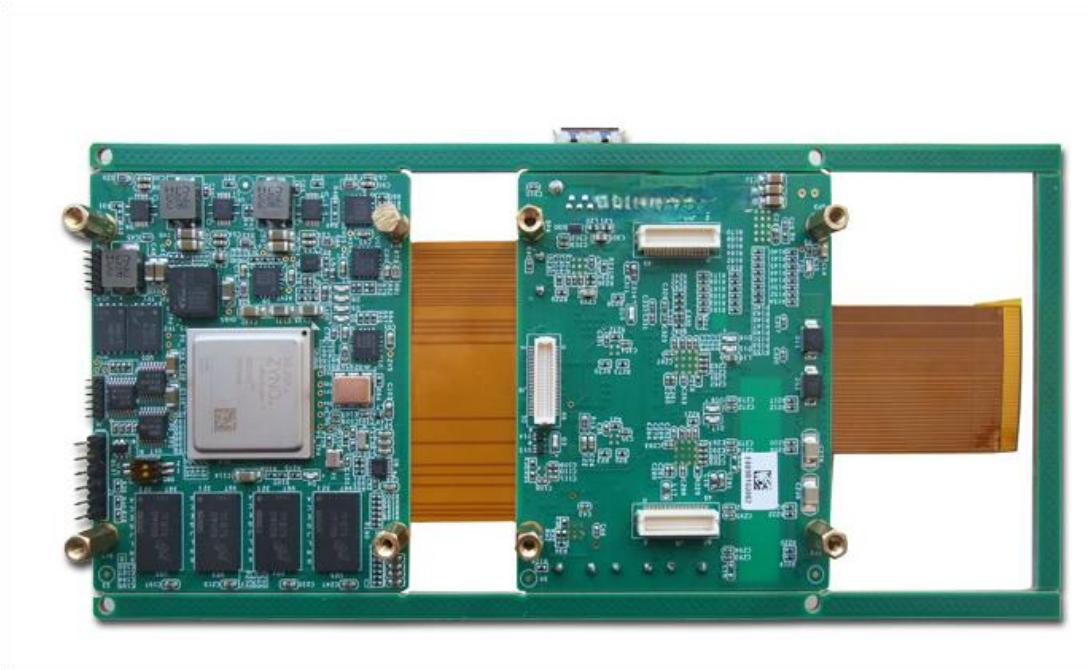
AI camera suite based on MPSOC ZU5EG (V)

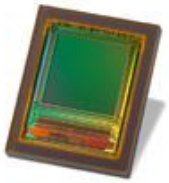
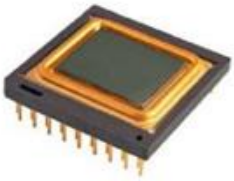


1. Overview

MPSOC ZU5EG (V) the FPGA integration for quad-core Cortex™-A53 processor, dual-core Cortex™-R5 real-time processing units, Mali - 400 MP2 graphics processing units and 16 nm FinFET + programmable logic combination of heterogeneous processing system. It has high performance, low power consumption, high extension features, EV series supports h. 265 codec functions, PL end the FPGA logic resources for AI artificial intelligence algorithms. This circuit is particularly suitable for the development of artificial intelligence cameras.

The camera suite image sensor front end supports linear array scanning CCD DalSAIT-K1-08240 linear array sensor, wide-field scanning E2V EV2S12M/EV2S16M plane array sensor, infrared vanadium oxide uncooled focal plane detector and other special applications.

2. Specification

Name of the camera	Linear array scanning camera		Wide field camera	Infrared dual light camera
The camera photo				
Camera sensor images				
Camera sensor image	Single Line Monochrome CMOS Image sensor		Mono and Color CMOS Image sensor	Infrared: Vanadium oxide uncooled focal plane detector Visible light: 1/2.8 inch high performance CMOS
The camera type	Black-and-white		Black-and-white/ colorized	Black-and-white/ colorized
Pixel resolution	1 x 8240（Single wire）		16M（4096 x 4096）/12M（4096 x 3072）	infrared：640*512 Visible light：1920×1080

Pixel depth	12-bit		8-bit/10-bit/12-bit	
Sensor rate	70KHzLine rate，16 x 480MbpsData rate			infrared：50fps
Ultra low noise	1.9DN（RMS）		67.5dB（The standard model）/71.9dB（Ultra low noise mode）	colorized:0.002 Lux @(F1.5)； Black-and-white:0.0002Lux @(F1.5,0 Lux with IR)
Pixel Size	7.04 μm x 7.04 μm		2.8 μm x 2.8 μm	infrared：17μm
The exposure time	controllable			
Spectral response range	300nm～1100nm		350nm～1000nm	infrared：8~14μm
The main processor	ZU3EG-2SFVC784I		ZU5EV-2SFVC784I	ZU3EG-2SFVC784I
Data interface		Dual-channel Gigabit Ethernet interface, can be adaptive 10/100/1000Mbps		
Network protocol		IPv4/IPv6,HTTP,HTTPS,802.1x,Qos,FTP,SMTP,UPnP,SNMP,DNS, DDNS,NTP,RTSP,RTCP,RTP,TCP,UDP,IGMP,ICMP,DHCP		
Software development tools		Linux/Windows C++/C SDK		

GPIO		Four channel optical port isolation trigger input (reusable bit GPIO)，		
RS232		One channel RS232 is used for external cradle head control		
Power supply		external +12V		
Power consumption		＜10W		
Operating temperature range		-40℃ ~ 60℃,Humidity less than 95%(no condensation)		
Size (mm)		171×535×400		
Protection grade	IP67， TVS 6000VLightning protection, surge prevention, surge prevention, in line with GB/T17626.5 standard		IP67， TVS 6000V Lightning protection, surge prevention, surge prevention, in line with GB/T17626.5 standard	IP67，TVS 6000V Lightning protection, surge prevention, surge prevention, in line with GB/T17626.5 standard
The product application	Can be used to read code, identify 1D, 2D, and even broken delivery code. It can be used in printing industry and cloth detection to realize fast defect detection.		It can be used for uav video detection, aerial photography, target tracking and industrial geometric measurement.	Deep learning behavior analysis Deep learning firework identification Excellent thermal imaging image effect, temperature measurement

3,Application

Image processing platform