance was poor). <ga>

Sysop/ToddH: !

Sysop Steve: That was the main reason Craig wrote in a filter toggle in the Enhanced SID player, the F key. My SID chip goes inaudible in the channel which has the filter engaged! Follow up, Gary? If not, we go to Todd.

Gary Farmaner: After Todd's comment.

Sysop/ToddH: I just wanted to say that when I worked at COMPUTE!, the hardware guy (who tended to sick 64s) told me that SID chips had wildly varying quality, especially in the early ones -- probably because CBM was ordering small quantities and therefore allowed greater tolerance from the ideal. The SID chip also pops when you change some of the parameters. <ga>

Dr. Evil: Well, there is a great article on the chips in the C-64 (IEEE a few years back) and it seems to me that they had all kinds of trouble with the early chips because they were more complicated (denser) than what MOS had tried to produce previously. For example, the first VICs were in a ceramic package, I think because of noise and heat problems. <ga>

Sysop Steve: Now perhaps I should know this, but I'm afraid I don't. We've moved from a 6581 to a 6582, which you use in the stereo cart. Is this redesign Commodore's, or Dr. Evil's under a license? <ga>

Dr. Evil: CBM did it to make C-64 production cheaper -- they could eliminate the 12V part of the motherboard (6581 used 12 V).

Sysop Steve: Ok, thanks for the info. Any ?? out there?

Sysop/Ed Flinn: ?

Sysop Steve: Ed? <ga>

Dr. Evil: The C-128D uses an "8580".

Sysop/Ed Flinn: OK. Question on the SwiftLink now. Any downloading I do for CP/M is in native mode. At 2400 With SwiftLink, I could, with an appropriate pgm, download in CP/M at 2400? And, any plans for an IMP overlay? ZMP doesn't do much for me <grin>.

Dr. Evil: Sure! I have been doing it with no trouble. Q-Term is the only CP/M terminal that is working with SL. So far I haven't been able to find the authors of IMP or MEX.

Sysop/Ed Flinn: (Q-Term! I knew it was one I didn't use.) <grin> Irv Hoff, sysop on CPMSIG here on CIS, is the IMP author.

Dr. Evil: Q-Term can do 4800 bps pretty well -- file transfers are flawless but screen I/O is a problem. Fortunately, we are in contact with Miklos Garamszeghy, the C-128 CP/M guru, and he is looking into the problem. <ga>

Sysop/ToddH: !

Sysop Steve: I take it that IMP and ZMP are CP/M terminals? I know MEX is so I'm extrapolating.

Dr. Evil: Right.

Sysop Steve: O-tay! Follow up, Ed?

Sysop/Ed Flinn: Nope.

Sysop Steve: All right, Todd? <ga>

Sysop/ToddH: I just thought somebody should say what SwiftLink is. People reading the transcript might not know. <ga>

Sysop Steve: Point taken. Kent?

Dr. Evil: SwiftLink-232 is a high-speed serial cartridge for the C-64 and C-128 (native and CP/M) modes and allows faster and better serial (modem, printer) communications than before. Max is 38,400 in C-64/128 modes. Don't know about CP/M, but 9600 should be achievable with Miklos on the problem. We are shipping the first units very soon...

Esther Olson: !

Dr. Evil: ...just waiting on our C-64 software authors to finish up.

Sysop Steve: Ok, Esther is up. Go ahead.

Esther Olson: Kent: don't forget to explain that DR EVIL -- ha ha.

Sysop/Betty: Esther you beat me to it <smile>.

Sysop/Ed Flinn: ?

Dr. Evil: Well, it doesn't have as much impact since you don't know the real owner of the name, but basically it was the nickname of one of the partners in the company. He got it in high school from shenanigans in Chemistry class and also because he played a lot of the game called "Assassin" (guns with rubber darts). I figured we had to have a name no one would forget because we would never have enough \$\$ to advertise commercially! It worked! :-)

Sysop/Betty: Terrific!

