LAUNCHXL-F28379D Overview

The C2000™ LAUNCHXL-F28379D LaunchPad™ is a complete low-cost development board for the Texas Instruments Delfino™ F2837xD devices. The LAUNCHXL-F28379D kit features all the hardware and software necessary to develop applications based on the F2837xD microcontrollers. This LaunchPad is based on the superset F28379D device, and easily allows users to migrate to lower feature set and/or lower pin count F2837x devices once the design needs are known. It offers an on-board JTAG debug tool allowing direct interface to a PC for easy programming, debugging, and evaluation. In addition to JTAG emulation, the USB interface provides a UART serial connection from the F28379D device to the host PC.

Contents

List of Figures

List of Tables

Copyright © 2016–2019, Texas Instruments Incorporated

Trademarks

C2000, LaunchPad, Delfino, Code Composer Studio are trademarks of Texas Instruments.
Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.
All other trademarks are the property of their respective owners.

1 Introduction

Users can download an unrestricted copy of the latest version of Code Composer Studio™ IDE to write, download, and debug applications on the LAUNCHXL-F28379D board. The debugger is unobtrusive, allowing the user to run an application at full speed with hardware breakpoints and available single step execution while consuming no extra hardware resources.

As shown in Figure 1, the LAUNCHXL-F28379D LaunchPad features include:

- USB debugging and programming interface via a high-speed galvanically isolated XDS100v2 debug probe featuring a USB/UART connection
- Superset TMS320F28379D device
- Two user LEDs
- Device reset pushbutton
- Easily accessible device pins for debugging purposes or as sockets for adding customized extension boards
- Dual 5 V quadrature encoder interfaces
- CAN Interface with integrated transceiver
- Boot selection switches
- Differential Amplifier to provide buffered signals to ADCD for 16-bit mode
- Optional SMA connection points P/N:SMA-J-P-H-ST-EM1
- Four Sigma Delta demodulator inputs brought to the BP headers

Copyright © 2016–2019, Texas Instruments Incorporated

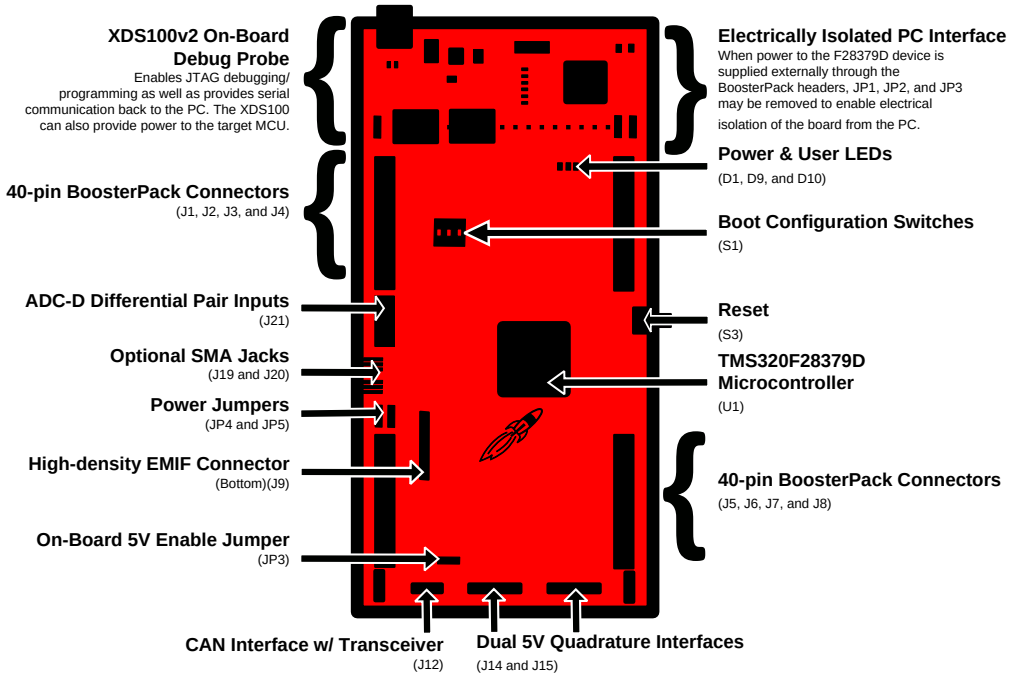


Figure 1. LAUNCHXL-F28379D Board Overview

2 Kit Contents

The LAUNCHXL-F28379D LaunchPad kit includes the following items:

- C2000 Delfino LaunchPad Board (LAUNCHXL-F28379D)
- Mini USB-B Cable, 0.5m
- Quick Start Guide

2.1 Revisions

The first production revision of the LAUNCHXL-F28379D in 2016 was Revision 1.1. In late 2017 the LAUNCHXL-F28379D revision changed from 1.1 to 2.0 to fix various issues and make improvements to the design.

All Revisions:

- Resistor R7 in the oscillator circuit is incorrectly placed or should not be installed. This resistor may impact startup time or robustness of the clocking circuit over the full operating range of the MCU or different physical layouts of this circuit. The probability is low that this resistor will have any impact on the functionality of this EVM as is not intended to be operated outside of Standard Temperature and Pressure in a lab or prototype environment. Do not use this circuit as reference. Follow the requirements for the Oscillator schematic as documented in the MCU Datasheet.
- The SCIA pins routed to the XDS100 v2 are not valid SCI boot mode pins. In addition, the other boot-able SCI pins are not routed to any external connector. In other words, this LaunchPad is not capable of using the Boot to SCI boot mode. The TMDSCNCD28379D can be used to evaluate this feature.

Revision 1.1:

- ADCINA2 is shorted to VREFHIB. It is recommended that users avoid using the ADCINA2 channel.
- The VIN+ signal of component U1 may be shorted to ADCINB4 and/or ADCINC4 due to variance in manufacturing tolerances. No issues have been reported, but the clearances violate manufacturing rules and a short may occur.
- The silkscreen for the ADC channels on J3 and J7 are mixed up and some may be incorrect. Reference the schematic for the proper pin positions.

Copyright © 2016–2019, Texas Instruments Incorporated

- J3 and J7 connectors are labeled incorrectly on the backside silkscreen. Refer the Rev 1.1 schematic for the proper signal locations on the connector

Revision 2.0:

A revision was made to resolve the layout issues present on revisions 1.1. In addition to the fixes for aforementioned issues, additional changes were made to the schematic and layout to improve available features and increase usability.

- User LEDs and current limiting resistor values were changed to prevent the LEDs from being too bright to look at directly.
- The CAN signal header J12 was shifted towards the center of the board and the silkscreen properly aligned. PGND was removed and replaced with GND for the proper grounding of the CAN signals.
- J11 and J13 were removed and replaced with a 0Ω resistor selection tree for routing between the BoosterPack headers and the backside high-density connector J9. For more information on how to configure these resistors for the desired routing, see Section 5.5.
- Additional EMIF1 signals were routed to J9 to enable SDRAM support. These signals are also routed to the BoosterPack headers. As such, these signals have a resistor selection network for routing the signals to either the BoosterPack headers, J9 or both. For the information on how to configure these resistors for the desired routing, see Section 5.5.
- An additional jumper, J16, was added to the lower left corner of the board for an additional connection point for supplying +5 V externally.
- ADC input signal conditioning circuit was updated for proper operation under additional operating conditions. C4 is now 180 pF; R60/R61 are changed to 10k-Ω and are placed between the VOUT signal of U13 to the VOCM of U1.
- Backside silkscreen for J3 and J7 have been corrected and reflect the proper signals at the noted location on the connector.

3 Installation

The F28379D LaunchPad is supported in Code Composer Studio.

3.1 Code Composer Studio

3.1.1 Download the Required Software

Code Composer Studio IDE is available for free without any restriction when used with the XDS100v2 debug probe on the C2000 LaunchPad. The software can be downloaded from the C2000 LaunchPad page at ti.com/launchpad. At this site, you can also download a copy of c2000Ware that includes drivers, examples, and other support software needed to get started.

3.1.2 Install the Software

Once downloaded, install Code Composer Studio and the C2000Ware package.

3.1.3 Install the Hardware

After Code Composer Studio is installed, plug the supplied USB cable into the C2000 LaunchPad board and into an available USB port on your computer.

Windows® will automatically detect the hardware and ask you to install software drivers. Let Windows run a search for the drivers and automatically install them. After Windows successfully installs the drivers for the integrated XDS100v2 debug probe, your LaunchPad is now ready for use.

