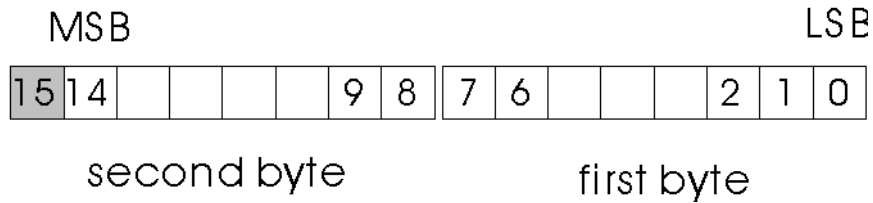


Data format of MiCAM01

(1) A WORD

One word is 16 bit signed binary. Byte order is least byte first (Intel format).

SIGN



Original data are acquired in 13bit format and adjust to 16bit word.

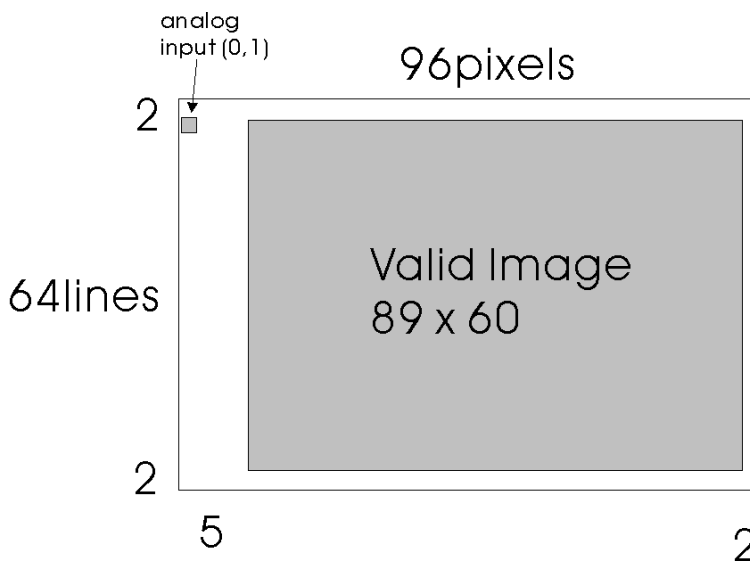
Then, original pixel data are varied from -4096 to +4097.

Most dark is -4096 and most bright is +4097.

(2) A FRAME

A frame consists from 6144word pixels (12288bytes).

Data aligned 96pixels by 64lines like picture below.



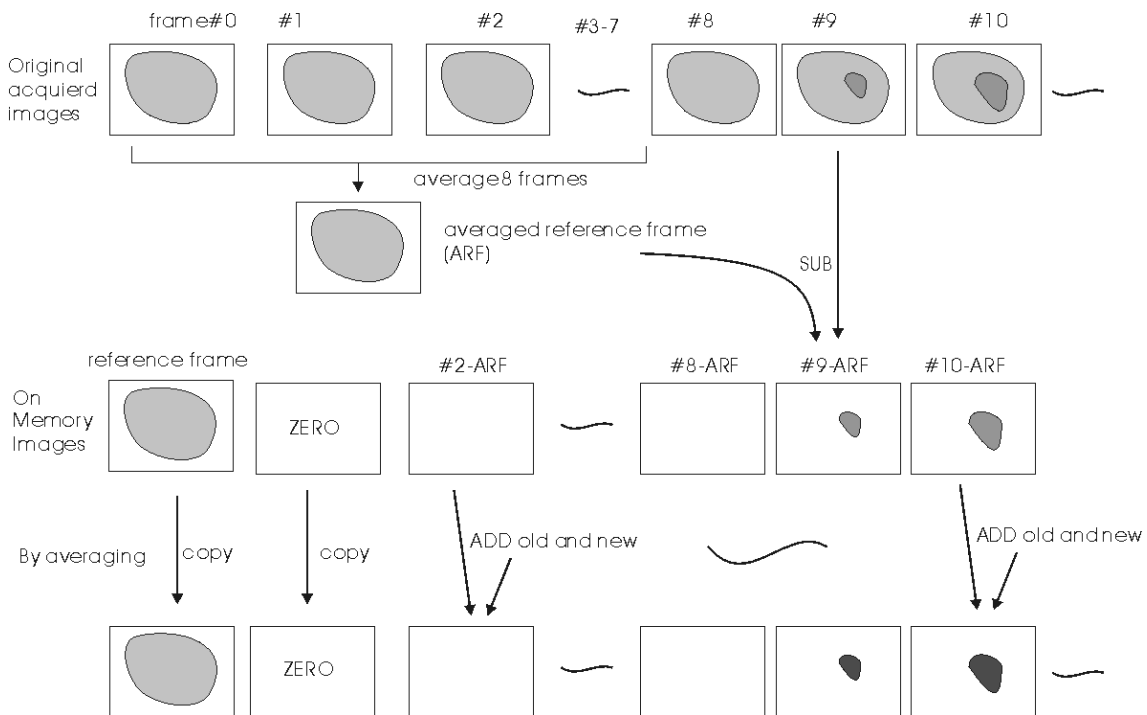
A first data is left-top corner and a last word is right-bottom corner.

