

PROPHET64

SID MUSIC SOFTWARE

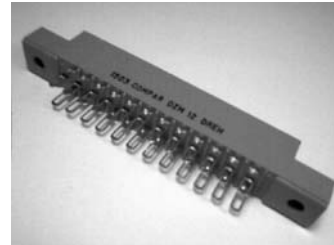
Peripherals
(Free Trial)

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s24-64 Interface

The s24-64 interface is required to synchronize the Prophet64 with a SYNC 24 clock. It is connected to the user port on the back of the C64 but even though SYNC 24 is using DIN-connectors (hence the alias "DIN-sync"), MIDI-cables cannot be connected directly to a SYNC24 device. They must first go through a MIDI to DIN-sync converter converting the MIDI-clock to an analog pulse.

Soldering the s24-64 interface is pretty straightforward. It's based on a 2x12 pin connector called **1503 Compar DZM 12 DREH** and is manufactured by Canadian company Compar Corporation.

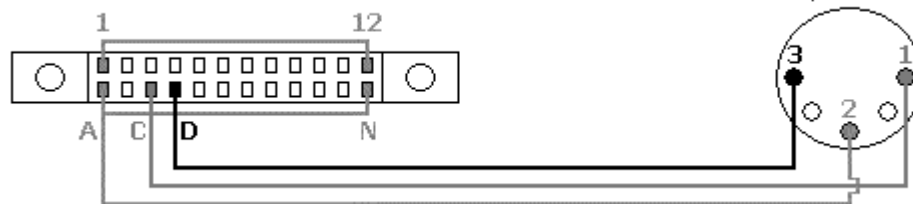


If not found at the local electronics supplier, any old C64 user port printer or modem cable connector will do fine.



Back of 1503 COMPAR DZM 12 DREH Connector

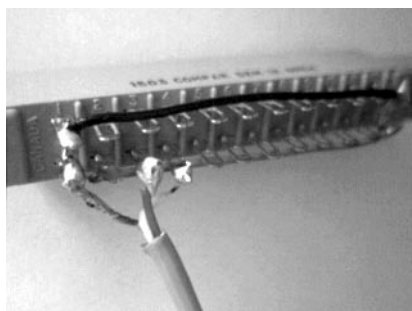
Back of 5 pin DIN connector



DZM 12 DREH	DIN
A	2
C	1
D	3
A,N,1,12	

Solder all these together (GND) - *optional*

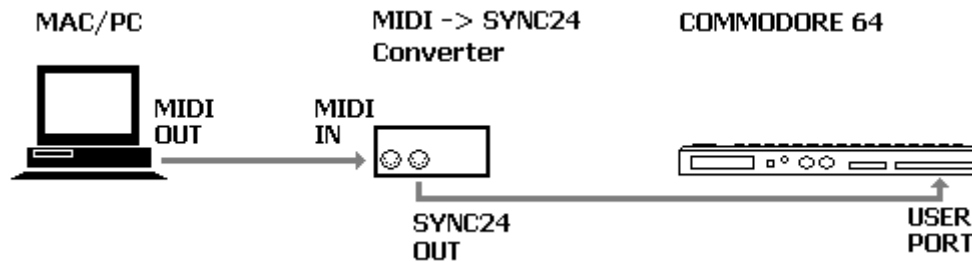
Note that the drawing shows back side of both connectors.



The connections must be tight, well connected and grounded or the Prophet64 might run out of sync. Sync problems are most often related to poor soldering of the s24-64 interface or wrong wire connections.

(Note that it's not necessary to connect all the ground connections A, N, 1 and 12.)

Hooking up the Prophet64 to DIN-sync



When connecting the s24-64 interface to the user port, make sure the C64 is turned off.
The DIN-plug from the s24-64 goes via a MIDI to SYNC24 converter in to the MIDI sequencer.

The image to the left shows a standard USB MIDI interface where MIDI OUT goes into a Kenton CV converter with SYNC 24 out that goes into the s24-64 interface in the C64's user port.

MIDI to DIN-Sync Converters

Doepfer MSY2
Kenton (built in SYNC 24 interface on some MIDI to CV-converters)
Korg KMS-30
Novation Bass-station, Drum-station
Nulogic MTS
Philip Rees MDS
Roland TR-707 / 727

The Prophet64 has been tested with TR-707, Korg KMS-30, Kenton devices and the Nulogic MTS. It should work fine with any apparatus that has got a SYNC 24 output.