Copyright © 2016–2019, Texas Instruments Incorporated

4 Getting Started With the LAUNCHXL-F28379D

4.1 Getting Started

The first time the LAUNCHXL-F28379D board is powered-on a demo application will automatically start. Connect the LAUNCHXL-F28379D to a free USB port using the included mini-USB cable. The demo application will start with LEDs D9 and D10 blinking to show the device is active. If your board does not start the demo application, try setting switch S1 in the following positions and resetting the board: 1-UP, 2-UP, 3-DOWN.

4.2 Demo Application, ADC Sampling

The LAUNCHXL-F28379D includes a pre-programmed TMS320F28379D device. When the LaunchPad is powered via USB, the demo starts with an LED blink sequence. After a few seconds the device switches into an ADC sample mode.

Every 1 second the ADC samples pin ADCIN14 and the sampled data is represented as follows: If the sample is above mid-scale (2048), the blue LED D10 will illuminate. If the sample is below mid-scale, the red LED D9 will illuminate.

In addition to the LED indicators, ADC sample information is also displayed on your PC through the USB/UART connection. To view the UART information on your PC, first determine the COM port associated with the LaunchPad. To do this in Windows, right click on *My Computer* and click on *Properties*. In the dialog box that appears, click on the Hardware tab and open *Device Manager*. Look for an entry under Ports (COM & LPT) titled "USB Serial Port (COMX)", where X is a number. Remember this number for when you open a serial terminal. The demo applications UART data was written and debugged using PuTTY, and for the best user experience we recommend you use PuTTY to view the UART data. PuTTY can be downloaded from the following URL:

http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

Open your serial terminal program and open the COM port you found previously in device manager with the following settings: 115200 Baud, 8 data bits, no parity, 1 stop bit. After opening the serial port in your serial terminal, reset the LaunchPad with the reset push button S3 and observe the serial terminal to see the TI logo in ASCII art.

4.3 Program and Debug the ADC Sample Demo Application

The project and associated source code for the C2000 Delfino LaunchPad demo is included in the C2000Ware software package and should automatically be found by the TI Resource Explorer in Code Composer Studio. In the resource explorer, navigate C2000Ware *to find the device_support\f2837xd\examples* folder. Expand this item and LAUNCHXL-F28379D, then select the LaunchPad Demo Application. Follow the steps in the main pane of the resource explorer to import, build, debug, and run this application.

4.4 Using Other C2000Ware Examples

Including the LaunchPad demo example described above, C2000Ware provides many examples demonstrating a majority of the features of the F2837x MCU. Most examples are configured by default to use the TMDSCNDC28379D ControlCARD, which has a different on-board clocking circuit. As such, some examples may not work as intended without minor modification. To make this easier on the designer, compiler switch has been added to automatically pick the proper clock configuration based on adding "_LAUNCHXL_F28379D" as a predefined symbol in the project properties. Refer to Section 8for more information on how and where to define this symbol.

5 Hardware Configuration

The F28379D LaunchPad provides users with several options for configuring the board.

Copyright © 2016–2019, Texas Instruments Incorporated

5.1 ADC Resolution

The F28379D had 4 independent 16-bit/12-bit ADCs. The resolution of each ADC is SW selectable. ADCA, ADCB, and ADCC are all routed to the BoosterPack headers for use with different booster packs. Most BoosterPacks will use the ADC in 12-bit mode which supports Single Ended (SE) inputs. ADCD has been routed to a special side connector with ability to drive through a differential amplifier to support 16-bit mode with Differential Ended (DE) inputs.

5.2 Power Domain

The LaunchPad has several different power domains to enable JTAG Isolation. Jumpers JP1, JP2, JP3 control JTAG Isolation, supply GND, 3.3 V and 5 V to the rest of the board. There are also other jumpers that provide different methods for powering the device.

Table 1 describes the different methods by which 3.3 V can be supplied to the device. It can be derived from USB in configuration 1. Here, the on-board regulator steps the 5 V from the USB port down to 3.3 V to be used by the XDS100v2 debug probe as well as connected to the device side of the LaunchPad through JP1. Configuration 1 is a non-isolated configuration. Alternately, in configuration 2 the debugger and USB connection are isolated from the device. The 3.3 V source must be provided externally through the BoosterPack headers or through J10.

Table 1. Supplying the LaunchPad With 3.3 V

Configuration	JP1	JP2	USB	External 3.3 V	JTAG/USB Isolation Status
1	Yes	Yes	Yes	No	Not Isolated
2	No	No	Don't Care	Yes	Isolated

The LaunchPad also has a 5 V power rail. It can be supplied directly from the USB (not isolated) generated from a 3.3 V to 5 V step-up regulator through JP6, or supplied externally through the BoosterPack Headers or J16. Table 2 describes these various configurations.

The debug probe and USB are not isolated in configuration 1 since JP2 and JP3 are connected. The 5 V supply is coming from the USB directly to the device side of the LaunchPad and can be used to power other devices connected to the BoosterPack headers. In this configuration, do not connect JP6 as there may be contention between the 5 V from the USB (JP3) and the 5 V from the on-board step-up regulator, U12.

Configuration 2 is an isolated configuration where 3.3 V is supplied any way other than through JP1. In this configuration, JP6 is connected allowing the 3.3 V to be stepped up to 5 V with the on-board step-up regulator, U12. In this configuration ensure that no other 5 V source is connected to the BoosterPack headers or through J16.

Configuration 3 is another isolated configuration since JP2 and JP3 are not connected. With JP6 disconnected, 5 V must be supplied through an external connection on the BoosterPack headers or J16. Notice that this configuration does not rely on the 3.3 V supply being powered to provide the 5 V. To supply 3.3 V to the device in an isolated configuration, see Table 1.

Table 2. Supplying the LaunchPad With 5 V

Configuration	JP2	JP3	JP6	External 5 V	USB	JTAG/USB Isolation Status
1	Yes	Yes	No	No	Yes	Not Isolated
2	No	No	Yes	No	Don't Care	Isolated
3	No	No	No	Yes	Don't Care	Isolated

Copyright © 2016–2019, Texas Instruments Incorporated

5.3 Boot Mode Selection

The LaunchPad's F28379D device includes a boot ROM that performs some basic start-up checks and allows for the device to boot in many different ways. Most users will either want to perform an emulation boot or a boot to flash (if they are running the application standalone). Switch S1 has been provided to allow users to easily configure the pins that the bootROM checks to make this decision. The positions on S1 correspond to those shown in Table 3.

Table 3. Positions of Signals Present on Switch S1

Positions	Function
1	GPIO84
2	GPIO72
3	TRSTn

Keep in mind that the debug probe does not connect if the device is not in the emulation boot mode (TRST switch in the UP-1 position). More information about boot mode selection can be found in the *Boot ROM* section of the *TMS320F2837xD Dual-Core Delfino Microcontrollers Technical Reference Manual*.

5.4 Connecting a BoosterPack

The F2837xD LaunchPad is the perfect experimenter board to start hardware development with the F2837xD devices. All of the connectors are aligned in a 0.1-in (2.54-mm) grid to allow easy and inexpensive development of add on boards called BoosterPacks. These satellite boards can access all of the GPIO and analog signals. The pinout of the connectors can be found in Section 5.

5.5 GPIO Routing Between BoosterPack and I/O Expansion Headers

This LaunchPad has a high-density connector (J9) on the backside of the board. This connector provides for an IO expansion board to be connected. Many of the EMIF1 signals are available as well as SPI and I2C. Some of the signals present on J9 are also available on the BoosterPack expansion headers.

On Revision 1.x LaunchPads, only two signals were dual-mapped to both J9 and the BoosterPack Headers, GPIO40 and GPIO41. To select the destination, the three-position jumpers, J11 and J13, could be adjusted accordingly. Placing the jumper between position 1 and position 2 will route the signal to J9. Placing the jumper between position 2 and position 3 will route the signal to the BoosterPack headers.

On revision 2.0 LaunchPads, in addition to GPIO40 and GPIO41, four more signals may be routed to either the BoosterPack headers or J9 independently, or may be connected to both based on the placement of 0Ω resistors. By default, the signals are only routed to the BoosterPack headers for alignment with the BoosterPack standards. Table 4 provides the mapping for each signal and which resistors populate in order to route the signal as desired. Refer to the schematic at the end of this document in Section 6.2,or located in the C2000Ware directory.

Table 4. Revision 2.0: Resistor Selection for Routing Dual-Mapped Signals

GPIO	Route to BoosterPack Headers	Route to J9 Header
GPIO29	R75	R76
GPIO40	R67	R68
GPIO41	R69	R70
GPIO52	R77	R78
GPIO104	R71	R72
GPIO105	R73	R74

Copyright © 2016–2019, Texas Instruments Incorporated

6 LAUNCHXL-F28379D Hardware

6.1 Device Pin Out

Table 5 through Table 8 lists the pin out and pin mux options for the C2000 LaunchPad. Additional muxing options are available and can be found in the *TMS320F2837xD Dual-Core Delfino™ Microcontrollers Data Manual*.

