UBX-G5010, UBX-G5000

u-blox 5 GPS Chip
Mobile Terminal Applications

Preliminary Data

Overview

The u-blox 5 chip family is the latest GPS technology generation from u-blox that redefines the boundaries of GPS performance, integration and cost efficiency.

A dedicated acquisition engine with over 1 million effective correlators is capable of massively parallel searches across the time/frequency space. This enables satellite acquisition in under 1 second and acquisition sensitivity reaching –160 dBm. Acquired satellites are passed on to a power-optimized correlator engine. This setup simultaneously allows the tracking of 16 satellites and the search for additional ones. The computed position is available within seconds.

The on-chip power management unit features a switch-mode DC/DC converter that optimizes power efficiency and enables having a single voltage source. Power needs lower than 50 mW ensure long battery times.

u-blox 5 receivers will be capable, via a simple upgrade, of receiving and processing L1 Galileo signals once they become available. The ability to perceive Galileo satellites will bring higher coverage, improved reliability and better accuracy.

Its advanced jamming suppression mechanism automatically filters signals from interfering sources, thus maintaining high GPS performance.
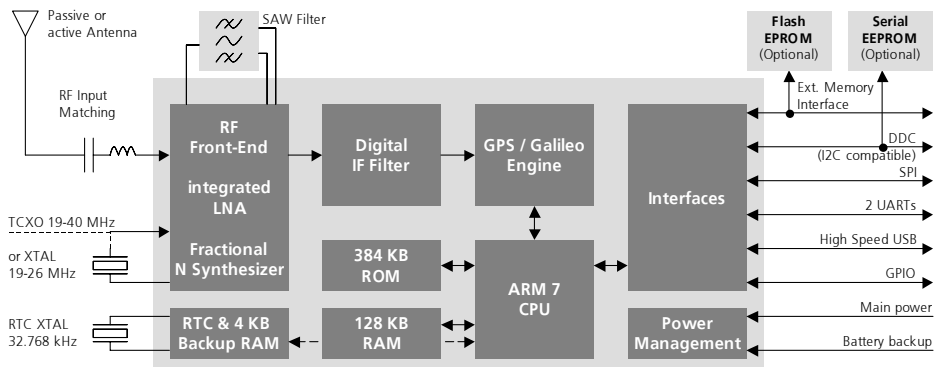
Highlights

- **Massively parallel GPS engine**
  - 50 channels
  - Over 1 million correlators
- **Cost and space efficiency**
  - Optimized silicon architecture
  - Miniature footprint
  - Small bill of material
  - No external LNA and Flash EPROM needed
- **SuperSense®: deep indoor performance**
  - -160 dBm acquisition, reacquisition and tracking sensitivity
- **Ultra-low power consumption: 50 mW**
  - Long battery times
- **Galileo ready**

Features

- 32 channel acquisition engine
- 18 channel tracking engine
- Assisted GPS and Autonomous GPS operation
  - AssistNow™ ready
  - Supports RRLP, RRC, OMA/SUPL and proprietary protocols
- Wide clock frequency range
  - XTAL: 19-26 MHz, TCXO 19-40MHz
  - Coverage of all cellphone reference frequencies
- Integrated DC/DC converters enable power-efficient applications with single voltage supply
- Supports SBAS: WAAS, EGNOS and MSAS
- Connectivity: USB, 2 UARTs, SPI, DDC
- RoHS compliant (lead-free)

Block Diagram

Receiver Performance Data

Receiver Type	L1 frequency GPS C/A code Galileo Open Service (with upgrade) Supports SBAS: WAAS, EGNOS, MSAS	
Max. Update Rate	4 Hz	
Accuracy	Position	2.5 m CEP
	SBAS	2.0 m CEP [1]
Acquisition		Open sky [2] Indoor [3]
	Cold starts	29 s
	Aided starts:	<1 s 10 s
	Hot starts:	<1 s 10 s
	Reacquisition:	<1 s 10 s
Sensitivity	Acquisition and	
	Reacquisition:	-160 dBm
	Tracking:	-160 dBm
	Cold starts:	-145 dBm
Multipath Suppression	Intelligent multipath detection and suppression	
GPS Protocols	NMEA, UBX Binary	
	Supports protocol mixing over same serial port	
A-GPS Assistance Data Standards	UMTS / GSM:	3GPP TS 25.331 RRC 3GPP TS 44.031 RRLP
	CDMA:	3GPP2 C.S0022-0-1
	OMA SUPL	
A-GPS Performance Standards	USA (FCC)	E-911 Phase II
	UMTS / GSM:	3GPP TS 25.171
	CDMA:	TIA.916
Operational Limits	Altitude	18,000 m
	Velocity	515 m/s
	One of the limits may be exceeded but not both.	

