# User's Manual
ΣYG-S7G2-70C-MDK

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Table of Contents

1.0 ΣyG-S7G2-70C Modular Development Kit (MDK) Overview

1.1 Introduction

The ΣYG-S7G2-70C-MDK kit is a member of the ΣYG family and it combines the ΣYG-S7G2-SOM with FDI's Carrier Board, LCD Carrier Board, and 7.0" capacitive touch screen LCD. This combination enables evaluation and development with the Renesas Synergy S7G2 MCU.

1.2 ESD Warning

The ΣYG-S7G2-70C-MDK is shipped in a protective anti-static package. Do not subject the module to high electrostatic potentials. Exposure to high electrostatic potentials may cause damage to the boards that will not be covered under warranty. General practice for working with static sensitive devices should be followed when working with the kit.

1.3 In the Box

- ΣYG-S7G2-70C-MDK Capacitive Touch Screen LCD Kit
- 5V DC Center Positive 2A Power Supply
- Segger J-LINK Lite for Cortex-M with USB Type A to USB Type Mini-B cable
- USB Flash Drive
- 3 ft. CAT5 Ethernet Cable
- USB Type A to USB Type Mini-B cable
- Quick Start Guide

Figure 1: Front and Back View of Assembled Kit

1.4 Renesas Synergy S7G2 Microcontoller Block Diagram
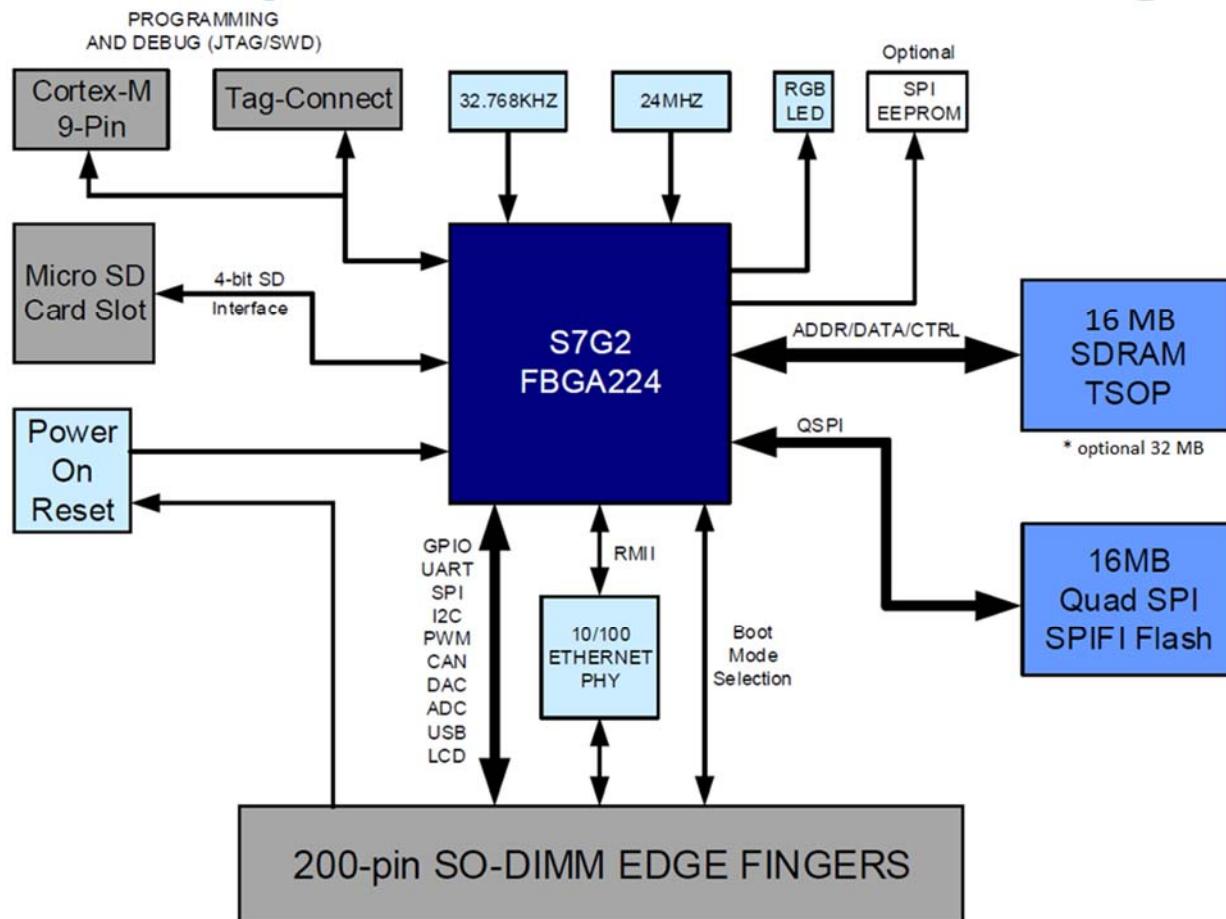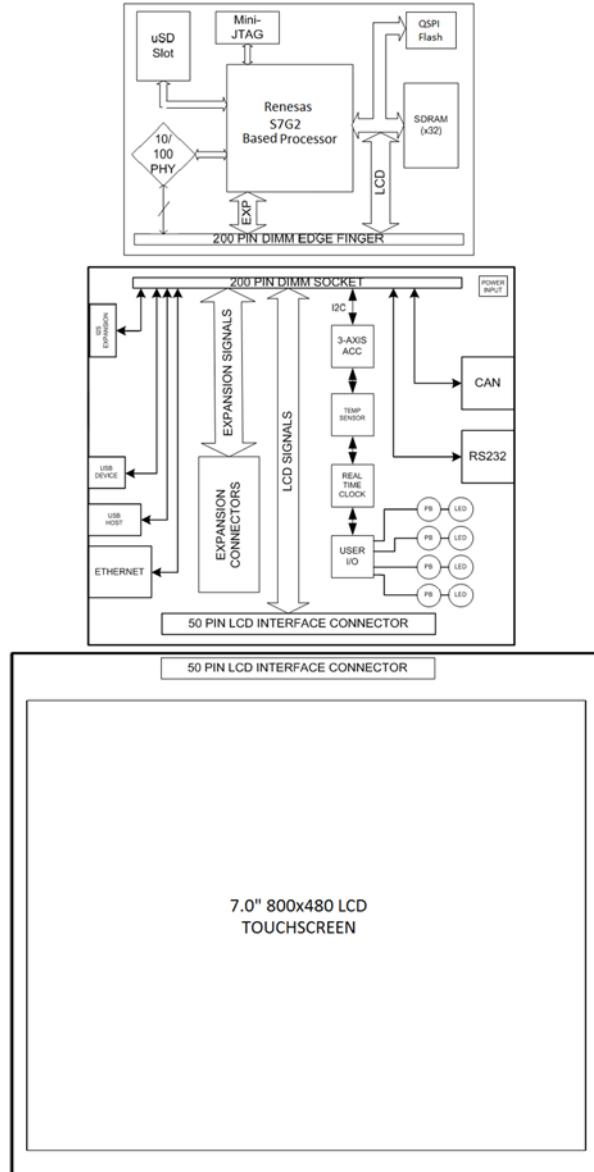
Figure 2: S7G2 System Block Diagram

