

# HP-1615 CMOS image sensor

Offering an extended field of view, the HP-1615 sensors 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.

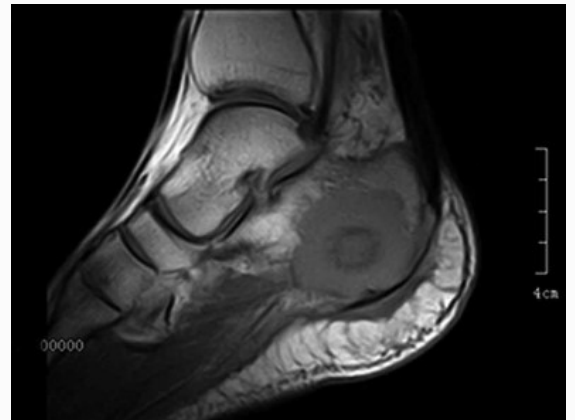
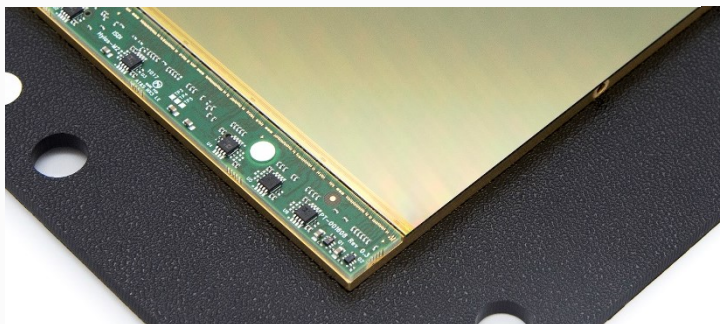
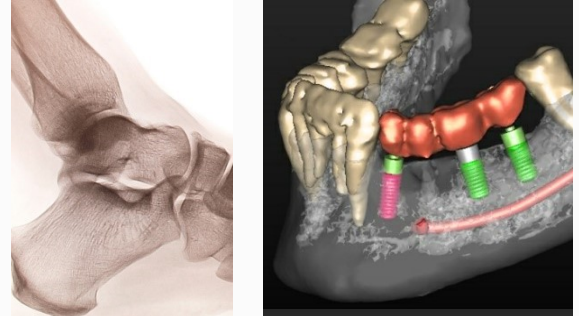
With a 100µm pixel size, and a high frame rate combined with >70dB dynamic range in high-sensitivity mode, HP-1615 gives excellent image quality at minimal dose per frame for real-time imaging in surgical procedures. The excellent stability and speed offered by CMOS make HP-1615 ideal for cone beam CT. In addition, ISDI'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.



## Sensor package

Sensors are delivered as modules on a ceramic substrate with a board-to-board connector suitable for direct mounting to a PCB. The sensors are supplied bare or ready bonded to FOP, with 2mm – 5mm thickness, rad-hard and non-browning options available.

## HP-1615 specifications

Active area (cm)	16.1 x 15.0	
Resolution (h x v)	1610 x 1500 pixels	
Full frame rate, max	92 Hz	
Digital outputs	24 x LVDS, 187MHz	
Pixel pitch	100µm	
On chip ADC	14 bits	
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, six mounting holes	
	<u>Low FW</u>	<u>High FW</u>
Pixel noise, rms	<112 e-	<622 e-
Saturation in linear range	365 ke-	3.0 Me-
Dynamic range	70.2 dB	73.7 dB
Conversion gain	22 e-/DN	183 e-/DN

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