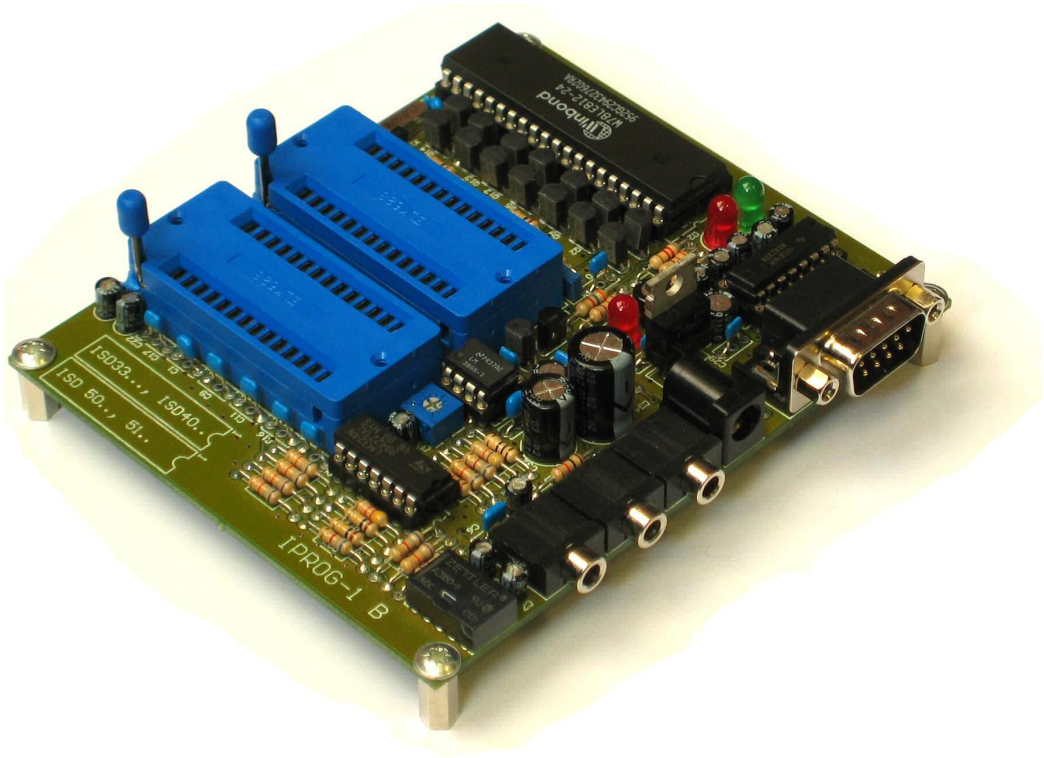
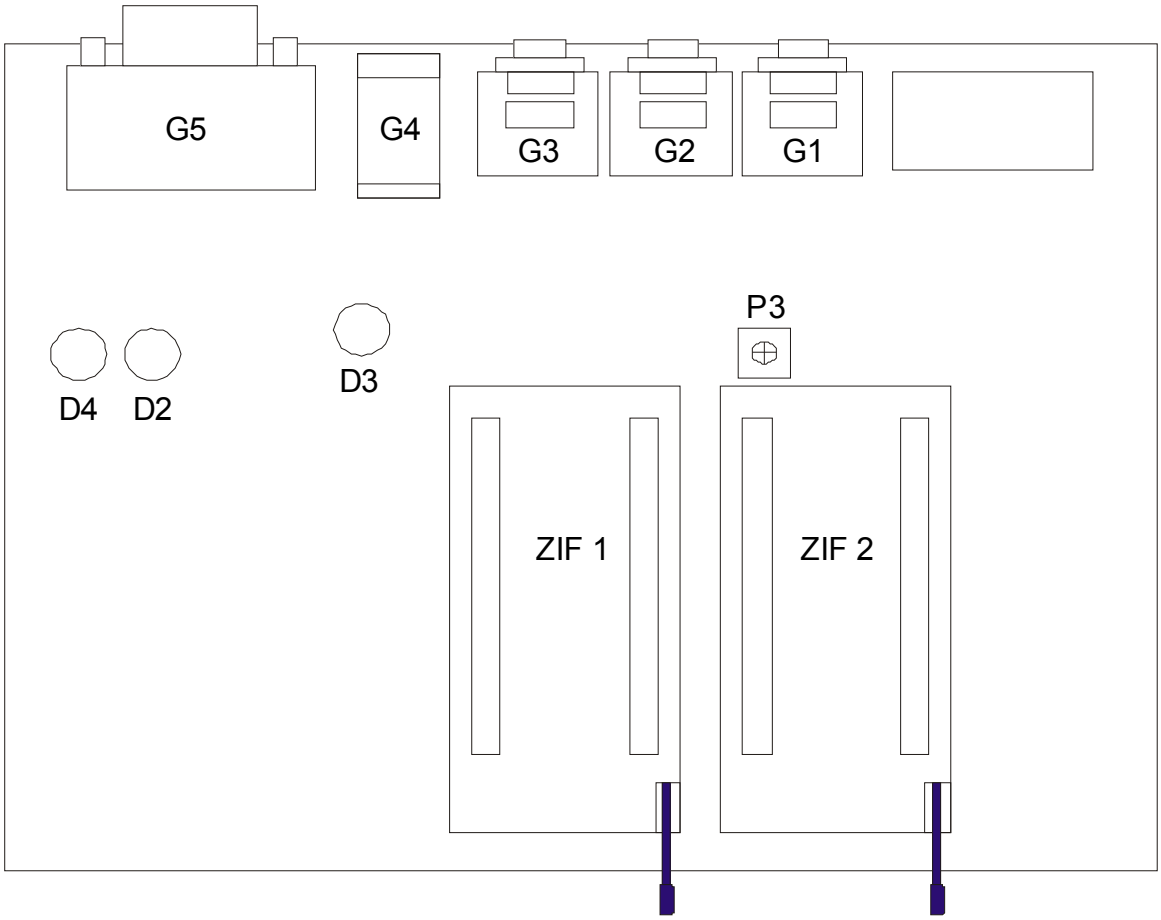
“IPROG-1”
ISD Programmer



