

How to set HDR, CMS and STD modes on MX377 in API V4_19_14.

HDR mode

API:

```
//-----  
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_PIXEL_SEQUENCER);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_PIXSEQ_SELECTOR);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_PIXSEQ_TWO_VALUES);  
  
//-----  
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_FPGA);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_MUXER);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR,  
XI_DP_PARAM_CHMUX_CHANNEL_SELECTOR);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHMUX_MERGED);  
  
//-----  
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_1);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_HG);  
  
//-----  
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_2);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_LG);
```

xiCamTool:

- Make sure *xiapi_camera_description_FULL.xml* file located in *..\XIMEA\XIMEACamTool64\camdesc* folder is either renamed or deleted before xiCamTool is started.
- After opening xiCamTool set the visibility level to **Guru** via menu->Edit->Options->Display. This will ensure all necessary controls are visible on the **Extended Features** tab of the Settings panel
- Make sure acquisitions is not running.
- In the **Extended Features** tab set the following parameters for *Data Pipe Unit Selector = Sensor*:

Data Pipe Unit Selector: Sensor | FPGA

Data Pipe processor Selector: PixelSequencer

Data Pipe processor parameter Selector: PixSeqSelector

Data Pipe processor parameter value: 6.00

- and set the following parameters for *Data Pipe Unit Selector = FPGA*

Data Pipe Unit Selector: Sensor | FPGA

Data Pipe processor Selector: ChannelMuxer

Data Pipe processor parameter Selector: ChMuxChannelSelector

Data Pipe processor parameter value: 3.00

- set the following parameters for *Data Pipe Unit Selector = Sensor*

Data Pipe Unit Selector: Sensor | FPGA

Data Pipe processor Selector: Channel1

Data Pipe processor parameter Selector: ChannelTiming

Data Pipe processor parameter value: 7.00

- set the following parameters for *Data Pipe Unit Selector = Sensor*

Data Pipe Unit Selector: Sensor | FPGA

Data Pipe processor Selector: Channel2

Data Pipe processor parameter Selector: ChannelTiming

Data Pipe processor parameter value: 8.00

HDR + CMS2.

API:

```
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_PIXEL_SEQUENCER);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_PIXSEQ_SELECTOR);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_PIXSEQ_FOUR_VALUES);
//-----

xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_FPGA);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_MUXER);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR,
XI_DP_PARAM_CHMUX_CHANNEL_SELECTOR);
```

```

xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHMUX_MERGED);

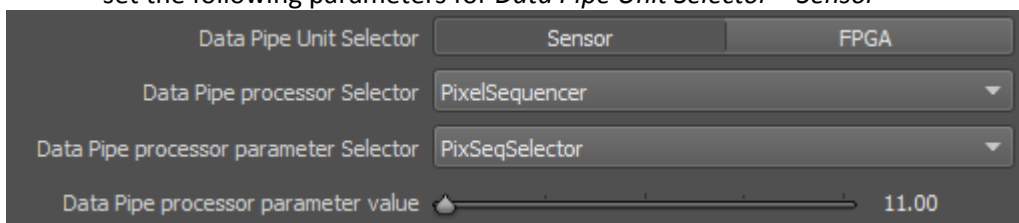
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_1);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_HG);

//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_2);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_LG);

```

xiCamTool:

- Make sure acquisitions is not running.
- set the following parameters for *Data Pipe Unit Selector = Sensor*



