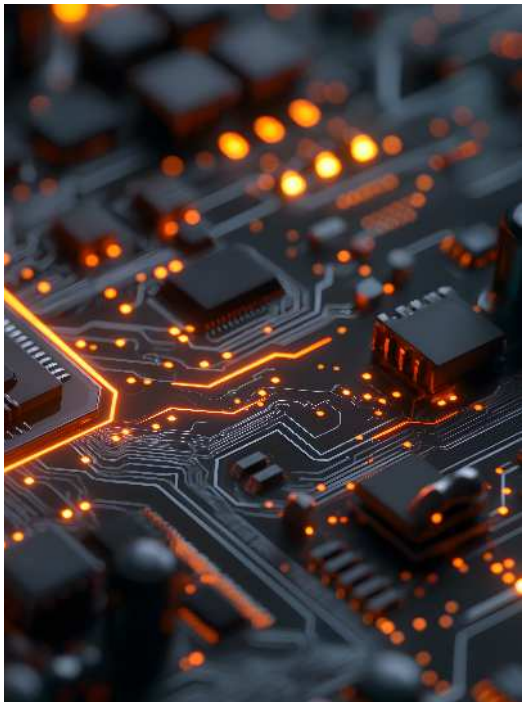


岸达科技

ANDAR TECHNOLOGIES

企业简介 ENTERPRISE INTRODUCTION





岸达科技成立于2016年，是一家专注于毫米波雷达芯片及系统技术支持的Fabless IC设计公司，致力于为汽车、智能家居、智慧交通等市场领域提供优质的产品与解决方案。

岸达科技总部位于杭州余杭区未来科技城，在墨尔本、上海和深圳设有研发和应用支持中心。公司的核心团队成员来自于AMD、Samsung、MediaTek等机构，在毫米波芯片设计领域拥有15年以上的设计经验。公司核心管理团队成员来自于汽车、毫米波雷达、半导体等行业领域，拥有资深的专业经验和丰富的市场资源，深刻理解毫米波雷达与其芯片产业的市场需求和未来趋势。

岸达科技已量产多款毫米波雷达芯片。16通道的ADT2012芯片是国际上首款基于相控阵架构的77GHz毫米波商用雷达芯片，基于2T2R架构的77GHz以及60GHz雷达传感器SoC系列芯片均为业内首款，具有极低功耗和成本优势。

Founded in 2016, Andar is a Fabless IC design company focusing on millimeter wave radar chips and systems, and is providing solutions and services for automotive, smart homes, intelligent transportation system.

Headquartered in Future Sci-Tech City of Hangzhou, Andar has R&D and support centers in Melbourne, Shanghai and Shenzhen. Our key design engineers are from AMD, Samsung, MediaTek, and most of the designers have over 15 years experience in building millimeter wave circuits and systems in CMOS. The core management team member come from industries such as automotive, millimeter wave radar and semiconductor, with exceptional professional experience and rich market resources. The team have a deep understanding of the market demand and future trends of millimeter wave radar industry.

Multiple radar chips of Andar are shipping in volume. ADT2012, 16-transmit and 16-receive channel transceiver chip, is the world-first commercial 77GHz millimeter wave radar chip based on phased array architecture. The SoC series radar chips, based on 2-transmit and 2-receive architecture, are the first millimeter wave radar chips in the industry with extremely low power consumption and low cost.

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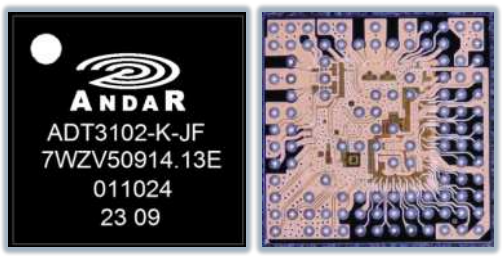
配试模组 Test Module 16

