INVENTEK SYSTEMS, LLC.



ISM420/480 Evaluation Board

Users Guide

Revision 0.3 Stephen Profit 5/26/2011

This document describes the Inventek Systems ISM420/480 Evaluation Board.

1 Table of Contents

1	Tabl	le of Contents	2
2	Revi	ision History	3
3	Intro	oduction	4
	3.1	Block Diagram	4
	3.2	Diagrams	5
4	Feat	tures	6
5	Swit	tches, Connectors, and Jumpers	7
6	Ope	erating Modes	9
	6.1	Normal Operation	9
	6.2	ISM480 GPS Module Firmware Update	9
	6.3	EVB Board Firmware Update	9
	6.4	SiRFLive Mode	. 10

2 Revision History

Date	Author	Version	Comments
1/10/2011	Stephen Profit	0.0	1 st Draft
1/26/2011	Stephen Profit	0.1	Corrections and added SiRFLive mode
5/3/2011	Stephen Profit	0.2	Updates
5/26/2011	Stephen Profit	0.3	Updates and Diagrams

3 Introduction

The Inventek Systems ISM420/480 Evaluation Board (EVB) allows the user to evaluate the either of the ISM420 GPS module using the ISM420 Breakout Board or the ISM480 GPS module.

ISM480-EVB	

The Evaluation board can be configured for:

- NMEA Messages
- For direct connection to the GPS module for use with SiRFLive software

3.1 Block Diagram



3.2 Diagrams



4 Features

- Supports both the ISM420R (ROM Version) and the ISM480F (Flash version) GPS modules.
- Display
 - o Lat/Lon
 - UTC, Satellites, HDOP
 - o Altitude, GeoID
 - Speed, Distance (for future use, currently always displays zero)
- Supports SiRF Flash utility for use on the ISM480F module for upgrading to the latest firmware.

5 Switches, Connectors, and Jumpers

Switch	Function	Comments
SW3100	Power ON/OFF	Not used due to errata
SW3101	Event Switch	Use to switch display
SW3102	MCU Reset	Use only if the MCU is not responding
SW3103	GPS ON/OFF	Use when updating ISM480TM module firmware

Jumper	Function	State
J3101: Power button bypass	Open: Normal operation	Default
	Closed: Bypass button	
J3104, 1-2: 32kHz Select	Open: No connect	Default
	Closed: 32kHz to ISM420	
J3104, 2-3:	Open: No connect	Default
	Closed: 32kHz to ISM480TM	
J3105, 1-2: 32kHz Select	Open: No connect	Default
	Closed: 32kHz to ISM480TM	
J3105, 2-3:	Open: No connect	Default
	Closed: Ext. 32kHz to ISM480TM	
J3106: MCU Reset	Open: Normal operation	Default
	Closed: Hold MCU in Reset	
J3201, 1-2: Flash Enable	Open: No connect	Default
	Closed: Pull high	
J3201, 2-3:	Open: No connect	Default
	Closed: Pull low	
J3203: GPS Mode	Open: SPI mode	
	Closed: UART mode	Default
	·	

Jumper	Function	State
J3202, 1-22: GPS On/Off	Open: Controlled by SW3103	
	Closed: Controlled by MCU	Default
J3202, 2-21: GPS RxD	Open: No connect	
	Closed: Connect to MCU/DB9	Default
J3202, 3-20: SPI Clock	Open: No Connect	Default
	Closed: Connect to MCU	
J3202, 4-19: SPI CS	Open: No connect	Default
	Closed: Connect to MCU	
J3202, 5-18: GPS TxD	Open: No connect	
	Closed: Connect to MCU/DB9	Default

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J3202, 6-17: GPS Reset	Open: No connect	Default
	Closed: Connect to MCU	
J3202, 7-16: Flash Enable	Open: No connect	Default
	Closed: Connect to MCU	
J3202, 8-15: GPS Wakeup	Open: No connect	
	Closed: Connect to MCU	Default
J3202, 9-14: GPS GPIO3	Open: No connect	Default
	Closed: Connect to MCU	
J3202, 10-13: Remote 32kHz	Open: No connect	Default
	Closed: Connect to 32kHz	
J3202, 11-12: ISM480TM GND	Open: No connect	
	Closed: Connected to GND	Default

Connector	Function	Comments	
J3100	External Power	Pin 1: 3.0VDC	
		Pin 2: GND	
J3200	To ISM480TM	Note: fingers of flex cable face	
		down	
J3204	Misc UART	Not used	
J3107	GPS UART	Note: signals are 3.0V TTL	
J3108	MCU Debug		
J3109	MCU JTAG		

6 Operating Modes

6.1 Normal Operation

- Default settings
- Connect GND to J3100, pin 2
- Connect 3.0V to J3100, pin 1
- Apply power, after a few seconds the display will show "Inventek Systems" and once the broad has been completely setup the display will show "Waiting for fix NMEA"
- Once a fix is obtained the display will show the current Latitude and Longitude, press SW3101 to change the display.

6.2 ISM480 GPS Module Firmware Update

- From default setting
 - o Open J3202, 1-22
 - o Close J3106, 1-2
 - o CloseJ3201, 1-2
 - Attach the USB2DB9 adaptor to J3107
- Attach the USB2DB9 Mini-USB to a PC (Driver will install on 1st connection)
- Attach GND and 3.0V
- Press and release SW3103 to turn ON the GPS module
- Start SiRFflash utility version 4.02 or later.
- Select the COM port of the USB2DB9 adaptor
- Browse for the firmware file
- Press execute

6.3 EVB Board Firmware Update

- Attached JTAG adaptor board
- Attached ST-Link to JTAG adaptor board
- Attached ST-Link to a PC
- Attach GND and 3.0V
- Open TA board IAR workspace
- Select Project > Download > Download file
 - o Browse and select latest firmware file (.out)

6.4 SiRFLive Mode

- From default setting
 - o Open J3202, 1-22
 - Close J3106, 1-2
 - o CloseJ3201, 1-2
- Attach the USB2DB9 adaptor to J3107
- Attach the USB2DB9 Mini-USB to a PC (Driver will install on 1st conection)
- Attach GND and 3.0V
- Press and release SW3103 to turn on the GPS module



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