Table 5. F28379D LaunchPad Pin Out and Pin Mux Options - J1, J3

Mux Value				J1 Pin	J3 Pin	Mux Value			
X	2	1	0			0	Alt Function	2	X
			3.3V	1	21	5V			
			GPIO32	2	22	GND			
	SCIRXDB		GPIO19	3	23	ADCIN14	CMPIN4P		
	SCITXDB		GPIO18	4	24	ADCINC3	CMPIN6N		
			GPIO67	5	25	ADCINB3	CMPIN3N		
			GPIO111	6	26	ADCINA3	CMPIN1N		
SPICLKA[1]			GPIO60	7	27	ADCINC2	CMPIN6P		
			GPIO22	8	28	ADCINB2	CMPIN3P		
		SCLA	GPIO105[2]	9	29	ADCINA2	CMPIN1P		
		SDAA	GPIO104[2]	10	30	ADCINA0	DACOUTA		

(1) For full pin muxing table for functions shown here and additional mux options, see the *TMS320F2837xD Dual-Core Delfino™ Microcontrollers Data Manual*.

(2) This signal is also routed to the IO expansion header, J9. For information on how to configure this signal, see Section 5.5.

Table 6. F28379D LaunchPad Pin Out and Pin Mux Options - J4, J2

Mux Value				J4 Pin	J2 Pin	Mux Value			
X	2	1	0			0	1	2	X
		EPWM1A	GPIO0	40	20	GND			
		EPWM1B	GPIO1	39	19	GPIO61			
		EPWM2A	GPIO2	38	18	GPIO123			SD1_C1[1]
		EPWM2B	GPIO3	37	17	GPIO122			SD1_D1[1]
		EPWM3A	GPIO4	36	16	RST			
		EPWM3B	GPIO5	35	15	GPIO58			SPISIMOA[1]
		OUTPUTXBAR1	GPIO24	34	14	GPIO59			SPISOMIA[1]
OUTPUTXBAR7[1]			GPIO16	33	13	GPIO124			SD1_D2[1]
			DAC1	32	12	GPIO125			SD1_C2[1]
			DAC2	31	11	GPIO29[2]			OUTPUTXBAR6[1]

(1) For full pin muxing table for functions shown here and additional mux options, see the *TMS320F2837xD Dual-Core Delfino™ Microcontrollers Data Manual*.

(2) This signal is also routed to the IO expansion header, J9. For information on how to configure this signal, see Section 5.5.

Copyright © 2016–2019, Texas Instruments Incorporated

Table 7. F28379D LaunchPad Pin Out and Pin Mux Options - J5, J7

Mux Value				J5 Pin	J7 Pin	Mux Value			
X	2	1	0			0	Alt Function	2	X
			3.3V	41	61	5V			
			GPIO95	42	62	GND			
SCIRXDC[1]			GPIO139	43	63	ADCIN15	CMPIN4N		
SCITXDC[1]			GPIO56	44	64	ADCINC5	CMPIN5N		
			GPIO97	45	65	ADCINB5			
			GPIO94	46	66	ADCINA5	CMPIN2N		
SPICLKB[1]			GPIO65	47	67	ADCINC4	CMPIN5P		
			GPIO52[2]	48	68	ADCINB4			
SCLB[1]			GPIO41[2]	49	69	ADCINA4	CMPIN2P		
SDAB[1]			GPIO40[2]	50	70	ADCINA1	DACOUTB		

(1) For full pin muxing table for functions shown here and additional mux options, see the *TMS320F2837xD Dual-Core Delfino™ Microcontrollers Data Manual*.

(2) This signal is also routed to the IO expansion header, J9. For information on how to configure this signal, see Section 5.5.

Table 8. F28379D LaunchPad Pin Out and Pin Mux Options - J8, J6

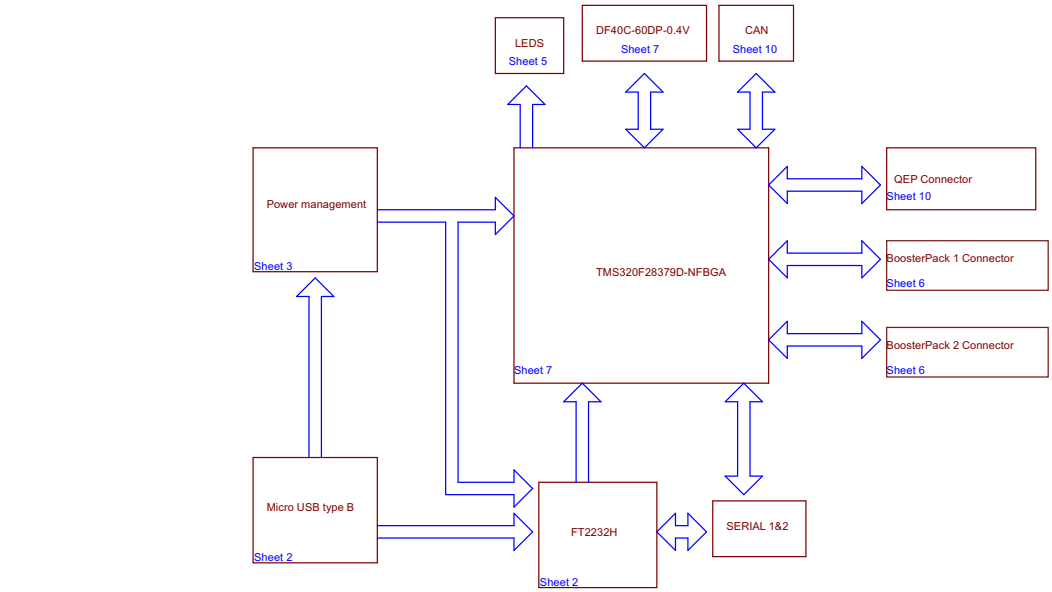
Mux Value				J8 Pin	J6 Pin	Mux Value			
X	2	1	0			0	1	2	X
		EPWM4A	GPIO6	80	60	GND			
		EPWM4B	GPIO7	79	59	GPIO66			
		EPWM5A	GPIO8	78	58	GPIO131			SD2_C1[1]
		EPWM5B	GPIO9	77	57	GPIO130			SD2_D1[1]
		EPWM6A	GPIO10	76	56	RST			
		EPWM6B	GPIO11	75	55	GPIO63			SPISIMOB[1]
OUTPUTXBAR3[1]			GPIO14	74	54	GPIO64			SPISOMIB[1]
OUTPUTXBAR4[1]			GPIO15	73	53	GPIO26			SD2_D2[1]
			DAC3	72	52	GPIO27			SD2_C2[1]
			DAC4	71	51	GPIO25			OUTPUTXBAR2[1]

(1) For full pin muxing table for functions shown here and additional mux options, see the *TMS320F2837xD Dual-Core Delfino™ Microcontrollers Data Manual*.

Copyright © 2016–2019, Texas Instruments Incorporated

6.2 Schematics

The following figures show the LAUNCHXL-F28379D Rev 2.0 schematic. The schematics for both LAUNCHXL-F28379D Revision 2.0 and Revision 1.1 are located in C2000Ware.



