USER MANUALS
FOR

TMS320F2812 evaluation board

Manufactured By

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Introduction

Thank you for purchasing the TMS320F2812 Kit. You will find it useful in developing your DSP application.
The TMS320F2812 device, a member of the TMS320F28x, DSP generation, is highly integrated, high-performance solution for demanding control applications and is the first 32-bit 150 MIPS DSP with on-chip flash memory and on-chip high-precision analog peripherals. It has an onboard XDS100 emulator.

Key Features of TMS320F2812 evaluation board

- On Board XDS100 USB Emulator.
- Flash Memory Up to 128K x 16 Flash.
- ROM Memory Up to 128K x 16 ROM.
- 16 x 16 and 32 x 32 MAC Operations.
- 150 MHz (6.67-ns Cycle Time).
- 1K x 16 Each SARAM.
- 25MHz on board crystal.
- Motor Control Peripherals terminated in connector.
- On chip 12-Bit ADC, 16 Channels.
- On board USB-UART with line driver.
- SCIA or SCIB can configure single USB-UART.
- 2 Digital LED Output.
- 1 Digital Input (Push Switch).
- 8 Analog Inputs pins terminated in connector.
- Multiple Booting Option Connectors.
- Onboard IEEE 1149.1 JTAG emulation connector

Benefits

- 16 x 16 and 32 x 32 MAC Operations.
- 150 MHz (6.67-ns Cycle Time).
- Low-Power (1.8-V Core @135 MHz, 1.9-V Core @150 MHz, 3.3-V I/O) Design.
- Advanced Motor control.
- Solar Power systems.
- Servo drives and motion control.
- Renewable Energy and Uninterrupted power supplies

TEXAS –TMS320F2812

- Flash Devices: Up to 128K x 16 Flash (Four 8K x 16 and Six 16K x 16 Sectors)
- ROM Devices: Up to 128K x 16 ROM
- 1K x 16 OTP ROM
- L0 and L1: 2 Blocks of 4K x 16 Each Single-Access RAM (SARAM)
- H0: 1 Block of 8K x 16 SARAM
- M0 and M1: 2 Blocks of 1K x 16 Each SARAM

Kit Includes

- TMS320C2812 Evaluation Board.
- USB Cable.
- CD Contains:

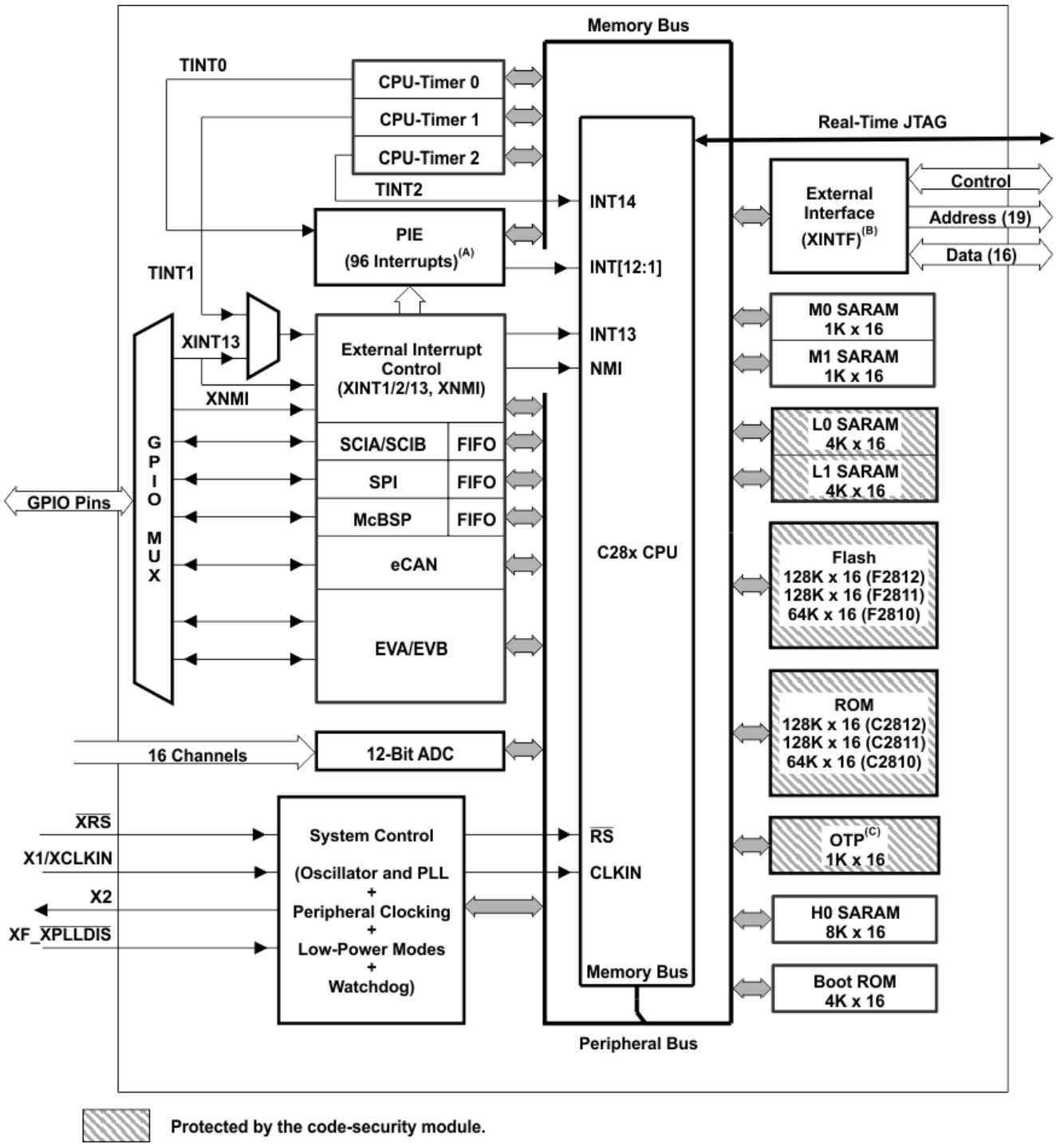
1) Examples
2) Software's
3) utility
4) Datasheet