1. Programmer board description



G1 - *LINE IN* input, used to receive signal from *LINE OUT* output of PC sound card, level 0 dB (0.775 V), 3 mm stereo jack,

G2 - *LINE OUT* output, to be connected with loudspeaker set input, level 0 dB (0.775 V), 3 mm stereo jack,

G3 - output of earphone mono amplifier, 1W / 8 Ω, 3 mm stereo jack, L and P channels short-circuited,

G4 - power supply jack; stabilized power pack, 9V / 250 mA shall be used,

G5 - RS-232 serial interface jack, used to communicate with PC software,

ZIF1 - series 33000 and 4000 device socket,

ZIF2 - 5008, 5116 device socket, ISD1700 with additional adapter “P1700 / IPROG-1”,

D3 - red LED which goes on when power supply voltage is applied,

D4 - green LED which goes on when ISD play function is on,

D2 - red LED which goes on when ISD recording function is on,

P3 - gain control for earphone amplifier (G3 jack).

2. PC software description

Software delivered with the programmer is continuously upgraded, new versions will be available at MARHTEL company (www.marthel.pl). All questions related to the programmer shall be submitted to the address: mlacina@marthel.pl.

Currently supported devices:
- ISD 33000 series (not manufactured),
- ISD4002, ISD4003, ISD4004 series,
- ISD5008, ISD5100 series,
- ISD1700 series (additional P1700 / IPROG-1 adapter is necessary, please see at www.marthel.pl).

2.1. System requirements

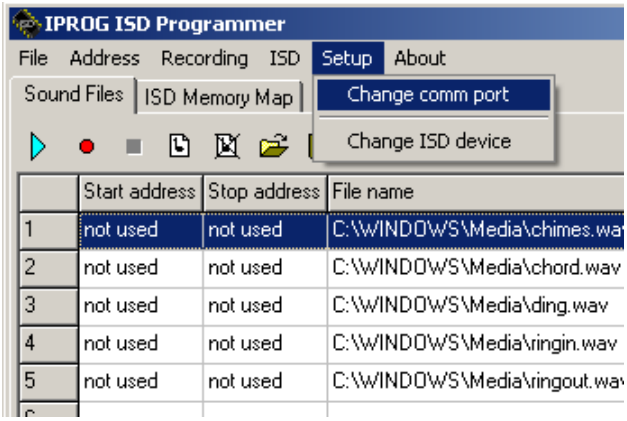
- Microsoft Windows,
- sound card with LINE OUT output,
- free serial port from the range COM1-COM4 or USB-COM adapter,
- PC loudspeaker set.

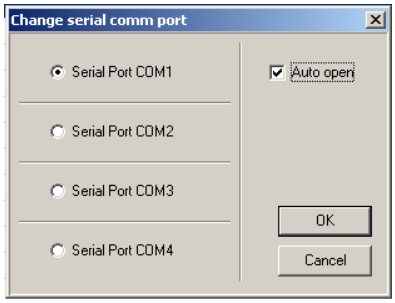
2.2. Getting started with the program

To start up the program, double-click the icon ***"ISDprog.exe".***

2.3. Serial port selection

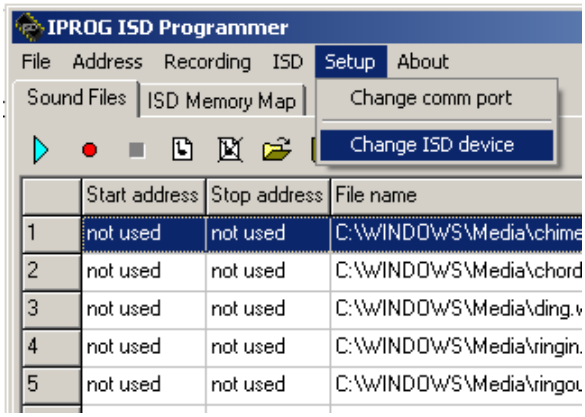
- select option ***"Setup"*** from program menu and then ***"Change comm port"***;
- select proper serial port in the dialog box displayed, and acknowledge with ***"OK"*** key;
- program will automatically open selected comm port by every restart if ***"Auto Open"*** check box was selected;

