

# DESIGNCORE<sup>®</sup> PLATFORM

## ANTENNA ON PACKAGE mmWAVE RADAR SENSORS



Bring the rich feature set support of mmWave radar into your industrial automation, autonomous vehicle, or tracking application.

### Implement one of many different mmWave radar sensing algorithms to measure, detect, and track

The DesignCore<sup>®</sup> Antenna on Package mmWave Radar Sensors are a family of simple but feature-rich sensors based on the Texas Instruments AWR1843AOP\*, IWR6843AOP and AWR6843AOP devices. These devices have a full radar transceiver for FMCW with 3 transmitters and 4 receivers, a C67XX DSP for algorithms, and an ARM R4F microprocessor for decision-making and interfacing. These are DesignCore Platforms that provide a hardware and software starting point for your design.

The sensors have I2C, SPI, GPIO, and UART interfaces. The “U” versions feature a built-in USB-serial connector which can act as a power supply input as well as enumerating two serial UARTS, one for console and the other for processed radar returns or other algorithm output. Many algorithms are available as a basis for a solution for your application.

D3 Engineering supports OEM customers with embedded system development and customized production modules for radar applications.

\*Device expected to be released in 2021

### FEATURES

- Embeddable Miniature Form Factor Design
- MIMO Antenna-on-Package
- 16 Mb QSPI Flash
- Integrated PLL, Transmitter, Receiver, Baseband, A2D
- 5 VDC Power
- Ultra-Accurate Chirp (Timing) Engine Based on Fractional-N PLL
- I2C, SPI, SYNC\_IN, SYNC\_OUT, UART, logic level I/O, JTAG

### SPECIFICATIONS

	RS-1843AOP	RS-6843AOP	RS-6843AOPA	RS-1843AOPU	RS-6843AOPU	RS-6843AOPUA
RF Band	77-81 GHz	60-64 GHz	60-64 GHz	77-81 GHz	60-64 GHz	60-64 GHz
AECQ-100	Yes	No	Yes	Yes	No	Yes
Interface Type	12-pin 0.05" header			USB-C jack		
Interfaces	JTAG, I/O, I2C, SPI, SYNC_IN, SYNC_OUT, TTL UART			SYNC_IN, SYNC_OUT, USB-Serial		
Form Factor	1" cube with heatsink					
Voltage Input	5 V, 1.5 A max					
Bandwidth	4 GHz					
Receive Channels	4					
Transmit Channels	3					
Micro-processor	600 MHz TI C67XX					
Micro-processor	200 MHz ARM R4F					

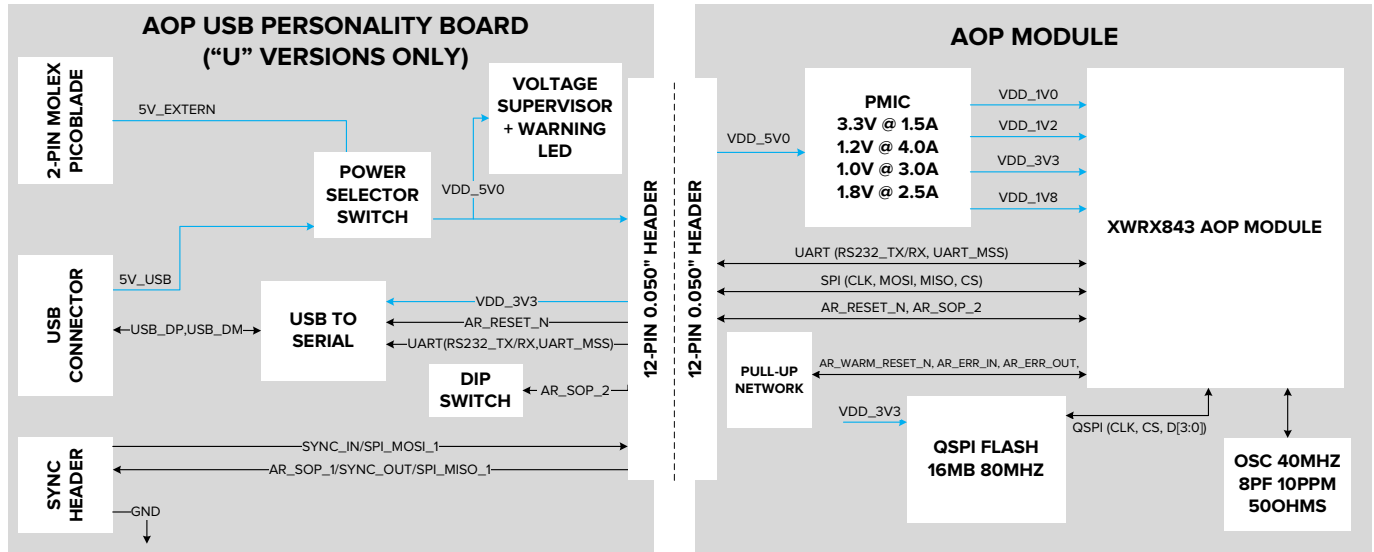
### APPLICATIONS

- Stand-Alone mmWave Radar Sensor
- Facility Monitoring
- Driver Monitoring
- People Counting and Tracking
- Industrial Vehicle Systems
- Robotics
- Autonomous Machines
- Edge Sensor Processing



Design Network  
Platinum Member

**DESIGNCORE® ANTENNA ON PACKAGE MMWAVE RADAR SENSOR BLOCK DIAGRAM**



**LOWER YOUR RISK WITH OUR DESIGNCORE® SOLUTIONS**

DesignCore Solutions are platforms, reference designs, and development tools available from D3 Engineering to lower the risk of your next product development project. They contain tested and reliable hardware, software, algorithms, design documentation, and more. D3 Engineering can quickly work with your team to customize these platforms for your application. They allow you to rapidly move from prototype to design, and then to production. DesignCore Solutions lower risk in three important areas:

**Technical Risk:** DesignCore Solutions are tested and reliable.

**Schedule Risk:** DesignCore Solutions consist of reliable and tested components for your design. Accelerate your time to market by 6-9 months.

**Cost Risk:** DesignCore Solutions have been designed for market specific applications.

The designs have been cost-optimized for:

**DesignCore Platform** – Hardware and Software starting point for your design. Allows rapid prototyping and customization.

**DesignCore Reference Design** – Application specific hardware and software for popular applications.

**DesignCore Development Kit** – Development tools that can be purchased and used for prototyping and testing.

**ORDERING INFORMATION**

These sensors are available when you engage D3 Engineering for a systems development project.

**CALL:** 585-429-1550

**EMAIL:** sales@D3Engineering.com

**VISIT:** D3Engineering.com