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Generated by Doxygen 1.8.6

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Contents

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Class Index

1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

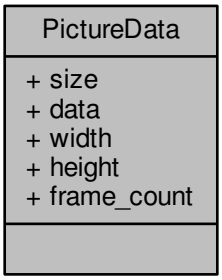
Chapter 3

Class Documentation

3.1 PictureData Struct Reference

`#include <main.h>`

Collaboration diagram for PictureData:



Public Attributes

- int size
- char * data
- int width
- int height
- int frame_count

3.1.1 Detailed Description

Definition at line 1 of file main.h.

3.1.2 Member Data Documentation

3.1.2.1 char * PictureData::data

Definition at line 3 of file main.h.

3.1.2.2 int PictureData::frame_count

Definition at line 6 of file main.h.

3.1.2.3 int PictureData::height

Definition at line 5 of file main.h.

3.1.2.4 int PictureData::size

Definition at line 2 of file main.h.

3.1.2.5 int PictureData::width

Definition at line 4 of file main.h.

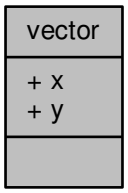
The documentation for this struct was generated from the following files:

- src/main.h
- src/png_decode.h

3.2 vector Struct Reference

`#include <stvssim.h>`

Collaboration diagram for vector:



Public Attributes

- int x
- int y

3.2.1 Detailed Description

Definition at line 15 of file stvssim.h.

3.2.2 Member Data Documentation

3.2.2.1 int vector::x

Definition at line 16 of file stvssim.h.

3.2.2.2 int vector::y

Definition at line 17 of file stvssim.h.

The documentation for this struct was generated from the following file:

- src/stvssim.h

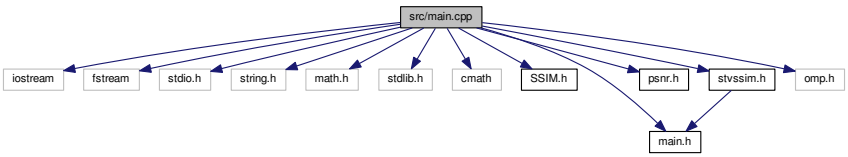
Chapter 4

File Documentation

4.1 src/main.cpp File Reference

```
#include <iostream>
#include <fstream>
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
#include <cmath>
#include "SSIM.h"
#include "main.h"
#include "psnr.h"
#include "stvssim.h"
#include <omp.h>
```

Include dependency graph for main.cpp:



Macros

- #define CHUNK_SIZE 1

Functions

- int compare (const void *a, const void *b)
- PictureData * getVideoInfo (string path)
- FILE * startFFmpeg (string path)
- void shiftData (unsigned char **data, int size)
- int main (int argc, char **argv)

4.1.1 Macro Definition Documentation

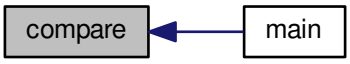
4.1.1.1 #define CHUNK_SIZE 1

4.1.2 Function Documentation

4.1.2.1 int compare (const void * *a*, const void * *b*)

Definition at line 16 of file main.cpp.

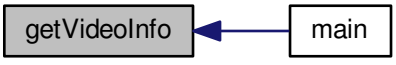
Here is the caller graph for this function:



4.1.2.2 PictureData* getVideoInfo (string *path*)

Definition at line 20 of file main.cpp.

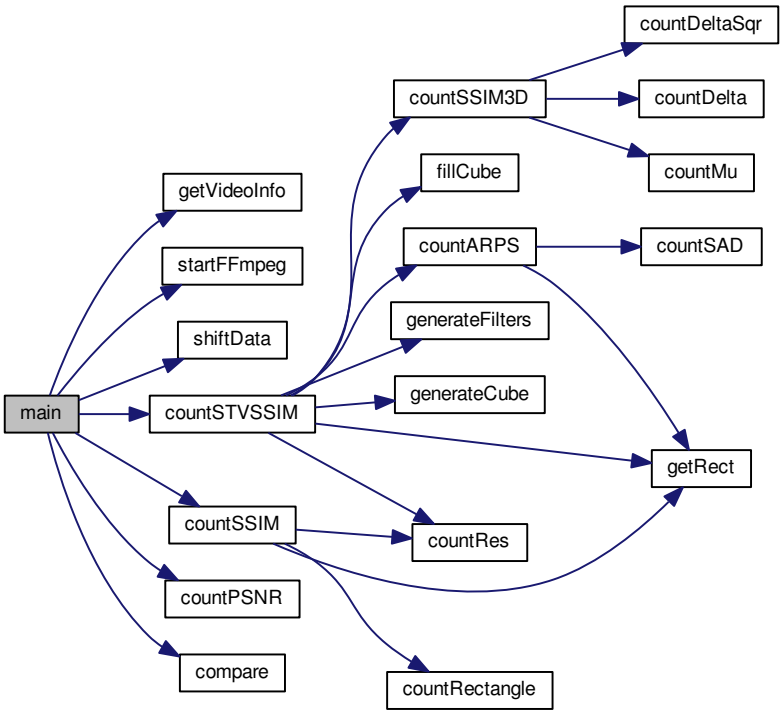
Here is the caller graph for this function:



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

Definition at line 81 of file main.cpp.