Sysop Steve: Which leads right into a quickie question of mine (then to Ed!). So business it good, eh? How many Stereo cartridges would you say you have sold, and is Swiftlink selling well? <ga>

Dr. Evil: Ah er umm, numbers are confidential, I'm afraid. But let me say we continue to be surprised at how many we sell. SwiftLink-232 is off to a faster start than I imagined also.

Sysop/Ed Flinn: Just idle curiosity, does SwiftLink use a true UART chip, or something else? <ga>

Dr. Evil: It uses the chip CBM left out of the 64/128 (but put in the Plus/4 -- figure that one out!): the 6551. Same chip set (6510, 6581, 6526, etc).

Sysop/Ed Flinn: Ah, I heard Fred Bowen had built himself units using that. <grin>

Sysop/Betty: ?

?Sysop Steve: Betty, ga.

Sysop/Betty: I have an RS232 cable and a REU1750 in my C128. Where do I put the SID and SwiftLink cartridges?

Dr. Evil: Yes, Fred has prototypes. CBM actually intended to market a cart like ours -- that's why the first CP/M release did not support the user port -- it had code for the 6551.

Sysop/Ed Flinn: Interesting.

Sysop Steve: Good question, Betty.

Dr. Evil: Betty: you would need a cart expander board like the Aprospand. Briwall and SSI carry them.

Sysop Steve: Todd, you're on.

Sysop/Betty: But would I need two of those -- you can tell I don't the slots for each <smile>?

Sysop/ToddH: Kent: Want to say something about the differences between the old and the new stereo SID carts? And do you have an upgrade policy?

Sysop Steve: Kent, please respond to Betty, then move to Todd's.

Dr. Evil: Betty: the Aprospand has four slots. You shouldn't use more than two of them in any case -- too much load on the computer. About two devices are all you can have on at once (each slot has a power switch).  
Todd: the original SID cart was battery-powered because we...

Sysop/Betty: OK, thanks.

Sysop Steve: Ok, Betty?

Sysop/Ed Flinn: (Betty, with SwiftLink in, the old RS-232 interface wouldn't be needed.)

Dr. Evil: ...didn't know how to synthesize the necessary 9 volts (the only power provided on the cart port is 5 volts) but we figured it out after some time experimenting. The new cart is the same price -- and you don't have to spend any money on batteries! Also, we added some static-protection circuitry to help protect the VERY sensitive SID chip. <ga>

Sysop Steve: Follow up, Todd?

Sysop/ToddH: Is there an upgrade policy for owners of the old cart?

Dr. Evil: Not at this time, since the circuit board is completely different, but we are considering making a "batteryless" piggyback board -- it would remove the battery but not add the static protection. So far response has not merited this move, however. <ga>

Sysop/ToddH: One more. At some point, you should give us an address for ordering the SID cart or the SwiftLink. <ga>

Sysop Steve: True enough.

Sysop/ToddH: Betty, can we mention prices?

Dr. Evil: Ok. Well, there are several "ifs"/"ands" to ordering each product the best thing to do actually is send mail to this account and we'll send you complete info. <ga>

Sysop/Ed Flinn: For those reading the transcript, that ID is 71350,3376.

Sysop Steve: However, we'd like the address and/or phone number, if practical, for purposes of the transcript (editor's note!).

Sysop/Betty: Good point.

Dr. Evil: Ok. For folks reading this transcript, please note that the info we would send you online is identical to that obtained by writing and PLEASE don't send money without checking the price first!! :-)

Address:

Dr. Evil Laboratories  
P.O. Box 3432  
Redmond, WA 98073-3432

Sysop Steve: I believe we should mention the prices for both products. This has been done for other products. <ga>

Sysop/Betty: Kent, yes, please do.

Dr. Evil: Steve, you ARE determined, aren't you! The prices aren't simple but you asked for it! :-)

Stereo SID cart: \$34.95 plus \$1.00 for optional music disk  
UNLESS you live in WA: then add 8.1% tax to the cart ONLY.