1.5 ΣyG-S7G2 SOM System Block Diagram

Figure 3: ΣYG-S7G2-70C Kit Block Diagram

1.6 Requirements

The ΣYG-S7G2-70C-MDK requires a carrier board with a 200-pin SO-DIMM socket. The socket should have the key at the 1.8V location (the ΣYG-S7G2-70C-MDK doesn't require 1.8V). The CARRIER Board from Future Designs provides this socket and should be utilized to develop your application for initial verification.

1.7 ΣyG-S7G2-70C-MDK Power Requirements

The power requirement for the ΣYG-S7G2-70C-MDK is 5V DC Center Positive 2A Power Supply.

2.0 Getting Started

2.1 Setting up the Hardware

The SOMDIMM should be inserted into the DIMM Socket as shown below and then locked into place by pushing down to the Carrier Board. Ensure the SOMDIMM is inserted completely into the socket prior to locking. The socket utilized on the CARRIER Board is rated for a minimum of 25 insertions.
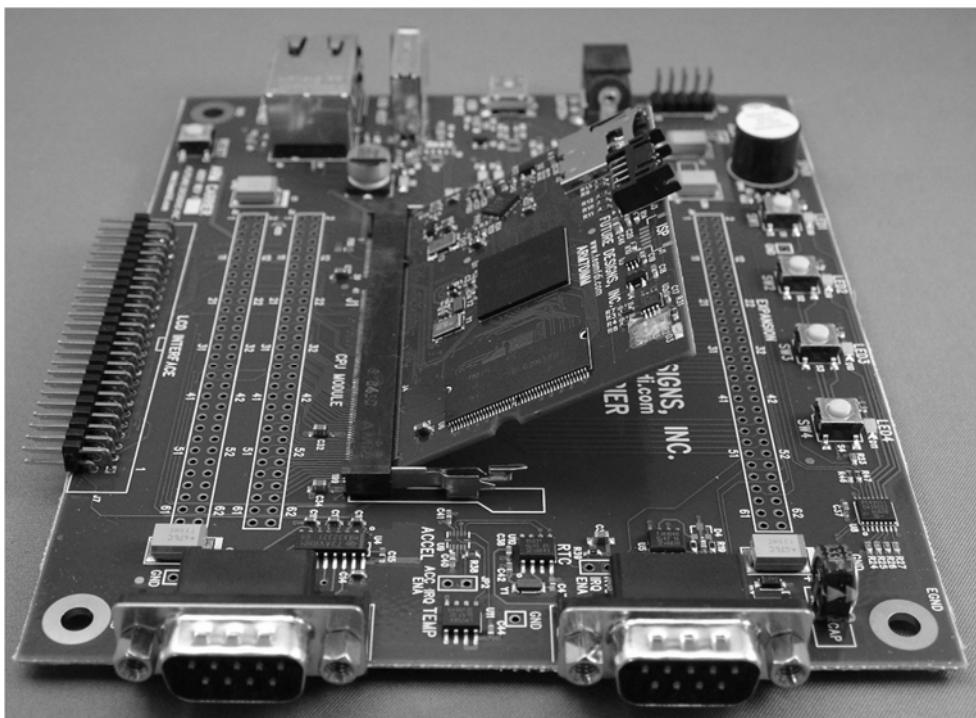
Figure 4: SOMDIMM Insertion

The following are step by step instructions for setting up the hardware.
1) Make sure you have a SOMDIMM board plugged into the CARRIER board at J1.
2) Verify the LCD Interface ribbon cable connects the LCD CARRIER board to the CARRIER (J7) board.
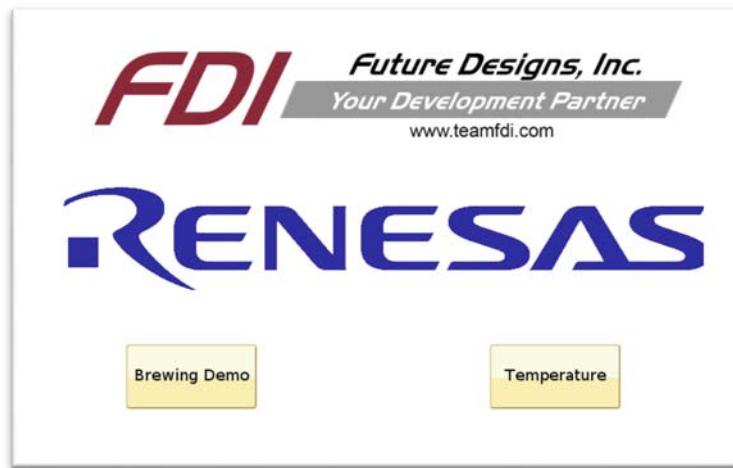
3) With the power off, plug the 5V center-positive Power Supply into 5V (P5) of the CARRIER board.
4) Connect an RJ-45 Ethernet cable to the ETHERNET (J5) interface of the CARRIER board.
5) Plug in a female-to-female DB9 serial cable between PC and RS232 (P4) on the CARRIER board.
6) Insert the microSD card with the demonstration files (included) into microSD connector on the SOMDIMM.