	Andar 2T/2R SOC		Andar 2T/2R AIP-SOC	Andar 8T/8R Transceiver	Andar16T/R Transceiver
系列 Series	ADT3102	ADT6101	ADT6220A	ADT7880	ADT2012
工艺制程 Technology Process	CMOS 55nm	CMOS 55nm	CMOS 55nm	CMOS 55nm	CMOS 55nm
封装 Packaging	FO-WLCSP	FO-WLCSP	FCBGA	FO-WLCSP/ LOP/FCBGA	FO-WLCSP
尺寸 Size	6.75mm x 6.75mm	6.75mm x 6.75mm	10mm x 5.3mm	11.8mmx7mm 16.6mmx15.3mm	9.02mm x 5.32mm
通道复用 Transceiver Multiplexing	Continuous	Continuous	Continuous	Continuous	TD/Continuous
集成通道数 Integrated Tx/Rx	2 / 2	2 / 2	2 / 2	8 / 8	16 / 16
基于小数分频的连续波发生器 Frac-N PLL-based FMCW Generator	✓	✓	✓	✓	✓
封装集成天线 Antenna on Package	x	x	✓	x	x
处理器 MCU	ARM M3	ARM M3	ARM M3	x	x
模数转换 ADC	4 x16MSps/12bit	4 x7MSps/12bit	2 x7MSps/12bit	8x38.46MSps/12bit	GPADC
内置自检通道 Built-in Self Test	✓	✓	✓	✓	✓
频率范围 Frequency Range	76-81GHz	57-64GHz	57-64GHz	76-84GHz	76-81GHz
发射功率（单通道） Transmit Power	12dBm	12dBm	16dBm (EIRP)	12.5dBm	10dBm
噪声系数 Noise Figure	11dB	11dB	7dB	10dB	9dB
功耗 Power Dissipation	50mW* / 20uA*	40mW* / 20uA*	40mW* / 20uA*	2.3W (50%占空比)	2W
多芯片级联配置能力 Multi-chip/Cascaded Configuration	✓	✓	x	✓	✓
数控移相器 Phase Shifters	6bit	x	x	7bit	6bit
数控衰减器 Attenuators	x	x	x	x	5bit
车规认证 Automotive Certification	AEC-Q100 按ASIL-B设计	AEC-Q100 按ASIL-B设计	满足车规级温度标准	满足车规级温度标准	按车规设计

ADT3102产品简介

77GHz CMOS工艺2发2收雷达SoC芯片，单芯片集成了2个发射通道和2个接收通道，调频连续波（FMCW）发生器，数字信号处理单元（DSP）和微处理器（MCU），还集成了四路16MHz采样率的模数转换器（ADC）对四路IQ中频信号进行采样。该芯片支持级联模式操作，用于更高精度和长距离的应用需求。

77GHz CMOS 2T2R radar SoC chip, Single-Chip integrated 2 transmit channels and 2 receive channels, FMCW generator, Digital Signal Processing unit (DSP), and Microcontroller (MCU), also integrated four-channel 16MHz sampling rate Analog-to-Digital Converters(ADC)for sampling four IQ intermediate frequency signals. This chip supports cascade mode operation for higher precision and long-distance application requirements.



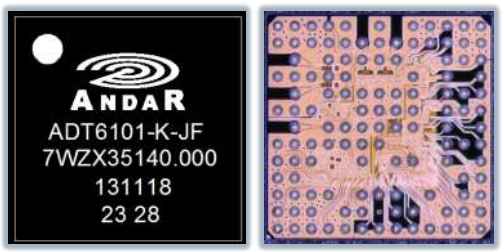
ADT3102产品特点

集成PLL、收发机、基带及ADC Integrated PLL, transceiver, baseband and ADC			
频率范围 Frequency Range	76~81GHz	外设接口 Peripheral Interface	--- 2 SPI --- 3 UART --- 2 I2C --- Analog IF output interface
集成通道数 Integrated Tx/Rx	2 / 2		
发射功率（单通道） Transmit Power	12dBm	时钟源 Clock Source	--- 50.0MHz Crystal Oscillator --- Support external 32.768KHz crystal vibration --- Built-in RC oscillator at 32 KHz + / -20%
相位噪声 Phase Noise	76~81GHz @1MHz: -91dBc/Hz		
噪声系数 Noise Figure	11dB		
处理器 MCU	ARM® Cortex®-M3	113 pin脚、pin间距0.5mm 113 pin foot, pin pitch 0.5mm	
电源管理 Power Management	Low power	内置数字信号处理硬核加速，包括FIR、FFT 等 FFT/FIR Core integarted	
数字I/O 电压 Digital I/O voltage	3.3V	射频内置自检通道，可根据频率和温度进行校准 Built-in Self Test，frequency and temperature calibration	
封装尺寸 Packaging Size	6.75mm x6.75mm x 0.49mm	提供FMCW 波形生成控制参考代码 FMCW configuration reference code available	
基于小数分频的连续波发生器 Frac-N PLL-based FMCW Generator		通过AEC-Q100认证 Certified by the AEC-Q100	

ADT6101产品简介

60GHz CMOS工艺2发2收毫米波雷达SoC芯片，单芯片集成了2个发射通道和2个接收通道，以及调频连续波（FMCW）波形发生器、模数转换器（ADC）、数字信号处理单元（DSP）电路和微处理器（MCU），而且还集成了SPI，I2C，UART以及CAN-FD接口。芯片支持远程升级和低功耗睡眠模式。

60GHz CMOS process 2T2R radar SoC chip, Single-Chip integrated 2 transmit channels and 2 receive channels, along with FMCW generator, Analog-to-Digital Converters(ADC), Digital Signal Processing unit (DSP), and Microcontroller (MCU). It also integrated SPI, I2C, UART, and CAN-FD interfaces. The chip supports remote upgrade and low-power sleep mode.



