



Description of the Functions
Version 1.21

[system-99 user-group](#)

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Application

Sound Utility is Auxiliary Software for the Memory Manager that allows the almost unrestricted working on the sound list in TI-Interrupt format.

For this, the sound data must be in the Editor Buffer of the Sound Utility in order for it to be transported to the sound chip in two different forms.

The interrupt treatment is identical to that which is used in most programs. This function is intended for the sound data to be tested in the normal mode.

The second mode is the so-called single step treatment in which the sound is played tone for tone and also can be played in sequential order. The beginning speed is within wide limits that can be freely selected. Furthermore, it is possible to reverse the sequence and play the sounds in reverse.

Data Format

The format of the data is given as follows:

The first byte is a count of the following sound bytes without consideration for the length byte.

The second through eleventh bytes are data bytes that are covered in the manual that came with the Editor/Assembler.

The last byte is the so-called duration byte that gives the information of how long the previous unaltered bytes will be heard.

The next measure follows without the recognition bytes of the previous measure. For orderly function, the end should be marked with >00.

Even better is the sequence >04, >9F, >BF, >DF, >00. That way, the four tone generators are turned off and the list is ended correctly.

For the Operation:

After the data is loaded into the Editor Buffer, the Start Address of the first byte is adjusted with 'S' (Start) and confirmed with ENTER.

Interrupt controlled Operating Sequence

For the interrupt-driven treatment of sound, one must enter 'I' and the melody or noise will start. In order to abort prematurely, it is enough to press the Space bar. In the case where, at the expiration of the list, it is no key input is possible one can also press the Space bar. The end of the list is not correctly recognized in this case.

Single Step Control

The slightly more versatile operational possibility, the treatment in single steps, is started by pressing 'E' (Einzelschritt). After which a display becomes active in the lower window and the tone is played until the 'E' key is pressed again or the Space bar is pressed. Pressing 'E' goes to the next tone in the list and the Space key allows further playing of the list whereby the information for the tone duration and the length bytes are inferred.

Speed Adjustment

The playing time can be adjusted in the Time Base with 'T' by altering the multiplier of the time loop. With the original system with a 12MHz crystal and 8-Bit memory expansion, the value at >0600 can be adjusted.

Lower Window

In the lower window you will see displayed the following information for each measure: The first value is the address that was played in the Editor Buffer. The next value is the number of the measure that you will hear in real time. It should be noted that this is not the absolute measure number but a relative one counting from the start address. Also in this display is one that is not the measure, that one can tell from the notation, but rather a sequential number so that one can find one's place in the source code listing more easily. The next two lines are the actual sound data. They are represented in the same way that they are to be found in the source code. In the last line, the number of valid sound bytes and the tone duration (Tondauer) are displayed.

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A property to make correction much easier, a backspace is inserted. Every time that you press the 'R' key, the program tries to initiate a backwards scan. This scan is implemented twice internally to make certain that an inadvertent backspace has been excluded. If the second run does not find a real Start Mark, the 'R' key is ignored and the old values in the buffer are left untouched. Because of this restriction, unfortunately, it is not possible to go to the beginning of the list but just to the second measure.

Automatic Sound Scan

An other possibility for scanning the buffer contents is through the use of the 'X' (= eXamine, explore, examine) key. Pressing this key begins a search of the buffer from the adjusted start address to the buffer end for data in the search for format. Since this forward scan is more sensitive than the backwards scan, it is performed 5 times internally until a value is found that can be safely assigned as a sound list. Thus it is not possible to find lists that are shorter than 5 measures.

As soon as scan is finished, the start address is adjusted to a new value. Then, you must press the 'E' key several more times to check the data that you have found. If no tone is heard or the screen briefly flickers and the values in the lower window are replaced with '____', then it is safe to assume that no valid sound data in the interrupt format was found.

Assumption of the Start Address

If one visually searches for the data, by eye, you can also place the cursor on the first byte of the list in the editor. Or, when you have chosen the Sound Editor (with CTRL-Z from the editor or 'S' from the main menus) you can use FCTN-6 to copy it as a start address.

Adjustment of the Start Address of the Last Played Byte

As soon as you abort or terminate a sequence one can register the last actual buffer address as the start address by pressing FCTN-S. This is very useful if one wants to start the scan again from the last address. The last actual value is in the system until the single step or forward scan was re-started.

Hotkey-Functions

Like the main program, in auxiliary software it is possible to jump to another program module through the main choice or through the so-called hot keys i.e., to jump from any screen to another. Here you only must press the CTRL key in connection with key assigned to the module.

The Sound Editor can always be reached by the Auxiliary Software concept of CTRL-Z

Quick -Reference

E.....Working in Single Step
R.....Backwards single step (only while in single step)
I.....Working in Interrupt-mode (Interrupt-Abarbeitung)
S.....Start address in Buffer
T.....Adjust Time loop
X.....Forward scan
#.....Version number and Version date
ENTER.....Abort Single step
Space.....Abort interrupt
(FCTN-S).....Last played or found address
(FCTN-6).....Set cursor position in buffer
(FCTN-7).....Help – display key commands
(FCTN-9).....Leave the Sound Editor

Reaching other program segments in Memory Manager with CTRL keys from the outside of the Main Menu.:

CTRL-E.....Editor
CTRL-T.....Transfer
CTRL-K.....Configuration
CTRL-D.....Printing
CTRL-I.....I/O Disk