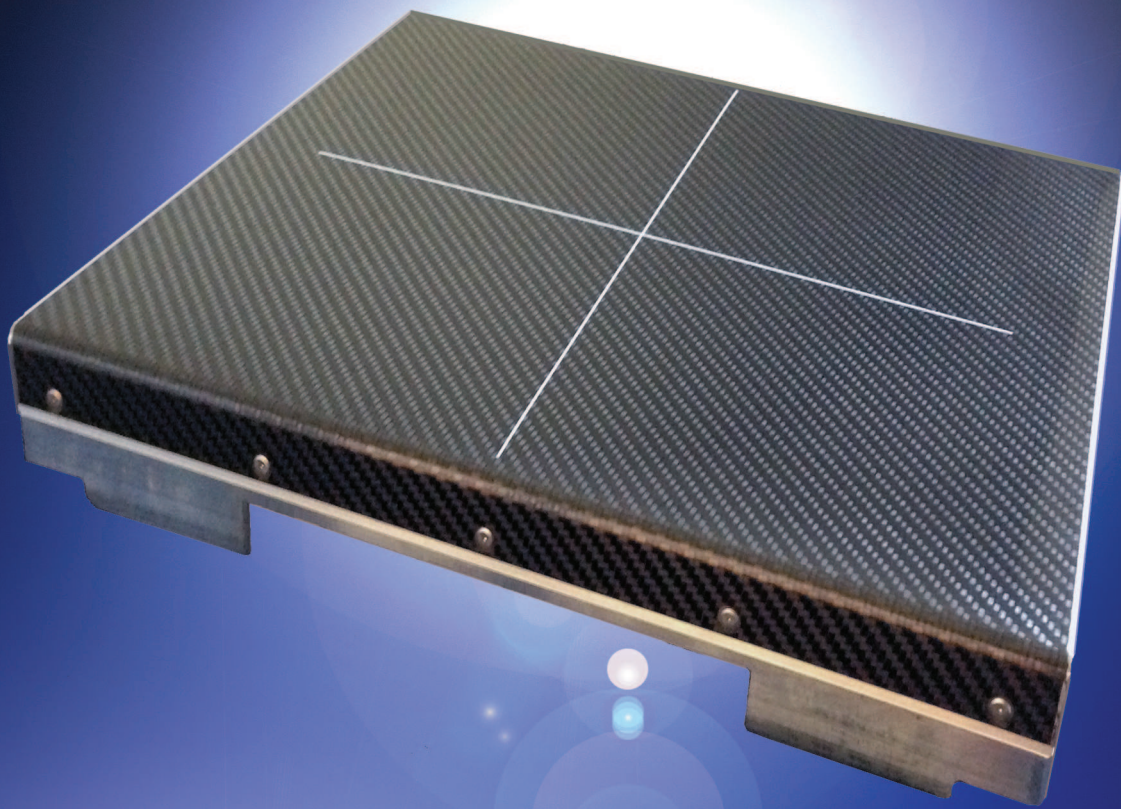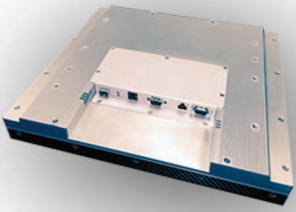# CMOS
X-Ray Detectors

MX CFP Detectors

Key Features

+ CMOS sensor imaging technology

+ Low noise

+ High DQE

+ High gain mode for Fluorocopy
  Exposure Levels

+ Low gain mode for Radiographic
  and Serial Radiographic Imaging

+ Automatic Exposure Sensing
  > Used for Automatic Exposure
    Control

  > External trigger for Image
    Acquisition

+ X-Ray Generator Synchronization
  (X-ray Exposure trigger output)

+ Absence of Image Lag , Ghosting
  and other Artifacts

+ Maximum Frame Rate at Full
  Resolution

+ Smart Detector Option to perform Gain,
  Offset, and Pixel Correction

+ Complete Integration with
  MX 200e/MX 300e Image
  Acquistion Systems

+ GigE Vision, Fiber, or Camera
  Link Interface

MX Imaging Inc.
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Torrance, California 90503
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MX CFP Flat Panel Detectors

The MX Imaging CMOS Flat Panel Detectors are designed for medical imaging applications, and are fully integrated with our MX 200e/MX 300e product lines. The Detectors use a state of the art CMOS Imaging Sensor that is based on a special pixel architecture enabling the detectors to be used in high sensitivity mode for x-ray fluoroscopy/pulsed fluoroscopy applications, and low gain mode with large dynamic range for radiography and serial radiography applications.