On-board Peripherals

This kit comes with following interfacing options:

- All Port Pins are brought on 10 Pin FRC Header Connector.
- Separate UEXT Connector for Various Type of Communication Protocol brought on 10 Pin FRC Header Connector.
- USB Female Type B Connector for Programming through USB (UART)
- Selection Jumper for 3.3V & 5V DC
- 8 Channel ADC Connector
- ADC Pot
- Reset Button

Functional Block Diagram:



Software Description

CCSv7 and later are Technology Software Publicly Available (TSPA) compliant. This means that it does not require a paid license.

Code Composer Studio (CCStudio or CCS) is an integrated development environment (IDE) to develop applications for Texas Instruments (TI) embedded processors.

Texas Instruments embedded processors include TMS320 DSPs, OMAP system-on-a-chip, DaVinci system-on-a-chip, Sitara applications processors, Hercules microcontrollers, Simplelink MCUs (MSP432 and Wireless connectivity microcontrollers), MSP430 and Tiva/Stellaris microcontrollers. It also enables debugging on several subsystems such as Ducati, IVA Accelerator and PRU-ICSS.

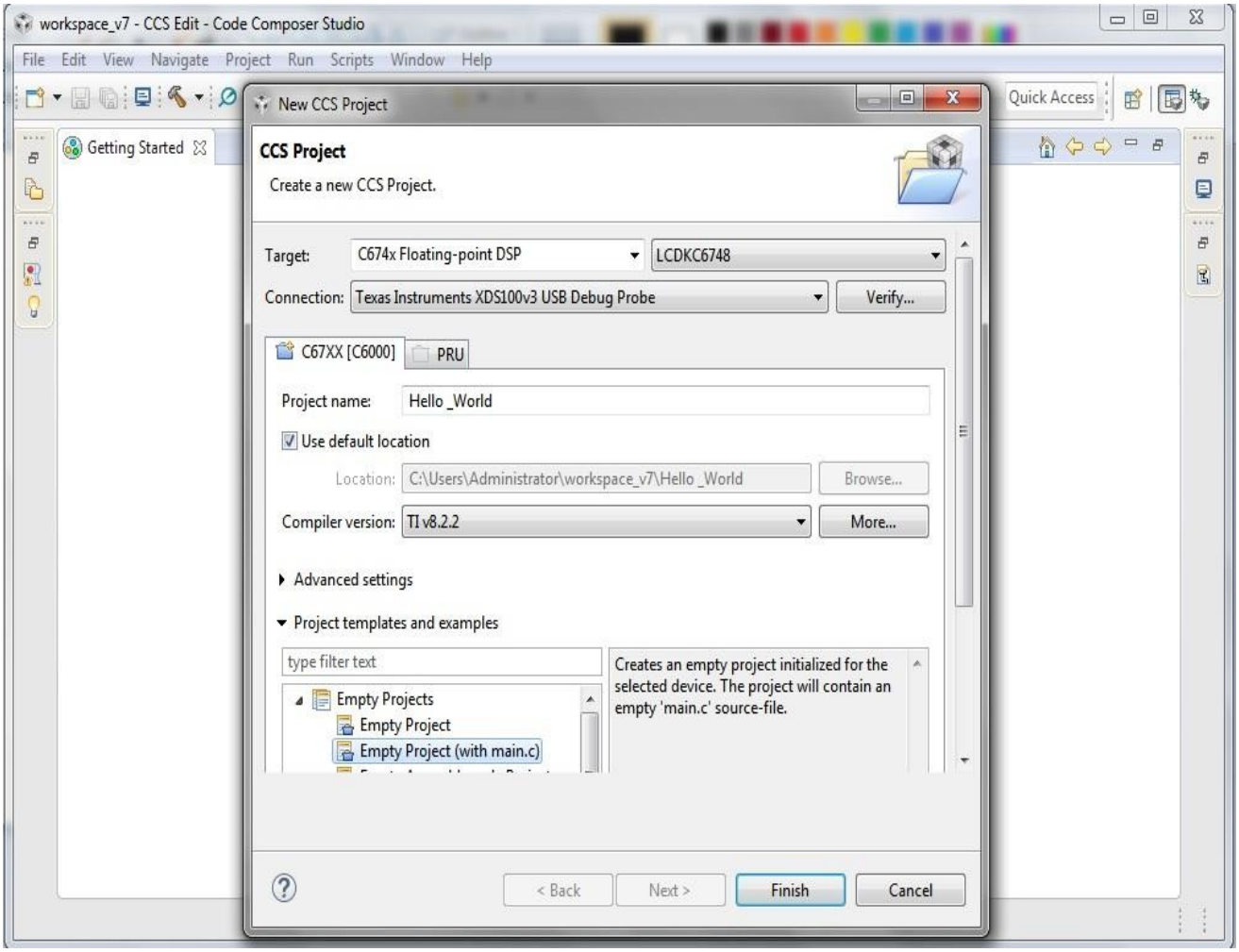
Code Composer Studio is primarily designed as for embedded project design and low-level (bare metal) JTAG based debugging. However, the latest releases are based on unmodified versions of the Eclipse open source IDE, which can be easily extended to include support for OS level application debug (Linux, Android, Windows Embedded) and open source compiler suites such as GCC.

Early versions included a real time kernel called DSP/BIOS and its later inception SYS/BIOS. Currently, the successor to these tools, the TI-RTOS embedded tools ecosystem, is available for downloading as a free plug-in to Code Composer Studio.

