



# CubeCam

*A space-worthy camera for CubeSatellites*

## Introduction

XCAM has worked in collaboration with the Centre for Electronic Imaging at the Open University to develop a camera specifically for CubeSatellites.

This low-budget design can drive up to 3 CMOS detectors which are more resilient to radiation damage than CCDs.

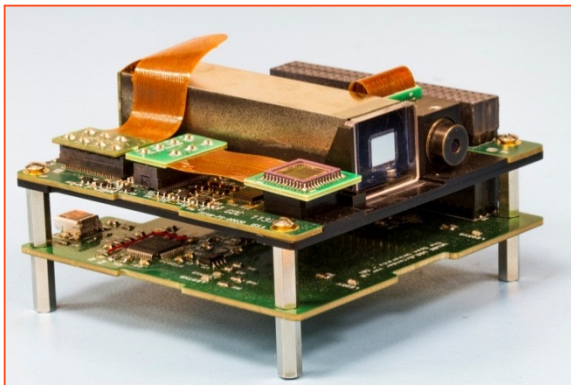


Figure 1. The camera payload.

The new design boasts high sensitivity at low light levels and is capable of producing high quality images of the Earth.

The first camera has been launched into space on the UK Space Agency's Ukube-1 satellite and is still returning images.

## Key Features

- 1.3 (1280x1024) million pixels
- 5.3  $\mu\text{m}$  square pixels with micro-lens
- Optical format 1/1.8"
- 60 fps at full resolution
- Image windowing if required
- Automatic exposure
- Peak QE > 60%
- Low power consumption (1100 mW)

## Option

- BW or colour (Bayer mask) available
- Choice of sensors available (see Sensor Options)

## Sensor Options

The full payload consists of two imaging systems:

### Wide-field imager

- 350km swathe-width at 600km altitude
- EO sensor built around a COTS lens
- Ground sample distance (GSD) approximately 300m/pixel

### Narrow-field imager

- 40km swathe-width at 600km altitude
- EO sensor built around a telescope for hi-res imaging
- Ground sample distance (GSD) approximately 30m/pixel

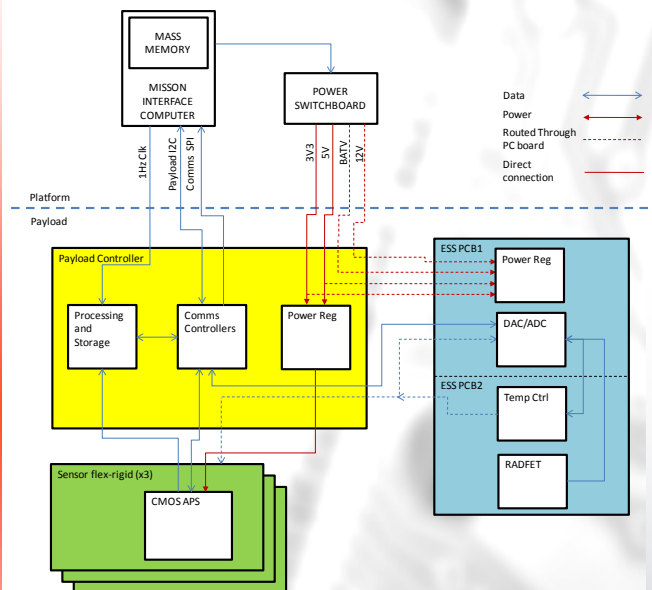


Figure 2. C3D system concept.

## Sensor Control

The full payload incorporates two PCBs:

- The payload controller provides processing, control and storage functions and interfaces to the ground support experiment (GSE). It is built around the PC104 CubeSat standard.
- The experimental support system has additional functionality required to measure radiation damage. Provides temperature controller via TEC and dosimetry with two RADFETs.