Product brief

Position2Go development kit

Infineon XENSIV™ 24GHz radar sensor development kit utilizing BGT24MTR12 RF transceiver and XMC4700 32-bit ARM® Cortex®-M4 MCU series
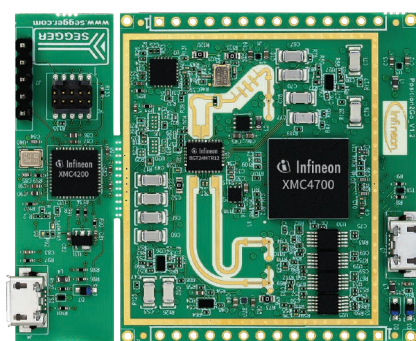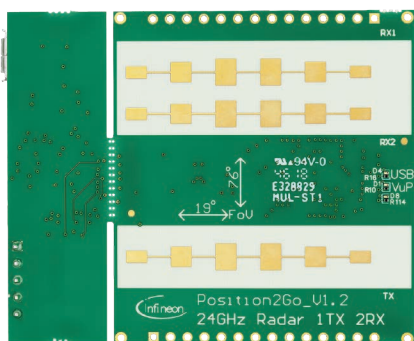
This development kit allows the user to implement and test several sensing applications at the 24 GHz ISM band such as tracking and collision avoidance. This is possible by using fast chirp FMCW and two receive antennas to get the angle, distance, speed and direction of motion. The kit consists of the BGT24MTR12 transceiver MMIC and a XMC4700 32-bit ARM® Cortex®-M4 for signal processing and communication via USB. An alpha-Beta tracking algorithm fully running on the XMC microcontroller allows for simultaneous tracking of multiple objects.

A block diagram of the demonstrator board is shown in the figure below highlighting all main board components. The board is already preprogrammed using Infineon's DAVE™ development tool. The module features a phased locked loop that is controlled with the XMC4700 to generate the FMCW ramps required for distance measurement. The MCU samples up to 4 IF channels of the transceiver chipset and communicates via USB interface to a connected PC. A provided PC application GUI (Windows XP/Vista/7/8/10) can be used to display and analyze acquired data in time and frequency domain. The GUI allows for the extraction of the radar time domain signals allowing for advanced debugging and algorithm development.

Applications
› Security
› Drone obstacle avoidance
› Robotics obstacle avoidance
› People tracking

* Usage of the FMCW and/or Doppler FW and SW requires agreeing to Infineon's user's agreement and licensing terms.

Key features

› Capability to detect and track the position of multiple targets
› Capability to detect distance of multiple targets
› Capability to detect motion, speed and direction of movement (approaching or retreating)
› Operates in harsh environments and detects through non-metallic materials
› Small form-factor (5.0 cm × 4.5 cm) 24 GHz ISM band module that can be used as a development kit size or mounted as a daughter board in a system
› Integrated multiple element patch antenna