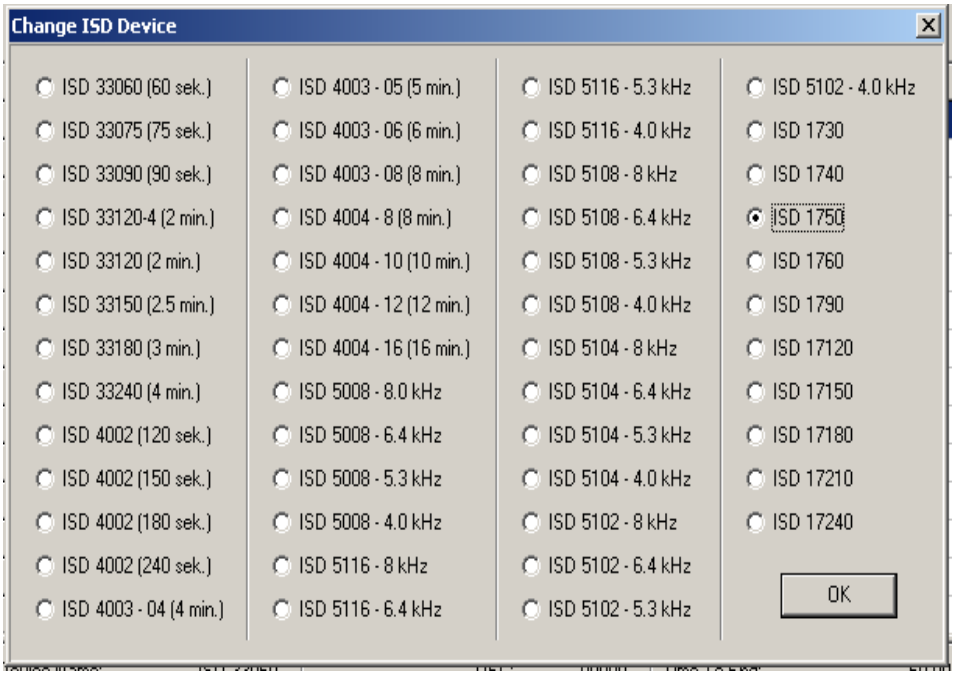




2.4. ISD device selection

- select option ***"Change ISD device"*** in the program menu ***"Setup"***;
- select proper ISD device in the dialog box displayed, and acknowledge with ***"OK"*** key.



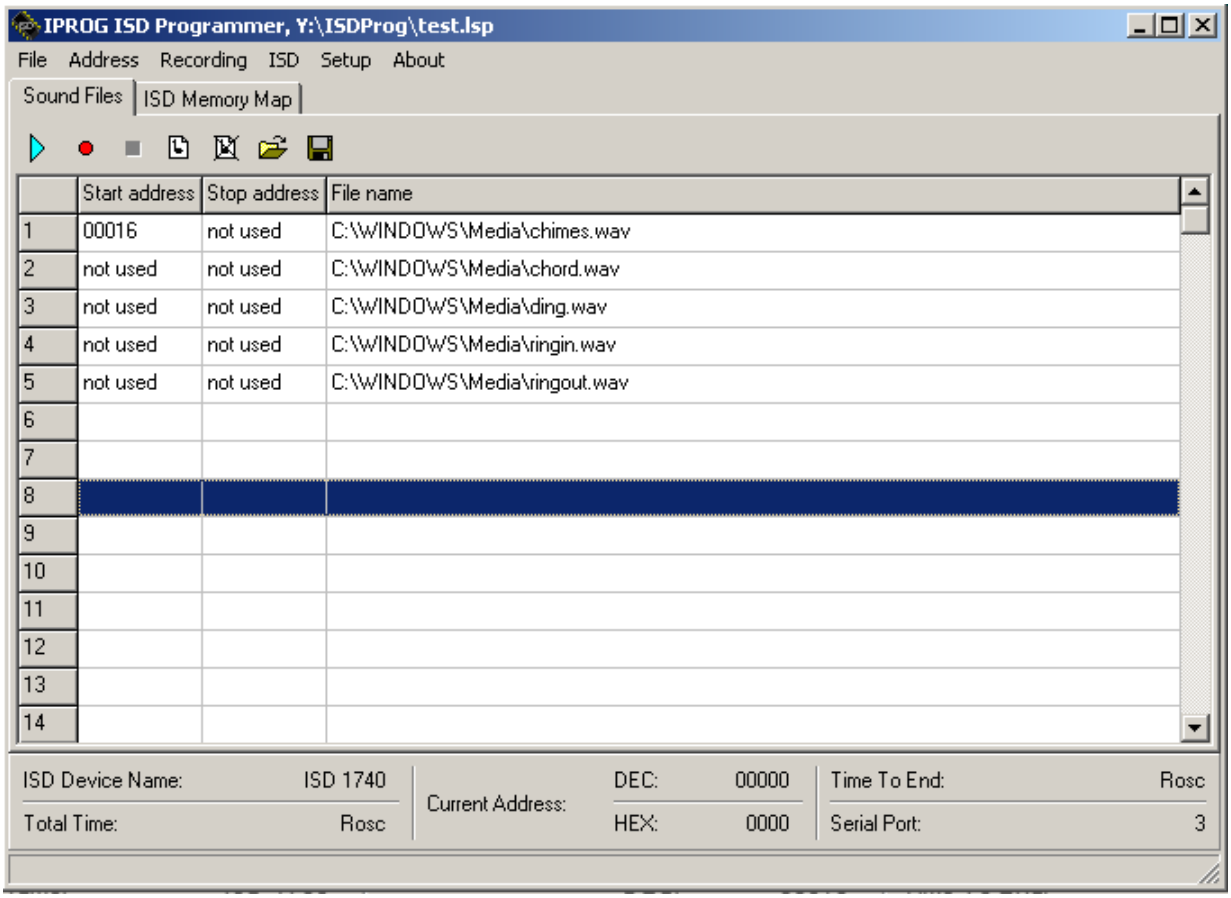


2.5. Sound file table

The bookmark ***"Sound files"*** visible directly below program menu includes the table with sound files. The table is divided into three columns:

