IEEE-754 Visualiser

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Chapter 1

File Index

1.1 File List

Here is a list of all files with brief descriptions:

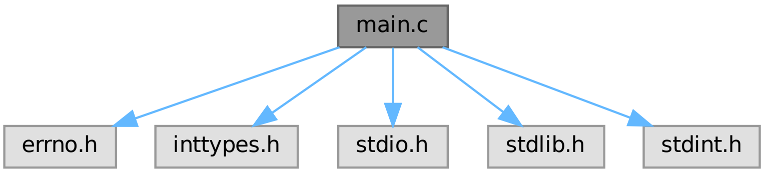
Chapter 2

File Documentation

2.1 main.c File Reference

```
#include <errno.h>
#include <inttypes.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdint.h>
```

Include dependency graph for main.c:



Macros

- #define STR_2(X) #X

    Auxiliary macro used by VAR_TO_STR.

- #define VAR_TO_STR(X) STR_2(X)

    Returns a literal with the parameter value.

- #define prec1 9

    The number of digits after the decimal point for float output.

- #define prec2 16

    The number of digits after the decimal point for double output.

Functions

- double decode_mantissa (uint64_t u, int size)

  Converts mantissa's bit representation to double.
- void bit_print (uint64_t const u, int const exp, int const mant)

  Prints floating point number bit representation.
- void visualise (uint64_t const u, unsigned long const size)

  Prints the canonical representation of a floating point number and its bit representation.
- int main (int argc, char **argv)

  The function accepts a floating point number and visualizes its float and double representations if the number fits within those data types.

2.1.1 Macro Definition Documentation

2.1.1.1 prec1

```
#define prec1 9
```

The number of digits after the decimal point for float output.

2.1.1.2 prec2

```
#define prec2 16
```

The number of digits after the decimal point for double output.

2.1.1.3 STR_2

```
#define STR_2(
              X ) #X
```

Auxiliary macro used by VAR_TO_STR.

2.1.1.4 VAR_TO_STR

```
#define VAR_TO_STR(
              X ) STR_2(X)
```

Returns a literal with the parameter value.

2.1.2 Function Documentation

2.1.2.1 bit_print()

```
void bit_print (
             uint64_t const u,
             int const exp,
             int const mant )
```

Prints floating point number bit representation.

Highlights Sign, Exp and Frac sections.

Parameters

u	Floating point number bit representation
exp	Size of exp section
mant	Size of mantissa section

2.1.2.2 decode_mantissa()

```
double decode_mantissa (
             uint64_t u,
             int size )
```

Converts mantissa's bit representation to double.

Parameters

u	Mantissa's bit representation
size	Size of the mantissa

Returns

Mantissa value.

2.1.2.3 main()

```
int main (
             int argc,
             char ** argv )
```

The function accepts a floating point number and visualizes its float and double representations if the number fits within those data types.

2.1.2.4 visualise()

```
void visualise (
             uint64_t const u,
             unsigned long const size )
```

Prints the canonical representation of a floating point number and its bit representation.

Parameters

u	Floating point number bit representation
size	The size of the number in bits.

Warning

This function is only compatible with systems where floating point numbers are 32 and 64 bits in size.

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