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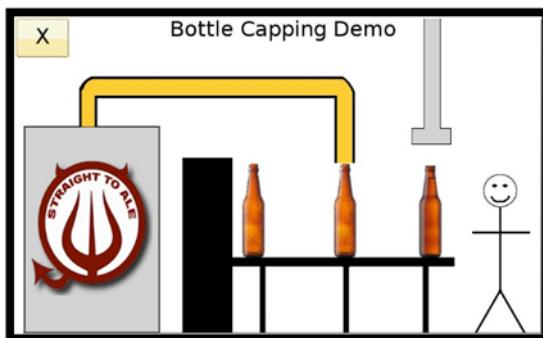
2.2 Demonstration Software

Once the device is powered on, the demonstration software start menu will appear on the LCD screen. The software consists of the brewing demonstration and temperature demonstration.
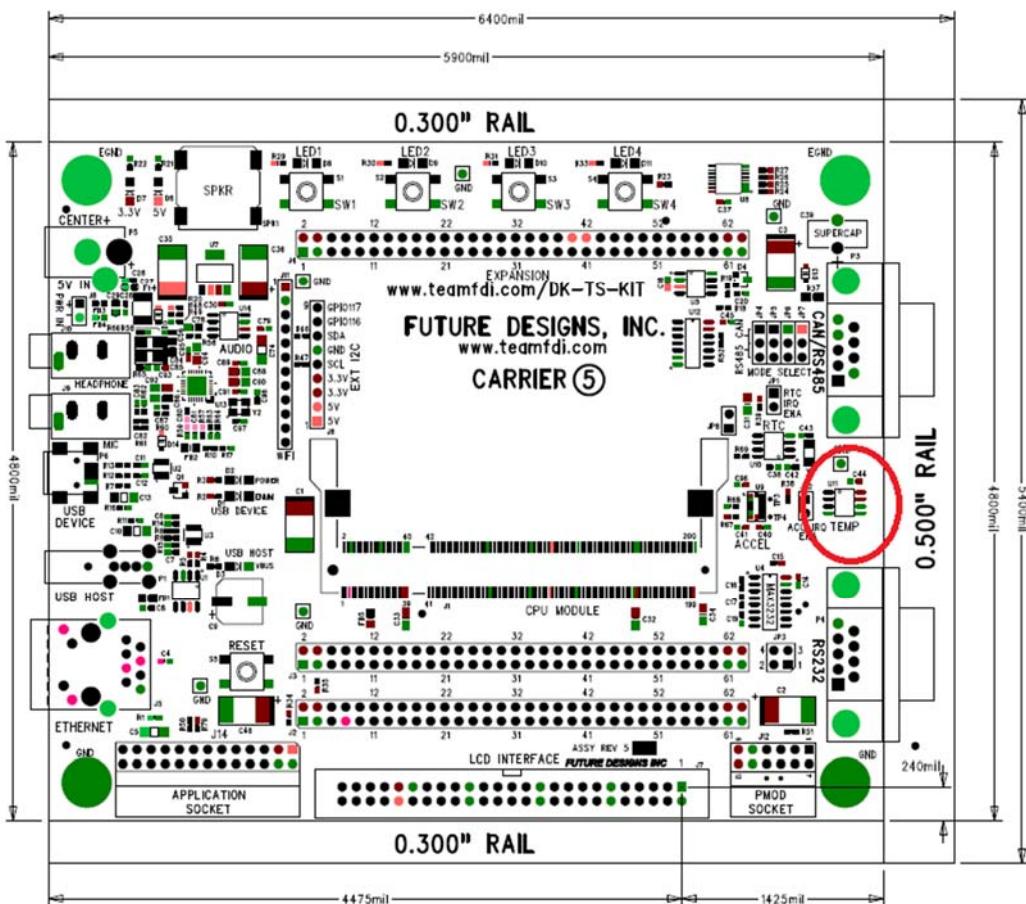
2.2.1 Brewing Demonstration

To launch the Brewing Demonstration tap the "Brewing Demo" button on the demonstration software start menu. The purpose of the Brewing Demonstration is to showcase Renesas SSP's sprite animation capability. Bottles appear to move down the production line, fill with a liquid, and the man drinks the liquid.

2.2.2 Temperature Demo

To launch the Temperature Demonstration, tap the "Temperature" button on the demonstration software start menu. This interactive demonstration displays the temperature of the processor and the temperature measured by an optional external sensor. Clicking on the "Deg. C" or "Deg. F" button will change the degree scale in which the temperatures are displayed. If you have a can of air duster, apply it over the external sensor located Component U11 on the Carrier Board and watch the temperature drop!

2.3 uEZ Doxygen Online HTML Documentation

µEZ® has built-in comment documentation that follows the Doxygen comment standard. This standard allows for code comments and annotations to be written in a certain manner, and then compiled along with source code into HTML documentation.

FDI provides the pre-compiled HTML documentation at this link:
http://www.teamfdi.com/uez/docs/

In the uEZ source code, "uEZ/uEZDoxyfile" is the main project file for the Doxygen generator. When Doxygen is recompiled, the new Doxygen files will be found here: uEZ\Docs\ Doxygen_Documentation.html

FDI will update the documentation roughly with each new **µEZ®** release or as new drivers are added to the system.

For more information, see the Doxygen website: http://www.doxygen.org/

2.4 Software

- PC with Windows 7 or Windows 8
- e^2 studio Integrated Solution Development Environment (ISDE) from Renesas
- Renesas Synergy^{TM} Software Package (SSP)
- GNU tool chain for ARM® Cortex®-M MCUs

You can download the latest versions of the SSP and e^2 studio ISDE from
https://synergybeta.renesas.com/

The GNU tool chain and installation instructions for the tool chain are included in the e2 studio ISDE download.

NOTE: Access to this site is restricted to authorized Renesas Synergy beta program participants. If you require access to this site, please contact your Renesas representative.

3.0 ΣyG-S7G2 SOM System on Module Board Components

3.1 ARM Mini-JTAG J2

The ΣyG-S7G2 SOM uses a JTAG connector based on a 2mm header. This smaller connector provides 100% of the functionality of the standard 20-pin JTAG connector, but utilizes 70% less board space.

Pin Number	Description	Pin Number	Description
1	VCC	6	TDO
2	TMS	7	X
3	GND	8	TDI
4	TCK	9	GND
5	GND	10	JST#
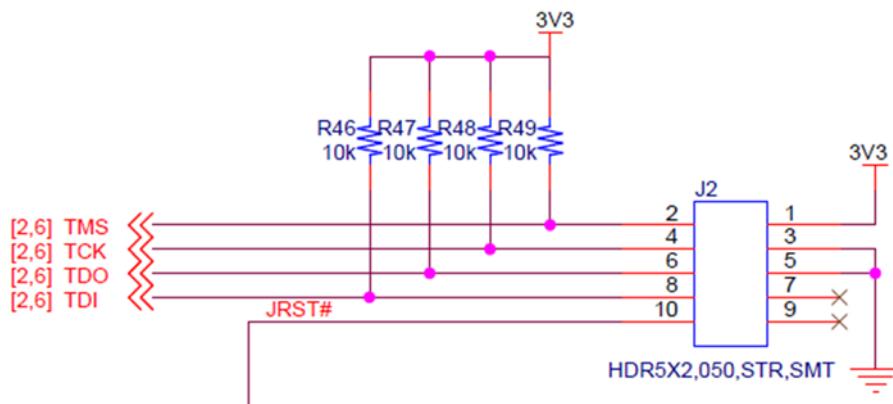
Figure 5: ARM Mini JTAG

3.2 Tag Connect J7

Use the Tag Connect 10-pin cable to program and JTAG the ΣyG-S7G2 SOM using a Segger J-Link device.