ADT6101产品特点

集成PLL、收发机、基带及ADC Integrated PLL, transceiver, baseband and ADC	
频率范围 Frequency Range	57~64GHz
集成通道数 Integrated Tx/Rx	2 / 2
发射功率（单通道） Transmit Power	12dBm
相位噪声 Phase Noise	57~64GHz @1MHz: -91dBc/Hz
噪声系数 Noise Figure	11dB
处理器 MCU	ARM® Cortex®-M3
电源管理 Power Management	Low power
数字I/O 电压 Digital I/O voltage	3.3V
封装尺寸 Packaging Size	6.75mm x6.75mm x 0.49mm
基于小数分频的连续波发生器 Frac-N PLL-based FMCW Generator	

外设接口 Peripheral Interface	--- 1 SPI --- 1 CAN2.0/CAN-FD --- 3 UART --- 1 I2C --- Analog IF output interface
时钟源 Clock Source	--- 50.0MHz Crystal Oscillator --- Support external 32.768KHz crystal vibration --- Built-in RC oscillator at 32 KHz +/-20%
支持低功耗睡眠模式 Support low power sleep mode	
125 pin脚、pin间距0.5mm 125 pin foot, pin pitch 0.5mm	
内置数字信号处理硬核加速，包括FIR、FFT 等 FFT/FIR Core integarted	
射频内置自检通道，可根据频率和温度进行校准 Built-in Self Test，frequency and temperature calibration	
提供FMCW 波形生成控制参考代码 FMCW configuration reference code available	
通过AEC-Q100认证 Certified by the AEC-Q100	

ADT6220A 产品简介

芯片采用FCBGA的封装工艺，集成了收发封装天线（AIP）、无须外置PCB天线，支持远程升级和低功耗睡眠模式。降低了用户的设计难度，并且避免了使用高频板材以实现更低的制造成本。

The chip adopts FCBGA packaging technology and integrates an antenna-in-package (AIP), eliminating the need for an external PCB antenna. It supports remote upgrades and low-power sleep modes, reducing design complexity for users while avoiding the use of high-frequency materials to achieve lower manufacturing costs.





ADT6220A 产品特点

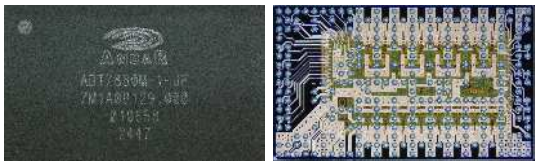
集成PLL、收发机、接收机、基带及ADC Integrated PLL, transceiver, receiver, baseband and ADC	
频率范围 Frequency Range	57～64GHz
集成通道数 Integrated Tx/Rx	2/2
发射功率（单通道） Transmit Power	16dBm(EIRP)
相位噪声 Phase Noise	-91dBc/Hz@1MHz
噪声系数 Noise Figure	7dB(EINF)
处理器 MCU	ARM® Cortex®-M3
数字I/O电压 Digital I/O Voltage	3.3V
封装尺寸 Packaging Size	10mm x 5.3mmx 0.695mm
收发天线增益 Transmit-receive antenna gain	4
射频内置自检通道，可根据频率和温度进行校准 Built-in Self Test, can be calibrated according to frequency and temperature	

外设接口 Peripheral Interface	--- 2UARTs --- I2C --- CAN-FD --- SPI
时钟源 Clock Source	--- 50.0 MHz crystal oscillator --- Supports an external 32.768 kHz crystal oscillator --- Built-in RC oscillator, 32 kHz ±20%
天线E 面3dB 波束宽度 E-plane antenna 3dB beam width	90°
天线H 面3dB 波束宽度 H-plane antenna 3dB beam width	70°
内置数字信号处理硬核加速，包括FIR、FFT 等 FFT/FIR Core integarted	
支持低功耗睡眠模式 Support low power sleep mode	
提供FMCW 波形生成控制参考代码 FMCW configuration reference code available	
Compliant With Automotive Temperature Range 满足车规级温度标准	

ADT7880 产品简介

芯片采用了BGA、LOP、AIP几种不同的封装形式，集成了8通道ADC和丰富的接口，适配不同类型的处理平台，支持包括DD-MIMO、步进频、脉内编码在内的多种复杂波形，支持灵活的级联方式。

The chip adopts several different packaging forms, including BGA, LOP, and AIP. It integrates an 8-channel ADC and a rich set of interfaces, making it compatible with various processing platforms. It supports multiple complex waveforms, including DD-MIMO, stepped frequency, and intra-pulse coding, as well as flexible cascading configurations.