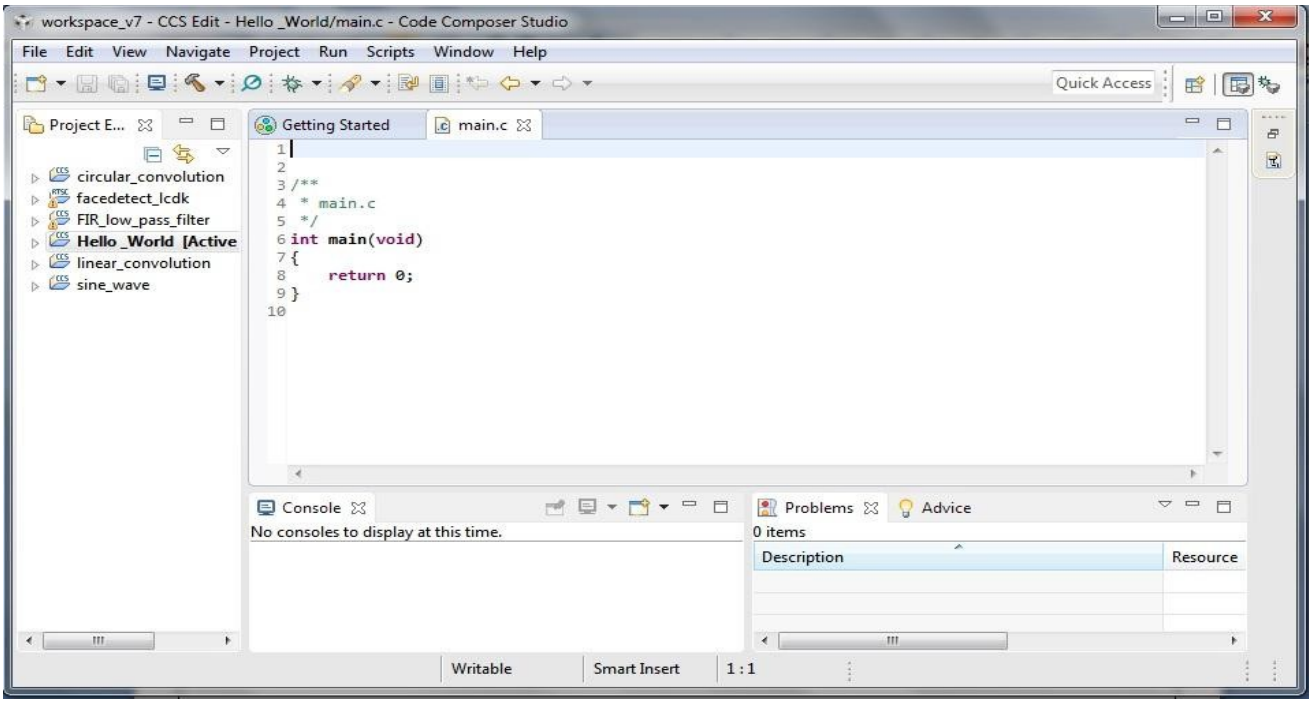
Working procedure for example project (pictorial representation)

✔ Double Click this icon shown on your desktop.

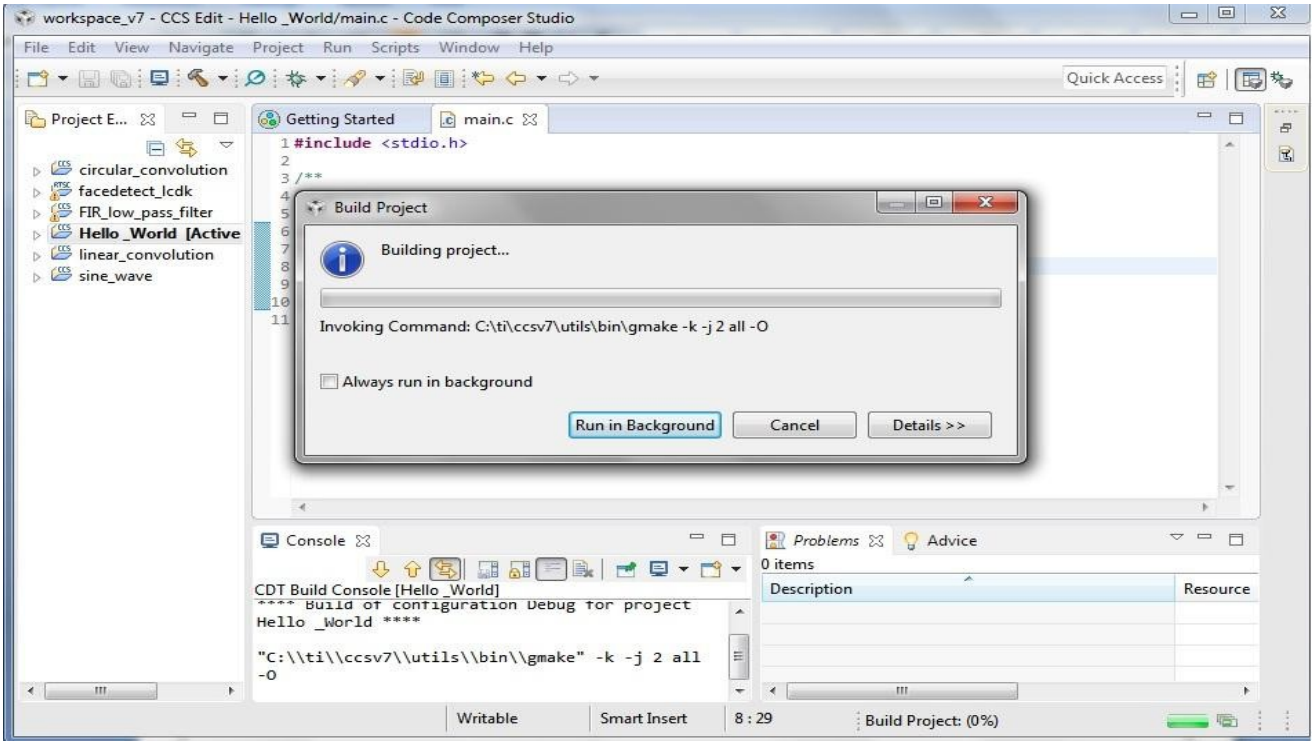
1. Open the “Code Composer Studio V7”. Select Project → New CCS Project → Set the setting as per shown → Finish.