Cable: http://www.tag-connect.com/tc2050-arm2010
Cable: http://www.tag-connect.com/TC2050-IDC-NL
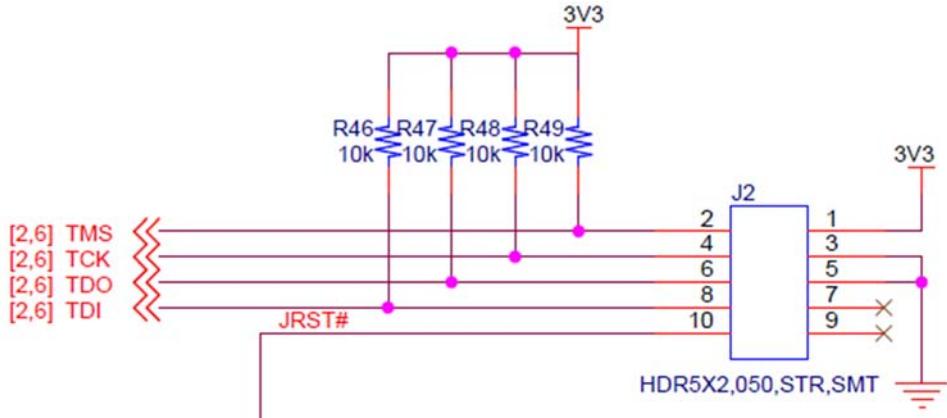
Figure 6: Tag-Connect JTAG

3.3 MicroSD Socket J1

The ΣyG-S7G2 SOM utilizes a microSD for flexible mass storage. MicroSD flash cards are common, cost effective, and provides a large amount of user-changeable memory.

Pin Number	Description
1	DAT2/RSV
2	CD_DAT3/CS#
3	CMD/SDI
4	VDD
5	CLK/SCLK
6	VSS
7	DAT0/SDO
8	DAT1/RSV
9	CD
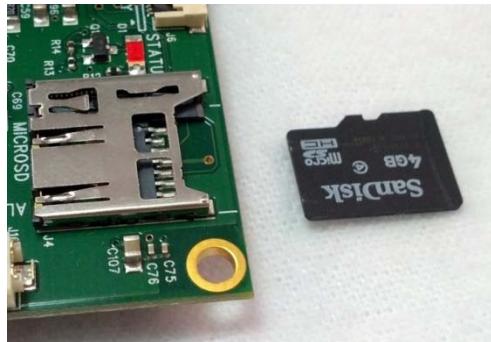
The microSD card must be removed using the spring loaded "push-pull" mechanism on the microSD socket. Forceful removal of a microSD card will result in permanent damage to the socket that is not covered under warranty. To insert the card, push it into the socket until a "click" sound is heard. Similarly, to remove the card, push the card into the socket. The push-

pull mechanism will "click" again and eject the card from the socket. The card is now available for safe removal.

3.3.1   Inserting the microSD card into the microSD socket
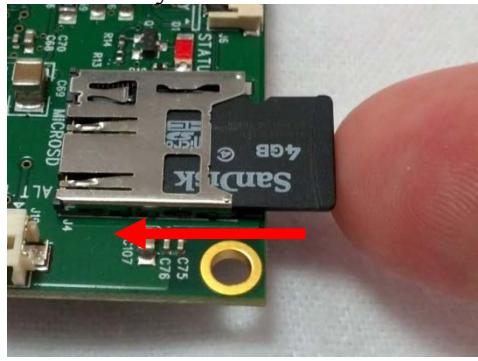
First, prepare to insert the microSD card into the socket by positioning it with its text facing up. Position the ridge, or "lip", of the card furthest from the socket. 	Next, partially insert the card into the socket.
Then, use your figure to gently push the card into the socket. When the card "clicks" into place it is in its final, locked position. The card is now ready for use. 	Note: Once the microSD card is fully inserted it should not fall out, even if the unit is shaken vigorously.
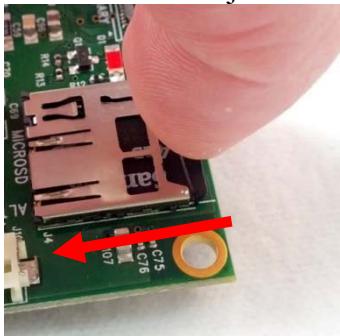
3.3.2   Removing the microSD card from the microSD socket

Begin to remove the microSD card by gently pushing the card into the socket. The socket will "click" and eject the card.	Once the microSD card is ejected, it will partially extend out from the socket.
Carefully grab the ridged edge or sides of the microSD card to gently pull it out.	The microSD card is now fully removed from the socket.
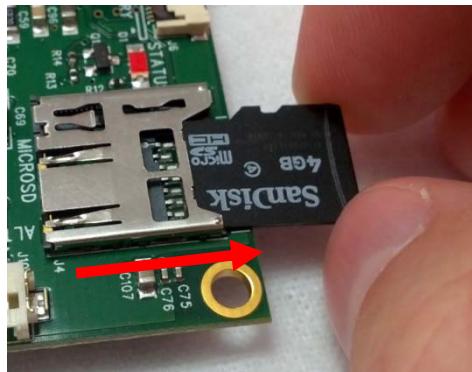
3.4 Ethernet PHY U5

The ΣyG-S7G2 SOM provides an Ethernet PHY from SMSC, LAN8720. The LAN8720 is a single chip solution for a 100BASE-TX/10BASE-T physical layer transceiver. It has support for reduced MII (RMII), and HP MDI-X auto crossover allowing for any standard Ethernet cable to be used, even a crossover cable. The LAN8720 is fully compliant to IEEE 802.3u with support for auto-negotiation and manual selection of 10/100Mbps speed as well as full and half-duplex modes.