BGA封装



LOP封装

ADT7880 产品特点

集成频率合成器、发射机、接收机和ADC Integrates frequency synthesizer, transmitter, receiver, and ADC	
频率范围 Frequency Range	76～84GHz
集成通道数 Integrated Tx/Rx	8/8
发射功率（单通道） Transmit Power	12.5dBm
相位噪声 Phase Noise	-95dBc/Hz@1MHz
噪声系数 Noise Figure	10dB
功耗 Power Dissipation	2.3W（50%占空比）
封装 Packaging	FO-WLCSP/LOP/FCBGA
封装尺寸 Packaging Size	BGA:11.8mm×7mm×0.695mm LOP:16.6mm×15.3mm×1.117mm
数字I/O电压 Digital I/O Voltage	3.3V
每个Tx通道集成一个7位移相器 Each Tx channel integrates a 7-bit phase shifter	

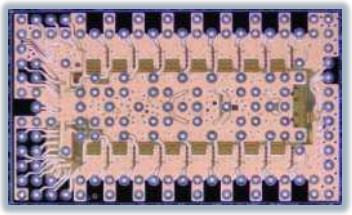
外设接口 Peripheral Interface	--- LVDS --- MIPI --- SPI
时钟源 Clock Source	--- 50MHz或40MHzCrystal vibration -- Supports an externally driven clock (square wave/sine) with a frequency of 50 MHz or 40 MHz
支持多芯片/级联配置 Supporting Multi-chip/Cascaded Configuration	
基于分数分频锁相环（Frac-N PLL）的FMCW信号发生器 Frac-N PLL-based FMCW Generator	
可编程增益控制和可配置的IF带宽，最高可达25MHz Programmable gain control and configurable IF bandwidth, up to 25 MHZ	
射频内置自检通道，可根据频率和温度进行校准 Built-in Self Test，can be calibrated according to frequency and temperature	
支持多达12段的多段式线性调频 Supports multi-segment linear frequency modulation (chirp) with up to 12 segments	
Compliant With Automotive Temperature Range 满足车规级温度标准	

ADT2012产品简介

77GHz CMOS工艺相控阵架构16通道雷达芯片，单颗芯片集成16通道、射频移相器、VCO和IQ混频器、FMCW 波形发生器等，芯片可配置为8Tx+8Rx、16Tx、16Rx三种工作模式，或在45ns内在16Tx和16Rx模式之间切换。芯片支持大规模芯片级联。

77GHz CMOS Phased Array architecture 16-channel radar chip, Single-Chip integrated 16 channels, RF phase shifter, VCO, IQ mixer, FMCW generator, etc. The chip can be configured into 8Tx+8Rx, 16Tx or 16Rx operating modes, or switch between 16Tx and 16Rx modes within 45ns. The chip supports large-scale chip-level cascading .

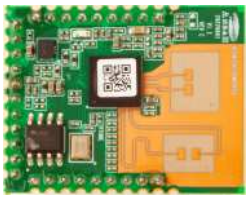
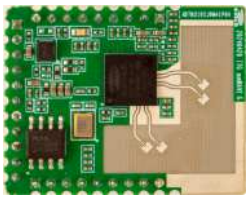
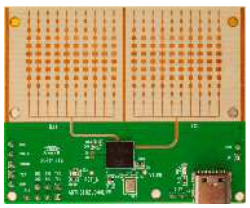
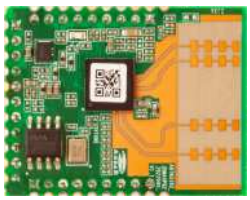
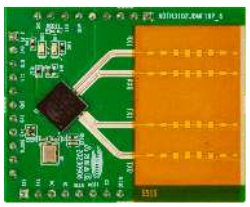




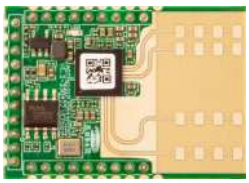
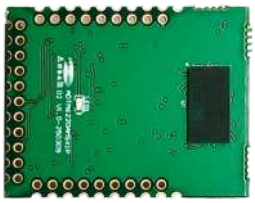
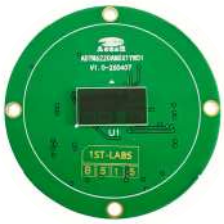
ADT2012产品特点

