CMOS image sensor

HP-1615

Offering an extended field of view, the HP-1615 sensor is targeted at high specification extra-oral dental X-ray detectors and mini C-arm flat panel detectors, but can be used in a wide variety of applications.

With a 100µm pixel size, and a high frame rate combined with >70dB dynamic range in high-sensitivity mode, HP-1615 gives excellent image quality at minimal dose per frame for real-time imaging in surgical procedures. The excellent stability and speed offered by CMOS make HP-1615 ideal for cone beam CT. In addition, IDSI's unique radiation-hard pixel architecture ensures an extended working life in higher-energy X-ray applications.

Per-column ADCs and multiple serial data channels enable fast frame rates, while two switchable gain modes allow the sensor to be used either for either high sensitivity for fast frame rates, or for high dynamic range for static imaging. Region of interest (ROI) programming offers even higher frame rates where a smaller field of view is required. This sensor supplied optionally with a fibre optic plate (FOP) attached. ISDI provides a full support package for design-in, including a PC-based evaluation kit and a proven hardware/firmware reference design for rapid time-to-market.

Key features

- Reference design: PCB and firmware sources
- Windows application software and SDK for image capture and sensor control
- Full design support from ISDI applications engineering team

Specifications

	HP-1615
Active area (cm)	16.1 x 15.0
Resolution (h x v)	1610 x 1500
Frame rate max	92 Hz
Digital outputs	24 LVDS

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Specifications/packaging

HP-1615

Active area (cm)	16.1 x 15.0
Resolution (hxv)	1610 x 1500 pixels
Full Frame Rate, max	92 Hz
Digital outputs	24 x LVDS, 187MHz
Pixel Pitch	100µm
Gain modes	Dual gain: high or low full well
Frame rate in ROI mode	7.1 µs/row
Minimum ROI size	2 rows
Readout architecture	Rolling shutter
Non-destructive readout mode	Yes
Temperature sensor on chip	Yes
QE @ 550nm	51%
Operating temperature	10 – 50°C
Programming interface	Register control, serial data input
Tile butting (for larger arrays)	3-side
RoHS	Yes
Connector type	Samtec QTH series
Package	Silicon wire-bonded to PCB, ceramic substrate, 6 mounting holes
Saturation in linear range HFW	3.0 Me-
Saturation in linear range LFW	365 ke-
Dynamic range HFW	73.7 dB
Dynamic range LFW	70.2 dB

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