3.5 200-pin SOMDIMM Connector Details J4

Pin	SOMDIMM Signal Name	Application Details	I/O	SOMDIMM Connection Details
1	ETH_TXP	Ethernet Transmit Positive	O	Output from KSZ8041 Ethernet PHY
2	ETH_RXP	Ethernet Receive Positive	I	Output from KSZ8041 Ethernet PHY
3	ETH_TXN	Ethernet Transmit Negative	O	Input to KSZ8041 Ethernet PHY
4	ETH_RXN	Ethernet Receive Negative	I	Input to KSZ8041 Ethernet PHY
5	3V3A	3.3V Analog	P	Analog 3.3V Output from PHY Circuit
6	GND	Ground	P	
7	ETH_LED0	Ethernet LED0	O	Ethernet LED0 output from KSZ8041
8	ETH_LED1	Ethernet LED1	O	Ethernet LED1 output from KSZ8041
9	VBAT_IN	Vdd Battery Input	P	Vdd for battery backup of internal RTC
10	NC	Not Connected	U	
11	RSTIN#	Reset Input	I	Reset input to POR IC TPS3801
12	RST#		O	Reset output from POR circuit
13	GPIO13_USB_ID			
14	NC	Not connected	U	
15	NC	Not connected	U	
16	NC	Not connected	U	
17	NC	Not connected	U	
18	NC	Not connected	U	
19	NC	Not connected	U	
20	NC	Not connected	U	
21	AVCC			
22	AVCC			
23	AVSS			
24	GND	Ground	P	
25	GPIO25_LCDPWR	LCD Power Enable	O	Connected to S7G2 Port 2 bit 0
26	GPIO26_LCDLE	LCD Latch Enable	O	Connected to S7G2 Port 2 bit 1
27	GPIO27_LCDCLK	LCD Clock	O	Connected to S7G2 Port 2 bit 2
28	GPIO28_LCDFP		O	Connected to S7G2 Port 2 bit 3
29	GPIO29_LCDEN		O	Connected to S7G2 Port 2 bit 4
30	GPIO30_LCDLP		O	Connected to S7G2 Port 2 bit 5
31	GPIO31_LCDVDR4	LCD Data Bit 4	O	Connected to S7G2 Port 2 bit 6
32	GPIO32_LCDVDR5	LCD Data Bit 5	O	Connected to S7G2 Port 2 bit 7
33	GPIO33_LCDVDR6	LCD Data Bit 6	O	Connected to S7G2 Port 2 bit 8
34	GPIO34_LCDVDR7	LCD Data Bit 7	O	Connected to S7G2 Port 2 bit 9
35	GPIO35_SSLB2	GPIO	U	Connected to S7G2 Port 2 bit 10
36	GPIO36	GPIO	U	Connected to S7G2 Port 2 bit 11
37	3.3V	3.3V Power	P	
38	GND	Ground	P	
39	3.3V	3.3V Power	P	
40	GND	Ground	P	
41	USBH_DP	USB Host Data Positive	B	Connected to S7G2 USB Port A D+
42	USBD_DP	USB Device Data Postive	B	Connected to S7G2 USB Port B D+
43	USBH_DM	USB Host Data Negative	B	Connected to S7G2 USB Port A D-
44	USBD_DM	USB Device Data Negative	B	Connected to S7G2 USB Port B D-
45	GPIO45_LCD_B2			
46	GPIO46_LCD_B3			
47	GPIO47_RD	GPIO / CAN Receive Data	I	Connected to S7G2 Port 0 bit 0
48	GPIO48_TD	GPIO / CAN Transmit Data	O	Connected to S7G2 Port 0 bit 1
49	GPIO49	GPIO	B	Connected to S7G2 Port 0 bit 2
50	NC	Not connected	U	
51	GPIO51_SPCK			
52	GPIO52			
53	GPIO53_MISO			

Pin	SOMDIMM Signal Name	Application Details	I/O	SOMDIMM Connection Details
54	GPIO51_SPCK			
55	GPIO55			
56	GPIO56_MOSI			
57	GPIO57_TXD	GPIO / Serial Transmit Data – For RS232	O	Connected to S7G2 Port 0 bit 10
58	GPIO58_RXD	GPIO / Serial Receive Data – For RS232	I	Connected to S7G2 Port 0 bit 11
59	NC	Not connected	U	DO NOT USE!
60	GPIO60_USBD_UPLED	GPIO / USB Device Up LED	O	Connected to S7G2 Port 0 bit 13
61	GPIO61_USBD_CON	GPIO / USB Device Connect	O	Connected to S7G2 Port 0 bit 14
62	GPIO62_RSCK	GPIO / SPI Clock	O	Connected to S7G2 Port 0 bit 15
63	GPIO63	GPIO	O	Connected to S7G2 Port 0 bit 16 (used for EEPROM CS)
64	GPIO64_MISO	GPIO / SPI MISO	I	Connected to S7G2 Port 0 bit 17
65	GPIO65_MOSI	GPIO / SPI MOSI	O	Connected to S7G2 Port 0 bit 18
66	GPIO66			
67	GPIO67			
68	GPIO68_USBH_OVC	GPIO / USB Host Over Current	I	Connected to S7G2 Port 0 bit 21
69	GPIO69_TPIRQ	GPIO / Touch IC IRQ Input	I	Connected to S7G2 Port 0 bit 22
70	GPIO70_AD0.0	GPIO / AD0 Bit 0	I	Connected to S7G2 Port 0 bit 23
71	GPIO71_AD0.1	GPIO / AD0 Bit 1	I	Connected to S7G2 Port 0 bit 24
72	GPIO72_AD0.2	GPIO / AD0 Bit 2	I	Connected to S7G2 Port 0 bit 25
73	GPIO73_AD0.5_DA1	GPIO / AD0 Bit 3	I	Connected to S7G2 Port 0 bit 26
74	GPIO74_SDA	GPIO / User IO I2C Bus SDA	B	Connected to S7G2 Port 0 bit 27
75	GPIO75_SCL	GPIO / User IO I2C Bus SCL	O	Connected to S7G2 Port 0 bit 28
76	GND	Ground	P	
77	GND	Ground	P	
78	GPIO78_ACC_IRQ	GPIO / Accelerometer IRQ	I	Connected to S7G2 Port 1 bit 2
79	NC			
80	GPIO80_RTC_IRQ	GPIO / RTC IRQ Input	I	Connected to S7G2 Port 1 bit 5
81	NC	Not connected	U	
82	NC	Not connected	U	
83	NC	Not connected	U	
84	NC	Not connected	U	
85	NC	Not connected	U	
86	GPIO86_LED_BR			
87	GPIO87_USBH_PPWR	GPIO / USB Host Power Ctl	O	Connected to S7G2 Port 1 bit 19
88	GPIO88_LCD_G2	LCD Data Bit 10	O	Connected to S7G2 Port 1 bit 20
89	GPIO89_LCD_G3	LCD Data Bit 11	O	Connected to S7G2 Port 1 bit 21
90	GPIO90_LCD_G4	LCD Data Bit 12	O	Connected to S7G2 Port 1 bit 22
91	GPIO91_LCD_G5	LCD Data Bit 13	O	Connected to S7G2 Port 1 bit 23
92	GPIO92_LCD_G6	LCD Data Bit 14	O	Connected to S7G2 Port 1 bit 24
93	GPIO93_LCD_G7	LCD Data Bit 15	O	Connected to S7G2 Port 1 bit 25
94	GPIO94_LCD_B4	LCD Data Bit 16	O	Connected to S7G2 Port 1 bit 26
95	GPIO95_LCD_B5	LCD Data Bit 17	O	Connected to S7G2 Port 1 bit 27
96	GPIO96_LCD_B6	LCD Data Bit 22	O	Connected to S7G2 Port 1 bit 28
97	GPIO97_LCD_B&	LCD Data Bit 23	O	Connected to S7G2 Port 1 bit 29
98	GPIO98_USBD_VBUS	USB Device VBus Sense Input	I	Connected to S7G2 Port 1 bit 30
99	GPIO99_AD0			
100	NC	Not connected	B	Unused
101	GND	Ground	P	
102	GND	Ground	P	
103	NC	Not connected	U	Unused
104	NC	Not connected	U	Unused
105	NC	Not connected	U	Unused