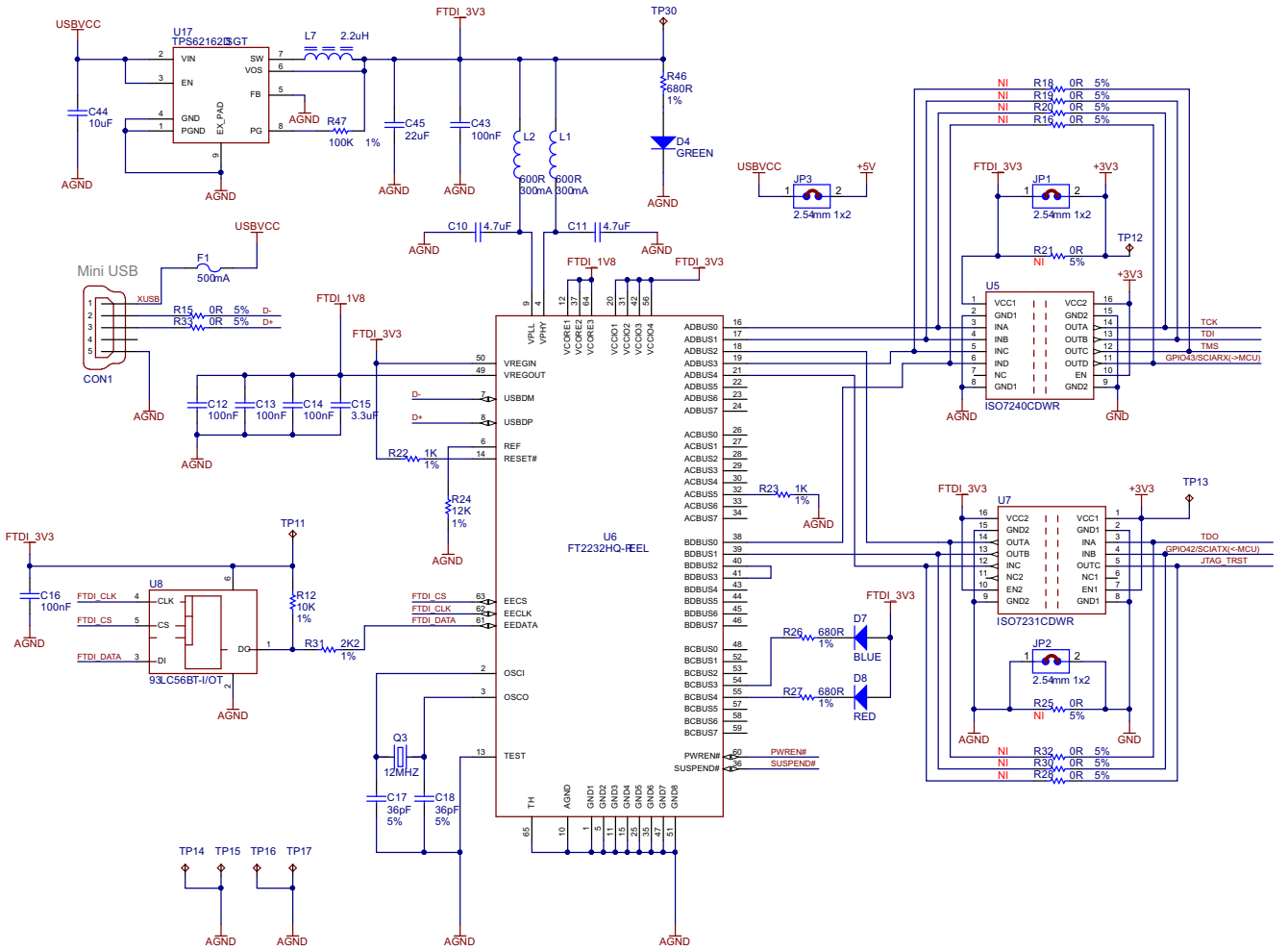
REV	DATA	NOTE
REV1.0	20151210	ORIGINAL RELEASED
REV1.1	20160415	-Changed value for R11/R52 from 560m to 100m -Swap pin connection for J3&J7 -Replace U19&U11 with OPA350 -Changed value for R38/R39 from 330R to 820R
REV2.0	20170426	-Replace D1/D4 with 150080VS75000 -Replace D7/D10 with 150080BS75000 -Replace D8/D9 with 150080SS75000 -Changed R1/R26/R27/R38/R39/R46 from 820R to 680R -Changed C40 from 1nF to 180pF -Add 5V connector J16 -Changed "PGND" to "GND" in CAN connector J12 -Changed GPIO29/40/41/52/104/105 route in page 9 -Connect U13.6 to U1.2 -Changed R60/R61 from 4K02 to 10K -Add R79 connect U2.8 to GND -Add C84/C85 -Changed C23/C38 from 2.2uf to 22uf

Note: NI = Not Install

Copyright © 2017, Texas Instruments Incorporated

Figure 2. P01_Block Diagram

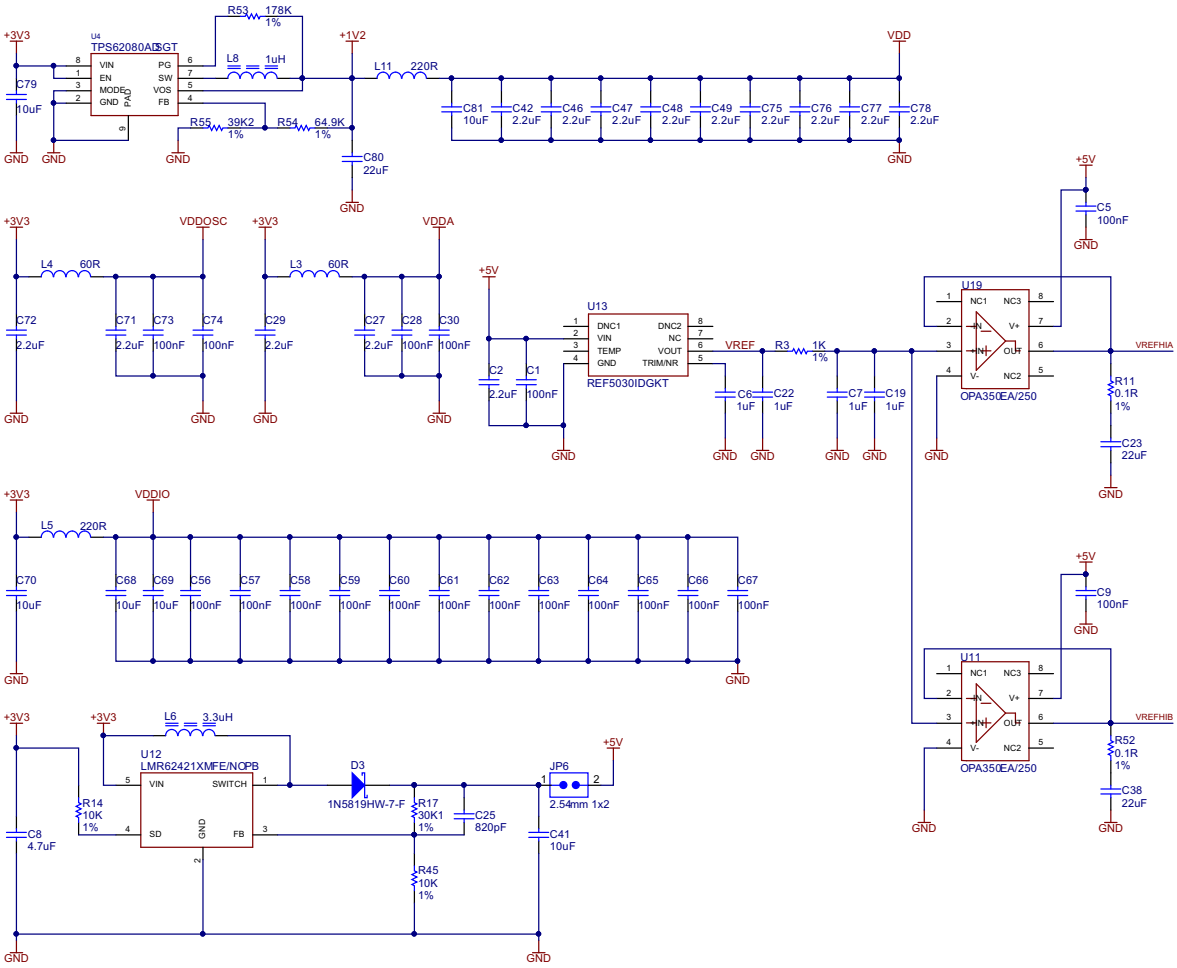
Copyright © 2016–2019, Texas Instruments Incorporated



Copyright © 2016, Texas Instruments Incorporated

Figure 3. P02_XDS100v2

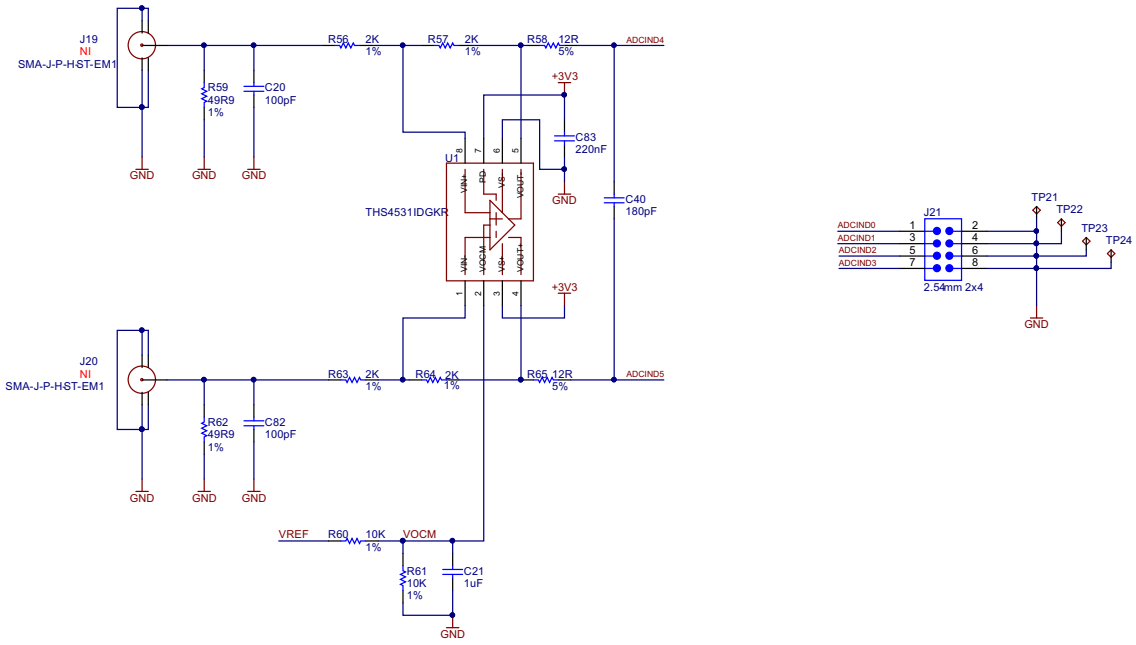
Copyright © 2016–2019, Texas Instruments Incorporated



