

Mosaic Core Specification

Core Number: C216SX		Starter Kit Number: S216SPX		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)		200 (h) x 150 (v); 30,000 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)		21° Horizontal x 15° 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					
Customer Responsibilities:							
IP Rating		IP67					
Shock/Vibe		Customer responsibility with proper integration into final product housing					

Refer to next page and Mosaic Core Engineering Datasheet

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.

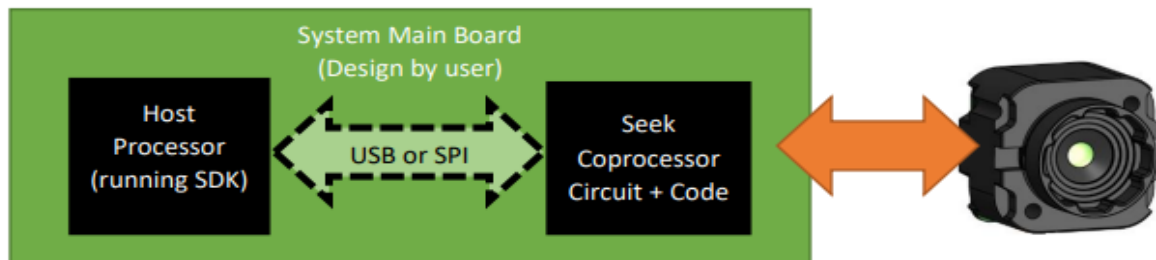


Figure 2: Coprocessor Option 2 Block Diagram

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.