Pin	SOMDIMM Signal Name	Application Details	I/O	SOMDIMM Connection Details
106	NC	Not connected	U	Unused
107	NC	Not connected	U	Unused
108	NC	Not connected	U	Unused
109	NC	Not connected	U	Unused
110	NC	Not connected	U	Unused
111	NC	Not connected	U	Unused
112	NC	Not connected	U	Unused
113	5V0	5.0V Power	P	
114	5V0	5.0V Power	P	
115	NC	Not connected	U	Unused
116	GPIO116	GPIO	B	Connected to S7G2 Port 2 bit 14 / VOL_UD
117	GPIO117	GPIO	B	Connected to S7G2 Port 2 bit 15 / AMP_MODE
118	GPIO118	GPIO	B	Connected to S7G2 Port 2 bit 19 / RS485 Ren
119	GPIO119	GPIO	B	Connected to S7G2 Port 2 bit 21 / RS485 DE
120	GPIO120	GPIO	B	Connected to S7G2 Port 2 bit 22
121	GPIO121	GPIO	B	Connected to S7G2 Port 2 bit 23
122	GPIO122	GPIO	B	Connected to S7G2 Port 2 bit 25
123	GPIO123_SPKR_DA0	GPIO	O	Connected to S7G2 Port 2 bit 26 / SPEAKER OUTPUT
124	GPIO124	GPIO	B	Connected to S7G2 Port 2 bit 27
125	GPIO125			
126	GPIO126			
127	GPIO127_LCD_R2			
128	GPIO128_LCD_R3			
129	GND	Ground	P	
130	GND	Ground	P	
131	GPIO131_LCD18B			
132	GPIO132_LCD19B			
133	GPIO133_LCD20B			
134	GPIO134_LCD21B			
135	GPIO135_LCD22B			
136	GPIO136_LCD23B			
137	NC	Not connected	U	Unused
138	GPIO138			
139	GPIO139			
140	NC	Not connected	U	Unused
141	GPIO141			
142	GPIO142			
143	GPIO143			
144	GPIO144			
145	GPIO145			
146	GPIO146			
147	GPIO147			
148	GPIO148			
149	GPIO149_RX			RS485
150	GPIO150_TX			RS485
151	GPIO151			
152	GPIO152			
153	GPIO153			
154	NC	Not connected	U	Unused
155	NC	Not connected	U	Unused
156	NC	Not connected	U	Unused
157	NC	Not connected	U	Unused
158	NC	Not connected	U	Unused
159	NC	Not connected	U	Unused
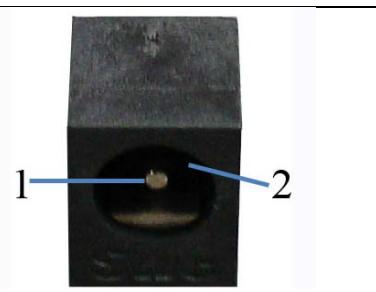
Pin	SOMDIMM Signal Name	Application Details	I/O	SOMDIMM Connection Details
160	GPIO160_MD			
161	NC	Not connected	U	Unused
162	GPIO162_NMI	Not connected	U	Unused
163	GND	Ground	P	
164	GND	Ground	P	
165	3.3V	3.3V Power	P	
166	GND	Ground	P	
167	NC	Not connected	U	Unused
168	NC	Not connected	U	Unused
169	NC	Not connected	U	Unused
170	NC	Not connected	U	Unused
171	NC	Not connected	U	Unused
172	NC	Not connected	U	Unused
173	NC	Not connected	U	Unused
174	NC	Not connected	U	Unused
175	NC	Not connected	U	Unused
176	NC	Not connected	U	Unused
177	NC	Not connected	U	Unused
178	NC	Not connected	U	Unused
179	NC	Not connected	U	Unused
180	NC	Not connected	U	Unused
181	NC	Not connected	U	Unused
182	NC	Not connected	U	Unused
183	NC	Not connected	U	Unused
184	NC	Not connected	U	Unused
185	NC	Not connected	U	Unused
186	NC	Not connected	U	Unused
187	NC	Not connected	U	Unused
188	NC	Not connected	U	Unused
189	NC	Not connected	U	Unused
190	NC	Not connected	U	Unused
191	NC	Not connected	U	Unused
192	NC	Not connected	U	Unused
193	NC	Not connected	U	Unused
194	TMS			
195	TCK			
196	TDO			
197	TDI			
198	NC	Not connected	U	Unused
199	3.3V	3.3V Power	P	
200	GND	Ground	P	

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4.0 Carrier Board Components

4.1 DC Power Input

The Touch Screen Kit utilizes a 5VDC 2.3A Power Supply. The connector is 2.1mm with center positive.

Pin Number	Description
1	5VDC, +/- 10%, 2.0A (min)
2	Power Supply Ground

4.2 Alternate Power Input

The CARRIER Board includes an optional alternate power input connector, J8. This connector provides an optional input connection for the on-board DC-DC regulator.

| Pin Number	Description
1	5VDC, +/- 10%, 2.0A (min)
2	Power Supply Ground
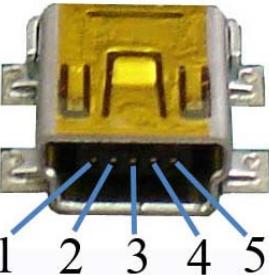
4.3 USB Power Device

The CARRIER Board includes one USB Device Interface allowing the unit to be connected to a USB Host, such as a PC. Through this connection, the CARRIER represents a peripheral to the USB Host. The operational mode of the port is dependent on the software utilized (i.e. Mass Storage or Human-Interface).