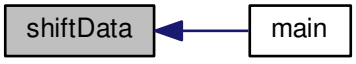
Here is the call graph for this function:



4.1.2.4 void shiftData (unsigned char ** *data*, int *size*)

Definition at line 73 of file main.cpp.

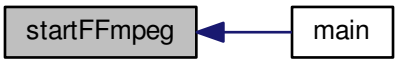
Here is the caller graph for this function:



4.1.2.5 FILE* startFFmpeg (string *path*)

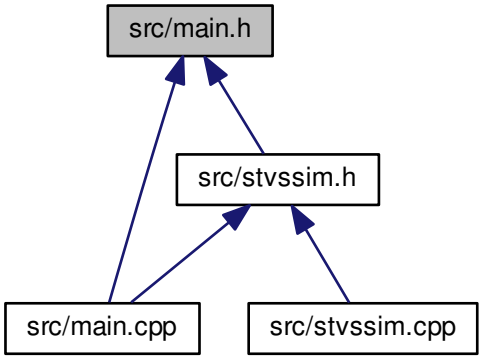
Definition at line 56 of file main.cpp.

Here is the caller graph for this function:



4.2 src/main.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- struct PictureData

Macros

- #define MAX_FILES 10
- #define THREADS 256

4.2.1 Macro Definition Documentation

4.2.1.1 #define MAX_FILES 10

Definition at line 10 of file main.h.

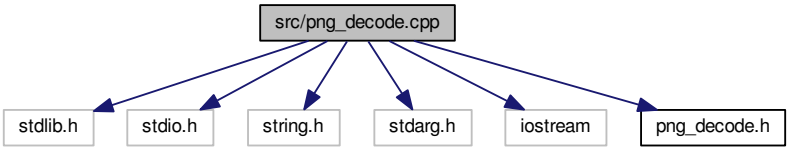
4.2.1.2 #define THREADS 256

Definition at line 12 of file main.h.

4.3 src/png_decode.cpp File Reference

```
#include <stdlib.h>
#include <stdio.h>
#include <string.h>
#include <stdarg.h>
#include <iostream>
#include "png_decode.h"
```

Include dependency graph for png_decode.cpp:



Functions

- void abort_ (const char *s,...)
- PictureData * read_png_file (char *file_name)
- PictureData * process_file (PictureData *data)

Variables

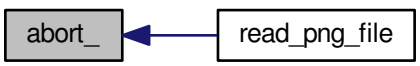
- int x
- int y
- int number_of_passes

4.3.1 Function Documentation

4.3.1.1 void abort_ (const char * s, ...)

Definition at line 11 of file png_decode.cpp.

Here is the caller graph for this function:



4.3.1.2 PictureData* process_file (PictureData * *data*)

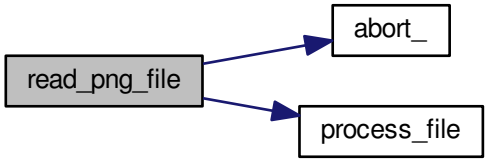
Definition at line 84 of file png_decode.cpp.

Here is the caller graph for this function:

4.3.1.3 PictureData* read_png_file (char * *file_name*)

Definition at line 29 of file png_decode.cpp.

Here is the call graph for this function:



4.3.2 Variable Documentation

4.3.2.1 int number_of_passes

Definition at line 24 of file png_decode.cpp.

4.3.2.2 int x

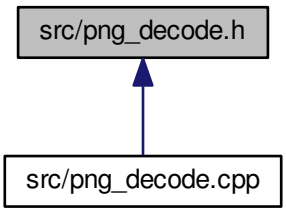
Definition at line 21 of file png_decode.cpp.

4.3.2.3 int y

Definition at line 21 of file png_decode.cpp.

4.4 src/png_decode.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- struct PictureData

Functions

- PictureData * process_file (PictureData *data)
- PictureData * read_png_file (char *file_name)

4.4.1 Function Documentation

4.4.1.1 PictureData* process_file (PictureData * *data*)

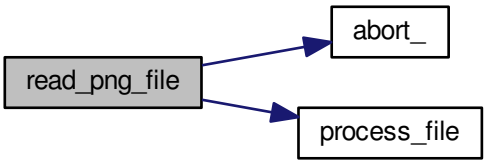
Definition at line 84 of file png_decode.cpp.

Here is the caller graph for this function:

4.4.1.2 PictureData* read_png_file (char * *file_name*)

Definition at line 29 of file png_decode.cpp.

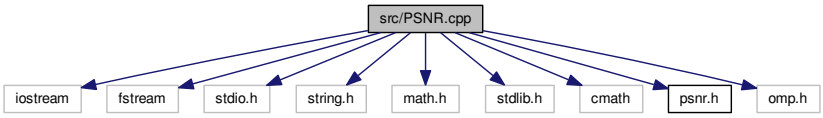
Here is the call graph for this function:



4.5 src/PSNR.cpp File Reference

```
#include <iostream>
#include <fstream>
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
#include <cmath>
#include "psnr.h"
#include <omp.h>
```

Include dependency graph for PSNR.cpp:



Functions

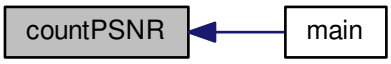
- double countPSNR (unsigned char *data1, unsigned char *data2, int size)

4.5.1 Function Documentation

4.5.1.1 double countPSNR (unsigned char * *data1*, unsigned char * *data2*, int *size*)

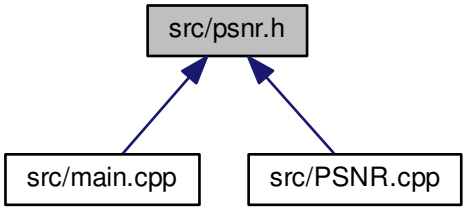
Definition at line 22 of file PSNR.cpp.