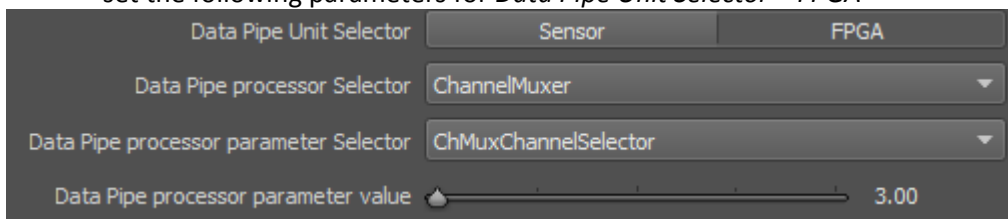
Data Pipe Unit Selector: Sensor

Data Pipe processor Selector: PixelSequencer

Data Pipe processor parameter Selector: PixSeqSelector

Data Pipe processor parameter value: 11.00

- set the following parameters for *Data Pipe Unit Selector = FPGA*



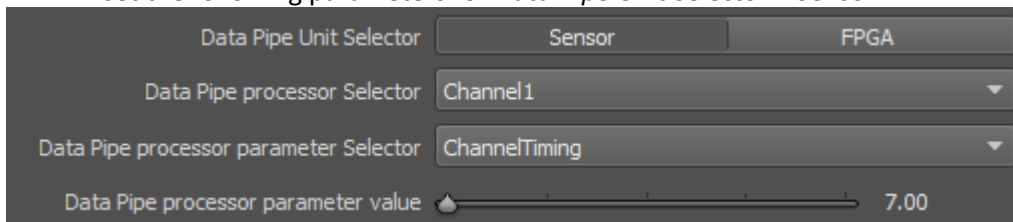
Data Pipe Unit Selector: FPGA

Data Pipe processor Selector: ChannelMuxer

Data Pipe processor parameter Selector: ChMuxChannelSelector

Data Pipe processor parameter value: 3.00

- set the following parameters for *Data Pipe Unit Selector = Sensor*



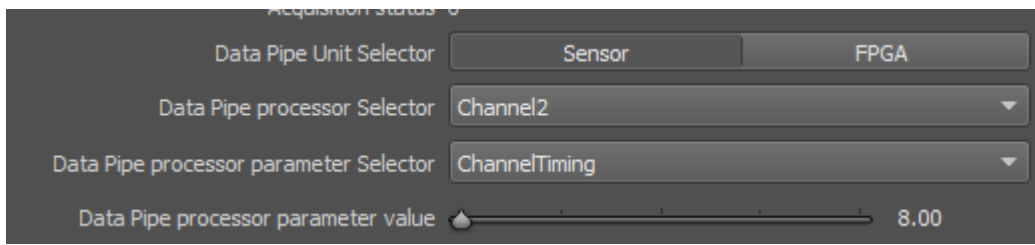
Data Pipe Unit Selector: Sensor

Data Pipe processor Selector: Channel1

Data Pipe processor parameter Selector: ChannelTiming

Data Pipe processor parameter value: 7.00

- set the following parameters for *Data Pipe Unit Selector = Sensor*



CMS modes.

CMS2.

API:

```
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_PIXEL_SEQUENCER);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_PIXSEQ_SELECTOR);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_PIXSEQ_TWO_VALUES);

//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_FPGA);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_MUXER);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR,
XI_DP_PARAM_CHMUX_CHANNEL_SELECTOR);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHMUX_CMS);

//-----
```

For Low gain

```
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_1);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_LG);

//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_2);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_LG);

//-----
```

For High gain

```
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
```

```

xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_1);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_HG);
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_2);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_HG);
//-----

```

For 12 bit per channel

```

xiSetParamInt(xiH, XI_PRM_SENSOR_DATA_BIT_DEPTH, XI_BPP_12);
//-----

