High Definition Color Camera Module HDCAM 1.0a

Developer's Guide

PRELIMINARY
INFORMATION CONTAINED HEREIN IS SUBJECT
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Chapter 1 Introduction to the HDCAM

OVERVIEW

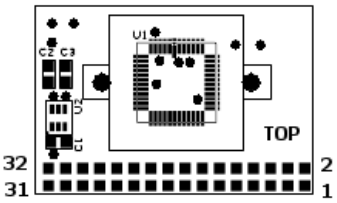
The Raptor Engineering High Definition Color Camera Module [HDCAM] is a high performance HDTV-ready digital camera module. This module utilizes an Aptina MT9P031 color CMOS sensor, and features native 2592x1944 pixel resolution with a framerate of up to 60 FPS.

The HDCAM camera module is specifically designed for use with the Raptor Engineering VDFPGA development board, however, it is also electrically compatible with most systems that utilize the OmniVision OV7620 evaluation module.

The digital protocol used by this camera is described in detail in the Aptina MT9P031 public datasheet, which is available for download on the Raptor Engineering website.

A 6.0mm focal length F1.8 lens module is installed; other lens options may be available upon request.

HARDWARE



Interface Header Pin Number:	Pin Description:	Interface Header Pin Number:	Pin Description:
1	DOUT10	17	PIXCLK
2	DOUT11	18	GND
3	DOUT8	19	+5V
4	DOUT9	20	EXTCLK
5	DOUT6	21	+5V
6	DOUT7	22	GND
7	DOUT4	23	OE#
8	DOUT5	24	RESET#
9	DOUT2	25	TRIGGER
10	DOUT3	26	STANDBY#
11	N/C	27	SADDR
12	SDATA	28	STROBE
13	DOUT1	29	LINE_VALID
14	SCLK	30	FRAME_VALID
15	DOUT0	31	+2.8V CMD*
16	GND	32	GND

* Camera Module Detect [CMD] is an output reference voltage only.

HDCAM Camera Port UCF for VDFPGA Development Board:

```
NET "camera_data_port<0>" LOC = "K22";    NET "camera_data_lvalid" LOC = "R21";
NET "camera_data_port<1>" LOC = "J22";    NET "camera_data_fvalid" LOC = "R22";
NET "camera_data_port<2>" LOC = "F20";    NET "camera_data_pclk" LOC = "E12";
NET "camera_data_port<3>" LOC = "F22";    NET "camera_data_extclk" LOC = "V11";
NET "camera_data_port<4>" LOC = "E20";    NET "camera_data_scl" LOC = "G20";
NET "camera_data_port<5>" LOC = "E22";    NET "camera_data_sda" LOC = "G22";
NET "camera_data_port<6>" LOC = "D22";    NET "camera_data_oe" LOC = "L22";
NET "camera_data_port<7>" LOC = "D21";    NET "camera_data_reset" LOC = "M22";
NET "camera_data_port<8>" LOC = "C22";    NET "camera_data_strobe" LOC = "P20";
NET "camera_data_port<9>" LOC = "C21";    NET "camera_data_saddr" LOC = "P22";
NET "camera_data_port<10>" LOC = "B22";   NET "camera_data_trigger" LOC = "N22";
NET "camera_data_port<11>" LOC = "B21";   NET "camera_data_standby" LOC = "N21";
```

If you encounter any hardware problems, please contact us at support@raptorengineeringinc.com.

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