

8to16 release 1.1 sample converter documentation

COLLABORATORS

	<i>TITLE :</i> 8to16 release 1.1 sample converter documentation		
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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

1	8to16 release 1.1 sample converter documentation	1
1.1	8to16 v1.1 user's guide	1
1.2	Introduction	2
1.3	Linear interpolation method	2
1.4	Requirements	3
1.5	Installation...	4
1.6	Features....	4
1.7	Usage of 8to16...	4
1.8	Supported file formats...	6
1.9	History of 8to16	6
1.10	info	7

Chapter 1

8to16 release 1.1 sample converter documentation

1.1 8to16 v1.1 user's guide

```
                ** 8 to 16 interpolating sample converter
**      by IMMORTAL Systems

** This program is FREeware
** U can copy and use it free

** WARNING:

** Use it on your !OWN! risk !!!
** (..but U know it: no risk no fun!!! :))
```

Choose one of topics.....

Introduction - what is it why use it

Requirements

Installation

Features

Usage

Supported file formats

History & future plans

Credits,bugs and another important informations

NOTE1: This is guide for v1.1 of 8to16

NOTE2: Please excuse my english, working on it....

NOTE3: LONG LIVE THE CZECH AMIGA SOFTWARE !!!!

1.2 Introduction

** Introduction

8to16 is 8-bit to 16-bit sample converter. :(((only?
 * Why use it? U can covert it in almost every program !!!

But.....

It doesn't work such as many of converting algorithms, which only take the 8-bit number and store it to 16-bit. That algorithm works, but quality is still.....same!

But 8to16 works other way. It improves the quality by using the

Linear Interpolation
 method. :oo

This method allows U to use your old 8-bit samples even on your new soundcard or in 16-bit music editors with a little bit improved quality! :))

The result is most audible in bass and mainly in bass and quiet samples. If U don't believe it, I have one suitable sample given to this package, so U can try it and get to believe.

1.3 Linear interpolation method

** Linear interpolation

LI is a simple algorithm.
 How does it work?

First, sample is rescaled from 8-bit(256 points resolution) to 16-bit (65536 points resolution). It means, that between every two points converted from 8-bit resolution are 256 unused points.
 (65536/256=256)

So, it will be good to use them to make the sound more smoothy, isn't it?

And I decided to join all points by LINES.
 LINES are computed in new 16-bit resolution and...
 that's it: Linear Interpolation!

.....what?

I'll give U an example:

part of 8-bit sample:

-

 | 256 ***

```
| points          ***
-
```

rescaled sample

```
-
|   ***
|   |
|   |256 points
|65536   |
|points   ***
|       |
|       |256 points
|         ***
-
```

and then, interpolated sample

```
-
|   *
|   *
|65536   *
|points   *
|         *
|         *
|         *
-
```

so, sound is more smoothy then:

```
:--))) woooooww!!!!
```

.....but

These are limitation. Interpolation CANNOT be used everywhere in the sample without changing its rate!

(Try imagine it: U cannot intepolate 2 not equal points beside - U would have to insert 3rd point between them.....)

NOTE: BELIEVE OR NOT, 16-bit sample is twice long than 8-bit!!!!!!
So if your 8-bit have 400K, 16-bit would have 800K!!!

So,it's all, please read other parts.....

1.4 Requirements

* Requirements

- OS and CPU:

```
=====
```

Although it was not tested , it may work *well* on 68000 CPU and OS 1.2 as well as on 68060 and OS 3.1.

It was tested on 68020 and 3.0.

- MEMORY USAGE:

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It doesn't use buffered loading now, so length of processed sample still remains limited by free memory.

!!!!

You REQUIRE at least 3*<sample length> free mem for normal interpolation mode and 5*<sample length> for DOUBLE RATE mode.

!!!!

Example: If U want to process 200KB raw sample,U need at least:

- 600 KB free mem for standart interpolation mode!!!!
- 1.0 MB free mem for DOUBLE RATE interpolation mode !!!!!!!

- GENERALY SPEAKING:

=====

Only what u need is ANY amiga and BIG piece of free memory.....

1.5 Installation...

* Installation

Installation of 8to16 is pretty simple.
First, extract the archive anywhere u want to have it.
It's all ! :--))

But then I recoment u to copy the main command file 8to16 to some command directory for more availability.