DQE of CMOS Detectors
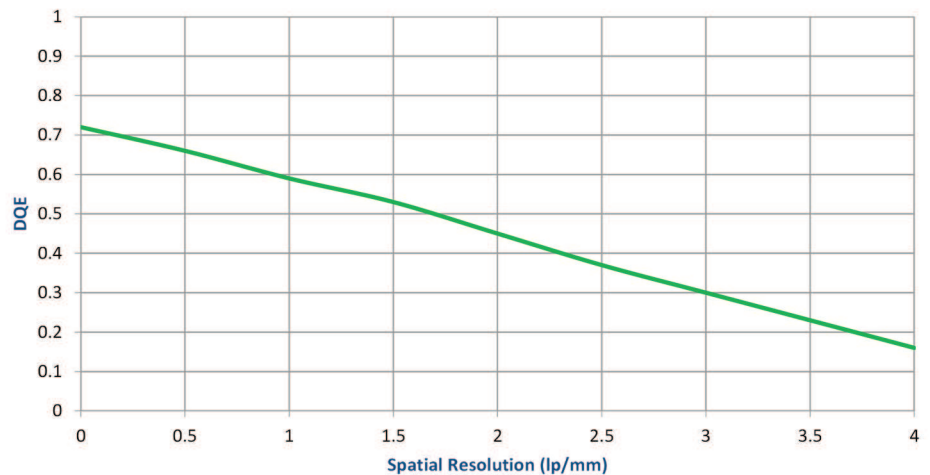
Detector Technology

The x-ray detectors are based on a proven technology using state of the art CMOS image sensors. The CMOS image sensors are coupled to fiber-optics and a x-ray scintillator producing a fast low noise, high sensitivity Flat Panel detector producing high DQE images for Medical X-ray applications.

Interface Connection Diagram
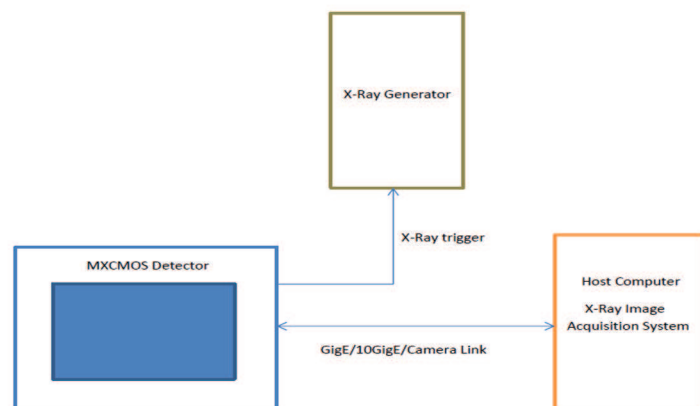
Detector Sizes and Applications:

15 x 15cm Flat Flat panel Detectors
Used for mini C-arm , Dental, and industrial applications.

20 x 22 cm and 31 x 31 cm Flat Panel Detectors
Used for Interventional Vascular, Cardiovascular, Mobile C-arm and cone beam CT. applications

Imaging Performance

Pixel Size:	99 micron pixels
Pixel Depth:	14 bit on board ADC
Binning Modes:	1 x 1, 2 x 2, 3 x 3, 4 x 4
Total Pixels (15 x 15)	Active Area: 15 cm x 15 cm 1548 x 1548 pixels Custom ROI
Total Pixels (20 x 22):	Active Area: 20 cm x 22 cm 2064 x 2236 Pixels 1032 x 1118 2 x 2 binning Custom ROI
Total Pixels (31 x 31):	Active Area: 31 cm x 31 cm 3096 x 3096 Pixels Center ROI Acive Area: 20 cm x 20 cm 2048 x 2048 (1 x 1) 1024 x 1024 (2 x 2) Custom ROI
X-Ray Coversion Layer:	600 microns CsI DRZ Plus
Saturation Level:	450 Ke-in High Gain 2.2 Me in Low Gain
Pixel Gain:	4.3 uV/e in High Gain 1 uV/e in Low Gain
Readout Noise:	4.7 LSB 3.1 LSB
Dynamic Range:	71 dB 75 dB
Dark Current:	~8000 e/s/pixel
Fill Factor:	85%
DQE:	> 70% at 0.5 lp/mm

Maximum Frame Rates:

15 x 15 cm Flat Panel Detector
Full Resolution:
Fiber Interface (30 fps)
Cat 5 (30 fps), Cat 5 (24 fps)
Camera Link (30 fps)

20 x 22 cm Flat Panel Detector
Full Resolution:
Fiber Interface (30 fps)
Cat 5 (18 fps)

31x31 cm Flat Panel Detector
Full Resolution:
Fiber Interface (30 fps)
Cat 5 (12.5 fps)

Physical Dimensions:
15 x 15 = 22.5 x 19 x 3.7 cm
20 x 22 = 29 x 23.5 x 4.7 cm
31 x 31 = 37.2 x 32.2 x 5.2 cm

Detector Interfaces:
Fiber, GigE or Camera Link Interfaces
Fully integrated with the MX 200e/MX 300e Image
Acqusition Systems
Custom Detector Interfaces for OEM customers

X-Ray Generator Interface:
Automatic triggering by Automatic Exposure Sensing
X-Ray trigger Output (0-3V)
Custom X-Ray Generator Interfaces for OEM customers

Regulatory:
CE Mark according to Medical Device Directive
EN 60601-1 3rd Edition EN 60601-1-2

MX CFP Detectors

For more information regarding the MX CMOS
Flat Panel Detectors, please contact us at:

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