



## IDT technical Note: 0008 (2013/06/13)

### “Multiple Bayer File (MRF) Format”

Multi-page Bayer Format (MRF) is an uncompressed IDT proprietary file format. Multiple raster images are stored in a single file.

Each MRF file contains a file header, an image header and an array of bytes that defines the image data bits. The image raster data is not compressed and stored in the file “as it is”. Mono images pixel depth may be 8, 9, 10, 11 or 12; color images are stored in Bayer format (8, 9, 10, 11, 12 bit) or in BGR format (24, 27, 30 ... bit). The file structures are the following.

#### File Header

The file begins with a structure that identifies the file itself.

```
typedef struct _MRFFILE_HEADER
{
    char szSign[8];           // IDT signature
    unsigned int nReserved;   // reserved
} MRFFILE_HEADER, *PMRFFILE_HEADER;
```

- **szSign[8]:** an 8 (eight) characters buffer which contains the signature “IDT-MRF”. It indicates that the file contains a valid Multiple Bayer File.
- **nReserved:** a 4 bytes unsigned integer that is reserved.

#### Image Header

The file header is followed by the image header which contains general information about the images.

```
typedef struct _MRFIMG_HEADER
{
    unsigned int nSize;           // size of this header
    unsigned int nPages;         // number of pages/frames
    unsigned int nWidth;         // image width
    unsigned int nHeight;        // image height
    unsigned int nBPP;           // bits per pixel
    unsigned int nReserved1;     // reserved
    unsigned int nReserved2;     // reserved
    unsigned int nReserved3;     // reserved
    unsigned short nBayer;       // the image is Bayer
    unsigned short nCFAPattern;  // Bayer pattern
    unsigned int userData[59];   // user data array
    unsigned int nRecSpeed;      // recording speed
} MRFIMG_HEADER, *PMRFIMG_HEADER;
```

#### Members

- **nSize:** size of the structure in bytes.
- **nPages:** number of images contained in the file.



- **nWidth**: width of each image in pixels.
- **nHeight**: height of each image in pixels.
- **nBPP**: number of bits per pixels.
- **Reserved1,2,3**: reserved values.
- **nBayer**: the image is Bayer.
- **nCFAPattern**: color filter array pattern used to de-bayer an image (0:GRBG, 1:BGGR, 2:RGGB, 3:GBRG).
- **userData**: an array of 59 unsigned integer values.
- **nRecSpeed**: the recording speed multiplied by 1000.

### Data Array

The image header is followed by the images data. Images are stored contiguously in uncompressed format.

### Data Types

The table below shows the data types used in this document.

Data Type	Size [bytes]
char	1
unsigned short	2
unsigned int	4