The CARRIER Board may also be powered via the USB Device connector. Care must be taken to not overload the USB Host since 500mA is the maximum current allowable via USB. The LCD Backlight may be disabled or the brightness dimmed to facilitate this USB Powered mode. When D1 is on it indicates a "good link" on the USB Device port. When D2 is on it indicates that the USB Device port is enabled. D2 will also blink during re-enumeration.

	Pin Number	Description
	1	USB 5V
	2	D-
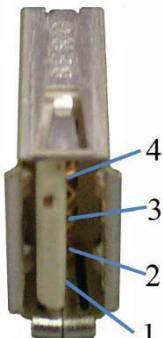
		Pin Number	Description
		3	**D+**
		4	**NC**
		5	**Signal Ground**

4.4 USB Power Host

The CARRIER Board includes one USB Host Port allowing the unit to interface to various USB peripherals such as a USB Flash Drive (Thumb Drive). The operational mode of this port is dependent on the software utilized (i.e. driver support)

Please refer to the specific details of the processor module being utilized for support of the USB Host function.
D3 indicates VBUS power is good for the USB Host port.

|	Pin Number	Description
	1	**USB VBus**
	2	**D-**
	3	**D+**
	4	**Signal Ground**
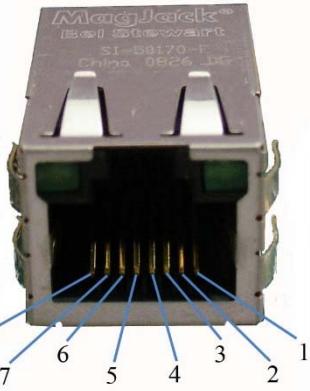
4.5 Ethernet

The CARRIER Board includes one 10/100 Ethernet Port to interface to a local area network via CAT5 cable.
Please refer to the specific details of the processor module being utilized for support of the Ethernet Port function.

	Pin Number	Description
	1	**Tx+**
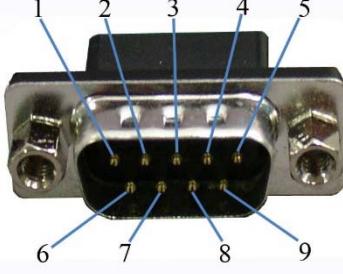
	2	3.3V
	3	Tx-
	4	Rx+
	5	3.3V
	6	Rx-
	7	No Connect
	8	Signal Ground

4.6 CAN/RS485

The CARRIER Board includes one Male DB9 Interface Connector that supports either CAN or RS485 (Rev 2 and later) depending on the configuration of jumpers JP4 – JP7. The CAN interface utilizes an NXP TJA1040TD high speed transceiver IC to provide fully ISO 11898 standard interface at up to 1MBaud. The TJA1040 allows up to 110 nodes and very low electromagnetic emissions.

Note: Rev 1 PCB only supports CAN on P3

Please refer to the specific details of the processor module being utilized for support of the CAN interface function.

| Pin Number	CAN Mode	RS485 Mode (Rev 2 and later only)
1	No Connect	No Connect
2	CANL	485_RDB-
3	Signal Ground	485_TDA+
4	Signal Ground	Signal Ground
5	Signal Ground	Signal Ground
6	Signal Ground	Signal Ground
7	CANH	485_RDA+
8	No Connect	485_TDB-
9	5V	No Connect
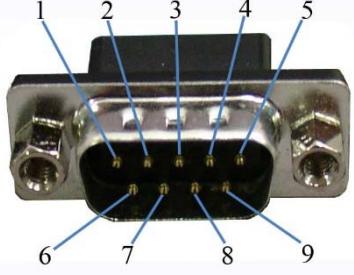
4.7 RS232

The CARRIER Board includes one RS232 Serial Port Connector. This connector is a Male DB9 configured as either DCE or DTE (Rev 2 and later only) depending on the configuration of jumper block JP3. The interface includes optional RTS & CTS handshaking signals that are brought to test points that the user may connect as needed (see page 5 of the schematic). Please verify proper connectivity of this connector to the proper TXD<>RXD orientation. TXD is an OUTPUT from the CARRIER Board and RXD is an INPUT to the CARRIER Board.
Note: Rev 1 PCB only supports DCE on P4
Please refer to the specific details of the processor module being utilized for support of the RS232 Serial Port function.

	Pin Number	DCE Mode	DTE Mode (Rev 2 and later only)
	1	No Connect	No Connect
	2	TXD (Output)	RXD (Input)
	3	RXD (Input)	TXD (Output)
	4	No Connect	No Connect
	5	Signal Ground	Signal Ground
	6	No Connect	No Connect
	7	(OPT) RTS	(OPT) RTS
	8	(OPT) CTS	(OPT) CTS
	9	No Connect	No Connect

4.8 External I2C

The CARRIER board provides an external I2C connector for users to connect to the I2C bus of the microprocessor.

CARRIER Rev 1

Pin Number	Description
1	3.3V
2	Signal Ground
3	GPIO67_ESCL
4	GPIO66_ESDA

CARRIER Rev 2 and later

Pin Number	Description
1	5V
2	5V
3	3.3V
4	3.3V

5	GPIO75_SCL
6	Signal Ground
7	GPIO74_SDA
8	GPIO116
9	GPIO117

Please refer to the specific details of the processor module for connectivity details.

4.9 External I2S Audio

The Rev 1 CARRIER board provides an external I2S Audio Expansion Connector.
Please refer to the specific details of the processor module for connectivity details.