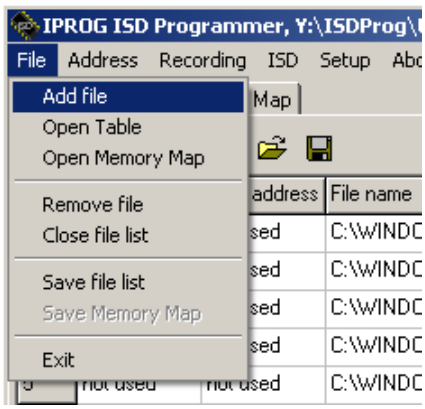
- ***"Start address"*** – default value: ***"not used".*** It holds decimal address of memory row of ISD device where the file is to be recorded from. The ***"not used"*** entry causes that the start address is ignored and record is made from the current ISD memory address. The current address is displayed in the status bar below the file table (**"*Current address"***).

- ***"Stop address"*** - default value: ***"not used".*** It holds decimal address of memory row of ISD device where to stop file recording. The ***"not used"*** entry causes that the final address is ignored and recording is finished at the end of sound file. If the sound file duration is smaller than the final address declared, recording shall terminated at the end of the sound file.
- ***"File Name"*** – it holds the name of sound file together with access path.



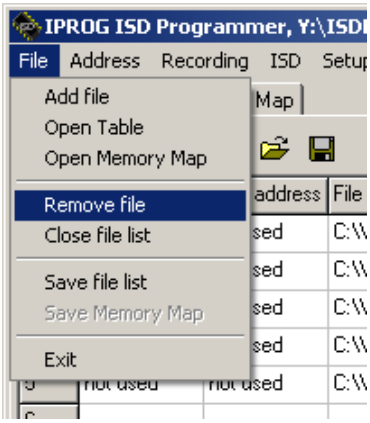
2.6. Adding sound files

- select option ***"Add file"*** from program menu ***"File"***;
- select the file in the dialog box and acknowledge with ***"OK"*** key.



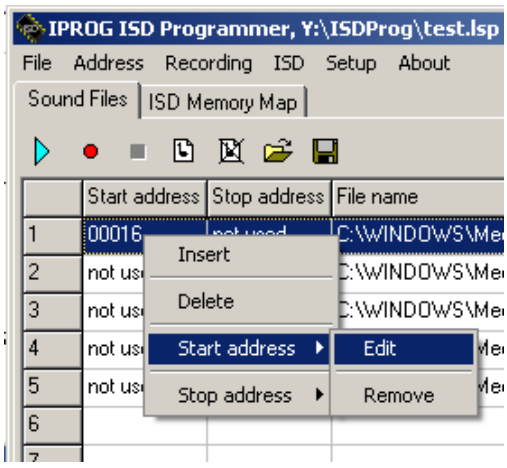
2.7. Removing sound files

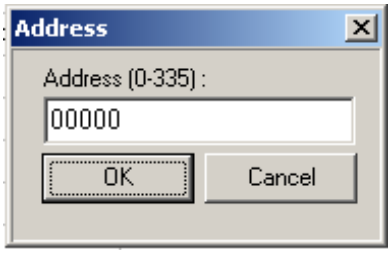
- mark out the file to be removed with left mouse button – the file is now highlighted;
- select option ***"Remove file"*** from program menu ***"File"*** – the file will be removed from the table.



2.8. Setting start address for the sound file

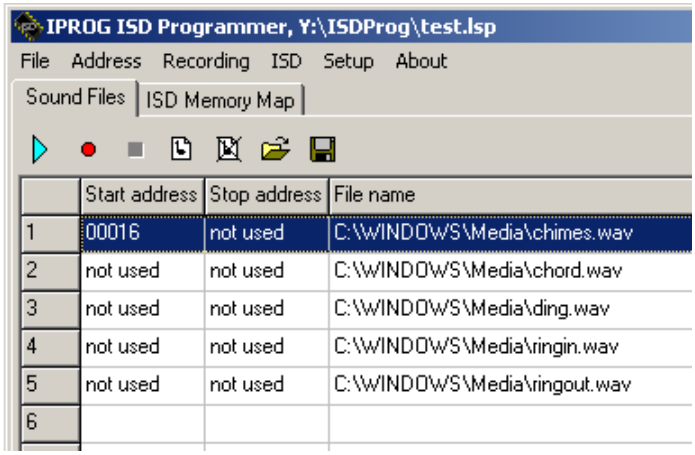
- mark out the file in file table with left mouse button – the file is now highlighted;
- click right mouse button on selected file, the context menu will be displayed (see below);
- select ***"Start address -> Edit"*** and write necessary start address at which the file should be recorded in ISD device;
- start address can be removed by selecting ***"Start address -> Remove"***;
- files without start address specified, are recorded at ***"Current address"*** displayed on the bottom of application main window;