Copyright © 2017, Texas Instruments Incorporated

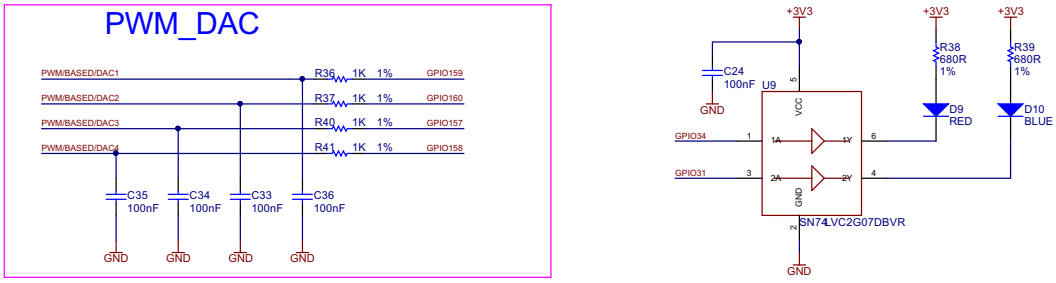
Figure 4. P03_Power

Copyright © 2016–2019, Texas Instruments Incorporated



Copyright © 2017, Texas Instruments Incorporated

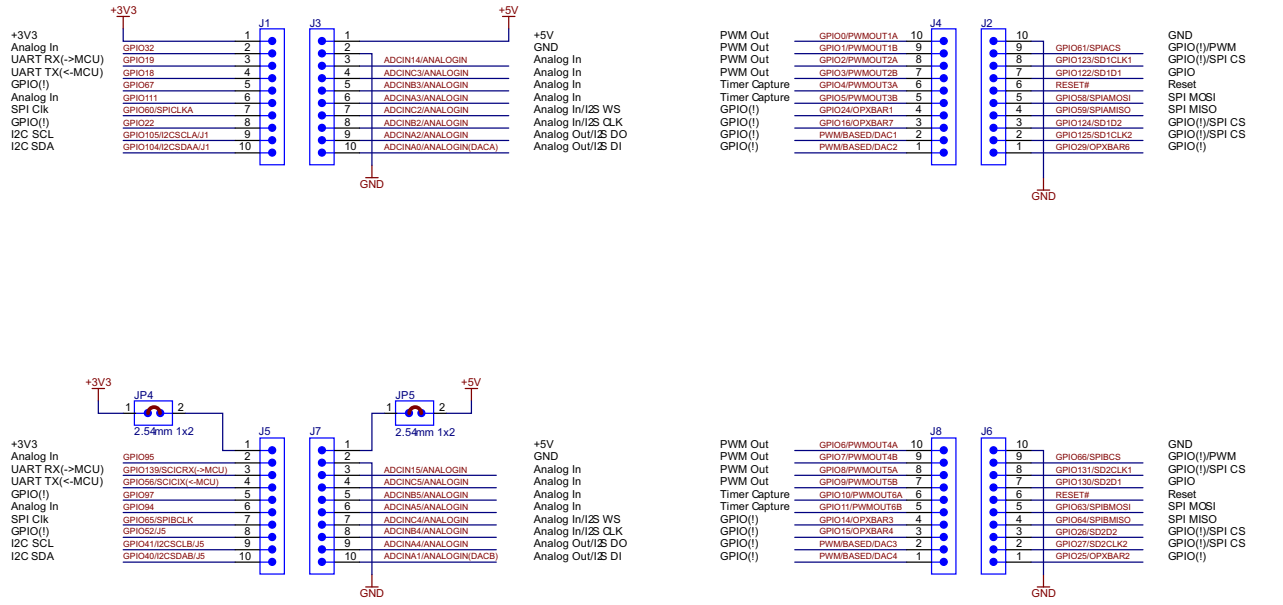
Figure 5. P04_ADCIND



Copyright © 2017, Texas Instruments Incorporated

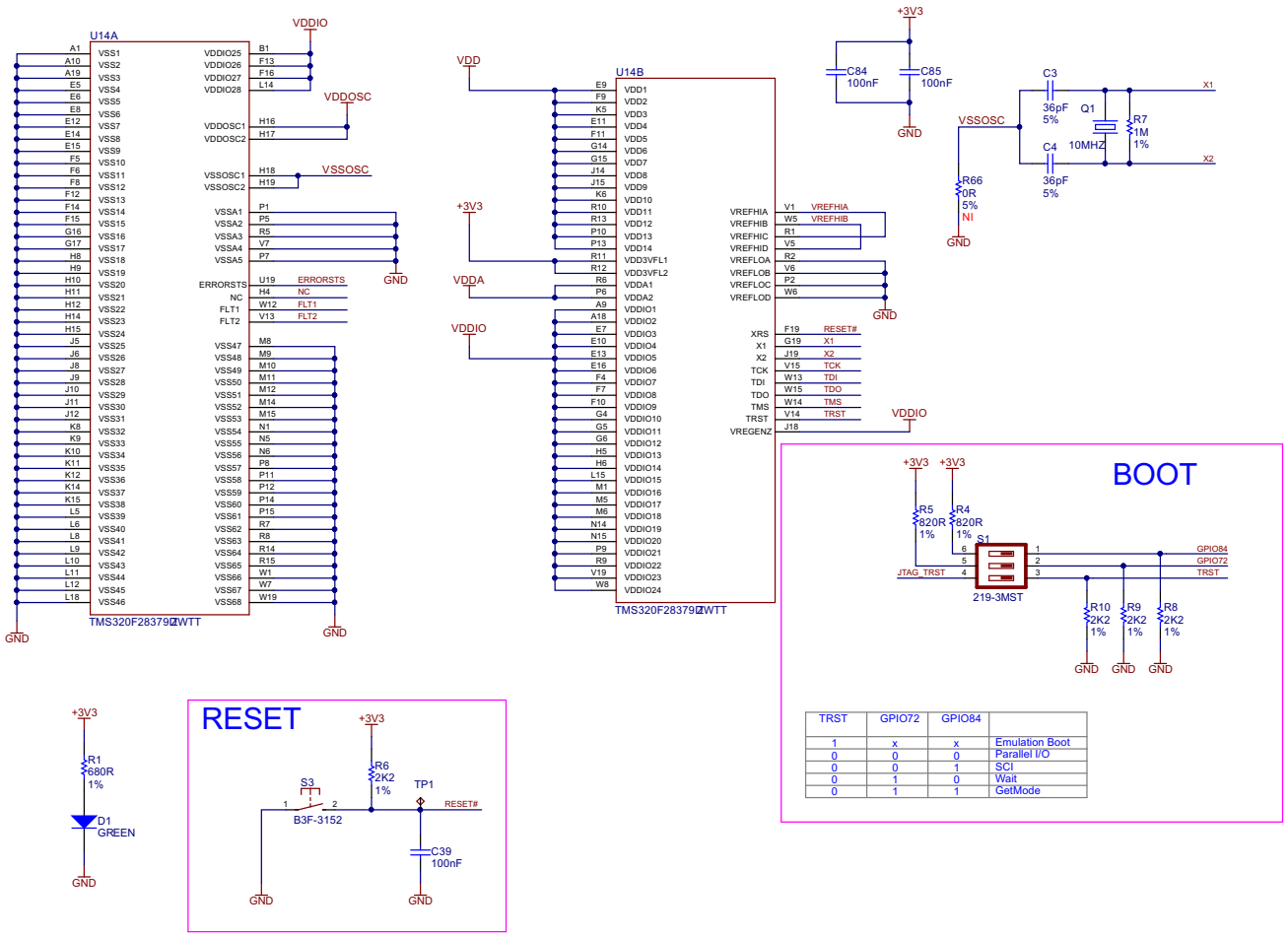
Figure 6. P05_PWM-DAC

Copyright © 2016–2019, Texas Instruments Incorporated



Copyright © 2017, Texas Instruments Incorporated

Figure 7. P06_BoosterPack Headers



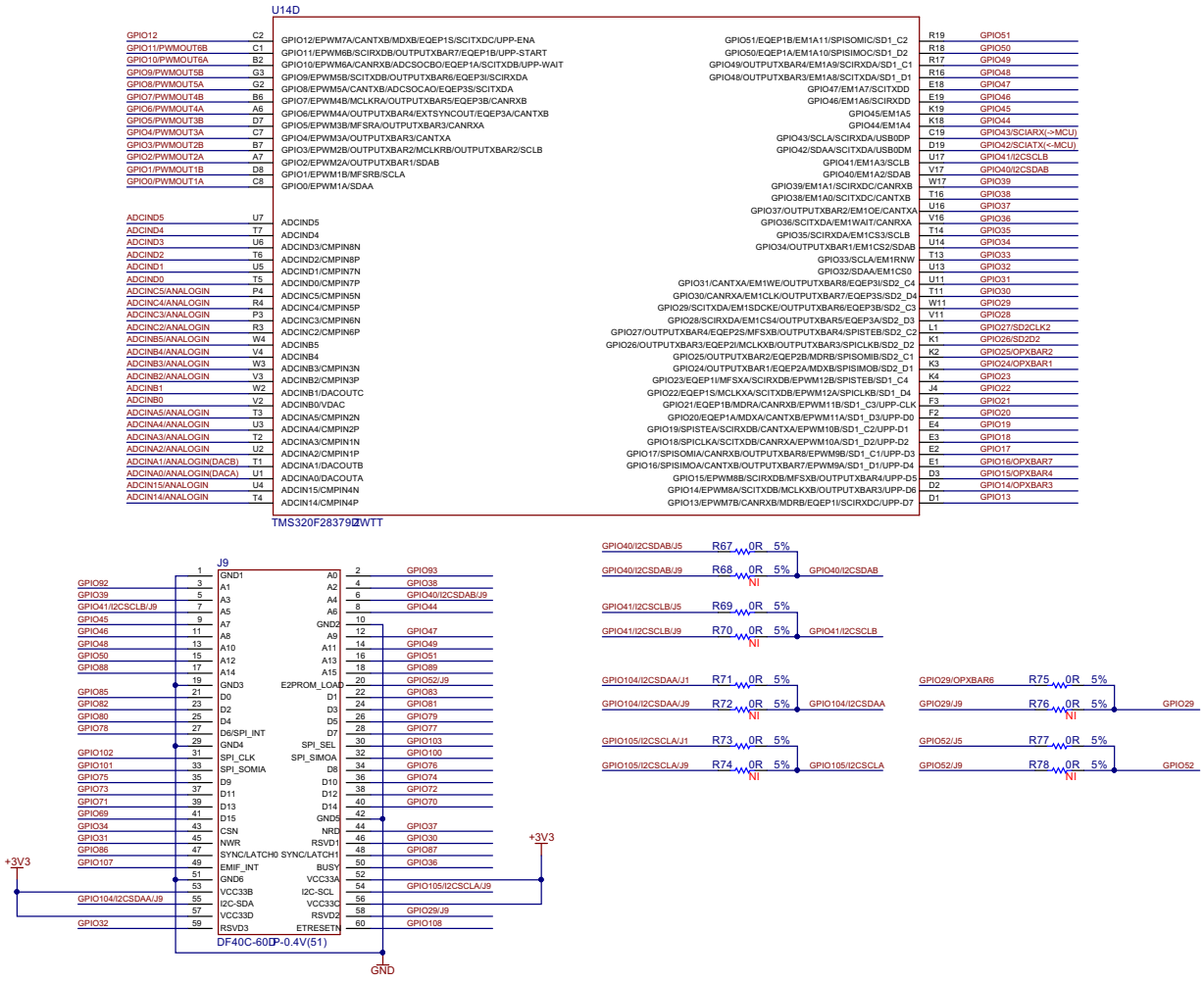
Copyright © 2017, Texas Instruments Incorporated

Figure 8. P07_F28379D-PWR

