# "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",
- $\ensuremath{\text{D3}}\xspace$  red LED which goes on when power supply voltage is applied,
- **D4** green LED which goes on when ISD play function is on,
- $\ensuremath{\text{D2}}\xspace$  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 (<u>www.marthel.pl</u>).

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;

Ę	📚 IPROG ISD Programmer										
F	ile A	Address Reco	rding ISD	Setup About							
1	Sound	Files   ISD Mi	emory Map 🛛	Change comm port							
	Þ	•	🕅 🖻 🕻	Change ISD device							
Γ		Start address	Stop address	s File name							
F	1	not used	not used	C:\WINDOWS\Media\chimes.wa							
	2	not used	not used	C:\WINDOWS\Media\chord.wa							
	3	not used	not used	C:\WINDOWS\Media\ding.wav							
ŀ	4	not used	not used	C:\WINDOWS\Media\ringin.wav							
1	5	not used	not used	C:\WINDOWS\Media\ringout.wa							
m											



#### 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.

1	🍖 IPR	OG ISD Prog	rammer			
	File 4	Address Reco	rding ISD 🚦	Setup About		
:	Sound	IFiles   ISD M	emory Map	Change comm port		
	Þ	• • •	🛛 🖻 🛛	Change ISD device		
		Start address	Stop address	File name		
	1	not used	not used	C:\WINDOWS\Media\chime		
	2	not used	not used	C:\WINDOWS\Media\chord		
	3	not used	not used	C:\WINDOWS\Media\ding.v		
	4	not used	not used	C:\WINDOWS\Media\ringin		
	5	not used	not used	C:\WINDOWS\Media\ringou		

Change ISD Device			×
C ISD 33060 (60 sek.)	ISD 4003 - 05 (5 min.)	🔿 ISD 5116 - 5.3 kHz	🔿 ISD 5102 - 4.0 kHz
🔿 ISD 33075 (75 sek.)	ISD 4003 - 06 (6 min.)	🔿 ISD 5116 - 4.0 kHz	O ISD 1730
C ISD 33090 (90 sek.)	🔘 ISD 4003 - 08 (8 min.)	🔿 ISD 5108 - 8 kHz	O ISD 1740
🔿 ISD 33120-4 (2 min.)	🔘 ISD 4004 - 8 (8 min.)	🔿 ISD 5108 - 6.4 kHz	ISD 1750
ISD 33120 (2 min.)	🔘 ISD 4004 - 10 (10 min.)	🔿 ISD 5108 - 5.3 kHz	O ISD 1760
ISD 33150 (2.5 min.)	O ISD 4004 - 12 (12 min.)	🔿 ISD 5108 - 4.0 kHz	C ISD 1790
ISD 33180 (3 min.)	🔘 ISD 4004 - 16 (16 min.)	🔿 ISD 5104 - 8 kHz	C ISD 17120
ISD 33240 (4 min.)	O ISD 5008 - 8.0 kHz	🔿 ISD 5104 - 6.4 kHz	O ISD 17150
O ISD 4002 (120 sek.)	🔘 ISD 5008 - 6.4 kHz	🔿 ISD 5104 - 5.3 kHz	C ISD 17180
ISD 4002 (150 sek.)	O ISD 5008 - 5.3 kHz	🔿 ISD 5104 - 4.0 kHz	C ISD 17210
ISD 4002 (180 sek.)	🔘 ISD 5008 - 4.0 kHz	🔿 ISD 5102 - 8 kHz	C ISD 17240
C ISD 4002 (240 sek.)	O ISD 5116 - 8 kHz	O ISD 5102 - 6.4 kHz	
C ISD 4003 - 04 (4 min.)	O ISD 5116 - 6.4 kHz	🔿 ISD 5102 - 5.3 kHz	OK

#### 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").

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- "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.

🍖 IPR	PROG ISD Programmer, Y:\ISDProg\test.lsp									
File 4	File Address Recording ISD Setup About									
Sound	Sound Files ISD Memory Map									
$\triangleright$	• =									
	Start address	Stop address	File name	1						
1	00016 not used C:\WINDOWS\Media\chimes.wav									
2	not used	not used	C:\WIND	OWS\Media\chord.v	/av					
3	not used	not used	C:\WIND	OWS\Media\ding.wa	iv.					
4	not used	not used	C:\WIND	OWS\Media\ringin.w	av					
5	not used	not used	C:\WIND	OWS\Media\ringout.	wav					
6										
7										
8										
9										
10										
11										
12										
13										
14										
ISD D	ISD Device Name: ISD 1740 DEC: 00000 Time To End: Rosc									
Total	Total Time: Rosc Current Address: HEX: 0000 Serial Port: 3									