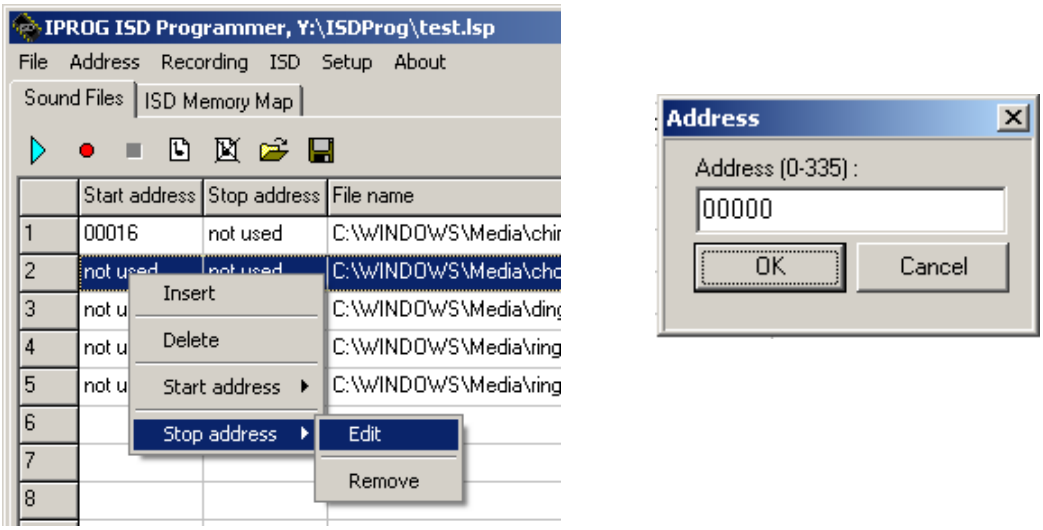
Example:

- file table of 5 sound files should be programmed to ISD17240 device starting from address 16 (default start address for ISD1700 series);
- first file from the list below have start address initialized to "0016" value;
- all the next files, don't have any start/stop address specified and are programmed one by one starting at the first free memory address after the previous recorded file;



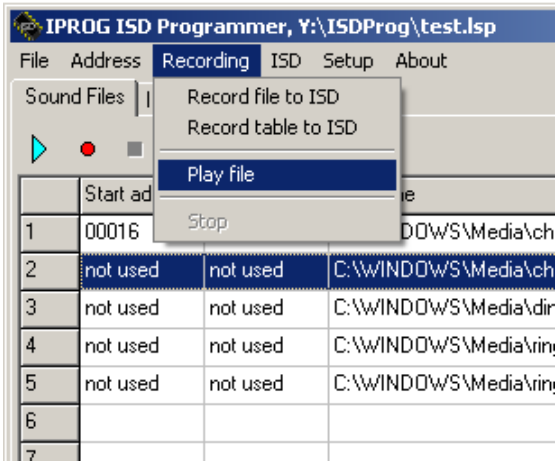
2.9. Setting stop address for the sound file

- mark out the file in file table with left mouse button – the file is now highlighted;
- click right mouse button on selected file, the context menu will be displayed (see below);
- select ***"Stop address -> Edit"*** and write necessary stop address at which the file recording should end;
- files without stop address specified are recorded to the end of its duration;
- files shorter than specified start/stop addresses are recorded to the end of its duration;
- stop address can be removed by selecting ***"Stop address -> Remove"***;



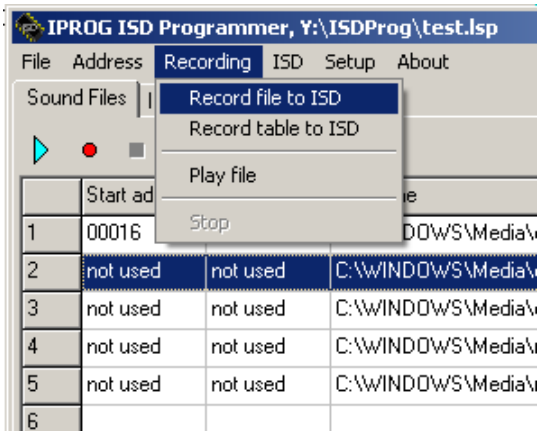
2.10. Playing sound files

- mark out the file in file table with left mouse button – the file is now highlighted;
- select option ***"Play file"*** from program menu ***"Recording"*** – the file will be played.
- in order to stop playing before file end, select option ***"Stop"*** from menu ***"Recording"***.



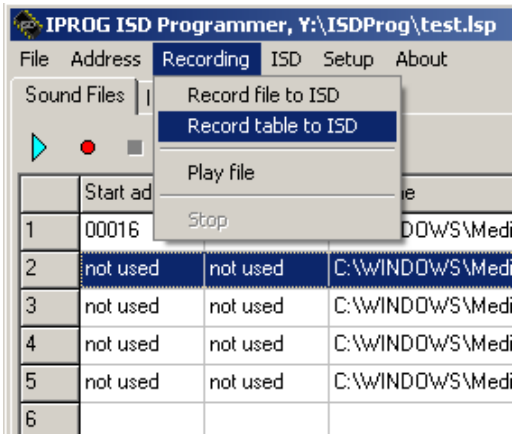
2.11. Recording sound files to ISD device

- mark out the file in file table with left mouse button – the file is now highlighted;
- select option ***"Record file to ISD"*** from menu ***"Recording"*** – if proper connection to programmer board is established, file is recorded to ISD device;
- in order to stop playing before file end, select option ***"Stop"*** from menu ***"Recording"***.



2.12. Recording the table (all files) to ISD device

- select option ***"Record table to ISD"*** from menu ***"Recording"*** – all files from the table will be successively recorded.



