GE-826, High Performance, GNSS PCI Express Half-Mini Card w/ I-PEX MHF RF Connector

RoHS Compliant



Overview

GE-826 is equipped with the **u-blox M8** high-sensitivity engine, RF connector, and optional backup battery. The Mini PCI Express standard design allows it to be easily applied in devices with PC architecture. The half-length design allows it to be used in dimension demanding environment. In addition to standard USB interface, it also supports optional UART/TTL interface.

GE-826 supports positioning of multi-satellite systems – GPS, Galileo, GLONASS, BEIDOU, QZSS, SBAS. It default works with GPS, GLONASS, and QZSS. Different satellite systems could be enabled or disabled by commands.

The backup battery allows faster position fix and it is optional in case extended temperature range is required.

Our experienced design provides not only excellent GNSS performance but also quality and delivery assurance.

Applications

- Industrial PC
- Mobile DVR
- Notebook PC / Tablet PC / Netbook PC
- School Bus / Transit / Police / Fleet

Features

- PCI Express Mini Card standard compliant
- GPS, Galileo#, GLONASS, BEIDOU, QZSS, SBAS
- SBAS support: WAAS, EGNOS, MSAS, GAGAN#
- IMES# support (default disabled)
- Built-in RF connector, reduce RF tuning efforts
- The tiny I-PEX MHF RF connector allows flexibly placing GNSS antenna at a suitable location.
- External active antenna **short circuit protection**
- Optional backup battery for faster position fix.
- Support USB or UART/TTL interface.
- High sensitivity+:-167dBm tracking/-148dBm acquisition (GPS & GLONASS)
- Up to 10Hz update rate (default 1Hz)
- OMA SUPL compliant A-GNSS support
- Windows **location sensor** support
- Excellent EMI protection

By default disabled, could be enabled & saved by command, valid as there is backup power.

Technical Specifications

Receiver Performance Data+

Receiver Type	72-channel u-blox M8 engine GPS, QZSS, SBAS: L1 C/A Galileo: E1 B/C L1, E1: 1575.42MHz, GLONASS: L1OF,1598.0625~1605.375MHz BEIDOU (GM-8204): B1 1561.098 MHz
SBAS	WAAS, EGNOS, MSAS, GAGAN
Horizontal Position Accuracy	Autonomous: 2.5 m (Autonomous) (GPS & GLONASS) (CEP, 50%, 24-hour static, -130dBm)

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Velocity Accuracy	<0.05 m/s (speed) (GPS & GLONASS) <0.3° (heading) (GPS & GLONASS) (50% @ 30 m/s)
Time Pulse Signal Accuracy	RMS: 30 ns (GPS & GLONASS) 99%: 60 ns (GPS & GLONASS)
Time To First Fix (TTFF) Hot start Cold start	Autonomous (All at -130dBm) 1 sec (GPS & GLONASS) 26 sec (GPS & GLONASS)
Sensitivity, (Autonomous)	Acquisition: -148 dBm (GPS & GLONASS) Tracking: -167 dBm (GPS & GLONASS)
Navigation. Update Rate	Max. 10Hz (GPS & GLONASS) Default 1Hz (GPS & GLONASS)
Max. Altitude	50,000 m
Max. Velocity	500 m/s
Protocol Support	NMEA 0183 v2.3 and V4.x GGA, GLL, GSA, GSV, RMC, VTG, TXT
Dynamics	< 4g

+ Note. According to IC Spec



52-Pin definition

Name	PINs	Function	I/O
VCC	2,24,39,41,52	3.3V power supply, Min 3.0V, Max 3.6V	Input
GND	4,9,15,18,21,26,27,29,34,35,37,40,43,50	Ground	Input
USB_DM	36	USB data signal minus	I/O
USB_DP	38	USB data signal plus	I/O
LED	42	GPS fix indication	Output
NC/VBAT[!]	6	NC or 1.5V backup power input if backup battery is not equipped.	-/Input
NC/RXD[!]	45	NC or UART RX if additional TTL interface is needed.	-/Input
NC/TXD[!]	47	NC or UART TX if additional TTL interface is needed.	-/Output
NC	Remaining pins	No connection	-

[!] Proprietary; reserved pins of PCIe Mini Rev. 1.2 are used

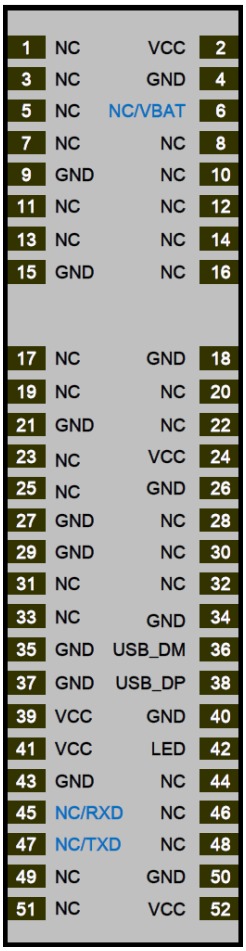
Electrical Data

Power Supply	3.3 ± 0.3 V
Power Consumption	41 mA / average tracking (9 SVs) 14.5uA / backup power (card disabled)
USB I/O (V)	V_{IH}: 2 ~ 3.3, V_{IL}: 0 ~ 0.8 V_{OH}: >= 2.8, V_{OL}<= 0.3

Environmental Data

Operating temperature	-40 ~ 85℃ w/o battery -20~60℃ w/ battery
Storage temperature	-40 ~ 85℃ w/o battery -40~60℃ w/ battery

Mechanical Data – 30 x 26.8 x 2.8 (mm)



Application

- Mount GE-826 on main board, connect I-PEX to GNSS active antenna.

Ordering Information

GE-826XY&

X=3	GPS + GLONASS
X=4	GPS + BEIDOU, additional command required
Y=B	with backup battery on card, no UART (default)
Y=A	without backup battery on card, no UART

& MOQ-based UART demand w/ specified baud is welcome.

*This document is subject to change without notice.

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