集成频综、收发机 Integrated frequency synthesizer, transceive		外设接口 Peripheral Interface	--- 1 SPI --- Analog IF output interface
频率范围 Frequency Range	76~81GHz		
集成通道数 Integrated Tx/Rx	16 / 16	时钟源 Clock Source	--- Support Frequency 100MHz /125MHz /250MHz External Drive clock
发射功率（单通道） Transmit Power	10dBm		
相位噪声 Phase Noise	76~81GHz @1MHz: -91dBc/Hz		
噪声系数 Noise Figure	9dB	中频可调动态 Intermediate frequency adjustable dynamic	Max 64dB
T/R切换时间 T/R switching time	＜45ns	中频带宽 Intermediate frequency bandwidth	Max 100MHz
数字I/O 电压 Digital I/O voltage	3.3V	123 pin脚、pin间距0.4mm 123 pin foot, pin pitch 0.4mm	
封装尺寸 Packaging Size	9.02mmx5.32mmx0.695mm	零中频IQ接收基带 Zero intermediate frequency IQ receive baseband	
单通道6位数控移相器和5位数控衰减器 1-channel 6-bit digital phase shifter and 5-bit digital attenuator		射频内置自检通道，可根据频率和温度进行校准 Built-in Self Test，frequency and temperature calibration	
基于小数分频的连续波发生器 Frac-N PLL-based FMCW Generator		提供FMCW 波形生成控制参考代码 FMCW configuration reference code available	

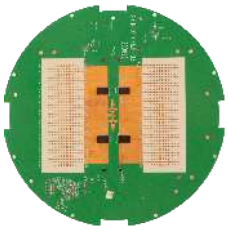
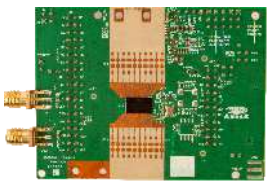
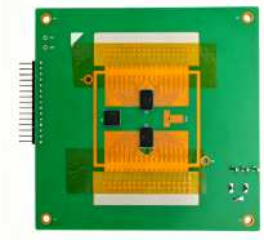
ADT300系列

型号 Part Number	应用 Application	型号 Part Number	应用 Application
ADTM3102JDM41P02	3D点云 3D Point Cloud	ADTM3102JDM41P04	脚踢尾门 Kick-open Sensor
	单芯片1-Patch开发板 Single-chip 1-Patch Evaluation Board		45°极化天线 1-Patch开发板 1-Patch 45 ° Polarized Antenna Evaluation Board
ADTH3102JDM44YW01	液位计 Liquid Level Meter	ADTH3102JDM4LYW	液位计 Liquid Level Meter
	方形液位计开发板 Square Liquid Leve 1 Meter Development Board		单芯片12-Patch 液位测量开发板 Single-chip12-Patch Level MeasurementEvaluation Board
ADTM3102JDM44P02	人员计数 People Counting	ADTH3102JDMF8P01	盲区检测 Blind Spot Detection
	单芯片4-Patch开发板 Single-chip 4-Patch Evaluation Board		单芯片8-Patch盲区检测开发板 Single-chip 8-Patch Blind Spot Detection Evaluation Board
ADTE210400XXNA01	配合开发板通用 Use with all Evaluation Board		
	SOC芯片开发板通用接口板 SOC Chip Evaluation Board Universal Interface Board		

ADT600系列

型号 Part Number	应用 Application	型号 Part Number	应用 Application
ADTM6101PJDM41P02	儿童存在检测 Child Presence Detection	ADTM6101PJDM44P02	人员计数 People Counting
	单芯片1-Patch开发板 Single-chip 1-Patch Evaluation Board		单芯片4-Patch开发板 Single-chip 4-Patch Evaluation Board
ADTM6220AMSX1P02	存在感知 Persistence Perception	ADTM6220AMSX1YW01	高精度测距 High-accuracy Ranging
	6220A AIP 方形开发板 6220A AIP Square Development Board		6220A AIP圆形开发板 6220A AIP Circular Development Board
ADTM6220AMSX1P01	目标跟踪 Target Tracking	ADTE210400XXNA01	配合开发板通用 Use with all Evaluation Board
	6220A AIP条形开发板 6220A AIP Strip Development Board		SOC芯片开发板通用接口板 SOC Chip Evaluation Board Universal Interface Board

ADT200系列

型号 Part Number	应用 Application
ADTR2012C4S3LP01	智慧交通 Smart Transportation
	四芯片级联开发板 4-Chip Cascade Evaluation Board
ADTR2012J1S34P01	无人机避障 Drone Obstacle Avoidance
	单芯片组合开发板 Single-chip Combination Evaluation Board
ADTR2012J2S34P02-2+1	无人机避障 Drone Obstacle Avoidance
	双芯片 双级联应用评估板 Dual-chip Dual-cascade Application Evaluation Board