2.13. Remarks to programming ISD devices

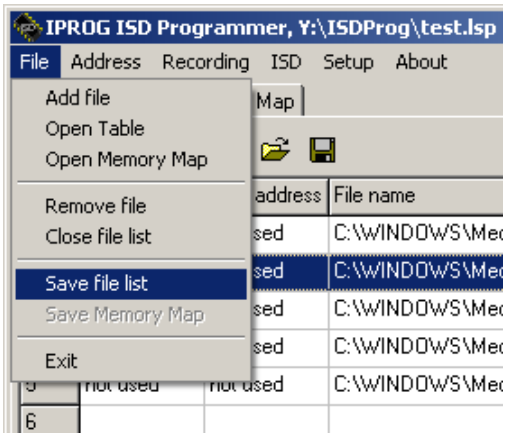
The ISD devices feature increasing of the noise level when recording is made at too low signal level. Prior recording, select proper signal level from PC sound board:

- double-click the speaker icon on the right-hand side of the Windows status bar – it opens Windows system mixer;
- adjust the maximum level of playing the sum (***"Volume control"***), *the level of sound file playing* (**"Wave"**) and the level of midi file playing (***"Synthetizer SW"***);
- for any file, make a trial recording to ISD memory;
- reproduce the file recorded – in case you can hear any overdrives (distortions, whirring), reduce the playing level for the sum or selected type of sound files;
- renew trial recording – repeat this actions until satisfactory signal quality from ISD device is attained;
- when the signal level from sound card is too low, you can increase its by means of relevant tool software for sound file processing.

The programmer records sound into a single sound channel, so sound files must be mono played from PC:
- double-click icon ***"Sounds and multimedia"*** in Windows control panel;
- select ***"Advanced"*** in bookmark ***"Audio"*** at area ***"Sound playing"***;
- select ***"Mono speaker"*** from the list ***"Speaker setting"***.

2.14. Storing the file table

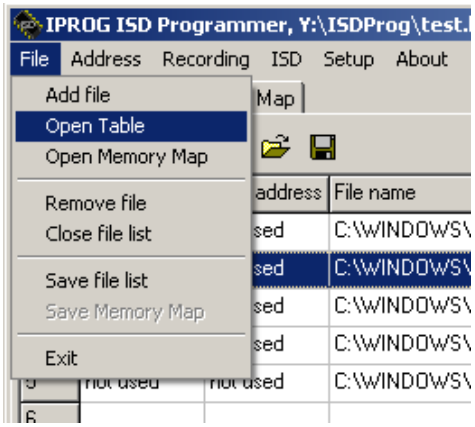
- select option ***"Save file list"*** from menu ***"File"***;
- specify the file name in the dialog box displayed; the extension ***"*.lsp"*** is added automatically;
- acknowledge with ***"Write"*** key. The table is loaded into text file.



2.15. Reading the table from a file

- select option ***"Open table"*** form menu ***"File"***;

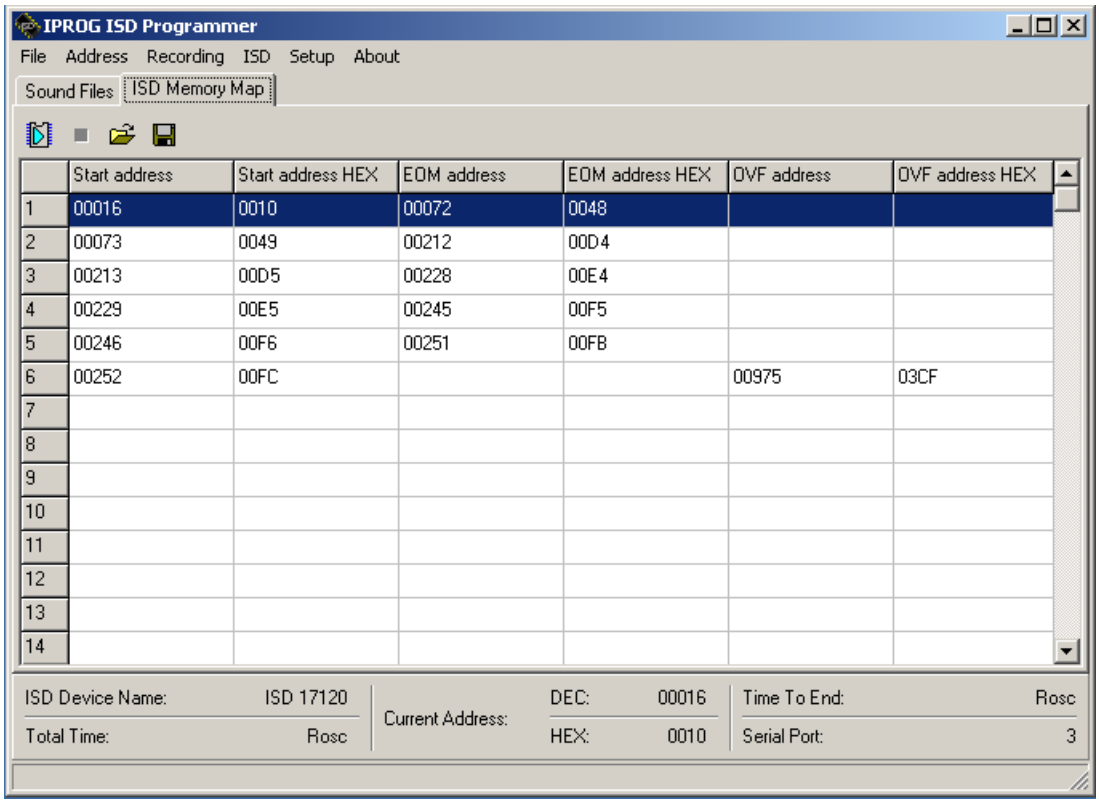
- specify the file name in dialog box displayed;
- acknowledge with ***"Open"*** key.