Description	Pin	Pin	Description
3.3V	1	2	Signal Ground
GPIO51_I2SRX_CLK	3	4	GPIO52_I2SRX_WS
5.0V	5	6	GPIO53_I2SRX_SDA
GPIO54_I2STX_CLK	7	8	GPIO55_I2STX_WS
Signal Ground	9	10	GPIO56_I2STX_SDA

5.0 ΣyG-S7G2 System on Module Board Layout

3.1 Schematics

Visit this link for schematics of the SYG-S7G2-SOM: http://www.teamfdi.com/wp-content/uploads/SYG-S7G2-SOM.pdf

### 3.2 Mechanicals
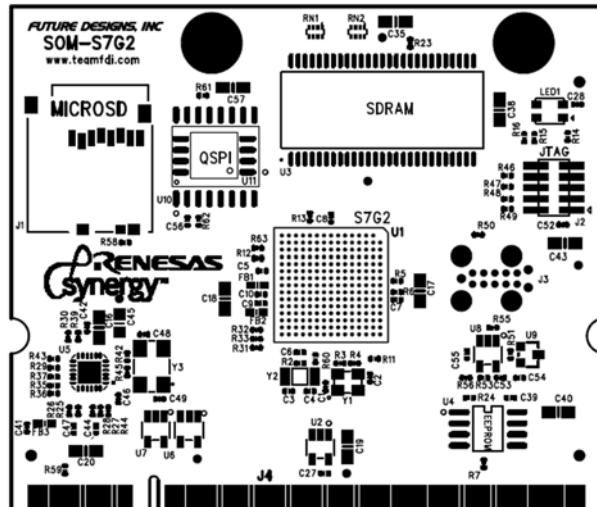
Figure 7: S7G2 Top
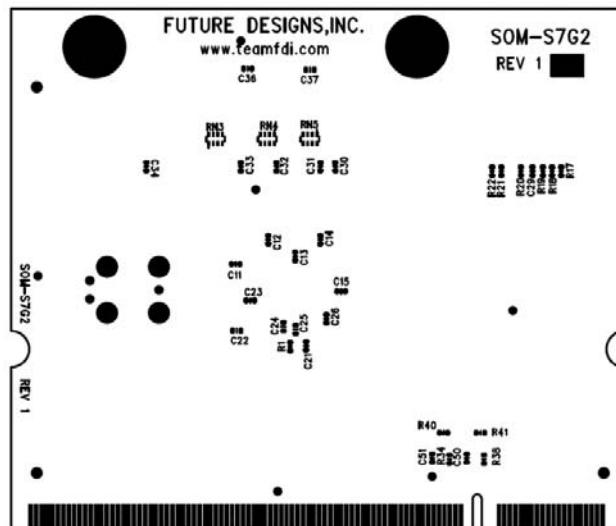
Figure 8: S7G2 Bottom
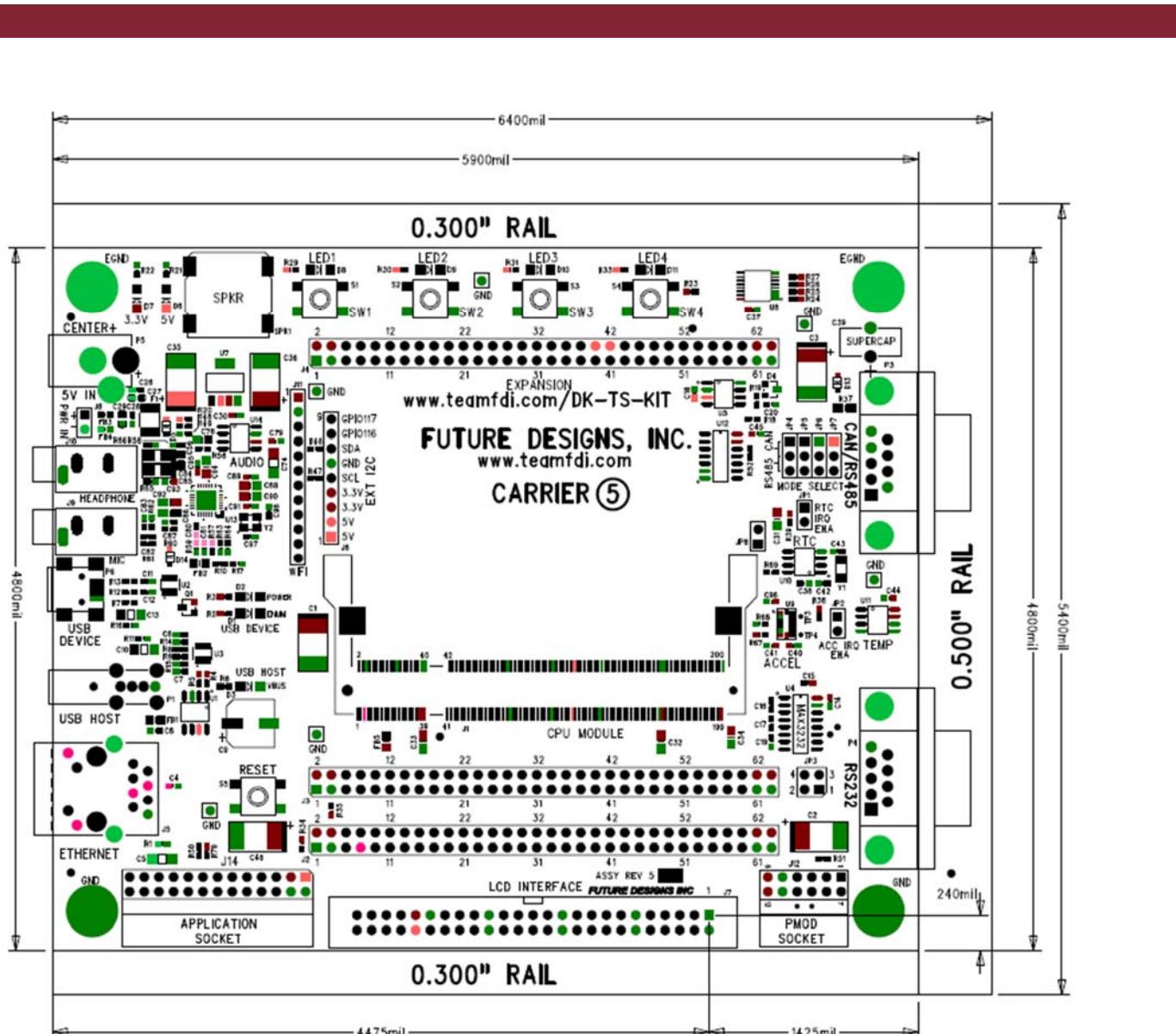
Figure 9: Carrier Board Top

6.0 Support

6.1 Where to Get Help

Online technical support is available at http://www.teamfdi.com/support/.

6.2 Useful Links

- Future Designs, Inc. Forums: http://www.teamfdi.com/?post_type=forum
- SYG-S7G2-MDK Product Page: http://www.teamfdi.com/product-details/syg-s7g2-70c-mdk/
- Renesas Synergy: https://synergybeta.renesas.com/
- SEGGER J-Link LITE: https://www.segger.com/jlink-lite-cortexm.html
- Renesas Forums: http://www.renesasrulz.com/