



## 50MP 4-lanes MIPI Camera Module

### Key Properties

IMX766 Image Sensor  
10/8-bit RAW format  
Frame Rate: 30fps ~ 120fps  
Max Resolution: 8192 x 6144  
S-Mount : M12  
Lenses Type: Fixed Focus

### Application

Robotics & drones / Smart traffic & surveillance / Machine learning / AI version / AI inspection / video conference

### Feature

- ◆ 50M(8163x6120) image sensor IMX766
- ◆ Quad Bayer 4-in-1 Pixel Technology
  - High Sensitivity Mode: Achieves a massive 2.0um equivalent pixel size through pixel binning, significantly enhancing low-light imaging performance and reducing noise
- ◆ Megapixel with M12 lenses holder
- ◆ 8/10-bit RAW data



### Introduction

The MCM50M120M12 is a professional-grade MIPI camera module engineered around the Sony IMX766, a 1/1.56-inch 50-megapixel stacked CMOS sensor. Designed for high-fidelity imaging in constrained environments, this module delivers ultra-high-resolution output with exceptional dynamic range and low-light sensitivity. Utilizing a Quad Bayer color filter array, the module supports hardware-level 2x2 pixel binning. This transforms the 1.0 um pixels into 2.0 um equivalent large pixels, enabling 12.5MP output with superior SNR (Signal-to-Noise Ratio) in challenging lighting conditions.

The IMX766 integration provides support for All-Pixel Omni-directional PDAF, ensuring rapid and precise focus even on moving targets. Built-in DOL-HDR (Digital Overlap HDR) technology significantly expands the dynamic range, preserving details in both highlights and deep shadows. Featuring a standard MIPI CSI-2 interface, the module supports high-frame-rate data transmission required for 4K video and high-speed machine vision processing. Equipped with a standard M12 (S-Mount) lens holder, the MCM50M120M12 offers maximum flexibility. Developers can easily swap optics to customize the Field of View (FoV) and focal depth to meet specific project requirements.



## Specifications

Model	MCM50M120M12
Sensor	IMX766
Image Size	1/1.56 inch
Pixel Size	1.0 $\mu\text{m}$ x 1.0 $\mu\text{m}$
Image Area	9214 $\mu\text{m}$ x 7270 $\mu\text{m}$
Image Pixels & Resolution	50MP / 8192(H) x 6144(V)
Image Formats	10/8-bit RAW Format
Image Transfer Rate	8192x6144 @24fps 4080x3060 @30fps 3840x2160 @60fps 1920x1080 @120fps Quard Bayer 2x2 mode 4096x3072 @60fps
Max S/N Ratio	TBD
Dynamic Range	TBD
Sensitivity	TBD
Mini illumination	TBD
Shutter Type	Electronic rolling shutter
Lens Parameters	Standard: 100° , Fixed
Lens Holder	Standard M12 lens holder
Power Supply	3 External Powers
Operating Voltages	DC 1.1(Digital) / 1.8(I/O) / 2.8(Analog) Volts
Operating Current	< 610mA
Operating Temperature	-20 ~ 70°C
Storage Temperature	0 ~ 50°C
Operating System Request	Driver is required
FPC Length	60mm
FPC Pin Numbers	30
FPC Pin Pitch	0.35mm

Specifications are subject to change without notice.



Mechanical Drawing