[1] Depends on accuracy of correction data provided by the DGPS or SBAS service

[2] Open sky: All SV –144 dBm or higher

[3] Indoor: SV: –155 dBm

RF Functionality

LNA	Built-In (no external LNA required)	
Overall noise figure	2.5 dB (LNA + RF + digital part combined)	
Architecture	Low IF: 3 MHz I and Q	
XTALs	TCXO:	19 – 40 MHz or
	XTAL:	19 – 26 MHz
	RTC XTAL:	32.768 kHz
Synthesizer	Fractional N	

Digital Functionality

Receiver Architecture	32 acquisition channels > 1,000,000 effective correlators	
	18 high-resolution tracking channels	
Processor	ARM7TDMI-S Core	
Memory	ROM	384 K Bytes
	RAM	128 K Bytes
	Backup RAM	4 K Bytes
OTP	32 bits One-Time Programmable memory for device configuration	
External Memory Interf. (BGA only)	Data width:	16 bits
	Address space:	3 x 4 M Bytes
Serial Interfaces	USB Device:	V2.0, 12 Mbit/s Full Speed
	UARTs:	2
	SPI:	1
	DDC (Display Data Channel, I2C compatible): 2 Master / Slaves	
General-Purpose I/O Ports	Package:	BGA 56 Pin QFN
	GPIOs:	22 I/O, 3 In 21 I/O, 3 In
	Voltage range:	1.2 – 3.3 V
Antenna Supervision	Short and open circuit detection supported with external circuit	

Electrical Data

Supply Voltages	Single voltages supply:	1.8 – 4.8 V
	Integrated LDO and DC/DC converter for efficient power management.	
Power Consumption	50 mW (tracking & navigating)	
Backup Supply	Voltage range:	1.3 – 4.8 V
	Current:	25 uA

Environmental Data

Operating Temp.	-25°C to 70°C

Packages

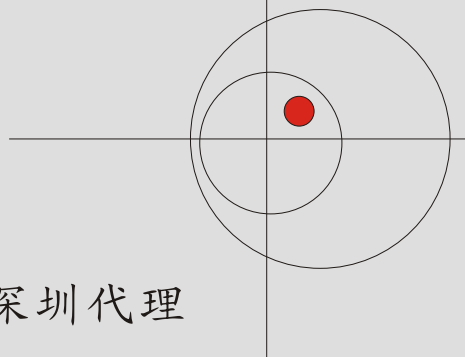|	
Single Package	56 Pin QFN, 8 x 8 x 0.9 mm
Chipset	RF: 24 Pin QFN, 4 x 4 x 0.9 mm
	BB: 100 Pin BGA, 9 x 9 x 1 mm

Ordering Information

UBX-G5010-A00-ST	u-blox 5 Single Chip GPS Receiver, 56 Pin QFN
UBX-G5000-A00-BT	u-blox 5 Baseband Processor 100 pin BGA
UBX-G0010-A00-QT	u-blox 5 RF Front-End, 24 pin QFN

Parts of this product are patent protected.

Schedule: Sampling in Q1 2007

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主要产品线:

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RISE 研发设计

- U-blox GPS模块
- OEM u-blox GPS半成品
- 开通u-blox 模块样品3天到达GPS通道

- 100M四通道数字存储示波器
- 200M四通道数字存储示波器
- 基于Kile C语言的全系列C51仿真器

Baby:好久不见了.~~ 我现在醒了我刚流出来的猪血来给你写情书了..
你从万里之外射给我的丘比特爱情之箭我收到了...它不偏不倚的中了我的猪心窝..
让我幸福得全身都�了,好嗳,实在是好~~~@#$
原来这次是用u-blox GPS导航过来的
还有,甜心,你知道吗,
上次你用其它品牌的GPS模块导航仪射的丘比特之箭竟然落入了邻村虎皮犬的怀抱..
55~~~
这次,实在是实在是太...爽歪歪了...
Baby,你这次对我一箭倾心,实在是太感动了...
Baby,我永远也忘记不了这难忘的永恒的经典时候,永远都忘记不了以你的名字命名的:
www.gpsbaby.com...

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