

Mosaic Core Specification

Core Number: C316SX	Starter Kit Number: S316SPX	Mktg Rev. 3	11/05/2021
Product Specifications:	Description		
Microbolometer	Uncooled Vanadium Oxide		
Pixel Pitch	12 Microns		
Spectral Response	7.8 - 14 Microns		
Sensor Resolution (Array Format)	320 (h) x 240 (v); 76,800 pixels		
Frame Rate	Fast Frame - up to <32Hz		
Non-Uniformity Correction (NUC)	Automatic NUC (with shutter)		
Video Output Interfaces	USB		
Power:			
Power Requirement	3.3-5.0V, <50mW (Core only), 300mW (Core + Coprocessor Board)		
Optical & Mechanical:			
Focal Length	6.6mm EFL		
F-number (Focal Length/aperture)	f/1.26		
Spatial Resolution (IFOV, center)	1.82		
Field of View (FOV)	34° Horizontal x 25° Vertical		
Detection Range	543m (based on Johnson Criteria)		
Recognition Range	136m (based on Johnson Criteria)		
Identification Range	78m (based on Johnson Criteria)		
Distance to Spot Ratio	91:1		
Core Size/ Core Weight	23mmx20mmx21mm	Core Weight: 12 g	
Seek Software Development Kit:			
Supported Platforms	USB: Seek Linux, Windows, & Android SDK		
Output Formates (User selectable)	Linux / Windows SDK	Android SDK	
	16-bit filtered pre AGC	16-bit filtered pre AGC	
	32-bit ARGB post colorization.	32-bit ARGB post colorization in the bitmap image.	
	32-bit floating point or 16-bit fixed point	32-bit floating point or 16-bit fixed point thermography data.	
Imaging Specifications:	Calibrated Output in °C, °F, K		
Imaging Range	-40°C to +330°C at ambient operating temperature		
Thermography Accuracy	Center spot temperature greater of ±5°C or 5% between -10°C to 140°C		
	Center spot temperature greater of ±10°C or 10% (typical) above 140°C		
	All measured at 25°C ambient operating temperature and nominal measurement distance of 12 inches.		
	Temperature reported is Center Spot temperature, which is an average of the center 36 pixels.		
Sensor Sensitivity	65 mK (typical), <100 mK (max) @ 25°C		
Emmissivity	Factory default emissivity is set to 0.97. Emissivity is adjustable using the SDK.		
Environmental Conditions:			
Operating Temperature Range	-10°C to +60°C (-14°F to 140°F)		
Storage Temperature Range	-40°C to +80°C (-40°F to 176°F)		
Solar Protection	Yes		
Humidity	10%~95%RH, non-condensing		
Regulatory	ROHS, WEEE, REACH		
Accessories:			
Cushion	Yes		
Bracket	Yes		
Sensor Flex	No		
Coprocessor Board	No		
USB Flex	No		
Refer to next page and Mosaic Core Engineering Datasheet			
Customer Responsibilities:			
IP Rating	IP67		
Shock/Vibe	Customer responsibility with proper integration into final product housing		

Overview:

Mosaic cores store unit-specific calibration data on the sensor head itself. This feature allows for easier system integration, improved thermal performance due to remote locating the processor, and reduced cost and size by allowing the user to integrate the coprocessor circuit into other electronics elsewhere in the system.

Seek Thermal's Mosaic cores must interface to a coprocessor that communicates with the Seek image processing pipeline in the SDK. There are two main options for integrating the coprocessor into a system.

Option 1:

Mosaic core part numbers that end in "P" or "PX" comes with a coprocessor board from Seek and have a simple USB interface for connecting to the customer's host processor running the SDK.

Option 2:

Mosaic core part numbers that end in "S" or "SX" require the customer to integrate the coprocessor into their own circuit design. Seek provides engineering documentation and reference designs to aid the customer in this design process.

For Option 2, Seek provides:

- 1) Schematic for coprocessor circuit
- 2) BOM for coprocessor circuit
- 3) Compiled binary file(s) for the coprocessor code.
- 4) Interface details for connecting the core to the coprocessor circuit on the system main board
- 5) Optional flex cables, if the user prefers to use the Seek design.
- 6) Seek SDK for implementation on user's Host Processor

For Option 2, the user will:

- Design the system main board around one of the coprocessor options (USB or SPI)
- Optionally design the flex connections if the Seek flex solutions are not appropriate.

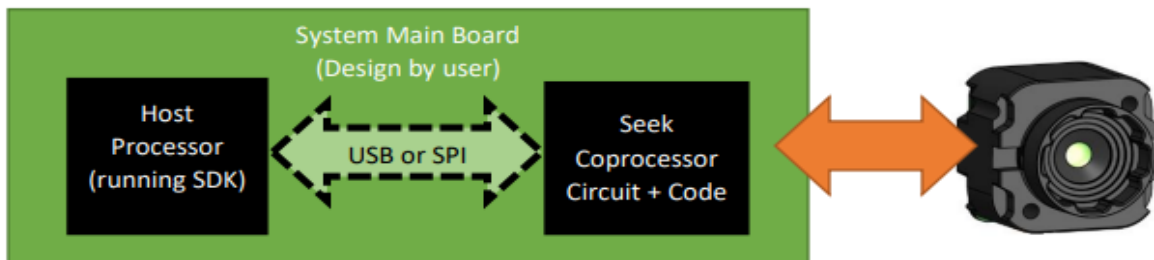


Figure 2: Coprocessor Option 2 Block Diagram

This document is not intended as a standalone comprehensive source of information required to design a system around the Mosaic cores. Please **consult Seek Thermal** and refer to **Mosaic Core Engineering Datasheet** for full design support.