## 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. •

🏟 IPROG I	SD Prog	ramı	ner, Y	:\19	5DPro	og\l
File Addre	ss Reco	ording	ISD	Se	tup	Abc
Add file			Map			
Open Tal Open Me	ble mory Map	,	<b>2</b>	H		
Remove	file		addres	s F	ile na	me
Close file	list		sed	C	:wi	NDC
Save file	list		sed	C	:\WII	NDC
Save Me	mory Map	J.	sed	C	:\WI	NDC
			sed	C	:\WI	NDC
	useu	nocu	sed	C	:\WII	NDC

#### 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;

_											
1	🔶 IPI	ROG ISI	) Prog	ramm	er, Y:	\J	(SDProg\tes	t.lsp			
	File Address Recording ISD Setup About										
	Sound Files ISD Memory Map										
	Þ	• =	Ľ	×.	₽ I		l				
•		Start a	ddress	Stop a	ddres:	s	File name				
	1	00016	-	pot us	s.d	-1	C:\WINDOW	S/Me			
	2	not us	Ins	ert		_	D:\WINDOW	S\Me			
	3	not us	Del	ete			D:\WINDOW:	S\Me			
i.	4	not us	Sta	rt addr	ess I		Edit	Mei			
	5	not us	Sto	p addre	ess I		Remove	vle:			
	6		-		_	1	-				
1	-										



#### 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;

## **IPROG-1** - ISD programmer

🝖 IPROG ISD Programmer, Y:\ISDProg\test.lsp										
File Address Recording ISD Setup About										
Sound Files   ISD Memory Map										
• • • • • • • • • • • • • • • • •										
Start address	File name									
00016	not used	C:\WINDOWS\Media\chimes.wav								
not used	not used	C:\WINDOWS\Media\chord.wav								
not used	not used	C:\WINDOWS\Media\ding.wav								
not used	not used	C:\WINDOWS\Media\ringin.wav								
not used	not used	C:\WINDOWS\Media\ringout.wav								
	Address Recc d Files ISD M Start address 00016 not used not used not used not used	ROG ISD Programmer, Y:\   Address Recording ISD S   d Files ISD Memory Map ISD S   • • • • • • •   Start address Stop address •								

#### 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";

¢٦	IPROG ISD Programmer, Y:\ISDProg\test.lsp									
File	Α	ddres	s Reco	rding	ISD	:	Setup	About		
Sou	Ind	l Files	ISD M	emory	Мар					
Þ		•	Ľ	X	<b>2</b>		3			
		Start	address	Stop	addre	ss	File na	ame		
1		00016	3	not u	sed		C:\WI	NDOWS	i\Media\chir	
2		not u	od _	notu	bed		C:\WI	NDOWS	Media\chc	
3		not u	Inse	rt		_	C:\WI	NDOWS	i\Media\ding	
4		not u	Dele	te			C:\WI	NDOWS	Media\ring	
5		not u	Star	t addr	ess I		C:\WI	NDOWS	i\Media\ring	
6			Stop	addr	ess J	ſ	Edit		1	
7			_							
8						1	Rem	iove	1	

Address	×
Address (0-335) :	:
00000	
ОК	Cancel

#### 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*". •

1	🜸 IPROG ISD Programmer, Y:\ISDProg\test.lsp											
File Address			Record	ing ISD	Setup	About						
Sound Files			Record file to ISD									
	$\triangleright$	•	Reci	ora cable c	0 150							
	,	Start ad	Play	file	ie							
	1	00016	Stop			DOWS\Media\ch						
	2	not used	d n	ot used	C:\WIN	IDOWS\Media\ch						
	3	not used	d n	ot used	C:\WIN	IDOWS\Media\dir						
	4 not used		d ne	ot used	C:\WIN	IDOWS\Media\rin						
	5	not used	d n	ot used	C:\WIN	NDOWS\Media\rin						
	6											
	7											

## 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". •

Ŷ	🗞 IPROG ISD Programmer, Y:\ISDProg\test.lsp										
Fi	File Address			ording	ISD	Setup	About				
S	ioun	d Files 🛛 I	R	ecord f	ile to I	ISD					
ŀ		<u> </u>	R	ecord t	able t	o ISD					
	<u> </u>	• •	PI	av file							
		Start ad		-,			- ie				
1		00016	St	:op			DOWS\Media\				
2	!	not used	ł	not us	ed	C:WI	NDOWS\Media\				
3	1	not used	1	not us	ed	C:\WI	NDOWS\Media\				
4	4 not used 5 not used		ł	not us	ed	C:\WI	NDOWS\Media\i				
5			ł	not us	ed	C:\WI	NDOWS\Media\i				
6											

#### 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.

🍖 IPF	🗞 IPROG ISD Programmer, Y:\ISDProg\test.lsp										
File	Address	Reco	ording	ISD	Setup	About					
Soun	d Files 🛛	R	ecord f	ile to I	ISD						
N		R	Record table to ISD								
	Start ad	Pl	ay file								
1	00016	Stop				DOWS\Medi					
2	not used	ł	not us	ed	C:\WI	NDOWS\Medi					
3	not used	1	not us	ed	C:\WI	NDOWS\Medi					
4 not used 5 not used		i notu		ed	C:\WI	NDOWS\Medi					
		ł	not us	ed	C:\WI	NDOWS\Medi					
6											

## 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 "\*. Isp" is added automatically;
- acknowledge with "Write" key. The table is loaded into text file.