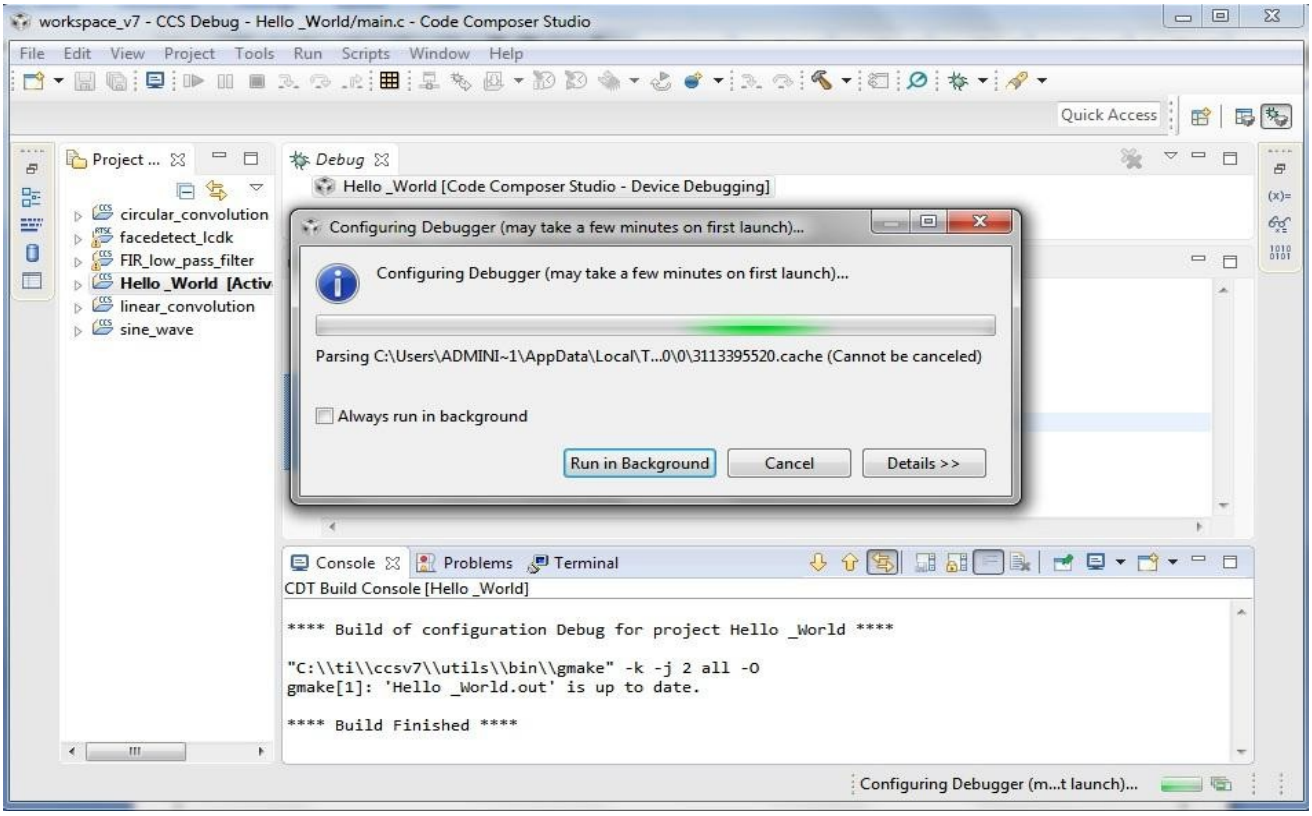
2. Now new project is open. Write a code in main.c.



