

Product brief

Sense2GoL pulse development kit

Infineon XENSIV™ 24GHz radar sensor development kit utilizing BGT24LTR11 RF transceiver and XMC4700 32-bit ARM® Cortex®-M4

This development kit allows the user to implement and test several sensing applications at the 24 GHz ISM band such as motion detection and speed measurement. The kit operates in a pulsed mode achieving 18 m detection range with a sensor power consumption less than 5 mW. The demonstration kit consists of two boards, the radar front end board: **SHIELD_BGT24LTR11** and the microcontroller board: **RADAR BB XMC4700**. The baseboard adds additional flexibility by allowing battery operation, current measurements, SD card reader for storage and Arduino compatible pin connectors.

A block diagram of the demonstrator kit is shown in the figure below highlighting all main components. The board is already preprogrammed using Infineon's DAVE™ development tool. A sample and hold topology is used after the BGT24LTR11 to allow for low power operation by turning on the Radar chip only during the data acquisition stage. The frequency stabilization is done using the integrated temperature compensation block (PTAT) in the RF MMIC. The board can be operated and configured from the Infineon Radar GUI (PC application GUI Windows XP/Vista/7/8/10) where the radar raw data can be viewed and key radar parameters adjusted for optimum power consumption and detection performance.



Key features

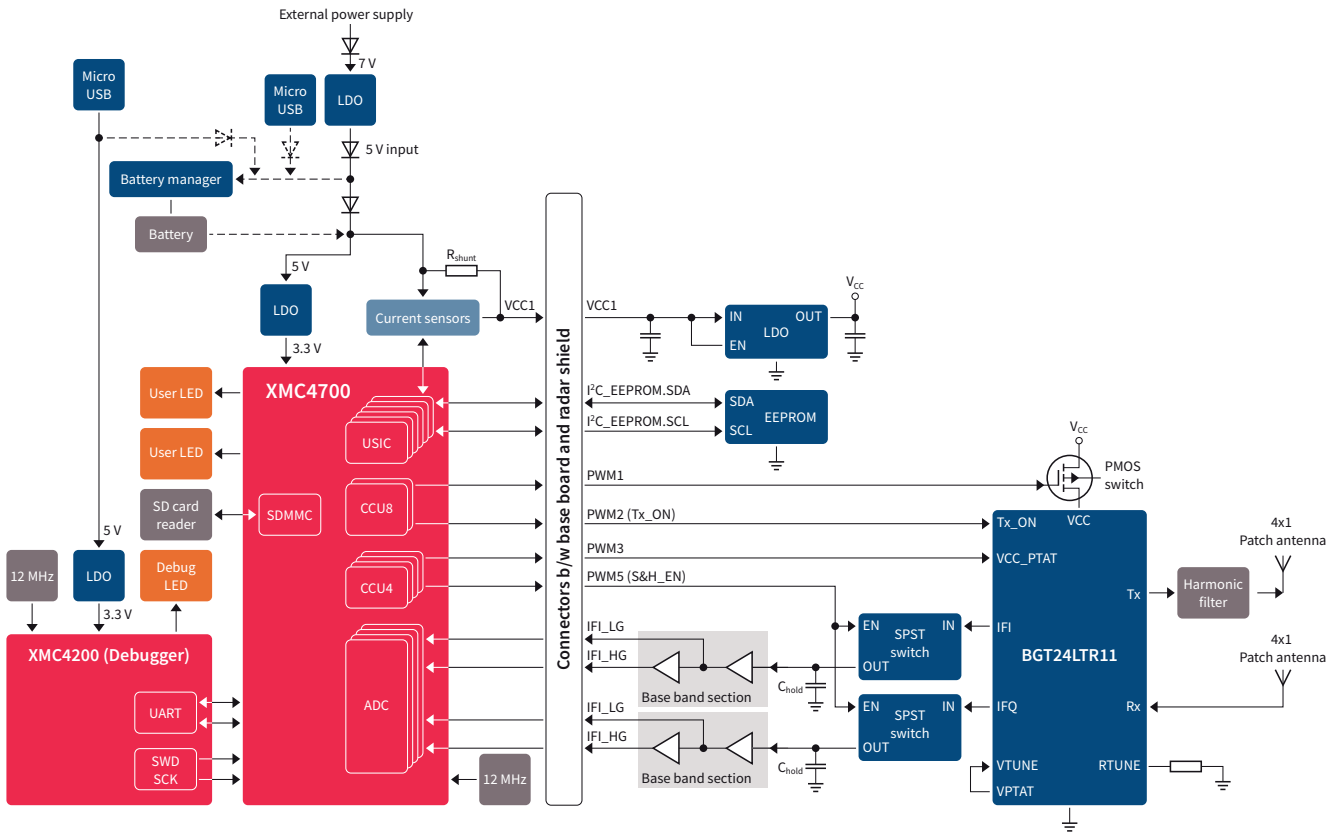
- > Capability to detect motion, speed and direction of movement (approaching or retreating)
- > Detection range of 18 m for human target at a power consumption < 5 mW
- > High sensitivity of detection in comparison to PIR
- > Operates in harsh environments and detects through non-metallic materials
- > Multiple power supply possibilities: Micro USB, external power supply, or battery
- > Arduino compatible microcontroller board (Arduino standard connectors)
- > Modulation parameters can be changed to suit the application requirements
- > Multiple current sensors for current consumption monitoring and optimization

Applications

- > Security
- > Indoor and Outdoor lighting
- > Smart home
- > Automatic door opener
- > Intelligent switches
- > Speed measurement

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Product overview

Type	Description	Ordering No.
BAS3010A	Medium power AF schottky diode	BAS3010A-03WE6327
ESD131-B1-W0201	Bi-directional TVS protection device, 5.5 V, 0.28 pF	ESD108-B1-CSP0201
IFX1763XEJ V33	Wide input range low noise 500 mA LDO	IFX1763XEJ V33
IFX1963TEV	1.5 A low dropout linear voltage regulator	IFX1963TEV
IFX54211MB_V33	Monolithic integrated fixed linear voltage regulator for load currents upto 150 mA	IFX54211MB_V33
IRLHS2242PbF	HEXFET power MOSFET, VDS -20 V	IRLHS2242PbF
XMC4200Q48K256ABXUMA1	XMC4000 family microcontroller for Industrial applications, ARM® Cortex®-M4, 32-bit processor core	XMC4200Q48K256ABXUMA1
XMC4700-E196K2048	XMC4000 family microcontroller for Industrial applications, ARM® Cortex®-M4, 32-bit processor core	XMC4700-E196K2048
BGT24LTR11N16	Silicon germanium 24 GHz radar transceiver MMIC	BGT24LTR11N16E6327

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