Here is the caller graph for this function:



4.6 src/psnr.h File Reference

This graph shows which files directly or indirectly include this file:



Functions

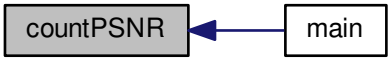
- double countPSNR (unsigned char ∗data1, unsigned char ∗data2, int size)

4.6.1 Function Documentation

4.6.1.1 double countPSNR (unsigned char ∗ *data1,* unsigned char ∗ *data2,* int *size*)

Definition at line 22 of file PSNR.cpp.

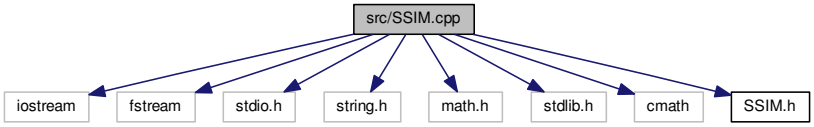
Here is the caller graph for this function:



4.7 src/SSIM.cpp File Reference

```
#include <iostream>
#include <fstream>
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
#include <cmath>
#include "SSIM.h"
```

Include dependency graph for SSIM.cpp:



Functions

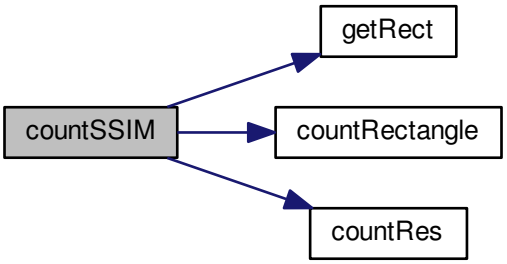
- double countSSIM (unsigned char *datain1, unsigned char *datain2, int size, int width)

4.7.1 Function Documentation

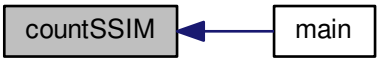
4.7.1.1 double countSSIM (unsigned char * *datain1*, unsigned char * *datain2*, int *size*, int *width*)

Definition at line 17 of file SSIM.cpp.

Here is the call graph for this function:

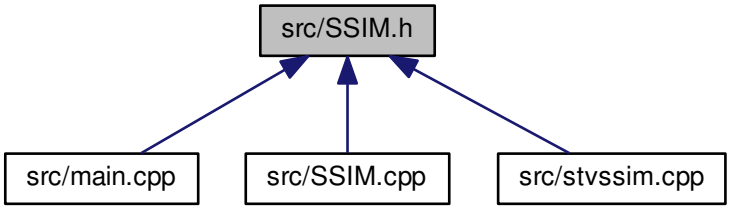


Here is the caller graph for this function:



4.8 src/SSIM.h File Reference

This graph shows which files directly or indirectly include this file:



Macros

- #define RECT_SIZE 64
- #define RECT_SQRT 8
- #define C1 6.5025
- #define C2 58.5225
- #define SKIP_SIZE 8

Functions

- double countSSIM (unsigned char ∗datain1, unsigned char ∗datain2, int size, int width)
- double countRectangle (unsigned char ∗data1, unsigned char ∗data2)
- double countAvg (unsigned char ∗data)
- double countVariance (unsigned char ∗data, double avg)
- double countCovariance (unsigned char ∗data1, unsigned char ∗data2, double avg1, double avg2)
- void getRect (unsigned char ∗data, int start, int width, unsigned char ∗out)
- double countRes (double ∗tmpRes, int count)

4.8.1 Macro Definition Documentation

4.8.1.1 #define C1 6.5025

Definition at line 12 of file SSIM.h.

4.8.1.2 #define C2 58.5225

Definition at line 13 of file SSIM.h.

4.8.1.3 #define RECT_SIZE 64

Definition at line 10 of file SSIM.h.

4.8.1.4 #define RECT_SQRT 8

Definition at line 11 of file SSIM.h.

4.8.1.5 #define SKIP_SIZE 8

Definition at line 14 of file SSIM.h.