```

For 14 bit per channel

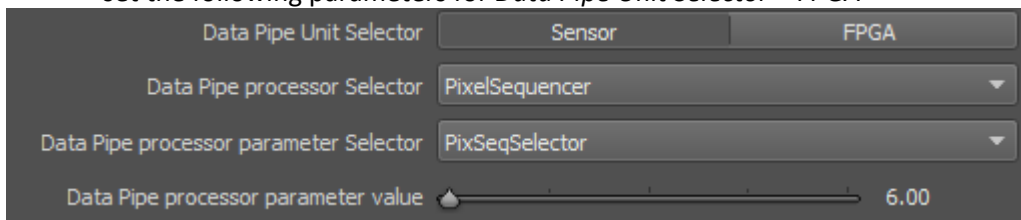
```

xiSetParamInt(xiH, XI_PRM_SENSOR_DATA_BIT_DEPTH, XI_BPP_14);

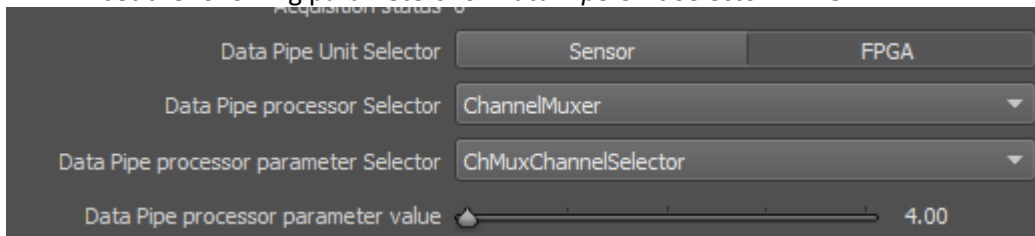
```

xiCamTool:

- Make sure acquisitions is not running.
- set the following parameters for *Data Pipe Unit Selector = FPGA*



- set the following parameters for *Data Pipe Unit Selector = FPGA*



For Low gain

Data Pipe Unit Selector	<input checked="" type="radio"/> Sensor	<input type="radio"/> FPGA
Data Pipe processor Selector	Channel1	
Data Pipe processor parameter Selector	ChannelTiming	
Data Pipe processor parameter value	<input type="range"/> 7.00	

Data Pipe Unit Selector	<input checked="" type="radio"/> Sensor	<input type="radio"/> FPGA
Data Pipe processor Selector	Channel2	
Data Pipe processor parameter Selector	ChannelTiming	
Data Pipe processor parameter value	<input type="range"/> 7.00	

For High gain

Data Pipe Unit Selector	<input checked="" type="radio"/> Sensor	<input type="radio"/> FPGA
Data Pipe processor Selector	Channel1	
Data Pipe processor parameter Selector	ChannelTiming	
Data Pipe processor parameter value	<input type="range"/> 7.00	

Data Pipe Unit Selector	<input checked="" type="radio"/> Sensor	<input type="radio"/> FPGA
Data Pipe processor Selector	Channel2	
Data Pipe processor parameter Selector	ChannelTiming	
Data Pipe processor parameter value	<input type="range"/> 7.00	

For 12 bit per channel

Sensor data bit depth	<input checked="" type="radio"/> 12	<input type="radio"/> 14			
Device output data bit depth	<input checked="" type="radio"/> 12	<input type="radio"/> 16			
Image data bit depth	<input type="radio"/> 10	<input type="radio"/> 12	<input type="radio"/> 14	<input type="radio"/> 16	<input type="radio"/> 24

For 14 bit per channel

Sensor data bit depth	<input checked="" type="radio"/> 12	<input type="radio"/> 14			
Device output data bit depth	<input checked="" type="radio"/> 12	<input type="radio"/> 16			
Image data bit depth	<input type="radio"/> 10	<input type="radio"/> 12	<input type="radio"/> 14	<input type="radio"/> 16	<input type="radio"/> 24

CMS4.