Copyright © 2016–2019, Texas Instruments Incorporated

Figure 9. P08_F28379D-IO1

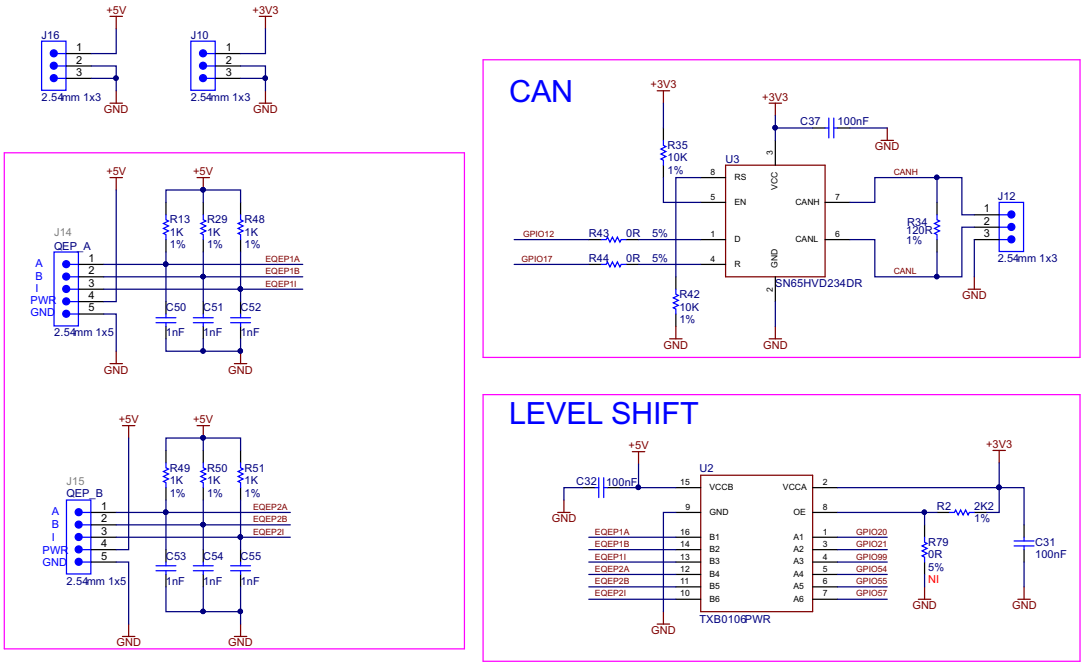
Copyright © 2016–2019, Texas Instruments Incorporated



Copyright © 2017, Texas Instruments Incorporated

Figure 10. P09_F28379_IO2

Copyright © 2016–2019, Texas Instruments Incorporated



Copyright © 2017, Texas Instruments Incorporated

Figure 11. P10_EX-Headers

Copyright © 2016–2019, Texas Instruments Incorporated

6.3 PCB Layout

Figure 12 through Figure 21 show the LAUNCHXL-F28379D Rev 2.0 PCB layout. The gerber files and PCB layout for both LAUNCHXL-F28379D Revision 2.0 and Revision 1.1 can be found in C2000Ware.