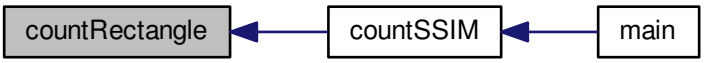
4.8.2 Function Documentation

4.8.2.1 double countAvg (unsigned char * *data*)

4.8.2.2 double countCovariance (unsigned char * *data1*, unsigned char * *data2*, double *avg1*, double *avg2*)

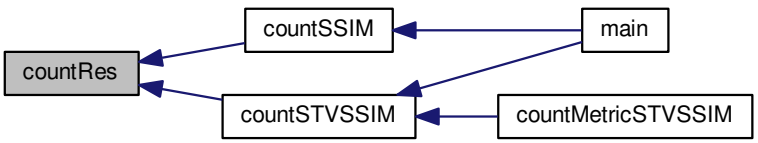
4.8.2.3 double countRectangle (unsigned char * *data1*, unsigned char * *data2*)

Here is the caller graph for this function:



4.8.2.4 double countRes (double * *tmpRes*, int *count*)

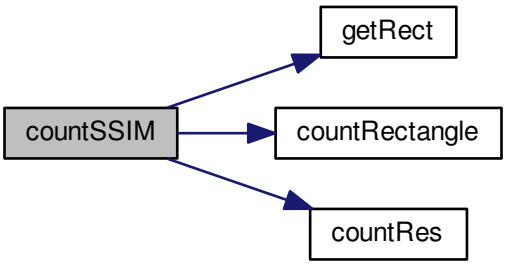
Here is the caller graph for this function:



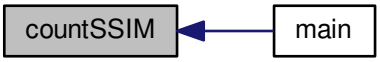
4.8.2.5 double countSSIM (unsigned char * *datain1*, unsigned char * *datain2*, int *size*, int *width*)

Definition at line 17 of file SSIM.cpp.

Here is the call graph for this function:



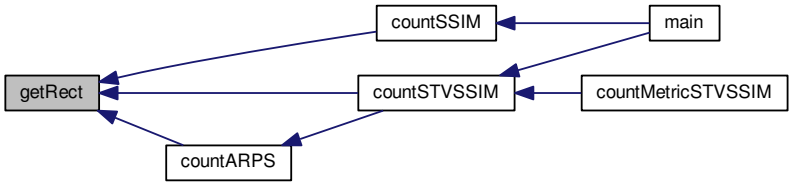
Here is the caller graph for this function:



4.8.2.6 double countVariance (unsigned char * *data*, double *avg*)

4.8.2.7 void getRect (unsigned char * *data*, int *start*, int *width*, unsigned char * *out*)

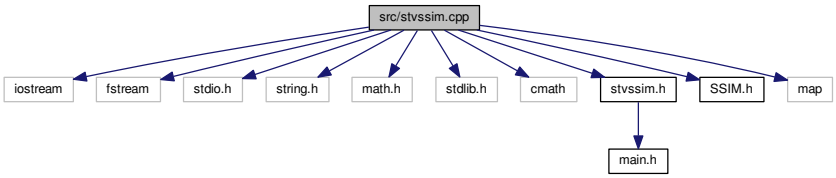
Here is the caller graph for this function:



4.9 src/stvssim.cpp File Reference

```
#include <iostream>
#include <fstream>
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
#include <cmath>
#include "stvssim.h"
#include "SSIM.h"
#include <map>
```

Include dependency graph for stvssim.cpp:



Functions

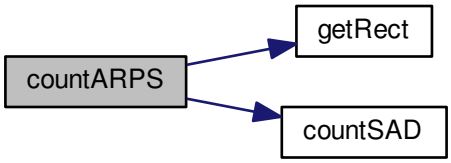
- double ∗∗ countMetricSTVSSIM (FILE ∗∗streams, FILE ∗ref, int files_count, PictureData ∗frame, string type, double ∗∗results, int ∗&frames)
- double countSTVSSIM (unsigned char ∗∗datain1, unsigned char ∗∗datain2, int size, int width)
- double countSSIM3D (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube1, unsigned char ∗∗∗cube2)
- double countMu (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube)
- double countDeltaSqr (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube, double mu)
- double countDelta (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube1, unsigned char ∗∗∗cube2, double muX, double muY)
- unsigned char ∗∗∗ generateCube ()
- void fillCube (unsigned char ∗∗datain, int pos, unsigned char ∗∗∗out, int width)
- unsigned char ∗∗∗∗ generateFilters ()
- vector countARPS (unsigned char ∗block, unsigned char ∗framePrev, int x, int y, int width, int height, int T)
- void shiftData (unsigned char ∗∗data, int size)
- int countSAD (unsigned char ∗rect1, unsigned char ∗rect2)

4.9.1 Function Documentation

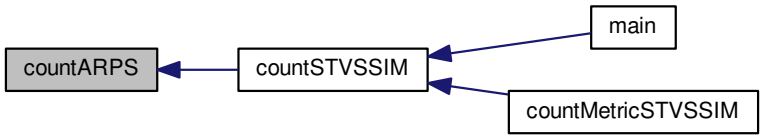
4.9.1.1 vector countARPS (unsigned char ∗ *block,* unsigned char ∗ *framePrev,* int *x,* int *y,* int *width,* int *height,* int *T*)

Definition at line 316 of file stvssim.cpp.

Here is the call graph for this function:



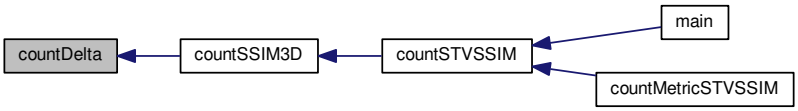
Here is the caller graph for this function:



4.9.1.2 double countDelta (unsigned char *** *filter*, unsigned char *** *cube1*, unsigned char *** *cube2*, double *muX*, double *muY*)

Definition at line 235 of file stvssim.cpp.