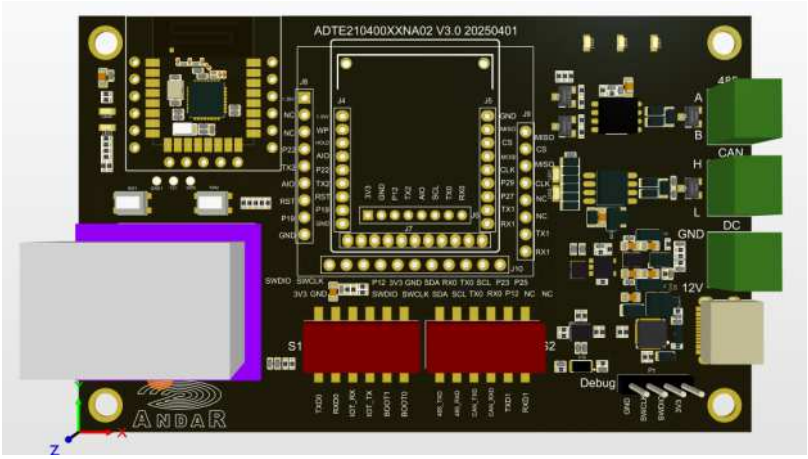
型号 Part Number	应用 Application
ADTP201100FXNA02	配合序号1开发板使用 (从左往右数) Use with 1 Evaluation Board
	FPGA开发板（圆形） FPGA Evaluation Board(circular)
ADTP201100FXNA05	配合序号2/3开发板使用 (从左往右数) Use with 2/3 Evaluation Board
	FPGA开发板（方形） FPGA Evaluation Board (square)

- FPGA+双核ARM Cortex-A9
- DDR3L SDRAM, FLASH
- 支持SD卡加载配置文件
- 提供CAN接口、USB转串口
- 用于原始数据输出的千兆以太网接口
- 适用于长距/中距/近距的可升级的汽车雷达平台
- 支持16发16收与2发2收天线子板
- 支持从76GHz到81GHz扫频
- 具备雷达前端控制应用编程接口
- 具备雷达信号处理应用编程接口
- 提供FMCW波形生成控制参考代码
- 开源原理图和电路板图

- FPGA + Dual Core ARM Cortex-A9
- DDR3L SDRAM, FLASH
- SD-Card
- CAN, USB-UART
- Gigabit Ethernet interface for RAW date output
- Scalable automotive radar platform for LRR/MRR
- Support 16T16R and 2T2R RF-FE Card
- Support frequency range from 76 to 81GHz
- Radar front-end control API available
- Radar signal processing API available
- FMCW configuration reference code available
- Open source schematic and layout

ADT6220A开发套件



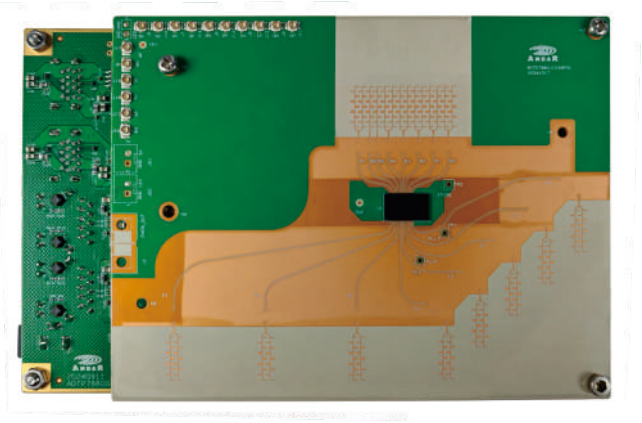


- 数字口直接提供目标信号（距离、角度、速度）
- ARM Cortex-M3内核
- 数字信号处理加速器（内置）FFT/FIR
- 提供UART接口、SPI接口和I2C接口
- 适用中距/近距的可升级的汽车雷达平台
- 2发2收集成封装天线
- 支持57-64GHz FMCW
- 集成雷达前端控制应用编程接口
- 集成雷达信号处理应用编程接口
- 提供波形生成控制参考代码
- 提供手势控制API
- 提供呼吸率检测API
- 开源原理图和电路板图

- Provide target signal (distance, angle and speed)
- ARM Cortex M3
- FFT/FIR Core integrated
- Communication port supports UART, SPI and I2C
- Scalable radar platform for MRR/SRR
- Integrated 2T2R RF-FE and antenna-in-package
- Support frequency range from 57 to 64GHz
- Radar front-end control API available
- Radar signal processing API available
- FMCW configuration reference code available
- Gesture control API available
- Respiratory rate monitoring API available
- Open-source schematic and layout

