INVENTEK SYSTEMS, LLC.

ISM420/480 Evaluation Board

Users Guide

Revision 0.3

Stephen Profit

5/26/2011

PRELIMINARY

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

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2 Revision History

Date	Author	Version	Comments
1/10/2011	Stephen Profit	0.0	1st 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

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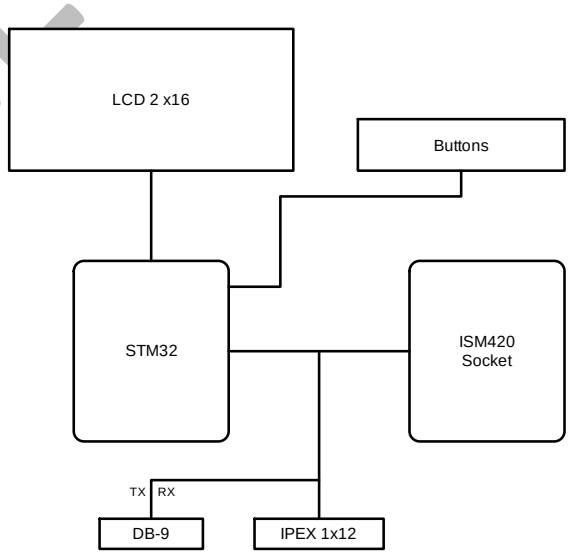
3 Introduction

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.

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



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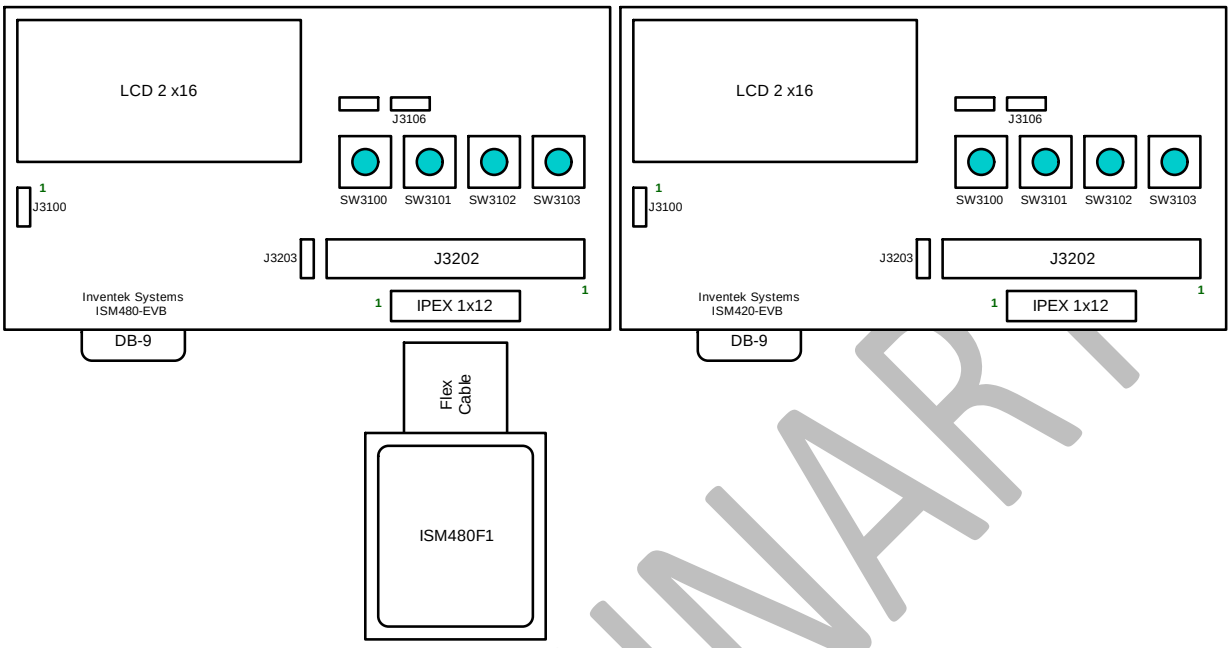
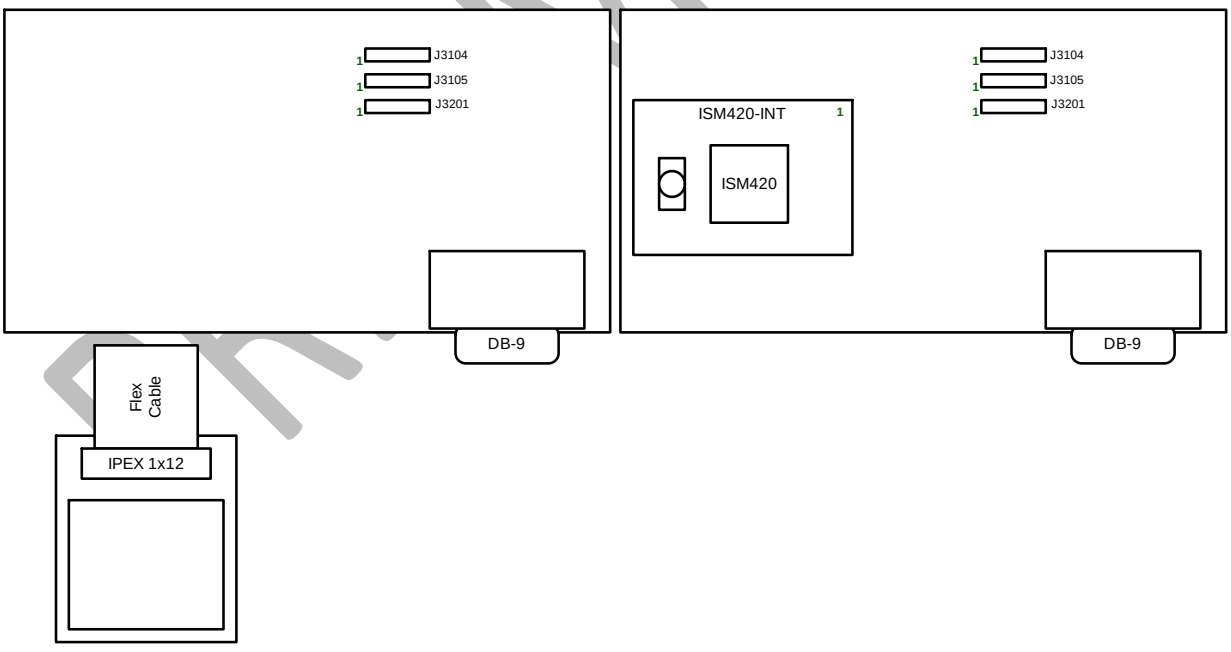
3.2 Diagrams



