

# UBX-G6000-BT / G0010-QT

## Standard grade u-blox 6 GPS chipset

### Highlights

- High performance GPS engine
- Cost effective
- High level of design flexibility
- Supports u-blox Automotive Dead Reckoning (ADR)<sup>1</sup>

### Features

- u-blox 6 position engine:
  - Navigate down to -162 dBm and -148 dBm coldstart
  - Faster acquisition with AssistNow Autonomous
  - Configurable power management
  - Hybrid GPS/SBAS engine (WAAS, EGNOS, MSAS)
  - Anti-jamming technology
- Simple integration with u-blox wireless modules
- A-GPS: AssistNow Online and AssistNow Offline services, OMA SUPL compliant
- Backward compatible (hardware and firmware); easy migration from u-blox 5
- Manufactured in ISO/TS 16949 certified sites
- Operating temperature range: -40°C to 85°C
- 3GPP compliant

<sup>1</sup> External Flash required (contact u-blox for more information).



### Product description

The UBX-G6000-BT/G0010-QT is u-blox' standard grade GPS chipset featuring the high performance u-blox 6 position engine. Featuring the high performance u-blox-6 position engine, the UBX-G6000-BT/G0010-QT provides even better sensitivity and acquisition times while requiring no external host. Sophisticated RF-architecture and interference suppression ensure maximum performance even in GPS-hostile environments.

u-blox 6 has been designed with low power consumption and low costs in mind. Intelligent power management is a breakthrough for low-power applications. The minimal BOM requires as few as 19 passive components, an LDO and LNA are integrated and costly external memory is not needed. Lower price GPS crystals as well as TCXOs are supported, and 2-layer PCB integration capability and small footprint ensure further cost savings.

UBX-G6000-BT/G0010-QT is the ideal solution for cost and space sensitive applications.

### Product selector

Model	Type	Supply	Interfaces	Features
	Standalone GPS Capture & Process Timing & Raw Data Dead Reckoning	1.75 V - 2.0 V 2.7 V - 3.6 V	UART USB SPI DDC (I <sup>2</sup> C compliant)	Programmable (Flash) FW update TCXO RTC crystal Antenna supply and supervisor Configuration pins Timepulse External interrupt / Wakeup
UBX-G6000-BT/ UBX-G0010-QT	• Y F	• •	• • • •	◦ ◦ ◦ ◦ 12 2 2

F = Requires external Flash, Y = requires u-blox' YUMA (available seperately), ◦ = requires external components

## Receiver performance data

Receiver type	50-channel u-blox 6 engine GPS L1 C/A code SBAS: WAAS, EGNOS, MSAS, GAGAN		
Navigation update rate	up to 5 Hz ROM		
Accuracy <sup>1</sup>	Position	2.5 m CEP	
	SBAS	2.0 m CEP	
Acquisition <sup>1</sup>		TCXO	Crystal
	Cold starts:	26 s	27 s
	Aided starts <sup>2</sup> :	1 s	< 3 s
	Hot starts:	1 s	1 s
Sensitivity <sup>3</sup>		TCXO	Crystal
	Tracking:	-162 dBm	-162 dBm
	Cold starts:	-148 dBm	-147 dBm
	Hot starts:	-157 dBm	-156 dBm
Operational limits	Velocity:	500 m/s	
	Altitude:	50,000 m	

<sup>1</sup> All SV @ -130 dBm

<sup>2</sup> Dependent on aiding data connection speed and latency

<sup>3</sup> Demonstrated with a good active antenna

## RF data

LNA	Built-In (no external LNA required)
Overall noise figure	2.5 dB (LNA + RF + digital part combined)
RTC input	32.768 kHz (optional)

## Electrical data

Supply voltages	1.75 V – 2.0 V 2.5 V – 3.6 V
Digital I/O voltage level	1.65 – 3.6 V
Power Consumption	67 mW @ 1.8 V (continuous) 20 mW @ 1.8 V Power Save Mode (1 Hz)
Backup Supply	Voltage range: 1.4 to 3.6V
Antenna Supervision	Short and open circuit detection supported with external circuit
Antenna Type	Active and passive

## Packages

UBX-G6000-BT:	100 Pin CVBGA: 9 x 9 x 0.91 mm
UBX-G0010-QT:	24 Pin MLF: 4 x 4 x 0.85 mm

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## Interfaces

Serial interfaces	2 UARTs 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I <sup>2</sup> C compliant) 1 SPI
Digital I/O	Configurable time pulse 2 EXTINT interrupt inputs 12 configuration pins

## Environmental data

Operating temp.	-40°C to 85°C
Storage temp.	-40°C to 85°C
RoHS compliant (lead-free) and green (no halogens)	

## Support products

u-blox 6 Evaluation Kit:	easy-to-use kit to get familiar with u-blox 6.
EVK-6H:	u-blox 6 Evaluation Kit with TCXO.
EVK-6P:	u-blox 6 Evaluation Kit with Crystal.
u-blox 6 Chipset Development Kit	
CDK-6X:	For information contact u-blox.

## Ordering information

UBX-G6000-BT	u-blox 6 baseband chip, 100 pin CVBGA
UBX-G0010-QT	u-blox 6 RF front-end chip, 24 pin MLF

## Contact us

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