ADT7880开发套件

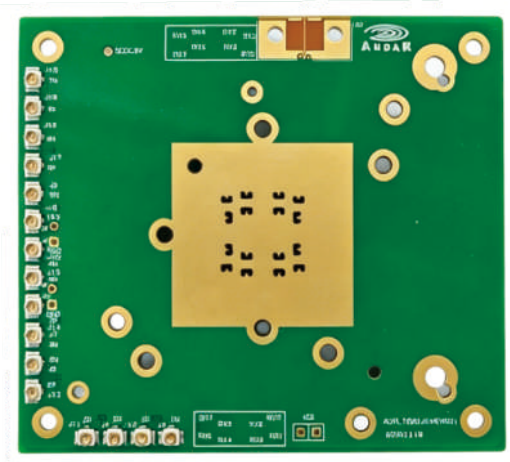


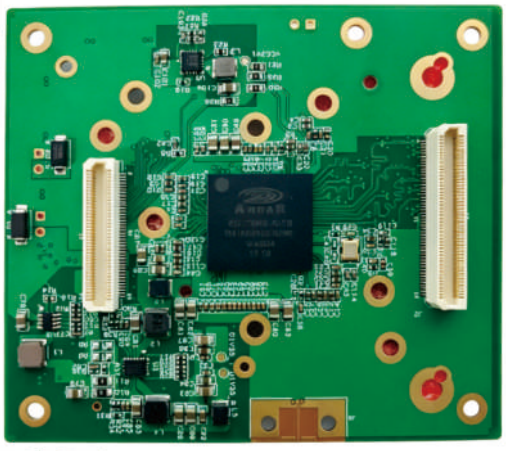


- 射频子板可灵活适配岸达处理子板、TI 2732开发板、全志 T527开发板
- 处理板搭载Zynq UltraScale+MPSoC核心板
- DDR4,SDRAM, FLASH
- 支持SD卡加载配置文件
- 提供CAN接口、USB转串口
- 用于原始数据输出的千兆以太网接口
- 适用于长距/中距/近距4D雷达平台
- 支持8发8收天线子板
- 支持从76GHz到84GHz范围内最大5G带宽扫频
- 具备雷达前端控制应用编程接口
- 具备雷达信号处理应用编程接口
- 提供FMCW波形生成控制参考代码
- 开源原理图和电路板图

- Adaptable to Andar signal processing mainboard, TI 2732 dev board, Allwinner T527 dev board
- Processing mainboard: Equipped with Zynq UltraScale+ MPSoC core board
- DDR4, SDRAM, FLASH
- SD card for config file loading
- CAN interface, USB - to - serial port
- Gigabit Ethernet for raw data output
- Applicable to long/mid/short - range 4D radar platforms
- Supports 8T8R antenna daughter board
- 5G max bandwidth frequency sweep from 76GHz to 84GHz
- API for radar front - end control
- API for radar signal processing
- FMCW waveform gen. control ref. code
- Open-source schematics and PCB diagrams

ADT7880L开发套件

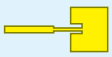




- 射频板可适配岸达处理子板、TI2732处理板、全志T527处理板及其他定制处理板
- 处理板搭载Zynq UltraScale+MPSoC核心板及外设
- 用户灵活自定义波导天线结构
- 支持卫星架构SERDES方案4D雷达原型设计
- 适用于长距/中距/近距4D雷达平台
- 支持从76GHz到84GHz范围内最大5G带宽扫频
- 具备雷达前端及内置8路ADC控制编程接口
- 具备雷达信号处理应用编程接口
- 提供FMCW波形生产控制参考代码
- 参考原理图和电路板图

- Adaptable to Andar signal processing mainboard, TI2732 processing board、Allwinner T527 processing board and other customized processing board
- Processing mainboard:Equipped with Zynq UltraScale+MPSoC core boardand peripherals
- Supports flexible customization of waveguide antenna structures
- Supports prototype design of 4D radar with satellite-based SERDES architecture
- Applicable to long/mid/short-range4D radar platforms
- 5G max bandwidth frequency sweep from 76GHz to 84GHz
- Equipped with radar front-end and built-in 8-channel ADC control programming interfaces
- Features application programming interfaces for radar signal processing
- FMCW waveform gen.control ref.code
- Refer to schematics and PCB drawings