Some machines that ran on the SYNC 24 standard were:
Roland CR-8000, Roland MC-202, Roland MC-4, Roland TB-303,
Roland TR-606, Roland TR-808
(and they are still running today...)

SYNC 24 swiftly disappeared from the market when MIDI was established as interface standard.

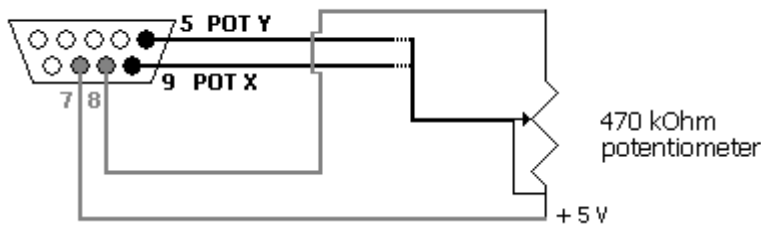
Potentiometer



If there are no old game paddles available, a potentiometer is pretty easy to build. It only takes a female DSUB connector (serial connector for PC) and a potentiometer.

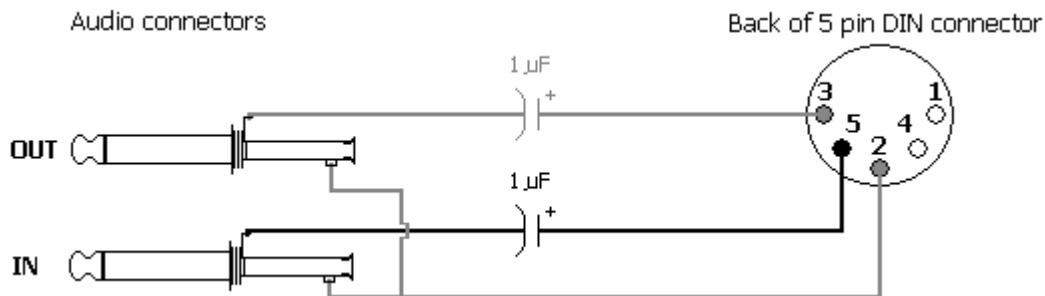
Pin 9 on the DSUB is pot X and pin 5 connects to pot Y. All potentiometers/game paddles on the C64 come in pair (X-Y). Prophet 64 only needs one, X or Y is selectable.

Back of 9 pin DSUB connector



Audio Cable

The C64 has a 5-pin DIN out at the back side. It is a combined audio and video output entitled "VIDEO". It is no longer a standard audio connector these days so a cable must be built to get any audio output to the mixer console.



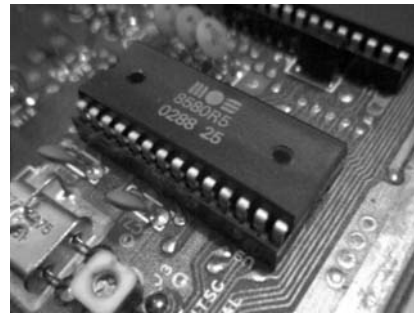
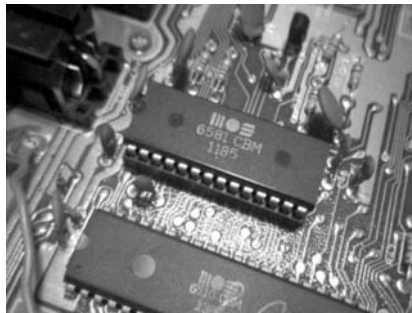
According to the designers of the SID, the capacitors are there to improve audio quality but it is unclear if they really make a difference. The C64's output is pretty noisy anyway so save a few cents and leave them out.

The IN-cable is not needed unless using the C64's filter EXT function.

SID Versions

The SID has five versions ("revisions") ranging from 6581R1 to 8580R5. They were all released at different times during the years in production, replacing the previous revision. To get the best sound out of the Prophet64 it is recommended to use the 6581R4 or 8580R5 that have the best filters. The filters of the first SIDs sounded down right crappy.