ISM480EVB TOP VIEW

ISM420EVB TOP VIEW



ISM480EVB BOTTOM VIEW

ISM420EVB BOTTOM VIEW

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4 Features

- Supports both the ISM420R (ROM Version) and the ISM480F (Flash version) GPS modules.
- Display
  - Lat/Lon
  - UTC, Satellites, HDOP
  - 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.

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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 Closed: Bypass button	Default
J3104, 1-2: 32kHz Select	Open: No connect Closed: 32kHz to ISM420	Default
J3104, 2-3:	Open: No connect Closed: 32kHz to ISM480TM	Default
J3105, 1-2: 32kHz Select	Open: No connect Closed: 32kHz to ISM480TM	Default
J3105, 2-3:	Open: No connect Closed: Ext. 32kHz to ISM480TM	Default
J3106: MCU Reset	Open: Normal operation Closed: Hold MCU in Reset	Default
J3201, 1-2: Flash Enable	Open: No connect Closed: Pull high	Default
J3201, 2-3:	Open: No connect Closed: Pull low	Default
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 Closed: Connect to MCU	Default
J3202, 4-19: SPI CS	Open: No connect Closed: Connect to MCU	Default
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 Closed: Connect to MCU	Default
J3202, 7-16: Flash Enable	Open: No connect Closed: Connect to MCU	Default
J3202, 8-15: GPS Wakeup	Open: No connect Closed: Connect to MCU	Default
J3202, 9-14: GPS GPIO3	Open: No connect Closed: Connect to MCU	Default
J3202, 10-13: Remote 32kHz	Open: No connect Closed: Connect to 32kHz	Default
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	

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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
    - Open J3202, 1-22
    - Close J3106, 1-2
    - 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
    - Browse and select latest firmware file (.out)

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6.4 SiRFLive Mode

- From default setting
  - Open J3202, 1-22
  - Close J3106, 1-2
  - 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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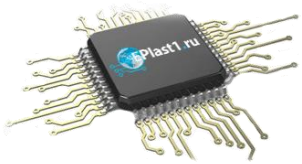
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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