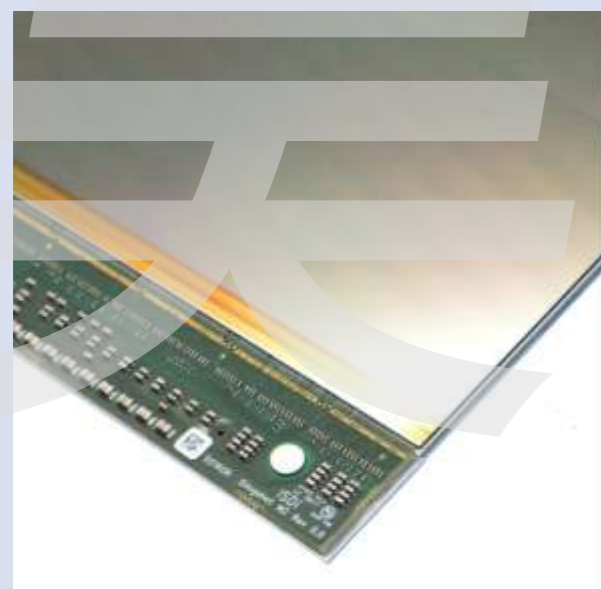![isdi logo] Image Sensor Design & Innovation

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CMOS Image Sensors

Standard products

ISDI is an innovator in the field of high performance CMOS image sensors, offering custom sensor designs as well as standard products.

The product range covers one-off designs to high volume manufacturing.

ISDI was formed in 2010 by a group of semiconductor designers with deep knowledge and experience in CMOS image sensors, gained through projects in the scientific and research sectors. Since inception, ISDI has evolved from a designer of scientific sensors to a manufacturer of wafer scale imaging devices for a wide range of applications.

Sensors are delivered in a format suitable for board-to-board or board-to-cable connection to a data acquisition PCB. Digital interfaces are designed for direct connection to an FPGA or ASIC.

For 50µm and 100 µm sensors, development boards are available with Camera Link, USB or GigEVision connection, for quick evaluation of sensor performance. These are also available as reference designs for rapid prototyping of imaging system hardware.

All sensors are designed for low noise operation in an X-ray environment and are suitable for fibre optic plate (FOP) bonding or direct scintillator deposition.

CMOS Image Sensor Product Range

A versatile, feature-rich range of wafer-scale image sensors incorporating ISDI's patented radiation-hard low noise pixel architecture.

Sensors may be butted to create a larger contiguous image area.

Common features:

- Rolling shutter exposure
- Switchable high and low full well (HFW, LFW) for high and low sensitivity applications
- On chip temperature sensor
- Dynamically re-programmable region of interest (ROI)
- Non-destructive readout option

	Active area (V x H cm)	Pixels V	Pixels H	Frame rate max (fps)	Output type*	Features**	Full well (e-)	Readout noise (e-)	Dynamic range	Packaged size (cm)	Butting
50 µm pixel sensors											
IS-1313	13.0 x 13.0	2600	2600	16 (no binning) 30 (1 x 2 binning)	7 x analogue differential	2FW, BIN	LFW = 150k HFW = 2.0M	LFW = 90 HFW = 350	LFW = 64.4 dB HFW = 75.1 dB	15.4 x 13.0	3 side
AR-1511	11.0 x 14.5	2200	2900	27	22 x LVDS 16 bit	2FW, ADC	LFW = 200k HFW = 2.2M	LFW = 70 HFW = 200	LFW = 69.1 dB HFW = 80.8 dB	13.5 x 14.5	3 side
PS-1412	14.0 x 12.0	2800	2400	29	18 x LVDS 14 bit	2FW, ADC	LFW = 260k HFW = 2.0M	LFW = 84 HFW = 430	LFW = 69.9 dB HFW = 73.6 dB	14.4 x 14.0	3 side
PS-0606	6.0 x 5.4	1200	1070	51	8 x LVDS 14 bit	2FW, ADC	LFW = 260k HFW = 2.0M	LFW = 84 HFW = 430	LFW = 69.9 dB HFW = 73.6 dB	5.4 x 6.3	3 side
75 µm pixel sensors											
IS-0712	11.4 x 6.5	1536	864	30 (no binning)	6 x analogue differential	2FW, BIN	LFW = 411k HFW = 2.5M	LFW = 115 HFW = 540	LFW = 71.1 dB HFW = 73.3 dB	11.4 x 7.9	3 side
IS-1512	11.4 x 14.9	1536	1984	86 (2 x 2 binning)						11.4 x 16.3	3 side
100 µm pixel sensors											
IS-0510	10.3 x 5.1	1030	512	198	50 x serial CMOS 14 bit	2FW, ADC	LFW = 440k HFW = 2.5M	LFW = 124 HFW = 508	LFW = 71.0 dB HFW = 73.8 dB	10.3 x 7.4	3 side
IS-1510	10.3 x 15.4	1030	1536	66						10.3 x 17.6	3 side
IS-3131	30.5 x 30.9	3052	3090	66	300 x serial CMOS 14 bit					35.2 x 30.9	2 side
NE-1511	11.0 x 14.5	1100	1450	108	22 x LVDS 16 bit		LFW = 350k HFW = 2.5M	LFW = 80 HFW = 270	LFW = 70.8 dB HFW = 79.3 dB	13.5 x 14.5	3 side
NE-1515	15.0 x 15.1	1500	1505	58	24 x LVDS 16 bit					17.5 x 15.1	3 side
NE-2222	22.0 x 21.7	2201	2173	108	68 x LVDS 16 bit					27.0 x 22.1	2 side
HP-1615	15.0 x 16.1	1500	1610	68	24 x LVDS 14 bit		LFW = 400k HFW = 3.0M	LFW = 110 HFW = 580	LFW = 71.0 dB HFW = 73.8 dB	17.5 x 16.1	3 side
HP-2301	0.72 x 23.3	76	2331	1360	44 x LVDS 14 bit					3.7 x 23.3	3 side
150 µm pixel sensors											
IS-0510-150	10.3 x 5.1	688	340	300	32 x LVDS 14 bit	3FW, ADC	LFW = 800k MFW = 4.5M HFW = 21M	LFW = 190 MFW = 865 HFW = 3970	LFW = 72.5 dB MFW = 74.3 dB HFW = 74.5 dB	10.2 x 7.4	3 side
IS-1510-150	10.3 x 15.3	688	1020	100						10.2 x 17.6	3 side

*   NE- series sensors can be configured for 16-bit operation. All frame rates apply to 14-bit operation

** Features key: 2FW = 2 full well modes, 3FW = 3 full well modes, BIN = 1x1 or 2x2 binning modes, ADC = per-column A-D converters,

*** Provisional data

All of the above sensors are available in custom formats. All specifications are subject to change through our continuous improvement programme.