2.16. ISD Memory Map

The bookmark ***"ISD Memory Map"*** holds a table which stores scanned important addresses of ISD memory. The table is divided into six columns:

- ***"Start address"*** – starting address of scanning cycle;
- ***"Start address HEX"*** – the same but in hexadecimal code;
- ***"EOM address"*** – address at which EOM marker was detected;
- ***"EOM address HEX"*** - the same but in hexadecimal code;
- ***"OVF address"*** – address returned by ISD upon reaching the memory end;
- ***"OVF address HEX"*** - the same but in hexadecimal code.

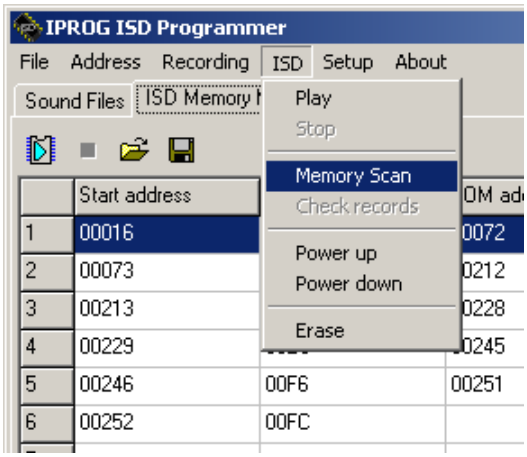


	Start address	Start address HEX	EOM address	EOM address HEX	OVF address	OVF address HEX
1	00016	0010	00072	0048		
2	00073	0049	00212	00D4		
3	00213	00D5	00228	00E4		
4	00229	00E5	00245	00F5		
5	00246	00F6	00251	00FB		
6	00252	00FC			00975	03CF
7						
8						
9						
10						
11						
12						
13						
14						

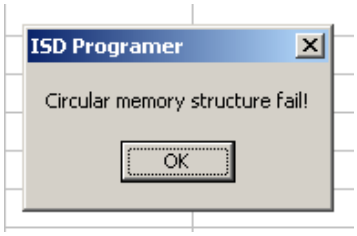
2.17. ISD memory scanning.

- select option *"**Memory scan**"* from menu *"**ISD**"*;
  The function scans ISD memory to search for EOM markers. Scanning begins with address *"**0000**"* (*"**0016"** for* ISD1700 series) and ends with ISD memory overflow. Each address containing EOM marker is putted into "***EOM Address***" column on *"**Memory map**"* table. Scanning is continued from the next address after each EOM marker. Scanning can be stopped with *"**Stop**"* function from *"**ISD**"* menu.

  NOTE: Empty ISD's which have not yet been written may include EOM in each memory line. This would cause the scanning time to last several minutes while EOM is met in each line. Please note that this is normal situation. While recording, unnecessary markers are overwritten.



ISD1700 series device can report ***"Circular memory structure fail"***. Please read ISD1700 device data sheet for more details.

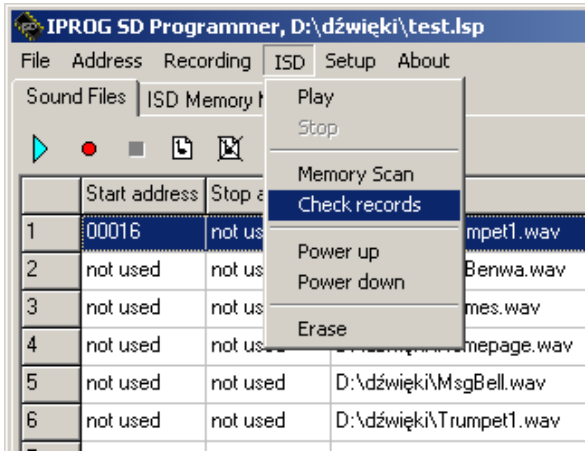


2.18. Records checking.

- select option ***"Check records"*** from menu ***"ISD"***;
- this function is correlating file table with EOM markers (or starting addresses for ISD17xxx) found in ISD memory;
- should be used after file table recording to verify records in ISD device memory;

The function scans ISD memory to search for EOM markers. Starting addresses for scanning are those defined in the file table. Execute the function ***"Check records"*** to verify file table for proper recording. Unlike for the function ***"Memory scan"*** this function need not terminate with ISD memory overflow. The number of ISD memory searching cycles executed is equal to the number of sound files defined in the bookmark ***"Sound Files"***. Scanning the ISD memory allows to verify proper recording of messages. Furthermore, by making hexadecimal addresses available, it is a useful tool when preparing addressing procedures for ISD device.

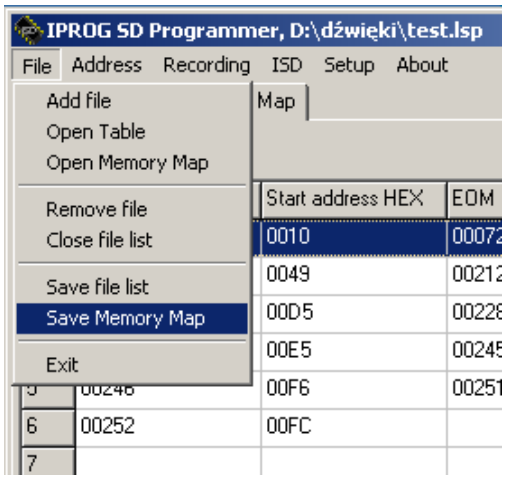
ISD1700 series device can report ***"Circular memory structure fail"***. Please check ISD1700 device data sheet for more details.