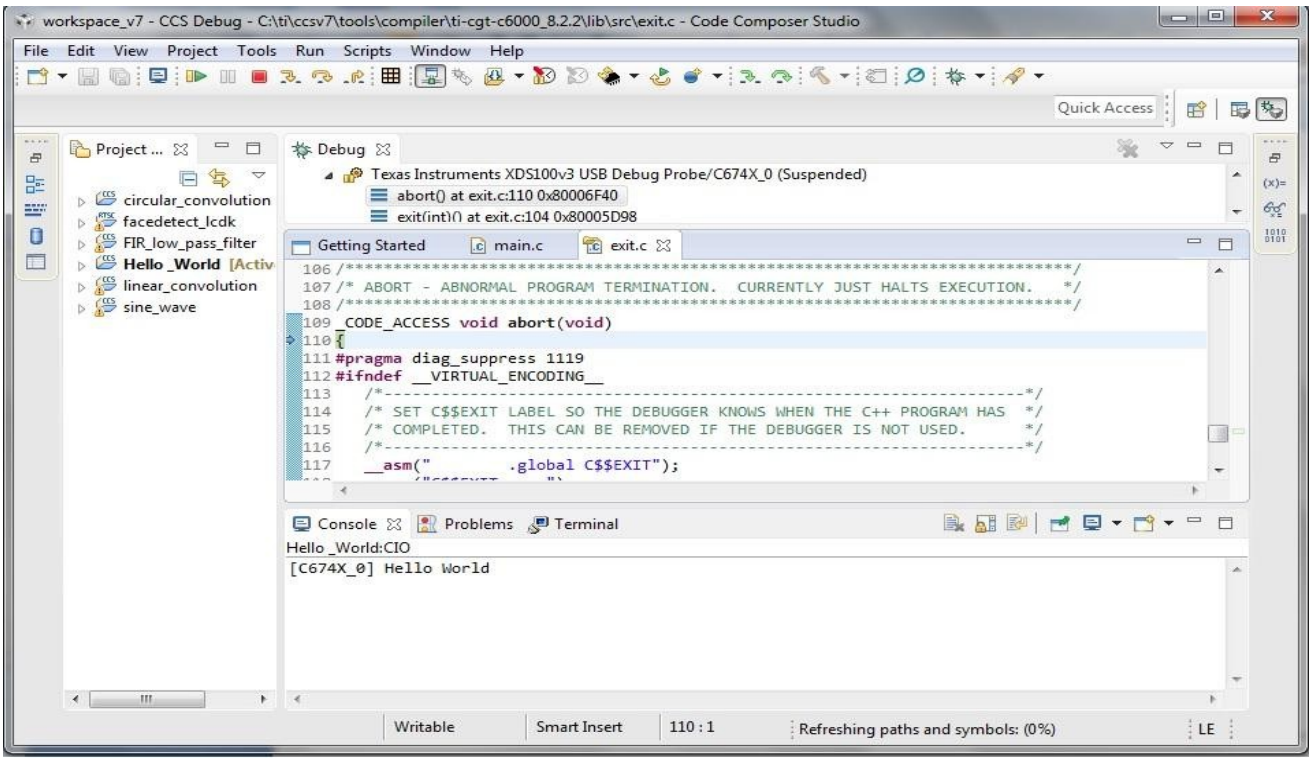
3. Build the project.



4. Now debug the project. Make sure that XDS100 V2 / V3 is connected to your DSP while debugging.



5. To run the project click on “Resume” from RUN menu or from toolbar menu. Then you can see the output in “console” Window.



Target Connections and CCS v4 Configuration Instruction

1. All XDS100 USB drivers and CCS v7 drivers are included with the CCS v7software Installation.
2. Connect the included USB cable to a USB port on the host computer, and then connect the USB cable to the XDS100. Windows will recognize the new hardware connection and complete the XDS100 installation automatically.
3. Launch Code Composer Studio v4 from the shortcut on the desktop. (This was created when CCS v4 was installed.)
4. The Code Composer Studio v4 window will appear. Click the “File” menu, then select “New-->Target Configuration File”
5. The “New Target Configuration” window will appear. Enter a file name that describes the Emulator connection and/or Texas Instruments processor being used and then click “Finish”.
6. The “Basic” configuration setup window will appear. Select “Texas Instruments XDS100 USB Emulator” from the “Connection” menu and select the target processor being used from the “Device” menu. (Refer the demo video.)
7. Click the “Save” button to save the configuration
8. Apply power to the target processor board.
9. Click the “View” menu and select “Target Configurations” to expose the configuration(s)
10. That have been built or imported. A new tab labelled “Target configurations” will become

11. Available in the CCS window.

12. Expand the “User Defined” folder. Right-click on the configuration that has been
13. Created and click “Launch Selected Configuration”.
14. CCS will now attempt to connect to the target processor through the XDS100.
15. Code Composer Studio may now be used to download code and debug code on the
16. Target board.

Experiments:

INTERFACING OF LED & SWITCHES

AIM: To study the interfacing of LED and SWITCHES with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 pin FRC cable, Serial or USB cable, 12V power supply.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular *.hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LED-SWITCH section and observe the output.
5. You will see the output as when you slide the switch to UP side then corresponding LED will glow.

LCD DISPLAY

AIM: To study the interfacing of (16*2) LCD with Universal Embedded Trainer kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 pin FRC cable, Serial or USB cable, 12V power supply.

THEORY:

Liquid Crystal Display:

LCD can be connected to the Microcontroller through the FRC cable. LCD is connected in the 4-bit mode or 8-bit mode. And the standard subroutine is given with the development board. So that the application can be easily demonstrated and also for further implementation the subroutine can be easily embedded for which one has to do very few changes.

NOTE: S3 is used to select a 4-bit or 8-bit mode of LCD.

4-bit mode

For 4-bit mode: SL3, SL4, SL5 = 1&2 are short.

8-bit mode

For 4-bit mode: SL3, SL4, SL5 = 2&3 are short.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section and observe the output.
5. You will see the output on LCD displaying the information stored in corresponding code.

LCD WITH KEYPAD INTERFACING

AIM: To study the interfacing of LCD (16x2) and Keypad with Universal Embedded Trainer kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 pin FRC cable, Serial or USB cable, 12V power supply.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.
5. You will observe that when you press a key (0-F) it will show on LCD display.

RELAY AND BUZZER INTERFACE

AIM: Relay & Buzzer Interface to embedded development board

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, serial or USB cable, 12V Power supply.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board Relay Buzzer section and observe the output.

5. You will observe the if you press the switch S2 buzzer will on and led's are blinking clockwise then if you press the switch S1 relay will on and buzzer will off and led blinking anticlockwise.

SEVEN SEGMENT DISPLAY

AIM: To study the interfacing of SEVEN SEGMENT with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 pin FRC cable, serial or USB, 12V power supply.

THEORY

A seven-segment display, or seven-segment indicator, is a form of electronics display devices for displaying decimal numerals that is an alternative to the more complex dot matrix displays. Seven-segment displays are widely used in digital clocks, electronic meters, basic calculators, and other electronic devices that display numerical information

PROCEDURE:-

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board seven segment section & and observe the output.