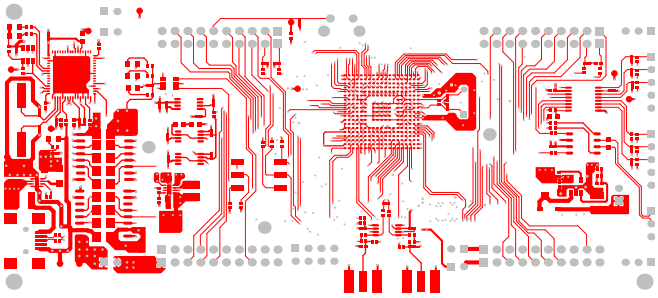


Figure 12. Top

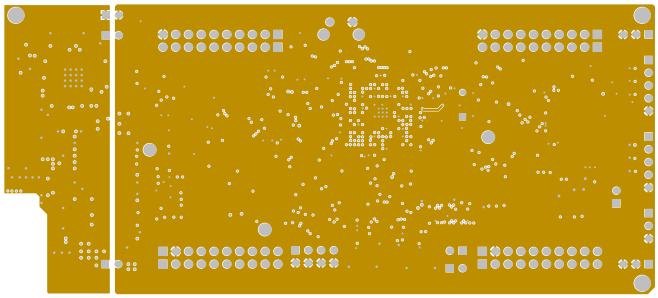


Figure 13. GND

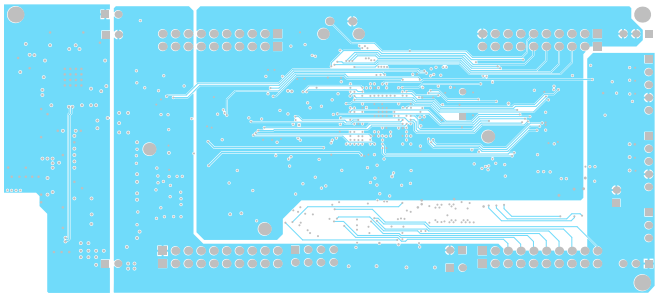


Figure 14. Route1

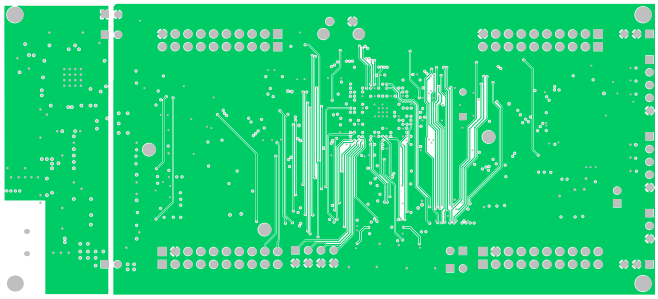


Figure 15. Route2

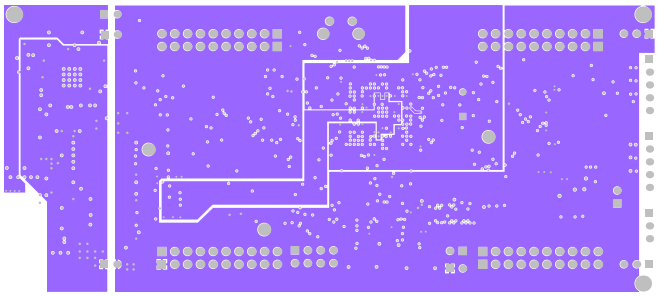


Figure 16. VDD

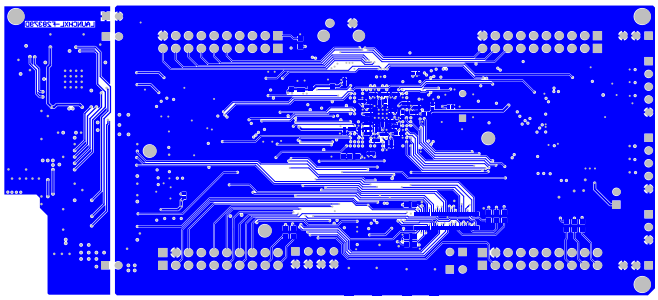


Figure 17. Bottom

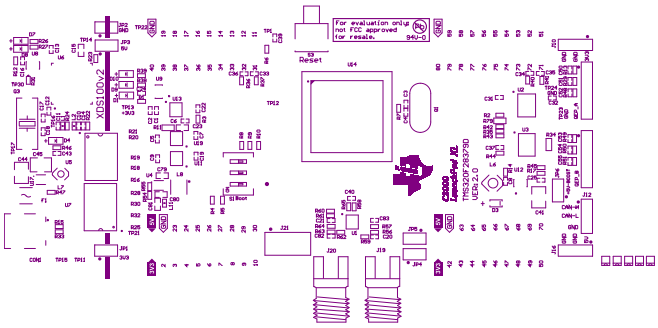


Figure 18. Top Silkscreen Overlay

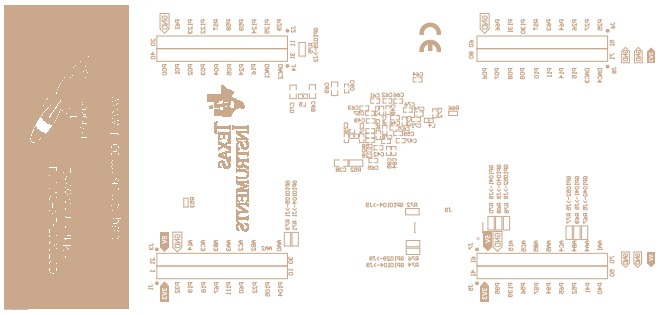


Figure 19. Bottom Silkscreen Overlay

Copyright © 2016–2019, Texas Instruments Incorporated

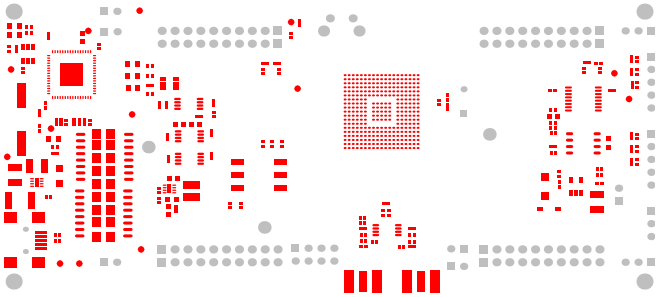


Figure 20. Top Pad Master

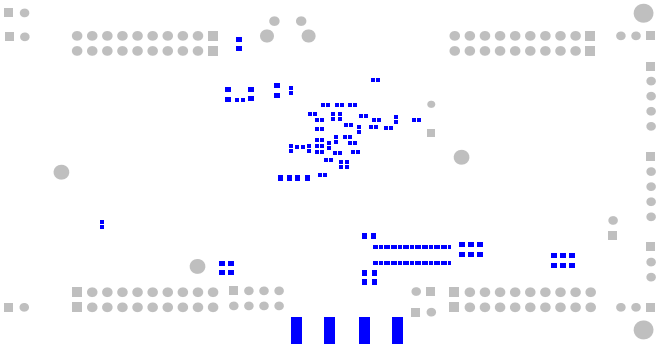


Figure 21. Bottom Pad Master

Copyright © 2016–2019, Texas Instruments Incorporated

6.4 Bill of Materials (BOM)

Table 9 lists the LAUNCHXL-F28379D bill of materials.

Table 9. LAUNCHXL-F28379D Bill of Materials

Item #	Note	Part Number	Qty	REF Desig nator	Manufacturer (Digi-Key)	Description	ROHS (Digi-Key)	Lead Free Status	Reach Status (Digi-Key)	Reach Effective Date (Digi-Key)	Availability	Description (Digi-Key)	Manufacturer Part Number Digi-Key)	Digi-Key Part Number (Digi-Key)
1	PCB	LAUNCHXL-F28379D PCB rev2.0	1	PCB		6 layers,red soldermask,wihte silkscreen,130*59mm, ENIG,Launchxl-F28379D Rev2.0 pcb								
2	MCU	TMS320F28379DZWTT	1	U14	Texas Instruments	IC, MCU 32BIT 1024KB,TMS320F28379DZWTT, BGA-337,SMD,customer supply	YES	Lead Free	Reach Not Affected	Jun-2016	Non-Stock	IC MCU 32BIT 1MB FLASH 337NFBGA	TMS320F28379DZWTT	TMS320F28379DZWTT-ND
3	Memory	93LC56BT-I/OT	1	U8	Microchip Technology	IC,EEPROM Serial-Microwire 2K-Bit 128 x 16 2MHz,93LC56BT-I/OT,SOT-23-6,SMD	YES	Lead Free	Reach Not Affected	Jan-2017	Active	IC EEPROM 2KBIT 2MHZ SOT23-6	93LC56BT-I/OT	93LC56BT-I/OTCT-ND
4	Power Management	REF5030IDGKT	1	U13	Texas Instruments	IC ?V-Ref Precision 3V 10mA 8-Pin VSSOP T/R	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC VREF SERIES 3V 8VSSOP	REF5030IDGKT	296-24501-1-ND
5	DC-DC	LMR62421XMFE/NOPB	1	U12	Texas Instruments	Conv DC-DC Single Step Up 2.7V to 5.5V 5-Pin SOT-23 T/R ,CUSTOMER SUPPLY	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC REG BST SEPIC ADJ 2.1A SOT23	LMR62421XMFE/NOPB	LMR62421XMFE/NOPBCT-ND
6	DC-DC	TPS62080ADSGT	1	U4	Texas Instruments	IC REG BUCK SYNC ADJ 1.2A 8WSON	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC REG BUCK ADJ 1.2A SYNC 8WSON	TPS62080ADSGT	296-30360-1-ND
7	DC-DC	TPS62162DSGT	1	U17	Texas Instruments	IC REG BUCK SYNC 3.3V 1A 8WSON	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC REG BUCK 3.3V 1A SYNC 8WSON	TPS62162DSGT	296-29897-1-ND
8	Amplifier	THS4531IDGKR	1	U1	Texas Instruments	IC OPAMP DIFF 27MHZ RRO 8VSSOP TR	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC OPAMP DIFF 27MHZ RRO 8VSSOP	THS4531IDGKR	296-30342-1-ND
9	Amplifier	OPA350EA/250	2	U11,U19	Texas Instruments	IC OPAMP GP 38MHZ RRO 8VSSOP T/R	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC OPAMP GP 38MHZ RRO 8VSSOP	OPA350EA/250	OPA350EACT-ND
10	Logic	TXB0106PWR	1	U2	Texas Instruments	IC, 6-bit bidirectional voltage-level translator with auto-direction sensing and ±15-kV ESD protection, TXB0106PWR, TSSOP-16, SMD,Cusomer Supply	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC 6BIT NON-INV TRANSLTR 16TSSOP	TXB0106PWR	296-23759-1-ND
11	Logic	SN74LVC2G07DBVR	1	U9	Texas Instruments	Buffer/Driver 2-CH Non-Inverting Open Drain CMOS 6-Pin SOT-23 T/R,CUSTOMER SUPPLY	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC BUFF/DVR DL NON-INV SOT23-6	SN74LVC2G07DBVR	296-13494-1-ND