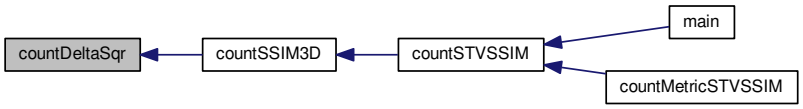
Here is the caller graph for this function:



4.9.1.3 double countDeltaSqr (unsigned char *** *filter*, unsigned char *** *cube*, double *mu*)

Definition at line 222 of file stvssim.cpp.

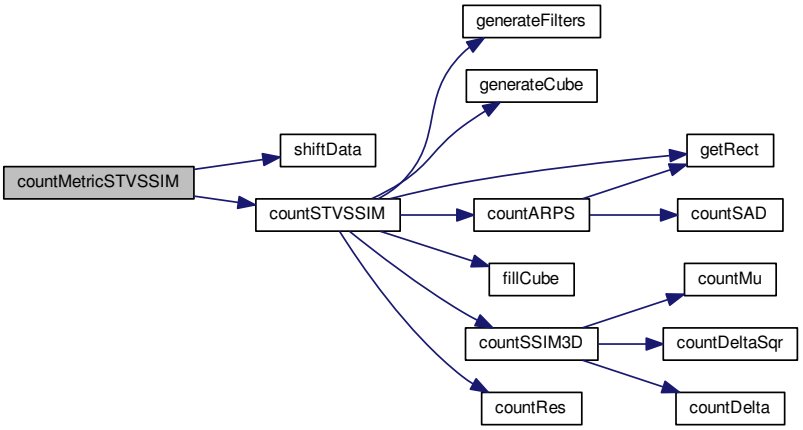
Here is the caller graph for this function:



4.9.1.4 double** countMetricSTVSSIM (FILE ** *streams*, FILE * *ref*, int *files_count*, PictureData * *frame*, string *type*, double ** *results*, int *& *frames*)

Definition at line 16 of file stvssim.cpp.

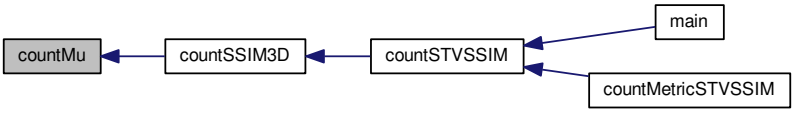
Here is the call graph for this function:



4.9.1.5 double countMu (unsigned char *** *filter*, unsigned char *** *cube*)

Definition at line 208 of file stvssim.cpp.

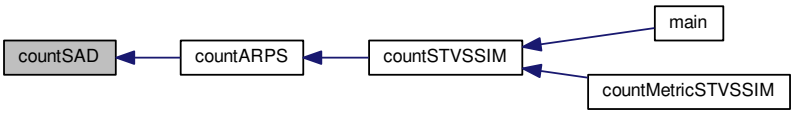
Here is the caller graph for this function:



4.9.1.6 int countSAD (unsigned char * *rect1*, unsigned char * *rect2*)

Definition at line 390 of file stvssim.cpp.

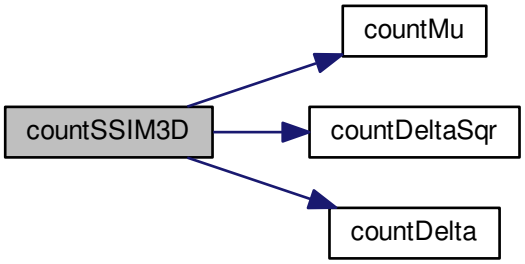
Here is the caller graph for this function:



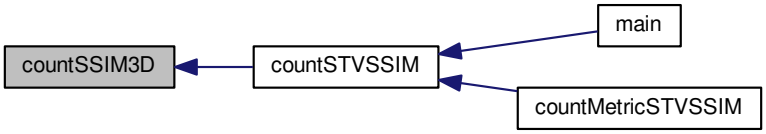
4.9.1.7 double countSSIM3D (unsigned char *** *filter*, unsigned char *** *cube1*, unsigned char *** *cube2*)

Definition at line 196 of file stvssim.cpp.

Here is the call graph for this function:



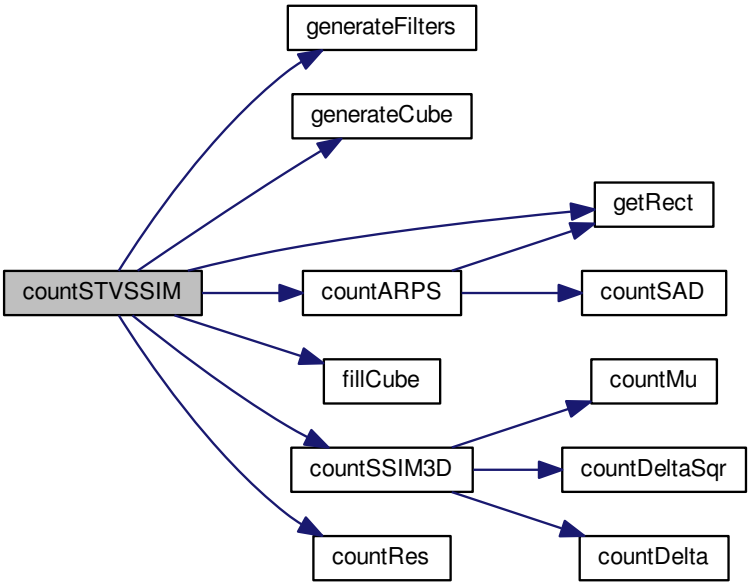
Here is the caller graph for this function:



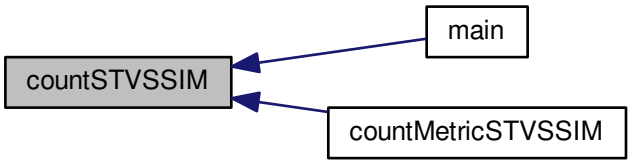
4.9.1.8 double countSTVSSIM (unsigned char ** *datain1*, unsigned char ** *datain2*, int *size*, int *width*)

Definition at line 81 of file stvssim.cpp.

Here is the call graph for this function:



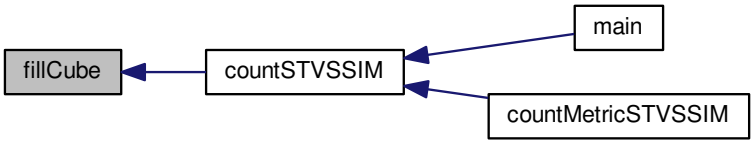
Here is the caller graph for this function:



4.9.1.9 void fillCube (unsigned char ** *datain*, int *pos*, unsigned char *** *out*, int *width*)

Definition at line 261 of file stvssim.cpp.

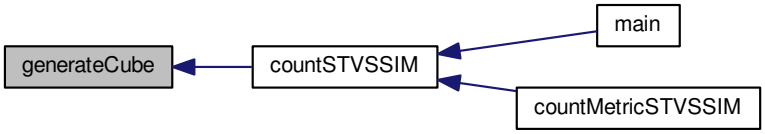
Here is the caller graph for this function:



4.9.1.10 unsigned char*** generateCube ( )

Definition at line 248 of file stvssim.cpp.

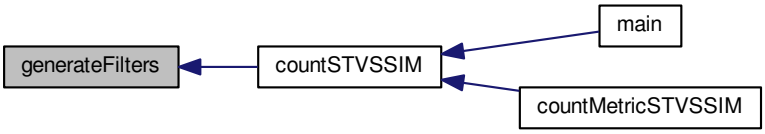
Here is the caller graph for this function:



4.9.1.11 unsigned char**** generateFilters ( )

Definition at line 270 of file stvssim.cpp.

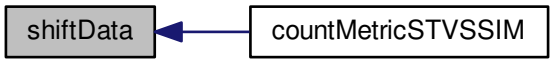
Here is the caller graph for this function:



4.9.1.12 void shiftData (unsigned char ** *data,* int *size*)

Definition at line 383 of file stvssim.cpp.

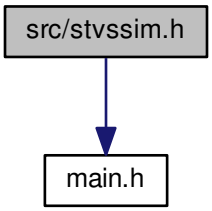
Here is the caller graph for this function:



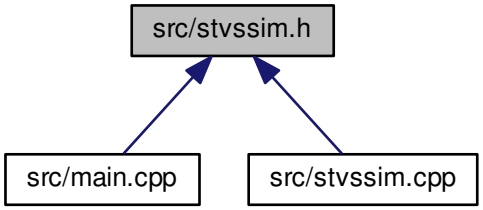
4.10 src/stvssim.h File Reference

```
#include "main.h"
```

Include dependency graph for stvssim.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct vector

Macros

- #define RECT_SIZE_ARPS 64
- #define RECT_SQRT_ARPS 8
- #define ZERO_MVMT 12
- #define FRAME_CNT 33
- #define ROOD_SIZE 2
- #define RECT_SQRT_3D 11
- #define RECT_SIZE_3D 11∗11
- #define FRAME_SKIP 16
- #define INT_MAX 2147483647

Functions

- double ∗∗ countMetricSTVSSIM (FILE ∗∗streams, FILE ∗ref, int files_count, PictureData ∗frame, string type, double ∗∗results, int ∗&frames)
- double countSTVSSIM (unsigned char ∗∗datain1, unsigned char ∗∗datain2, int size, int width)
- void shiftData (unsigned char ∗∗data, int size)
- vector countARPS (unsigned char ∗block, unsigned char ∗framePrev, int x, int y, int width, int height, int T)
- double countDelta (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube1, unsigned char ∗∗∗cube2, double muX, double muY)
- double countDeltaSqr (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube, double mu)
- double countMu (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube)
- double countSSIM3D (unsigned char ∗∗∗filter, unsigned char ∗∗∗cube1, unsigned char ∗∗∗cube2)
- unsigned char ∗∗∗ generateCube ()
- void fillCube (unsigned char ∗∗datain, int pos, unsigned char ∗∗∗out, int width)
- unsigned char ∗∗∗∗ generateFilters ()
- int countSAD (unsigned char ∗rect1, unsigned char ∗rect2)

4.10.1 Macro Definition Documentation

4.10.1.1 #define FRAME_CNT 33

Definition at line 7 of file stvssim.h.

4.10.1.2 #define FRAME_SKIP 16

Definition at line 11 of file stvssim.h.