Contents of the kit

› Demo board
› Corner reflector
› USB cable
› SW GUI to operate kit
› Precompiled C libraries provided
› Source code
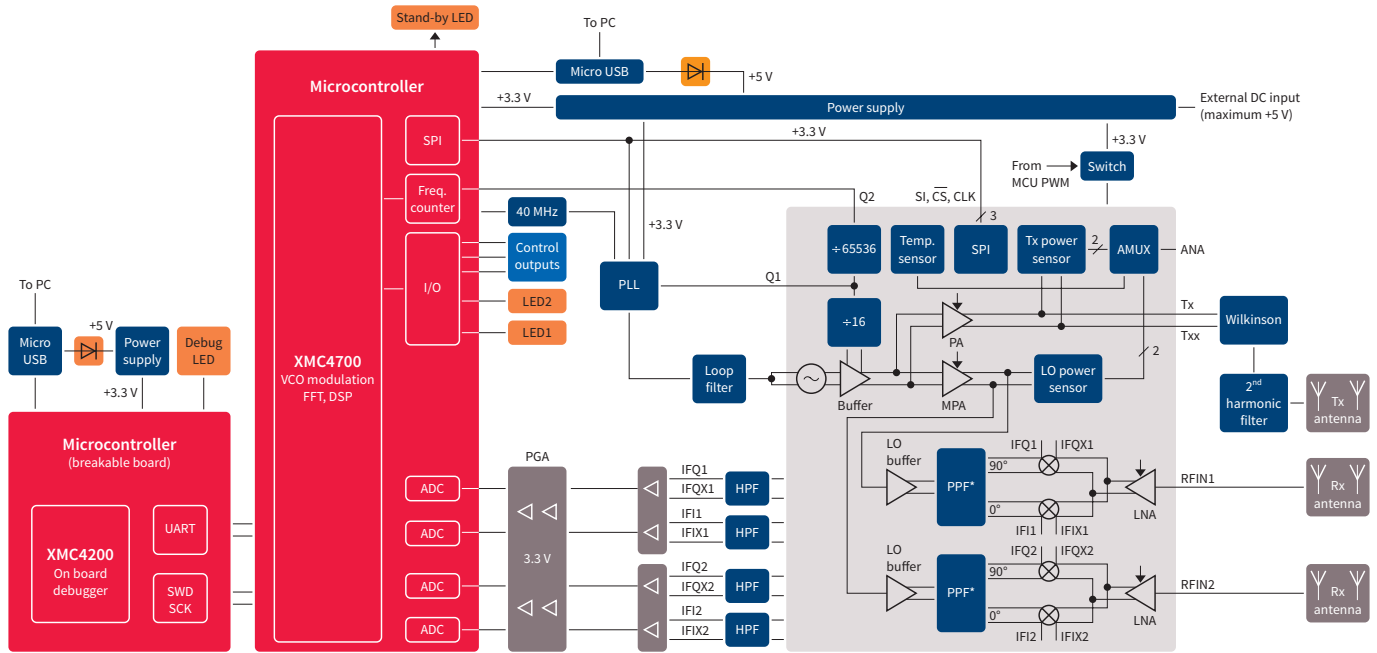 (FW + basic radar algorithms)
› PCB schematic and Gerber files

Features

› Minimum distance: 1 m
› Maximum distance: 25 m
  (12 m for human target)
› Radar System Field of View (HPBW):
  Horizontal: 76°; Vertical: 19°

Position2Go development kit

Infineon XENSIV™ 24GHz radar sensor development kit utilizing BGT24MTR12 RF transceiver and XMC4700 32-bit ARM® Cortex®-M4 MCU series

Block diagram

Product summary

Type	Description	Ordering code (OPN)
Position2Go	24 GHz FMCW, Range doppler demonstration board	DEMO POSITION2GO
BGT24MTR12	24 GHz radar chip with 1 transmitter and 2 receiver in VQFN-32-9 package	BGT24MTR12E6327XUMA1
XMC4700E196K2048	144 MHz ARM® Cortex®-M4 with high resolution PWM unit, 2048 kB flash, 352 kB RAM, rich analog-mixed signal, timer/PWM and communication peripherals in LFBGA-196	XMC4700E196K2048AAXQMA1
XMC4200-Q48K256 AB	80 MHz ARM® Cortex®-M4 with high resolution PWM unit, 256 kB flash, 40 kB RAM, rich analog-mixed signal, timer/PWM and communication peripherals in VQFN-48	XMC4200Q48K256ABXUMA1
BAS3010A	Medium power AF Schottky diode	BAS3010A03WE6327HTSA1
IRLTS2242	-20 V Single P-Channel HEXFET Power MOSFET in a TSOP-6 (Micro 6) package	IRLTS2242TRPBF

Please note!
THIS DOCUMENT IS FOR INFORMATION PURPOSES ONLY AND ANY INFORMATION GIVEN HEREIN SHALL IN NO EVENT BE REGARDED AS A WARRANTY, GUARANTEE OR DESCRIPTION OF ANY FUNCTIONALITY, CONDITIONS AND/OR QUALITY OF OUR PRODUCTS OR ANY SUITABILITY FOR A PARTICULAR PURPOSE. WITH REGARD TO THE TECHNICAL SPECIFICATIONS OF OUR PRODUCTS, WE KINDLY ASK YOU TO REFER TO THE RELEVANT PRODUCT DATA SHEETS PROVIDED BY US. OUR CUSTOMERS AND THEIR TECHNICAL DEPARTMENTS ARE REQUIRED TO EVALUATE THE SUITABILITY OF OUR PRODUCTS FOR THE INTENDED APPLICATION.

WE RESERVE THE RIGHT TO CHANGE THIS DOCUMENT AND/OR THE INFORMATION GIVEN HEREIN AT ANY TIME.

Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Infineon]():
[DEMOPOSITION2GOTOBO1]()