(3) A DATA SET

A data set consist from several frames.

Original images set are direct acquired images by camera. And internal process calculates averaged reference and difference from it just after each acquisition finished. A data set consists from a first reference image, a zero reserved frame and several time sequence images of difference from an averaged reference. The averaged reference is calculated using first 8 frames of time sequence images. To help understanding, please see picture below.

By averaging, reference frame is copied, but others are added. Not divided by averaging event number. Normally, fractional change of VSD is very small, like 1%, thus value of difference image is also small, like -50 to +50. This allows us that several time averaging without divide operation. In experience, 100 times averaging is no problem in most of experiments. But experiment condition is must be conceder if your specimen has a big movement or another source of large fractional change rather than VSD signal.



If your specimen has large movement, please save every data set without averaging. And afterward, you must add a lot of files by hand or using another post-process software. We recommend to use IGOR software for this purpose.

Data set include header information byte 2 to 183. Averaging number is located 24byte from top of dataset. The MiCAM software adjust averaging number automatically by using header information. Header structure shown in below.

typedef struct tagAQSPARAM

{

```
    short page; //page model 0,1,3,7,15,31,63 **** 2bytes from top
    short pro_ver; //processor version
    short cam_ver; //camera version
        //bit 0 96x64/192x128 bit 1 non-inv/inv bit 2 FASTMODE bit 3 SuperFASTMODE
        //bit 4-7 0:ICX076.50M.LR 1:ICX076.50M.HR 2:ICX082.33M.HR 3:ICX248.33M.HR
        4:ICX082.33M 5:ICX248.33M
        //bit 8-11 0:camera gain=1 1:g=2 2:g=3 3:g=4 (optinal)
    short bitshift; //13bit:0 14bit:1 15bit:2 16bit:3
    short sample; //sampling rate [10usec] **** 10bytes from top
    short gainsw; //0 / 1 ( this is not working)
    short trigger; //0:inter 1:startby 2:posttrg pre25 3:pre50 4:pre75
    short interlace; //interlaced aquisition (optional)
    short pagemode; //0:single 1:sequential 2:random 3:Fast
    short pagenum; //1-64 (page number at multi pagemode) **** 20bytes from top
    short repint; //repeat interval of internal trigger mode
    short average; // average (real events = average+1) **** 24bytes from top
    short vsub_l; // vsub value (hardware dependent)
    short format; // 0:fullbit 1:diff bit only 1の時は差分
    short offset; // value of offset which set on acquire dialog box) **** 30bytes from top
    short spare1;
    short def_gain; // default gain
    short scale; // scale value
    short dgo1dly; //delay of Digital out 1 [msec]
    short dgo3dly; //delay of Digital out 3 [msec] **** 40bytes from top
    short dgo2dly; //delay of Digital out 2 [msec]
    short dgo4dly; //delay of Digital out 4 [msec]
    BYTE dgo1dura; //duration og Digital out 1 [100usec] (optional)
    BYTE dgo1rep;
    short dgo1int;
    BYTE mas_sla; //master slave mode
    // 1bit:CHK_SLAVE, 2bit:CHK_SHORT,3bit:CHK_SHTNUM, 4bit:CHK_HEADFILE,
    // 5bit:CHK_HEADFILE2, 6bit: 空き 7bit:CHK_COMMCTL
    BYTE dio;
    short auxout; //digital output mode **** 50bytes from top
```

```

short shuterdly;
short spare4;
//      **** 56byte from top//28 shorts =56byte
char filename[FILENAMELENGTH]; //20bytes      **** 58bytes from top
char comment[COMMENTLENGTH]; //32bytes      **** 78bytes from top
BYTE flag; //filesave=TRUE, fileUnSave=FALSE
BYTE com_flg; //communication item
//      1bit:CHK_COMOPTNUM,          2bit:CHK_COMOPTCOM,3bit:CHK_COMOPTSCAL,
4bit:CHK_COMOPTSEL,
//      5bit:CHK_COMOPTDGOUT, 6bit: CHK_COMOPTVIEW
//**** 110bytes from top
short processed; //      **** 112bytes from top
char time[12]; //124 byte      **** 114bytes from top
short xpx; //horizontal pixels (64 or 128)      **** 126bytes from top
short ypx; //vertical pixels (96 or 192)      **** 128bytes from top
} AQSPARAM, FAR *LPAQSPARAM;

```

Most of user need to access red colored value.

2byte from top of file	page: indicate page length 0: 341 1:682 2:1364 ,,,,
10byte from top of file	sample: indicate sample speed 10microsecond unit
24byte from top of file	average: averaging number
58byte from top of file	File-name strings (20byte)
78byte from top of file	Comment strings (32byte)
114byte from top of file	Time strings (12byte) "YMMDDHHMMSS"