

SUSIC Parts List (in order of recommended assembly)

Qty.	Symbol	Description
1	R1	10K Ω resistor [brown-black-orange]
4	R2-R5	330 Ω resistors [orange-orange-brown]
1	R6	1.0K Ω resistor [brown-black-red]
1	D1	1A, 200V diode (Jameco 76961 or Digi-Key 1N4002)
1	S1	40-pin DIP socket (Jameco 112310)
4	S2-S5	20-pin DIP sockets (Jameco 112248)
1	RN1	2.2K Ω SIP 7-element SIP resistor network (Digi-Key 770-81-R2.2K)
1	RN2	2.2K Ω SIP 5-element SIP resistor network (Digi-Key 770-61-R2.2K)
1	SW1	7-segment DIP switch (Digi-Key CT2067)
1	SW2	4-segment DIP switch (Digi-Key CT2064)
2	H4,H5	12-pin side entry connectors (Mouser 538-09-52-3121)
9	C0-C8	.1 μ F, 50V monolithic capacitors (JDR .1UF-MONO)
2	C9,C10	18pF, 100V monolithic ceramic disk capacitors (Digi-Key P4840)
2	C11,C12	2.2 μ F, 16V tantalum capacitors (Jameco 94001)
1	C13	10 μ F, 16V tantalum capacitor (Jameco 94060)
1	L1	Diffused green T1 $\frac{3}{4}$ size LED (Digi-Key P303)
1	L2	Diffused amber T1 $\frac{3}{4}$ size LED (Digi-Key P306)
1	L3	Diffused red T1 $\frac{3}{4}$ size LED (Digi-Key P300)
1	XL1	18.432MHz crystal (Digi-Key X179)
1	U1	Microcontroller PIC16F877-20/P with USIC programmed FLASH Memory (JLC U1A)
3	U2-U4	74LS244 octal buffer/drivers, non-inverting (Jameco 47183)
1	U5	74LS541 octal buffer/driver, non-inverting (Jameco 47870)

Used only for RS-485 and RS422

2	S6,S7	8-pin DIP sockets (Jameco 112192)
2	H1,H2	5-pin straight headers (cut from 24-pin straight header – Mouser 538-26-48-1241)
2	U6,U7	Dual RS485/RS422 transceivers (Digi-Key MAX487CPA)

Used only for RS-232C

1	S8	16-pin DIP socket (Jameco 112221)
5	C14,C18	1.0 μ F, 35V tantalum capacitors (Jameco 33662)
1	H3	3-pin straight header (cut from 24-pin straight header – Mouser 538-26-48-1241)
1	U8	Dual RS232 transmitter & receiver MAX232CPE (Jameco 24811)

Mating connectors for Super USIC cable to computer

1 or 2	—	One 3-pin terminal housing for RS232 or two 5-pin terminal housings for RS485/RS422 (cut from 12-pin straight header – Mouser 538-09-50-3121)
3 or 10	—	Crimp terminals (Mouser 538-08-50-0106 for wire sizes 18-20 or 538-08-50-0108 for wire sizes 22-26)

Author's recommendations for suppliers given in parentheses above with part numbers where applicable. Equivalent parts may be substituted. Resistors are $\frac{1}{4}W$, 5 percent and color codes are given in brackets.

General Information:

Assembly follows the same basic steps as used with the classic USIC card covered in the Second Edition Build Your Own Universal Computer Interface book and in the C/MRI User's Manual except that fewer parts are required and the parts legend is printed directly on the card making the assembly easier. If you have assembled a USIC card, assembling the SUSIC should be a snap. If you have never assembled a USIC card, I recommend you review the USIC card's instructions in one of the above cited references before assembling the SUSIC card.

Information notes on SUSIC card assembly:

1. Make sure that all the IC sockets and the ICs are installed with the correct pin 1 orientation. The pin 1 holes also have the square pad for easy identification.

2. Capacitors C11-C12 are polarity sensitivity. The longer lead marked with a + sign needs to be installed into the + hole. The + holes also have square pads for easy identification. These capacitors have a different capacitance value from the other polarity sensitive capacitors so make sure you are using the correct values before you solder and trim.
3. Capacitor C13 is polarity sensitivity. The longer lead marked with a + sign needs to be installed into the + hole. Make certain you have installed the correct value part before you solder and trim.
4. Capacitors C0-C10 are not polarity sensitivity nor is the crystal XL1. Simply insert, solder and trim. Note however that C9, C10 are different valued parts than C0-C8.
5. The straight headers specified as H1-H3 are made from 24-pin right angle headers. Simply cut and snap off the required sections from standard 24-pin headers to create the needed 3 and 5-pin headers.
6. When installing the straight headers, make sure you have the plastic part of the connector pushed firmly against the card before soldering. Solder only the center pin of each header. Then check to make sure that the complete plastic base is snugly pressed firmly against the card. If not, reheat the center connection to reseat the connector. Once you are certain that the total connector is firmly seated, then solder the remaining pins.
7. Install the 12-contact side entry connectors (H4, H5) by first hooking their nylon retaining fingers over the edge of the card, then feeding the metal contact pins through the card holes. Make sure all 12 pins of each connector pass through the hole. Hold the connector shell tightly against the card as you solder.
8. When installing DIP switches (SW1, SW2) use your VOM to make certain that the switch is installed so its contacts are closed when thrown away from the H4, H5 connectors. This position is absolutely critical to setting the correct USIC address and Baud rate.
9. The SIP resistor networks RN1, RN2 have a designated pin 1 orientation denoted by either a dot or a bar printed on the part. The designated pin 1 must be installed in the hole marked with a one as well as having the square pad.
10. The banded end of diode D1 must be installed with its band orientation as printed on the card.
11. LEDs L1- L3 must be installed with their + lead, the longer of the two leads, installed in the + hole. Check that you have the correct colored LED in the correct location before you solder and trim.
12. You need only install the parts for the RS422/RS485 or the RS232 dependent upon which interface you plan to use. To make your card compatible with both standards, you can install all the parts for both interfaces. However when using RS422/RS485 make sure that U6 and U7 are installed in their sockets and that U8 is not installed in its socket. Likewise, when using RS232 make sure that U8 is installed in its socket and that U6 and U7 are not installed in their sockets.
13. Capacitors C14, C18 are polarity sensitivity. The longer + leads need to be installed into their corresponding + hole. These capacitors are different values than C11, C12 and C13 so make certain that you have the correct values installed before you solder and trim.