2.19. Writing memory map to file

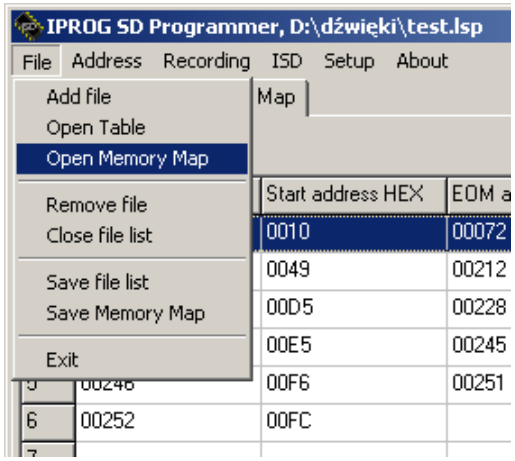
- select option ***"Save Memory Map"*** from menu ***"File"***;
- specify the file name in dialog box; the xtenssion ***"*.mpp"*** is added automatically;
- acknowledge with ***"Write"*** key.

Memory map is written into the text file.



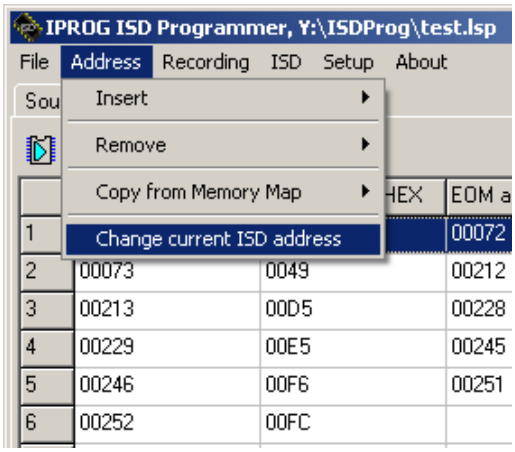
2.20. Reading memory map from file

- select option ***"Open Memory Map"*** form menu ***"File"***;
- select the file required in the dialog box displayed and acknowledge with ***"Open"*** key.



2.21. Changing current address

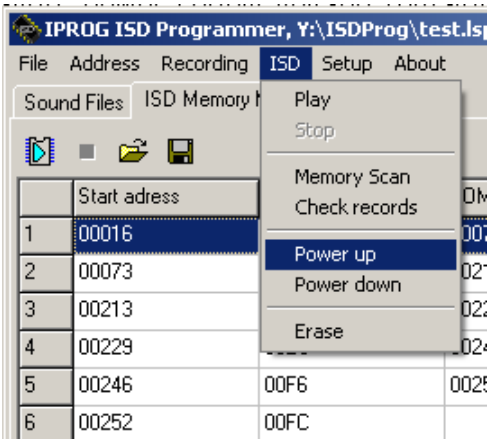
- select option ***"Change current ISD address"*** from menu ***"Address"***;
  This selection causes a dialog box to appear which allows the user to change the current address of ISD memory displayed in the status bar located in the bottom portion of the program window as ***"Current Address"***. It allows to start recording or playing from any point within ISD memory.

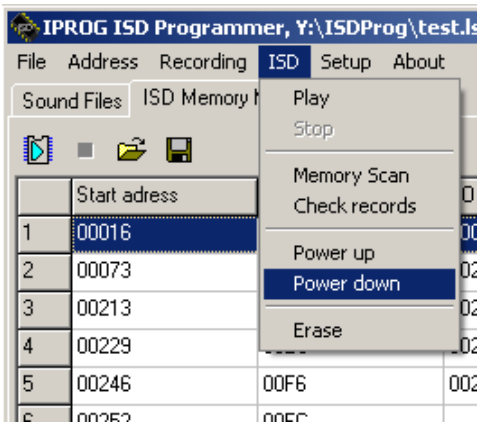


2.22. Operation in "Power Up" Mode

- select option ***"Power UP"*** *from menu* ***"ISD"***.

  The ***"Power Up"*** mode allows to avoid unpleasant knocks before each playing operation from ISD. Such knocks are caused by loading the ***"Power Up"*** function to ISD. For this mode, ISD device is continuously awaked. Upon completion of each operation, power supply voltage remains at the device under programming. The ***"Power Up"*** mode is indicated by blinking **D4** LED (green). Since the socket ZIF with device being programmed is under supply voltage, the device may be unplugged not before completing the function ***"Power Down"*** from menu ***"ISD"***. If ISD memory gets overloaded during any operation, it causes the ***"Power Down"*** function to be run automatically.


IPROG ISD Programmer, Y:\ISDProg\test.isp
File
Address
Recording
ISD
Setup
About
Sound Files
ISD Memory
Play
Stop
Memory Scan
Check records
Power up
Power down
Erase
Start adress
1 00016
2 00073
3 00213
4 00229
5 00246 00F6
6 00252 00FC


IPROG ISD Programmer, Y:\ISDProg\test.isp
File
Address
Recording
ISD
Setup
About
Sound Files
ISD Memory
Play
Stop
Memory Scan
Check records
Power up
Power down
Erase
Start adress
1 00016
2 00073
3 00213
4 00229
5 00246 00F6