API:

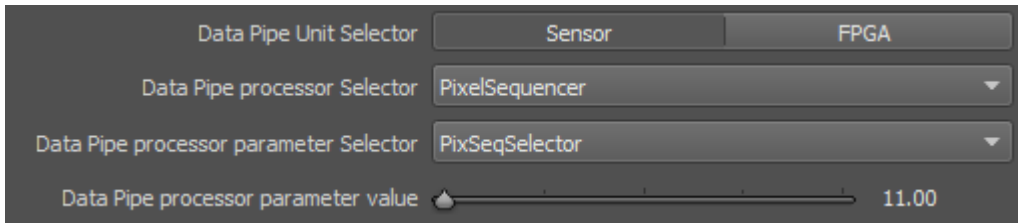
The same as for CMS2, the only difference is:

//-----

```
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_PIXEL_SEQUENCER);
```

```
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_PIXSEQ_SELECTOR);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_PIXSEQ_FOUR_VALUES);
```

xiCamTool:



STD.

API:

```
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_PIXEL_SEQUENCER);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_PIXSEQ_SELECTOR);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_PIXSEQ_ONE_VALUE);
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_FPGA);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_MUXER);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR,
XI_DP_PARAM_CHMUX_CHANNEL_SELECTOR);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHMUX_CHANNEL_1_2);
//-----
```

For Low gain

```
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_1);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_LG);
//-----
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_2);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_LG);
//-----
```

For High gain

```
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_1);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_HG);  
  
//-----  
xiSetParamInt(xiH, XI_PRM_DP_UNIT_SELECTOR, XI_DP_UNIT_SENSOR);  
xiSetParamInt(xiH, XI_PRM_DP_PROC_SELECTOR, XI_DP_PROC_CHANNEL_2);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_SELECTOR, XI_DP_PARAM_CHANNEL_TIMING);  
xiSetParamInt(xiH, XI_PRM_DP_PARAM_VALUE, XI_DP_PARAM_VALUE_CHTIM_HG);  
  
//-----
```

For 12 bit per channel

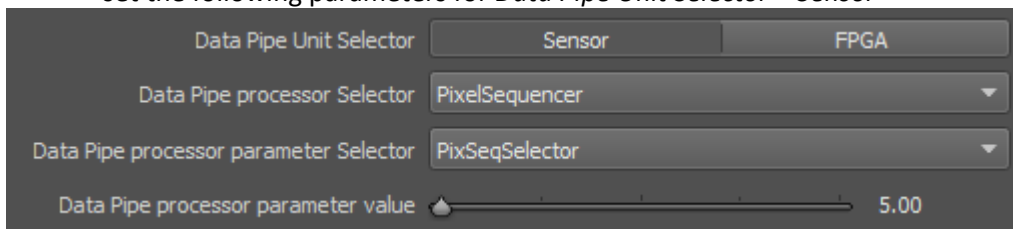
```
xiSetParamInt(xiH, XI_PRM_SENSOR_DATA_BIT_DEPTH, XI_BPP_12);  
  
//-----
```

For 14 bit per channel

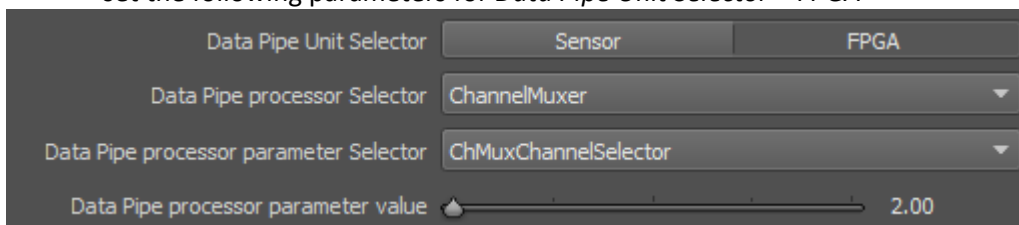
```
xiSetParamInt(xiH, XI_PRM_SENSOR_DATA_BIT_DEPTH, XI_BPP_14);
```

xiCamTool:

- Make sure acquisitions is not running.
- set the following parameters for *Data Pipe Unit Selector = Sensor*



- set the following parameters for *Data Pipe Unit Selector = FPGA*



For Low gain

See CMS

For High gain

See CMS

For 12 bit per channel

See CMS

For 14 bit per channel

See CMS