SEVEN SEGMENT DISPLAY + KEYBOARD

AIM: To study the interfacing of SEVEN SEGMENT DISPLAY + KEYBOARD with Universal Embedded Trainer Kit.

REQUIREMENTS: RD2 Project Board on Universal Embedded trainer kit, 10 pin FRC cable, Serial or USB cable, 12V power supply.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.

2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board seven segment sections & keypad section and observe the output.

RTC INTERFACE

AIM: RTC Interface to embedded development board

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, serial or USB cable, 12V Power supply.

THEORY:

The acronym RTC stands for Real Time Clock. This is able to store and provide date of complete information as day of week, day, month, year and beyond of course, the functions of hours, minutes and seconds, the formats of 12 or 24 hours. Months with less than 31 days and leap years are automatically adjusted. This interface is based on the clock chip DS1307 which supports the I2C protocol. It uses a Lithium cell which ensures that the data is preserved even without an external power, and is automatically activated in case of power failure in the module.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board I2C-RTC section and observe the output.

EEPROM INTERFACE

AIM: EEPROM Interface to embedded development board

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, serial or USB cable, 12V Power supply.

THEORY:

EEPROM (also E2PROM) stands for electrically erasable programmable read-only memory and is a type of non-volatile memory used in computers, integrated in microcontrollers for smart cards and remote keyless systems, and other electronic devices to store relatively small amounts of data but allowing individual bytes to be erased and reprogrammed.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the .hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board EEPROM section and observe the output.

8 BIT DAC

AIM: To study the interfacing of DAC with Embedded Trainer board.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB cable, 12V Power supply.

THEORY:

In the field of electronics Digital to Analog converter is a type of system that is used for the conversion of Digital signals or data into the Analog signals or data while Analog to Digital converter behaves as a reverse of Digital to Analog converter. During the manipulation of data, the two of the conversion interfaces serves as the backbone to the Digital electronic equipment's or we can say an analog electronic device. And then these devices need a processor in order to perform the required operation.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board DAC section and observe the output.

8 BIT ADC

AIM: To study the ADC interfacing with Universal Embedded board.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

THEORY:

A/D conversion: The A/D conversion is quantizing process whereby an analog signal is represented by equivalent binary states; this is opposite to the D/A conversion process. Analog to Digital converters can be classified into two general group based on the conversion technique. One technique involves comparing the given analog signal with internally generated equivalent signal. This group involves successive –approximation, counters, and flash type converters. The second technique involves changing an analog signal into time or frequency and comparing these new parameters to known values. This group involves integrator converters and voltage to frequency converters.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the .hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board ADC section and observe the output.

INTERFACING OF TEMEPERATURE LM35

AIM: LM-35 Temperature sensor Interface to embedded development board

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.
5. You will observe that when resistor is heated LM-35 sensor sense the temperature and the output will shows on serial monitor.

INTERFACING OF GRAPHIC LCD (128*64)

AIM: To study the interfacing of graphic lcd (GLCD) with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.

INTERFACING OF STEPPER MOTOR

AIM: To study the interfacing of stepper motor Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

THEORY:

Stepper motor:

A stepper motor step motor is a DC electric motor that divides a full rotation into a number of equal steps. The motor's position can then be commanded to move and hold at one of these steps without any feedback sensor, as long as the motor is carefully sized to the application.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output. You will observe that when you press the switch START motor will start rotating stepwise in forward direction. And when you press the switch REV motor will rotate in opposite or reverse direction.
5. When you press switch INC the speed of motor increase slowly, as you press the same switch again. And when you press switch DEC the speed of motor decrease slowly, as you press same switch again.
6. When you press switch STOP the motor will stop rotating.

NOTE: Connect both jumpers (JP2 &JP3) on STP side.

INTERFACING OF DC MOTOR

AIM: To study the interfacing of DC motor with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

THEORY:

DC motor:

Electrical motors are everywhere around us. Almost all the electro-mechanical movements we see around us are caused either by an A.C. or a DC motor. Here we will be exploring this kind of motors. This is a device that converts DC electrical energy to a mechanical energy. This DC or direct current motor works on the principal, when a current carrying conductor is placed in a magnetic field; it experiences a torque and has a tendency to move. This is known as motoring action. If the direction of current in the wire is reversed, the direction of rotation also reverses.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output. You will observe that when you press the switch START motor will start rotating in forward direction. And when you press the switch REV motor will rotate in opposite or reverse direction.
5. When you press switch INC the speed of motor increase slowly, as you press the same switch again. And when you press switch DEC the speed of motor decrease slowly, as you press same switch again. When you press switch STOP the motor will stop rotating.

NOTE: Connect both jumpers (JP2 & JP3) on DC side.

INTERFACING OF SERVO MOTOR

AIM: To study the interfacing of servo motor with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

Theory:

Servo motors (or servos) are self-contained electric devices (see Figure 1 below) that rotate or push parts of a machine with great precision. Servos are found in many places: from toys to home electronics to cars and airplanes. If you have a radio-controlled model car, airplane, or helicopter, you are using at least a few servos. In a model car or aircraft, servos move levers back and forth to control steering or adjust wing surfaces. By rotating a shaft connected to the engine throttle, a servo regulates the speed of a fuel-powered car or aircraft. Servos also appear behind the scenes in devices we use every day. Electronic devices such as DVD and Blu-ray Disc players use servos to extend or retract the disc trays. In 21st-century automobiles, servos manage the car's speed: The gas pedal, similar to the volume control on a radio, sends an electrical signal that tells the car's computer how far down it is pressed. The car's computer calculates that information and other data from other sensors and sends a signal to the servo attached to the throttle to adjust the engine speed. Commercial aircraft use servos and a related hydraulic technology to push and pull just about everything in the plane.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.
5. You will see output as servo motor will rotate 1800 clockwise then anticlockwise continuously

INTERFACING OF IR

AIM: To study the interfacing of IR sensor with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.
5. You will see output as IR sensor will sense the obstacle within defined range. When obstacle is detected then LED12 will glow else will be off. You can vary the range by varying the pot R34.

