DATASHEET

D3 Embedded

DESIGNCORE®
ANTENNA ON PACKAGE CAN mmWAVE RADAR SENSORS

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

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

The DesignCore® 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 DesignCore Platforms provide a hardware and software starting point for your design. The sensors have I2C, SPI, GPIO, UART and SYNC 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.

The “C” versions feature a 4-pin Molex PicoBlade® connector for power and differential CAN signals.

Many algorithms are available as a basis for a solution for your application. D3 Embedded supports OEM customers with embedded system development and customized production modules for radar applications.

FEATURES

Embeddable Miniature Form Factor Design

Integrated PLL, Transmitter, Receiver, Baseband, A2D

Ultra-Accurate Chirp (Timing) Engine Based on Fractional-N PLL

I2C, SPI, SYNC_IN, SYNC_OUT, UART, logic level I/O, JTAG

MIMO Antenna-on-Package

16 Mb QSPI Flash

APPLICATIONS

Stand-Alone mmWave Radar Sensor

Driver Monitoring

Industrial Vehicle Systems

Robotics

Autonomous Machines

Edge Sensor Processing

Facility Monitoring

People Counting and Tracking

COMMON SPECIFICATIONS

Form Factor	1” Cube with Heatsink
Voltage Input	5 V, 1.5 A Max (USB Version) 6-24 VDC (CAN Version)
Bandwidth	4 GHz
Channels	4 RX, 3 TX
Forward Human Detection Range	60 – 65 m
Field of View Az, El	+/- 60 deg, +/- 60 deg
Angular Separation to Resolve Separate Objects Az, El	29 deg, 29 deg (60 GHz) 29 deg, 38 deg (77GHz)
DSP	600 MHz TI C67XX
Microprocessor	200 MHz ARM R4F
Co-processor	Radar Hardware Accelerator

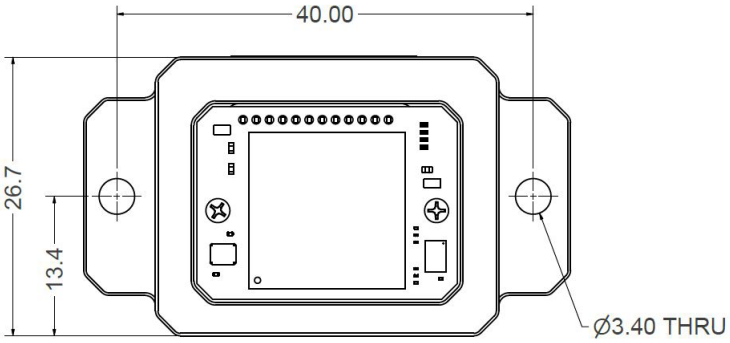
SENSOR

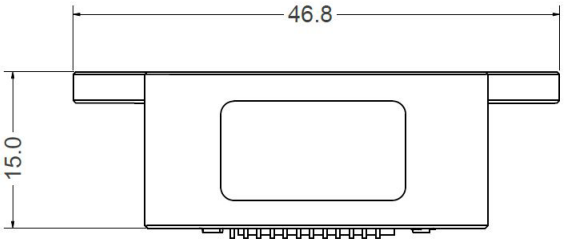
	RS-1843AOPU RS-1843AOPC	RS-6843AOPU RS-6843AOPC
Frequency Band	77-81 GHz	60-64 GHz
Antenna Type	Azimuth Optimized (Horizon)	Balanced Az/El (Volume)
AECQ-100	Yes	No

INTERFACES

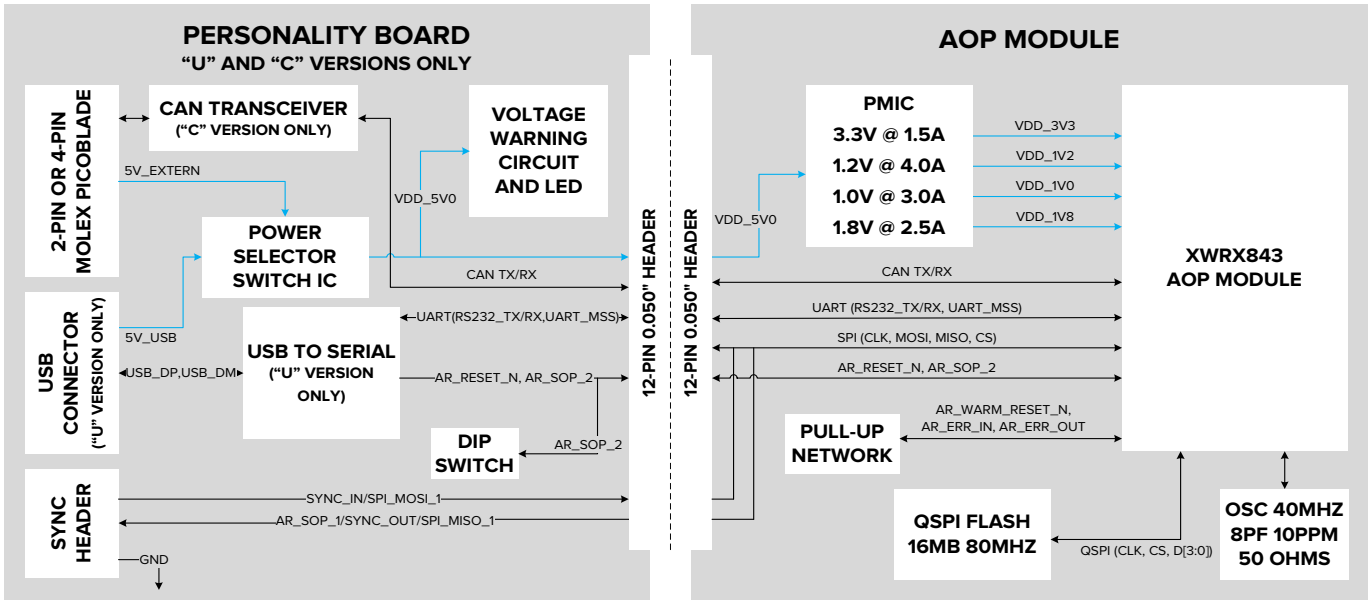
	RS-x843AOPU	RS-x843AOPC
Interface Type	USB-C jack	4-pin Molex PicoBlade
Interfaces	UART over USB, SYNC_IN, SYNC_OUT	CAN/CAN-FD, SYNC_IN, SYNC_OUT, LV UART

Texas Instruments





DESIGNCORE® ANTENNA ON PACKAGE CAN MMWAVE RADAR SENSOR BLOCK DIAGRAM



LOWER YOUR RISK WITH OUR DESIGNCORE® SOLUTIONS

DesignCore Solutions are platforms, reference designs, and development tools available from D3 Embedded to lower the risk of your next product development project. They contain tested and reliable hardware, software, algorithms, design documentation, and more. D3 Embedded 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 Embedded for a systems development project.

CALL: **585-429-1550**

EMAIL: **sales@D3Embedded.com**

VISIT: **D3Embedded.com**

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