领域 Field	应用类别 Application Category	方案简介 Programme Brief Introduction	典型指标 Typical Index
汽车领域	儿童遗留检测(CPD)	采用ADT6101的2T2R SOC芯片，实现低功耗、带CAN接口的高准确度、低成本方案	距离0.5-2米，FOV120°，功耗小于2W
	脚踢尾门	采用ADT3102的2T2RSOC芯片，实现低功耗、带CAN接口，针对脚踩、脚踢、扫踢等不同动作定义都提供适配方案	对各种路面、各种天气、各种覆盖经过验证，针对多种干扰处理。
	盲区检测 (BSD)	采用ADT3102的8patch天线的干涉仪算法，实现高效点云输出的低成本方案	车辆探测距离70米，自行车探测距离40米，水平角精度±1°
	前向4D雷达	利用ADT7880单芯片或级联方案，基于传统架构或卫星架构，通过MIPI CSI2、LVDS等接口输出数据到车规处理器进行处理，实现前向4D成像功能	探测距离300米
	开门防撞雷达	利用ADT7880单芯片结合低成本MCU进行近场4D成像	对近区障碍物进行高精度探测 方位/俯仰角分辨率8°
交通领域	道路侧交通管制	采用4芯片ADT2012级联实现32T32R，FPGA处理板	汽车探测距离1000米
	路边测速	采用ADT3102的2T2R SOC芯片16patch天线，低成本方案	汽车探测距离100米
	路灯控制	采用ADT3102的2T2R SOC芯片16patch天线，可实现灯随车动的低成本方案	汽车探测距离100米
周界安防	周界应用	采用4芯片ADT2012级联，32T32R，FPGA处理板	人员探测400米
低空经济	无人机管控	采用4芯片ADT2012级联实现32T32R，FPGA处理板	大疆御3探测距离150米
	无人机避障	采用ADT2012相控阵方案，用于无人机探测障碍物	单芯片250米
工业测量	液位计	采用ADT3102的2T2R SOC芯片，10*12天线阵窄波束或透镜	50米，精度优于±5mm
	料面成像	采用4芯片ADT2012级联，32T32R，采用相控波束扫描方式提升容器内的抗干扰性能	FOV±45°，
	近距离成像	采用ADT2012相控阵架构2芯片级联、16T16R天线布局，基于FPGA处理，实现两维成像	水平FOV±60°，角度分辨率1.2°；俯仰FOV±10°，角度分辨率3°；不模糊距离30米
	巷道形变监测	采用ADT2012+3012套片架构、16T16R天线布局，实现低成本、高精度、广覆盖的探测	FOV±60°，角度分辨率1.2°，距离精度1cm。
智能家居	存在感知	单片集成收发系统，2T2R PCB天线，实现高灵敏度人体状态感应，识别运动、微动和静止人体	两维FOV：120°，尺寸小于25*31.5mm，通用UART接口
	人员计数	单片集成收发系统，2T2R PCB天线，实现高精度人员轨迹跟踪、越界检测与人数统计，可在后处理中任意规划周界	方位FOV：120°，俯仰FOV30°，最大人员跟踪距离15米
	跌倒检测	单片集成收发系统，2T2R PCB天线，实现特定场所内人员感知，上报跌倒状态，支持顶装	两维FOV：120°，尺寸小于25*31.5mm，通用UART接口
	呼吸、心跳监测	单片集成收发系统，2T2R PCB天线，探测人体表面的起伏，给出特定场合人员呼吸心率的频率	探测距离1.5米，呼吸测量准确率接近100%，心率测量准确度超过95%

类型 Type	形式 Modality	材料 Materials			
板载贴片天线 Board Mounted Patch Antenna	Patch数量	罗杰斯RO3003	松下R5515	生益mm WAVE G/77	生益 S7136H
	16patch				
	8patch				
	4patch				
	单patch				
透镜天线 Lens Antenna	透镜材料	凹透镜	凸透镜	半球透镜	
	聚四氟乙烯				
	PP				
	特氟龙				
天线罩 Antenna Cover	天线罩材料	平板		弧形	
	PC				
	ABS				
	PBT-GF 30				







Part Number	ADT77S-1	ADT60S-1	ADT101S-1	Andar-2507-WR12	Andar-1525-WR15
Frequency Range	76~81GHz	57~64GHz	76~82GHz	60~90GHz	50~75GHz
Waveguide /RF Interface	WR12	WR15	WR12	WR12	WR15
Maximum Output Power	5dBm	4dBm			
Communication Interface	Uart接口	Uart接口			
Signal Source Form	·点频信号 ·FMCW信号	·点频信号 ·FMCW信号			
Mid Frequency Signal Frequency Range			4~8GHz		
Intermediate Frequency Interface			SMA接口		
RF Maximum Output Power			-5dBm		
Mid Frequency Maximum Output Power			3dB		
NF			9dB		
Antenna Gain				25dBi	15dBi
Beam Width				E面:9° H面:10°	E面:26° H面:32°
Size	长:53mm 宽:35mm 高:35mm	长:53mm 宽:35mm 高:35mm	长:175mm 宽:98mm 高:98mm	长:78.8mm 宽:33.7mm 高:27.4mm	长:17.8mm 宽:12.2mm 高:12.2mm

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