INTERFACING OF RGB

AIM: To study the interfacing of RGB with Universal Embedded Trainer Kit.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

THEORY:

RGB LED is a kind of LED that can emit light in three different colors: red, green and blue. In this experiment, we are going to make RGB LED shifts its light among the three different colors gradually.

PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.
5. You will see the output as Red, Green, and Blue LED will glow one by one.

INTERFACING OF ULTRASONIC SENSOR

AIM: To study & observe the theoretical knowledge of Ultrasonic sensor.

REQUIREMENTS: Project Board on Universal Embedded trainer kit, 10 Pin FRC cable, Serial or USB Cable, 12V Power supply

THEORY:

An Ultrasonic sensor is a device that can measure the distance to an object by using sound waves. It measures distance by sending out a sound wave at a specific frequency and listening for that sound wave to bounce back.

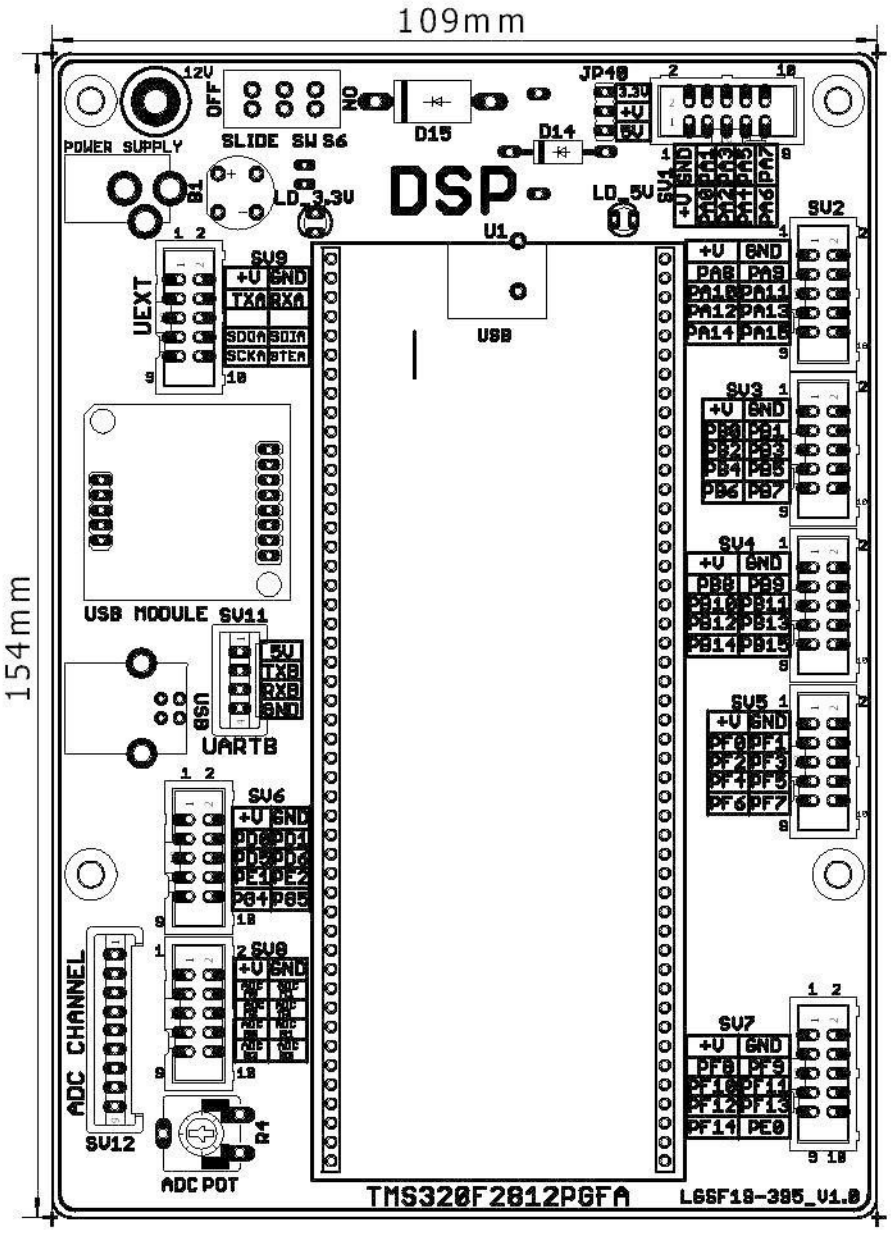
PROCEDURE:

1. Connect the 12V Power Adaptor to project board.
2. Connect the (A to B) USB cable between project board & PC and upload the particular .hex file into the project board
3. For example e.g. For ARM LPC2148 board Open the Flash Magic software and make settings as mentioned on page no. ….. Upload the Hex file to LPC2148 Board.
4. Connect 10 pin FRC from project board to universal board LCD section & keypad section and observe the output.
5. You will see output as ultrasonic Sensor will sense the distance. You can see the output on 16x2 LCD.