🍖 IPROG ISD Programmer, Y:\ISDProg\test.lsp							
File Address Recording	ISD :	Setup About					
Add file	Мар						
Open Table Open Memory Map	<b>2</b>	3					
Remove file	address	File name					
Close file list	sed	C:\WINDOWS\Med					
Save file list	sed	C:\WINDOWS\Med					
Save Memory Map	sed	C:\WINDOWS\Med					
	sed	C:\WINDOWS\Med					
	used	C:\WINDOWS\Med					
6							

#### 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.

) IP	ROG ISD Progra	mmer				_ 🗆
-ile Soun	Address Recordi d Files ISD Mem	ng ISD Setup Abou ory Map	ιt			
D	= 🛩 🔒					
	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		
}	00213	00D5	00228	00E4		
ł	00229	00E5	00245	00F5		
j	00246	00F6	00251	OOFB		
	00252	OOFC			00975	03CF
0						
1						
2						
3						
4						
SD D	Device Name:	ISD 17120	Concerns & alabama	DEC: 00016	Time To End:	Ro
otal	Time:	Rosc	Jurrent Address:	HEX: 0010	Serial Port:	
_						

#### 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.

# IPROG-1 - ISD programmer

Ą	🝖 IPROG SD Programmer, D:\dźwięki\test.lsp								
	File /	Address Reco	ording	ISD	Setup	About			
	Sound Files   ISD Memory I			Play					
• • • • •			Stop						
		Start address	Stop a	Ch	nory 50 neck rect	ords			
l	1	00016	not us	Power up Power down			mpet1.wav		
l	2	not used	not us				Benwa.wav		
l	3	not used	not us			mes.wav			
l	4	not used	not us	En	ase	····•	mepage.wav		
l	5	not used	not us	ed	D:\dź	więki\Ms	gBell.wav		
	6	not used	not us	not used D:\dźwięki\Tru			impet1.wav		

## 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.

🍖 IPROG SD Programmer, D:\dźwięki\test.lsp							
File Address Recordin	g ISD Setup About						
Add file	Map						
Open Table	'						
Open Memory Map							
Remove file	Start address HEX EOM						
Close file list	0010 0007						
Save file list	0049 0021						
Save Memory Map	00D5 0022						
Exit	00E5 0024						
3 00246	00F6 0025						
6 00252	OOFC						
7							

## 2.20. Reading memory map from file

- select option "Open Memory Map" form menu "File"; ٠
- select the file required in the dialog box displayed and acknowledge with "Open" key.

🍖 IPROG SD Prog	grammer, D:\dźwięki\test.lsp
File Address Red	cording ISD Setup About
Add file	Мар
Open Table	
Open Memory Ma	ap
Remove file	Start address HEX EOM a
Close file list	00072
Save file list	0049 00212
Save Memory Ma	ap 00D5 00228
Exit	00E5 00245
00246	00F6 00251
6 00252	OOFC
7	

#### 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.

🌸 IPROG ISD Programmer, Y:\ISDProg\test.lsp								
File	Address	Recording	ISD	Setup	About	:		
Sou	Insert			×	1			
Ď	Remov	'e		•				
	Copy f	Copy from Memory Map						
1	Chang	e current ISI	) addr	ess		00072		
2	00073		0049			00212		
3	00213		00D5			00228		
4	00229		00E5			00245		
5	00246		00F6			00251		
6	00252		00FC					

## 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.

ł	🛞 IPI	ROG ISD	Programm	ier, Y	:\ISDPr	og\tes	t.lsj
	File	Address	Recording	ISD	Setup	About	
ľ	Soun	d Files 🛛	SD Memory N	Pl	ау		
	<b>1</b> 671	_ ~~	-	St	op		
			<b></b>	M	emory Se	tan	L
		Start adress		Check records			OM
	1	00016					001
	2	00073		PC De	ower up		02
	3	00213		PI	Jwer UUV	VII	022
	4	00229		Er	ase		024
	5	00246		0056			0025
	<u> </u>	00240		0000			002:
	6	00252		OOFC			

4	🍖 IPROG ISD Programmer, Y:\ISDProg\test.ls									
I	File	Addres	s Recording	ISD	Setup	About	:			
Sound Files ISD Memory I				Play						
					op					
r		- <u>-</u>	- <b>-</b>	м	emory Se	an	h			
		Start a	idress	Check records						
l	1	00016	I				- 00			
I	2	00073		P	wer up wer dou	VD.	02			
ľ	3	00213					02			
ľ	4	00229		Er	ase		_02			
ľ	5	00246		00F6			002			
	c	00252	I	0050						

-