4.10.1.3 #define INT_MAX 2147483647

Definition at line 12 of file stvssim.h.

4.10.1.4 #define RECT_SIZE_3D 11∗11

Definition at line 10 of file stvssim.h.

4.10.1.5 #define RECT_SIZE_ARPS 64

Definition at line 4 of file stvssim.h.

4.10.1.6 #define RECT_SQRT_3D 11

Definition at line 9 of file stvssim.h.

4.10.1.7 #define RECT_SQRT_ARPS 8

Definition at line 5 of file stvssim.h.

4.10.1.8 #define ROOD_SIZE 2

Definition at line 8 of file stvssim.h.

4.10.1.9 #define ZERO_MVMT 12

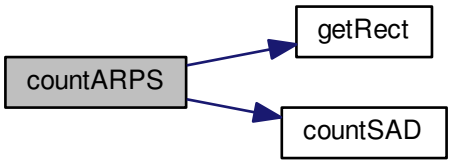
Definition at line 6 of file stvssim.h.

4.10.2 Function Documentation

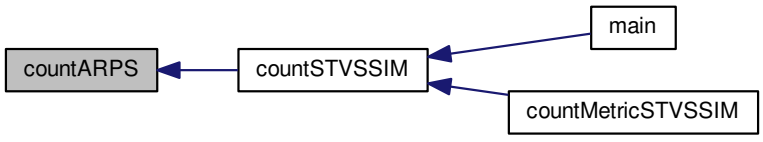
4.10.2.1 vector countARPS (unsigned char * *block*, unsigned char * *framePrev*, int *x*, int *y*, int *width*, int *height*, int *T*)

Definition at line 316 of file stvssim.cpp.

Here is the call graph for this function:



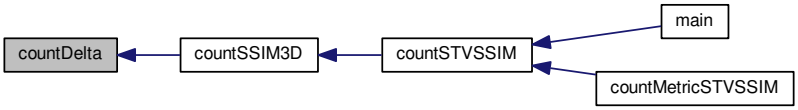
Here is the caller graph for this function:



4.10.2.2 double countDelta (unsigned char *** *filter*, unsigned char *** *cube1*, unsigned char *** *cube2*, double *muX*, double *muY*)

Definition at line 235 of file stvssim.cpp.

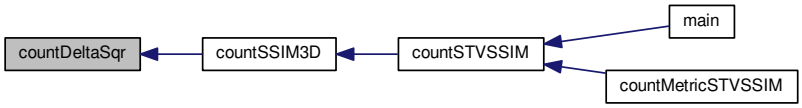
Here is the caller graph for this function:



4.10.2.3 double countDeltaSqr (unsigned char *** *filter*, unsigned char *** *cube*, double *mu*)

Definition at line 222 of file stvssim.cpp.

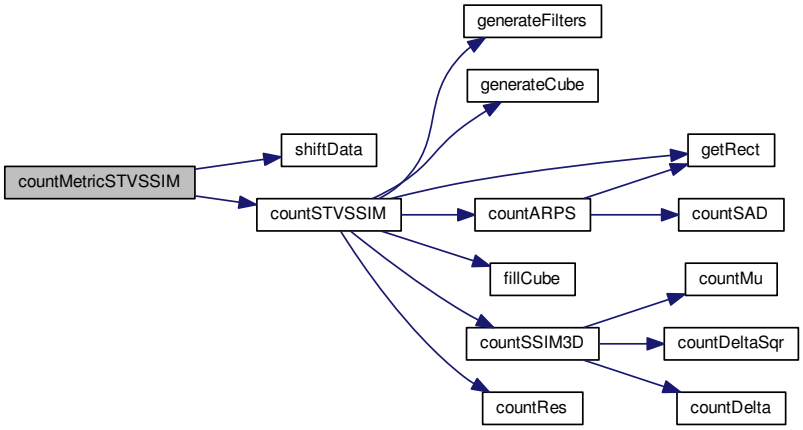
Here is the caller graph for this function:



4.10.2.4 double** countMetricSTVSSIM (FILE ** *streams*, FILE * *ref*, int *files_count*, PictureData * *frame*, string *type*, double ** *results*, int *& *frames*)

Definition at line 16 of file stvssim.cpp.

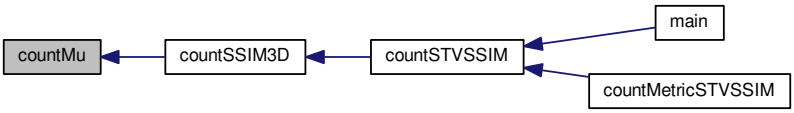
Here is the call graph for this function:



4.10.2.5 double countMu (unsigned char *** *filter,* unsigned char *** *cube*)

Definition at line 208 of file stvssim.cpp.

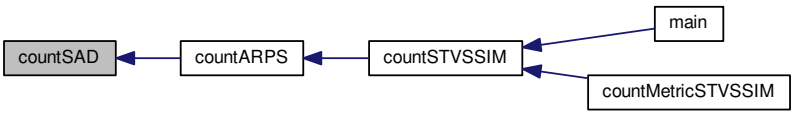
Here is the caller graph for this function:



4.10.2.6 int countSAD (unsigned char * *rect1,* unsigned char * *rect2*)

Definition at line 390 of file stvssim.cpp.