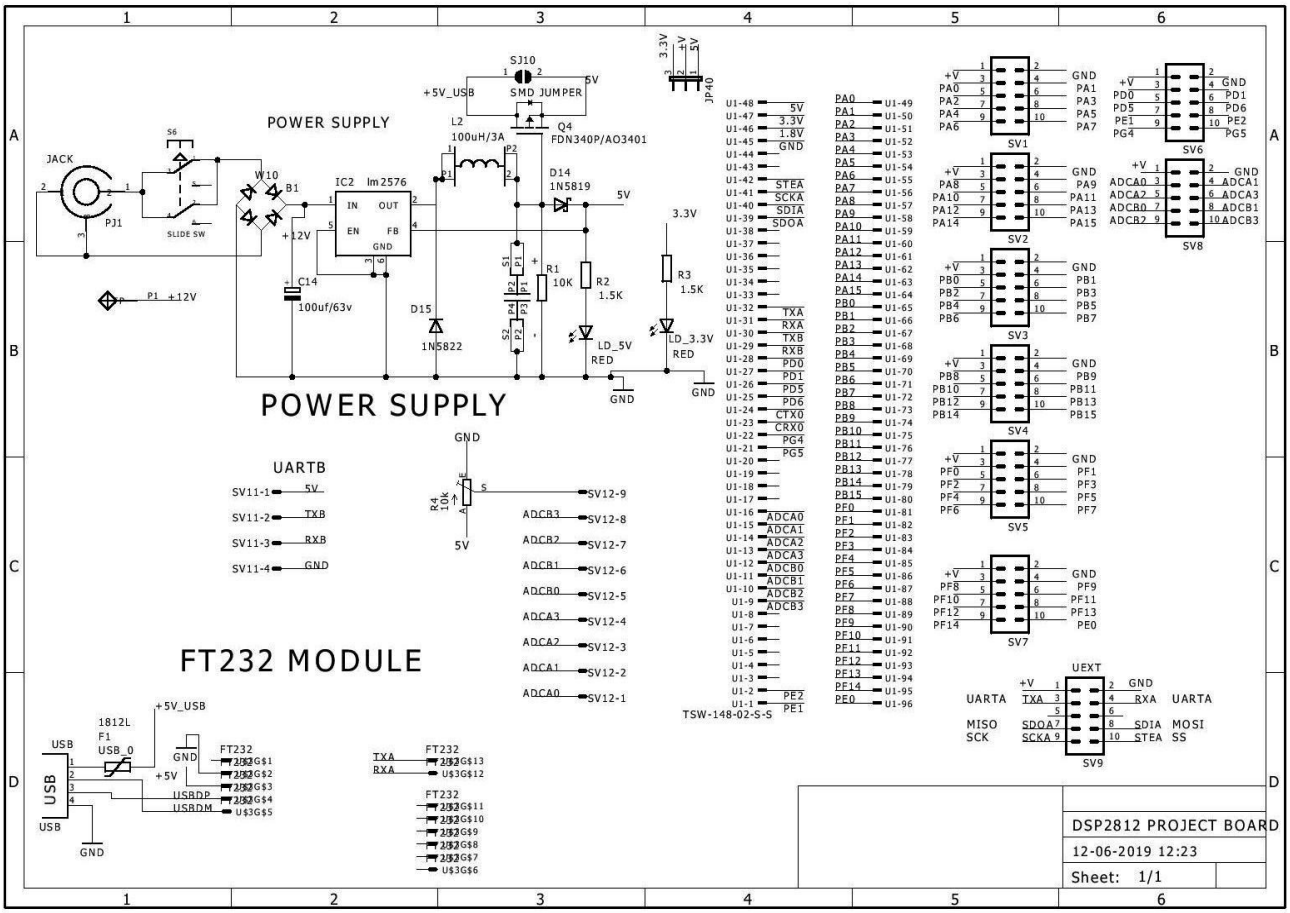
Connection Details

Sr. No.	Experiment	DSP TMS320F2812 Board Port No.	Universal Board Port No.
1	INTERFACING OF LED AND SWITCHES		
2	INTERFACING OF LCD (8 BIT AND 4 BIT MODE)		
3	INTERFACING OF LCD + (4X4) KEYPAD		
4	INTERFACING OF RELAY & BUZZER		
5	INTERFACING OF 7-SEGMENT		
6	INTERFACING OF 7-SEGMENT+KEYBOARD		
7	Interfacing of I2C-RTC		
8	INTERFACING OF EEPROM		
9	INTERFACING OF DAC		
10	INTERFACING OF ADC		
11	INTERFACING OF TEMEPERATURE LM35		
12	INTERFACING OF GRAPHIC LCD (128x64)		
13	INTERFACING OF STEPPER MOTOR		
14	INTERFACING OF DC MOTOR		
15	INTERFACING OF SERVO MOTOR		
16	INTERFACING OF IR		
17	INTERFACING OF RGB		
18	INTERFACING OF UNTRASONIC SENSOR		

Board Lay-out


109mm
154mm
DSP
TMS320F2812PGFA
L6SF18-385_V1.0
POWER SUPPLY
SLIDE SW S6
D15
D14
JP48
LD_3.3V
LD_5V
U1
USB
SV1
SV2
SV3
SV4
SV5
SV6
SV7
SV8
SV9
SV11
SV12
UEXT
USB MODULE
UARTB
ADC CHANNEL
ADC POT
R4

Schematic


POWER SUPPLY
JACK
PJ1
SLIDE SW
W10
B1
IC2 lm2576
IN
OUT
EN
FB
GND
+12V
C14
100uf/63v
L2
100uH/3A
SJ10
SMD JUMPER
+5V_USB
5V
Q4
FDN340P/AO3401
D14
1N5819
D15
1N5822
R1
10K
R2
1.5K
R3
1.5K
LD_5V
RED
LD_3.3V
RED
3.3V
JP40
P1 +12V
POWER SUPPLY
UARTB
SV11-1 5V
SV11-2 TXB
SV11-3 RXB
SV11-4 GND
R4
10k
FT232 MODULE
USB
1812L
F1
USB_0
USBDP
USBDM
TXA
RXA
TSW-148-02-S-S
SV1
SV2
SV3
SV4
SV5
SV6
SV7
SV8
SV9
UEXT
UARTA
MISO
SCK
SDOA
SCKA
SDIA
MOSI
SS
STEA
DSP2812 PROJECT BOARD
12-06-2019 12:23
Sheet: 1/1