

PRM2136X mmWave Module

PRODUCT BRIEF

OVERVIEW

The PRM2136X is a member of the Pro series modules which comprises a highly integrated 60 GHz chipset compliant with the IEEE 802.11ad specifications. This platform gives a complete USB 3.0 to 60GHz solution. The module supports operation over 57- 66 GHz (Ch. 1-4) and provides user throughput rates over 3Gbps.

The PRM2136X utilizes a phased array antenna integrated in the circuit board which includes polarization diversity allowing optimal signal reception for any signal polarization. It is capable of 2-D beam steering in azimuth and elevation planes.

This module contains the PRS4601-B2E baseband IC, and PRS1145 radio IC. These ICs provide all of the radio and baseband functionality necessary for 802.11ad operation.

TARGET APPLICATIONS

- Enterprise networking
- Factory automation
- Multi-AP and STA networks with fast roaming
- Untethered AR/VR
- Wireless display

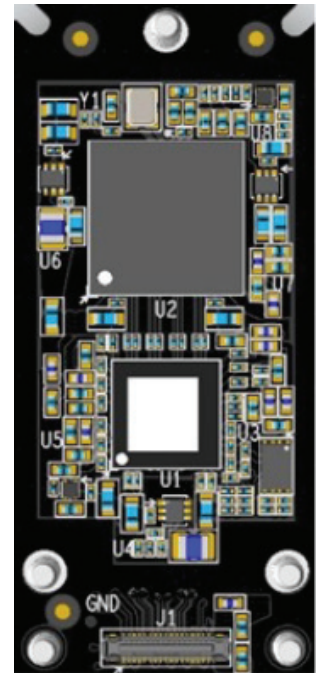
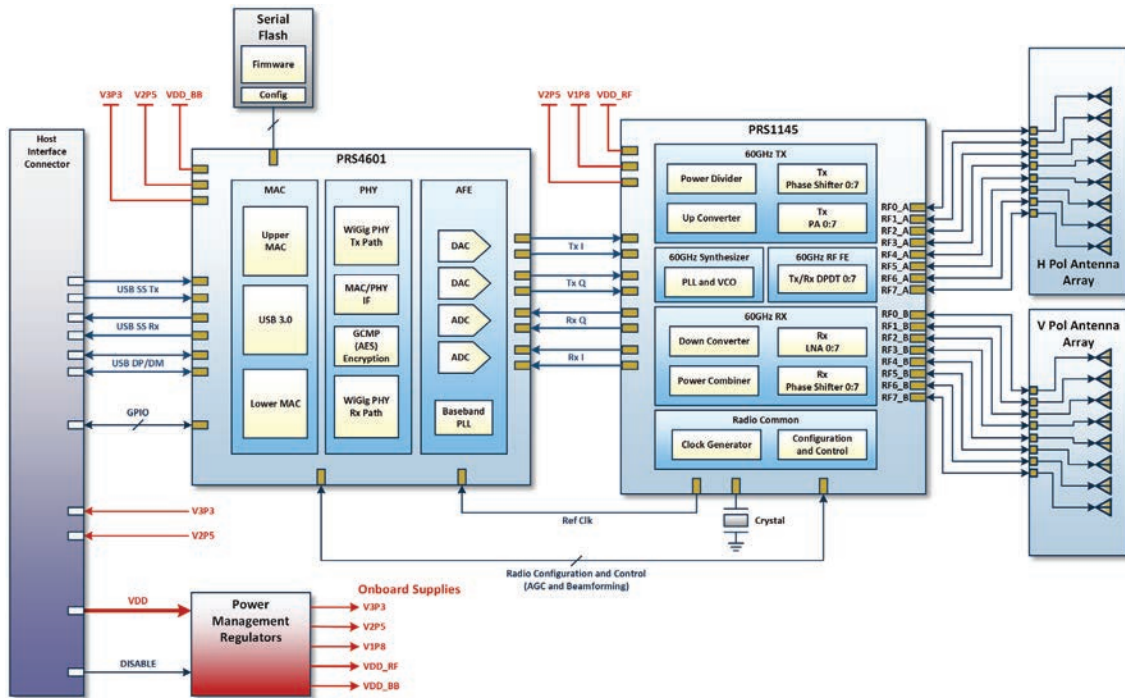


Figure 1: PRM2136X

FEATURES

- Operates in the unlicensed 57 to 66 GHz band
- 2.16 GHz channel bandwidth
- pi/2-BPSK, pi/2-QPSK, pi/2-16QAM modulation
- Fully integrated MAC, PHY, radio, and antenna
- 802.11ad MAC and PHY compliance
- Automatic rate adaptation
- Dynamic beamforming
- Automatic calibrations
- AES 128 bit data encryption
- 1PPS synchronization support
- WPA2/3 Authentication
- A- MSDU, A-MPDU data aggregation
- USB 3.0 data and control interface
- Integrated power management
- 8+8 element integrated phased array antenna
- Automatically selected polarization
- -84dBm receive sensitivity @MCS1
- 3.5 Gbps maximum data rate
- 29 dBm EIRP
- Total system DC power:
 - Tx: 3.2W
 - Rx: 2.9W
- Single 5V power supply input
- Compact 45mm x 20mm form factor

BLOCK DIAGRAM



KEY SPECIFICATIONS

Parameter	Value			
Data Interface	USB3.0			
Air Protocol	802.11ad			
Modulation Schemes	MCS0-12 (pi/2-BPSK, pi/2-QPSK, pi/2-16QAM)			
Multiple Access Modes	CBAP, proprietary Long Range CBAP and Controlled Access protocols			
Security Modes	128-bit AES WPA3			
Networking Support	infrastructure , peer-to-peer, standard WLAN, point-to-multipoint			
	Conditions	Value (Typ.)	Units	
RF Frequency		57 to 66	GHz	
Channel bandwidth	802.11ad Channels 1-4	2.16	GHz	
Module size	Length x Width	45 x 20	mm	
Operating Temperature Range		-40 to 85	°C	
TX Parameters				
EIRP	Tamb=25°C, Channel 4, MCS9	29	dBm	
RX Parameters				
Sensitivity	Tamb=25°C, Channel 4, MCS1	-84	dBm	
Beam Forming Parameters				
Azimuth Scan Range	-3dB edge	H-pol	±40	deg
		V-pol	±45	
Elevation Scan Range	-3dB edge	H-pol	±40	deg
		V-pol	±30	
DC Power Consumption				
TX DC Power	MCS9 operation. 100% duty cycle	3.2	W	
RX DC power		2.9	W	

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