To find out the SID revision of the C64 in question, read what the chip is saying. Every SID has a printing saying 6581 or 8580 on it. The later SIDs also had the version printed out, like 6581R3, 6581R4 or 8580R5. No revision printed means 6581R2. Allegedly, R1 was never in production.



The images above show an early model 6581R2 on the left (note, there is no Rx printing!) and a late model 8580R5 on the right. Though all SIDs didn't come in sockets the ones on the images do, making it possible to switch the chips.

However, and this is really important: **8580s must never be replaced with 6581s or vice versa!!!**

Note:

The instructions on building cables and connecting devices in this booklet are to be followed and carried out at your own risk! 8bit ventures does not take responsibility for any malfunctioning devices or personal injuries caused by misuse of information, lack of necessary knowledge or any other unforeseen errors.

Do not attempt to build any of these peripherals if you are not sure of what you're doing!

Questions & Answers

-Where do I buy the user port connector?

The cheapest way is to use a connector from an old modem or printer cable.
If you don't have one of those, check out any stock supplier of electronic components.
Yes, they ARE actually still available these days!

-Do I just need to hook up the connector to the right pins on the DIN? Is that all? No signal level conversion of some kind?

No, it's all TTL levels, 5 volts.

-What exactly is SYNC 24 ("DIN-sync")?

The SYNC 24 was a pre-MIDI standard for synchronizing sequencers and drum machines in the early 1980s. It was invented by the Roland corp. and though some other manufacturers used it, most SYNC 24 compatible units were Roland-built (like the TB-303, TR606, TR808, MC-202 etc).

The input/output for SYNC 24 is a five pin DIN-connector that looks exactly like an average MIDI-connector (they are generally not compatible, though).

The master MIDI sequencer transmits a MIDI clock with the same frequency but cannot be plugged right into a SYNC 24 input. For this, there are dedicated MIDI to SYNC 24 converters.

-What is the difference between SYNC 24 and DIN-Sync?

None. It's the same thing.

-Where do I find a MIDI to SYNC 24 converter?

It's practically the same equipment people have used in the last 15 years to sync their 303s and 808s. Such converters aren't expensive. Some of the most widely used are listed in this document.

-What do I need to hook up my C64 to SYNC 24 besides the s24-64 interface?

A MIDI to SYNC 24 converter.

-Where do I connect the output of the SYNC 24 converter in the Commodore 64?

The output of the SYNC 24 converter should go into the home built s24-64 interface.

-Are there any particular DIN-cables I must use between SYNC 24 and the s24-64?

Yes, some MIDI-cables won't do because all of the pins aren't wired. Make sure pins 1, 3 and 5 are wired.

-I have all the stuff I need to synchronize the Prophet64 but it's dead! No sync!

First make sure the soldering is correct and that the pins are the right ones.
Secondly, make sure the MIDI-sequencer is transmitting MIDI-clock out. 96 pulses/beat!
Most of the software sequencers like Logic Pro etc, have settings for that.

-Is there a way to continue the Prophet64 after stopping?

No. SYNC 24 does have a way of handling continue signals but the Prophet64 ignores it (in fact, so does the TB-303).

-Help! My C64 triggers but is totally out of sync. The master sequencer is a couple of milliseconds ahead of it!

1. Restart
2. Check the s24-64 interface. Check all connections as well as ground connections.
3. Check the DIN-cables and all cable connections.
4. Check the sequencer and/or computer.

-Can I use the Prophet64 to DIN-sync other devices?

No. The Prophet64 Free Trial versions are slave devices only, not master units.
However, the applications featured on the Prophet64 Cartridge do have a sync out.

-Can I use a TR-808 to sync the Prophet64? It's got a sync out!

Yes, you can sync it to the TR-808. Such a setup does not sync to MIDI though.

-What potentiometer goes with the Prophet64?

Old game paddles for the C64 or any 470 kOhms potentiometer.

-How do I get an external audio signal through my C64 filter?

With an audio in-cable. Select VCF EXT in the Prophet64 Mono Synthesizer Free Trial.

-Do I really need capacitors for the audio cable?

No, lose them if you want to. You wont be able to tell any difference in sound quality with or without the caps.