[I have it in C:]

1.6 Features....

* Features

- Improves quality of samples using sample interpolation
- Two interpolation modes: standart, double rate mode
- Efficiency indicator
- Easy usage & installation
- Low requirements

1.7 Usage of 8to16...

* USAGE

Usage of 8to16 is very simple. U can use it from cli or better way is to built it to some file manager - I have it built to my

DirWork and it works very well.

USAGE: 8to16 [-qd] <filename>

OPTIONS:

- q : QUIET, doesn't open any window, just working :)
- d : enables DOUBLE RATE MODE
 - In double rate mode, sample rate is doubled, and sample octave is halved down.
 - efficiency is SIGNIFICANTLY increased
 - new length of sample is 4*higher than source !!!
 - octave is halved
 - When disabled, standart mode is set. In it:
 - efficiency is lower
 - new length is only twice higher than source
 - sample frequency ISN'T changed

EXAMPLES:

```
8to16 FukU.8svx -will process FukU.8svx in normal mode
8to16 -q FukU.8svx -same, but nothing will be displayed
8to16 -d FukU.8svx -will process FukU.8svx in DOUBLE RATE mode
8to16 -qd FukU.8svx -same, but nothing will be displayed
```

After process, if no quiet mode , efficiency meter is displayed.
It signs the percentage of used interpolation.
It looks like this "[*****]".
One * means 10%.

Example: [****] means that interpolation was used on 40% of sample.
Believe or not, result quality DEPENDS of efficiency!!!!

NOTE: In DOUBLE RATE MODE, efficiency is ALWAYS pretty high,
and it's ALWAYS at least 50% !!!!!!!!!!!!!!!

Now some notes :

Efficiency[%]

=====

```
>50 Very good, use it!!!!
50,40 Good, hear it and than use.
20,30 Average.
<20 Poor. Use 8-bit source rather.
```

Note1: In DOUBLE RATE MODE, 50% is the minimum.
So efficiency is ALWAYS [*****] at least !!!!!!! :))))

MAIN NOTE:

Remember: After processing, SOURCE SAMPLE WILL BE DELETED AND
WILL BE REPLACED BY NEW 16-BIT!!!!!!!!!!!!!!

So, don't forget to backup source samples before experimenting....

Please, read SURE file-formats chapter!

1.8 Supported file formats...

* File formats

In this version 1.1, only certain file types can be loaded and saved.

Supported input file formats:

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IFF-8SVX: 8to16 CAN load these files and it seems it handles mono only them correctly. But it can load only old 8svx without delta compression.

RAW-8bit Any other formats than 8SVX will not be recognized and will be loaded as 8-bit RAW files without header.

IMPORTANT: 8to16 CANNOT handle ANY crunched files itself, so decrunch them first.

Some advices for power- and xpk- crunched files:

PP: Decrunch them first or use PPPatcher.

XPK: Decrunch them first or mount some unpacking device (use xfd or xpk handler).

Supported output file formats:

=====

There is only one now - it's Raw16Bit mono.
(many programs support it, tested in Octamed Soundstudio)

Description of Raw16Bit:

There is an 8-bytes long header "Raw16Bit" and then follows 16-bit raw data in Motorola(tm) signed format.

1.9 History of 8to16

* History and Future plans

HISTORY

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v1.0: Initial release (but not on Aminet)
BUGS: - 8SVX were not handled properly
- Error in command line scanning

v1.1: First release on aminet
- new DOUBLE RATE MODE added [-d option]
- all bugs from 1.0 fixed
BUGS: not known yet (12.1.97)

FUTURE PLANS

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- more file formats,decrunch support
- buffered loading
- more options
- a xpk-based sublibrary for loading 8-bit as 16-bit interpolated
in real time!

1.10 info

* Info

8to16 was created on A1200HD in PhxAss.All the program is
written in it.

8to16 (c)1997 IMMORTAL Systems

FREWARE VERSION

Thanx,suggests,money,JPGs,modules and BUG report to:

-

xvavral@br.fjfi.cvut.cz

-

Please write "8to16 v x.x" to SUBJECT field before mailing.

GREETINGS TO:

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DJ OKO,Alien,Dean Allen(Muzik),Lubooo,DNA and to all #amiga,#amigacs
IRC users.

NOTE: I'm looking for MAUD,AIFF,WAVE,16SV samples description.

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