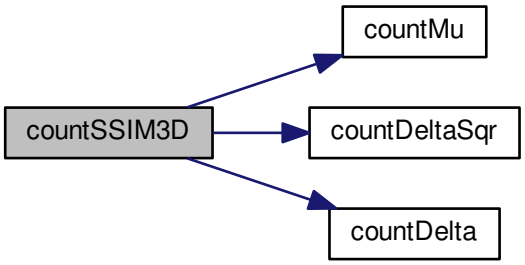
Here is the caller graph for this function:



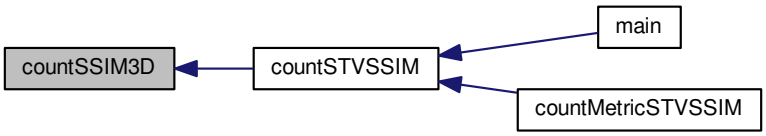
4.10.2.7 double countSSIM3D (unsigned char *** *filter,* unsigned char *** *cube1,* unsigned char *** *cube2*)

Definition at line 196 of file stvssim.cpp.

Here is the call graph for this function:



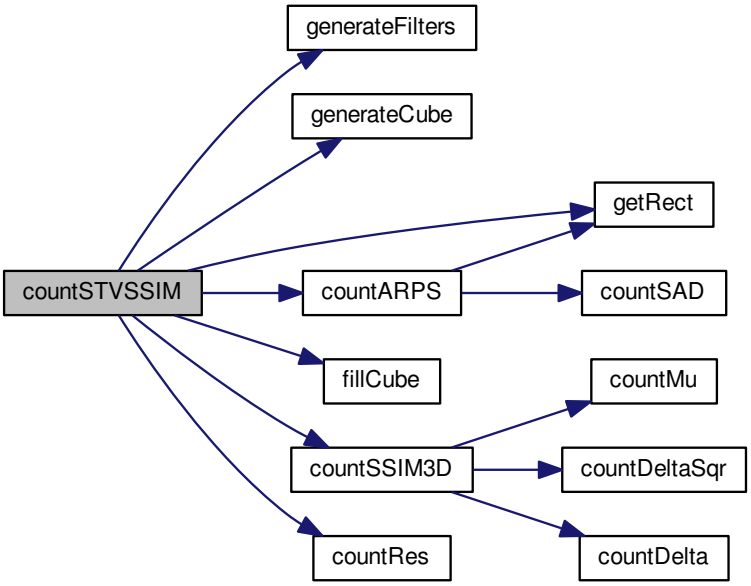
Here is the caller graph for this function:



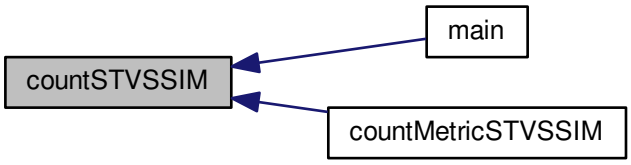
4.10.2.8 double countSTVSSIM (unsigned char ** *datain1,* unsigned char ** *datain2,* int *size,* int *width*)

Definition at line 81 of file stvssim.cpp.

Here is the call graph for this function:



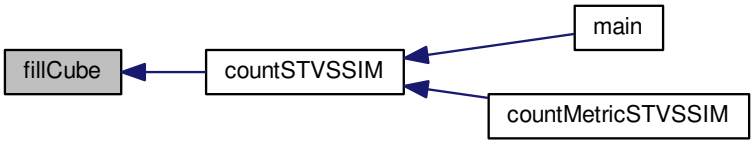
Here is the caller graph for this function:



4.10.2.9 void fillCube (unsigned char ** *datain*, int *pos*, unsigned char *** *out*, int *width*)

Definition at line 261 of file stvssim.cpp.

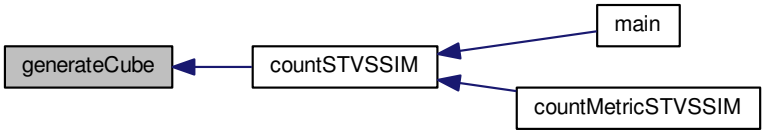
Here is the caller graph for this function:



4.10.2.10 unsigned char*** generateCube ( )

Definition at line 248 of file stvssim.cpp.

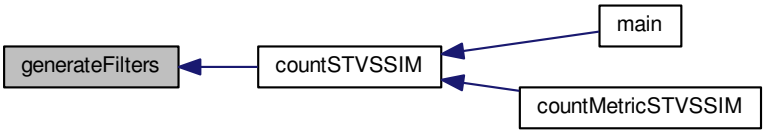
Here is the caller graph for this function:



4.10.2.11 unsigned char**** generateFilters ( )

Definition at line 270 of file stvssim.cpp.

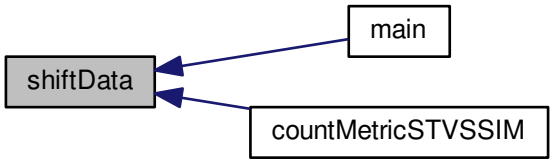
Here is the caller graph for this function:



4.10.2.12 void shiftData (unsigned char ** *data*, int *size*)

Definition at line 73 of file main.cpp.

Here is the caller graph for this function:



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