SN76489

1.0

Generated by Doxygen 1.9.1

Chapter 1

LICENSE

Chapter 2

SN76489 Sound IC library

Software Library for TI SN76489 sound chips.

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license: MIT

2.1 Release Versions

2.1.1 Current

- release_v0.0.1

2.1.2 Past

- none

2.2 Requirements

- xc8-cc V2.32
- PIC18F45K50 (MCU can be changed in makefile)
- PICerino development board

2.3 Building

- make : builds all
- make dox_gen : doxygen only
- make test : test only
- make libSN76489.a : static library only
- make clean : remove all build outputs.

2.4 Documentation

- See doxygen generated document
- Method for ready check is universal, NOT efficent. Optimize send data for your application!

2.4.1 Example Code

```
void main(void)
{
  struct s_sn76489 sn76489;
  /* OSCCON SETUP */
  OSCCONbits.IRCF = 0x7;
  OSCCONbits.OSTS = 0;
  OSCCONbits.SCS  = 0x3;
  OSCCON2bits.PLLEN = 1;
  /* PORT E SETUP */
  INTCON2bits.nRBPU = 1;
  /* disable analog inputs */
  ANSELA = 0;
  ANSELC = 0;
  ANSELD = 0;
  ANSELE = 0;
  /* wait for chip to be ready */
  __delay_ms(10);
  initSN76489port(&sn76489, &TRISA, &TRISD, &TRISC, 6, 7, 0);
  /* mutes all channels as default */
  initSN76489(&sn76489, &LATA, &LATD, &PORTC);
  /* voice one freq */

  /* set attenuation */
  setSN76489voice_attn(&sn76489, 1, 2);

  /* set frequency to 440 hz */
  setSN76489voice_freq(&sn76489, 1, 254);

  /* play this lovely tune forever */
  for(;;);

}
```

Chapter 3

File Documentation

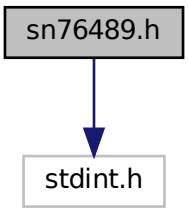
3.1 LICENSE.md File Reference

3.2 README.md File Reference

3.3 sn76489.h File Reference

```
#include <stdint.h>
```

Include dependency graph for sn76489.h:



Functions

- void initSN76489 ()

  Initialize sn76489 to mute all channels.
- uint16_t getSN76489_FreqDiv (uint32_t refClk, uint32_t voiceFreq)

  Calculate frequency from hertz to binary value.
- void setSN76489voice_freq (uint8_t voice, uint16_t freqDiv)

  Set sn76489 voice frequency.
- void setSN76489voice_attn (uint8_t voice, uint8_t attenuate)

  Set sn76489 voice attenuation.
- void setSN76489noise_attn (uint8_t attenuate)

  Set sn76489 noise attenuation.
- void setSN76489noiseCtrl (uint8_t type, uint8_t rate)

  Set sn76489 noise type.

3.3.1 Function Documentation

3.3.1.1 getSN76489_FreqDiv()

```
uint16_t getSN76489_FreqDiv (
            uint32_t refClk,
            uint32_t voiceFreq )
```

Calculate frequency from hertz to binary value.

Parameters

refClk	is the reference clock in hertz for the sound chip.
voiceFreq	is the target frequency in hertz.

Returns

A unsigned 16 bit number that will result in the freqency wanted.

3.3.1.2 initSN76489()

```
void initSN76489 ( )
```

Initialize sn76489 to mute all channels.

3.3.1.3 setSN76489noise_attn()

```
void setSN76489noise_attn (
            uint8_t attenuate )
```

Set sn76489 noise attenuation.

Parameters

attenuate	: 8 = 16db, 4 = 8db, 2 = 4db, 1 = 2 db, 15 = Mute

3.3.1.4 setSN76489noiseCtrl()

```
void setSN76489noiseCtrl (
```

```
            uint8_t type,
            uint8_t rate )
```

Set sn76489 noise type.

Parameters

type	: 0 = periodic, 1 = white.
rate	: 0 = N/512, 1 = N/2048, 2 = N/1024, 3 = voice 3

3.3.1.5 setSN76489voice_attn()

```
void setSN76489voice_attn (
            uint8_t voice,
            uint8_t attenuate )
```

Set sn76489 voice attenuation.

Parameters

voice	the voice (1,2, or 3) to set the attenuation to.
attenuate	: 8 = 16db, 4 = 8db, 2 = 4db, 1 = 2 db, 0 = 0 db?, 15 = Mute

3.3.1.6 setSN76489voice_freq()

```
void setSN76489voice_freq (
            uint8_t voice,
            uint16_t freqDiv )
```

Set sn76489 voice frequency.

Parameters

voice	the voice (1,2, or 3) to set the frequency to.
freqDiv	is binary number to set the frequency (f = refClk/(32∗freqDiv))

Index