Copyright © 2016–2019, Texas Instruments Incorporated

Table 9. LAUNCHXL-F28379D Bill of Materials (continued)

Item #	Note	Part Number	Qty	REF Designator	Manufacturer (Digi-Key)	Description	ROHS (Digi-Key)	Lead Free Status	Reach Status (Digi-Key)	Reach Effective Date (Digi-Key)	Availability	Description (Digi-Key)	Manufacturer Part Number Digi-Key)	Digi-Key Part Number (Digi-Key)
12	Interface	FT2232HQ-REEL	1	U6	FTDI, Future Technology Devices International Ltd	IC,Dual High Speed USB to Multipurpose UART/FIFO IC,FT2232HQ-REEL,QFN-64,SMD	YES	Lead Free	Reach Not Affected	Jan-2017	Active	IC USB HS DUAL UART/FIFO 64-QFN	FT2232HQ-REEL	768-1025-1-ND
13	Interface	SN65HVD234DR	1	U3	Texas Instruments	IC CAN transceiver 3.3V 8-SOIC	YES	Lead Free	Reach Not Affected	Jun-2016	Active	IC CAN TRANSCEIVER 3.3V 8-SOIC	SN65HVD234DR	296-27991-1-ND
14	Isolator	ISO7231CDWR	1	U7	Texas Instruments	IC DGTL ISO 3CH CMOS 16SOIC,CUSTOMER SUPPLY	YES	Lead Free	Reach Not Affected	Jun-2016	Active	DGTL ISO 2.5KV GEN PURP 16SOIC	ISO7231CDWR	296-38966-1-ND
15	Isolator	ISO7240CDWR	1	U5	Texas Instruments	IC DGTL ISO 4CH CMOS 16SOIC,CUSTOMER SUPPLY	YES	Lead Free	Reach Not Affected	Jun-2016	Active	DGTL ISO 2.5KV GEN PURP 16SOIC	ISO7240CDWR	296-38555-1-ND
16	Thick film Resistor	RC0402JR-070RL	4	R15, R33, R43, R44	Yageo	RES,0R,±5%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Dec-2015	Active	RES SMD 0.0Ω JUMPER 1/16W 0402	RC0402JR-070RL	311-0.0JRCT-ND
17	Thick film Resistor	RC0402FR-0749R9L	2	R59, R62	Yageo	RES,49R9,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 49.9 Ω 1% 1/16W 0402	RC0402FR-0749R9L	311-49.9LRCT-ND
18	Thick film Resistor	RC0402FR-071KL	13	R3,R13, R22, R23, R29, R36, R37, R40, R41, R48, R49, R50, R51	Yageo	RES,1K,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 1K Ω 1% 1/16W 0402	RC0402FR-071KL	311-1.00KLRCT-ND
19	Thick film Resistor	RC0402FR-072KL	4	R56, R57, R63, R64	Yageo	RES,2K,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 2K Ω 1% 1/16W 0402	RC0402FR-072KL	311-2KLRCT-ND
20	Thick film Resistor	RC0402FR-072K2L	6	R2, R6, R8, R9, R10, R31	Yageo	RES,2K2,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 2.2K Ω 1% 1/16W 0402	RC0402FR-072K2L	311-2.20KLRCT-ND
21	Thick film Resistor	RC0402FR-0710KL	7	R12, R14, R35, R42, R45,R60, R61	Yageo	RES,10K,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 10K Ω 1% 1/16W 0402	RC0402FR-0710KL	311-10.0KLRCT-ND
22	Thick film Resistor	RC0402FR-0712KL	1	R24	Yageo	RES,12K,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 12K Ω 1% 1/16W 0402	RC0402FR-0712KL	311-12.0KLRCT-ND
23	Thick film Resistor	RC0402FR-0730K1L	1	R17	Yageo	RES,30K1,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 30.1K Ω 1% 1/16W 0402	RC0402FR-0730K1L	311-30.1KLRCT-ND
24	Thick film Resistor	RC0402FR-0739K2L	1	R55	Yageo	RES,39K2,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 39.2K Ω 1% 1/16W 0402	RC0402FR-0739K2L	311-39.2KLRCT-ND
25	Thick film Resistor	RC0402FR-07100KL	1	R47	Yageo	RES,100K,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 100K Ω 1% 1/16W 0402	RC0402FR-07100KL	311-100KLRCT-ND

Copyright © 2016–2019, Texas Instruments Incorporated

Table 9. LAUNCHXL-F28379D Bill of Materials (continued)

Item #	Note	Part Number	Qty	REF Designator	Manufacturer (Digi-Key)	Description	ROHS (Digi-Key)	Lead Free Status	Reach Status (Digi-Key)	Reach Effective Date (Digi-Key)	Availability	Description (Digi-Key)	Manufacturer Part Number Digi-Key)	Digi-Key Part Number (Digi-Key)
26	Thick film Resistor	RC0402FR-071ML	1	R7	Yageo	RES,1M,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 1M Ω 1% 1/16W 0402	RC0402FR-071ML	311-1.00MLRCT-ND
27	Thick film Resistor	RC0603JR-070RL	6	R67,R69, R71,R73, R75,R77	Yageo	RES,0R,±5%,1/10W, SMD0603	YES	Lead Free	Reach Not Affected	Dec-2015	Active	RES SMD 0.0Ω JUMPER 1/10W 0603	RC0603JR-070RL	311-0.0GRCT-ND
28	Thick film Resistor	RL0603FR-070R1L	2	R11,R52	Yageo	RES,0R1,±1%,1/10W, SMD0603	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 0.1 Ω 1% 1/10W 0603	RL0603FR-070R1L	311-.10QCT-ND
29	Thick film Resistor	RC0603FR-07120RL	1	R34	Yageo	RES,120R,±1%,1/10W, SMD0603	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 120 Ω 1% 1/10W 0603	RC0603FR-07120RL	311-120HRCT-ND
30	Thick film Resistor	RC0402FR-07820RL	2	R4, R5	Yageo	RES,820R,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 820 Ω 1% 1/16W 0402	RC0402FR-07820RL	311-820LRCT-ND
31	Thick film Resistor	RC0402FR-07680RL	6	R1,R26,R27,R38,R39, R46	Yageo	RES,680R,±1%,1/16W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 680 Ω 1% 1/16W 0402	RC0402FR-07680RL	311-680LRCT-ND
32	Thick film Resistor	ERJ-2RKF1783X	1	R53	Panasonic Electronic Components	RES, 178K Ω, 1%, 1/10W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 178K Ω 1% 1/10W 0402	ERJ-2RKF1783X	P178KLCT-ND
33	Thick film Resistor	ERJ-2RKF6492X	1	R54	Panasonic Electronic Components	RES, 64.9K Ω, 1%, 1/10W, SMD0402	YES	Lead Free	Reach Not Affected	Jan-2017	Active	RES SMD 64.9K Ω 1% 1/10W 0402	ERJ-2RKF6492X	P64.9KLCT-ND
34	Thick film Resistor	CRCW040212R0JNED	2	R58, R65	Vishay Dale	RES SMD 12 Ω 5% 1/16W 0402 TR	YES	Lead Free	Reach Not Affected	Dec-2015	Active	RES SMD 12 Ω 5% 1/16W 0402	CRCW040212R0JNED	541-12JCT-ND
35	Ceramic Capacitor	GRM1555C1H101JA01D	2	C20, C82	Murata Electronics North America	CAP,100PF,±5%,C0G, 50V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 100PF 50V C0G/NP0 0402	GRM1555C1H101JA01D	490-5922-1-ND
36	Ceramic Capacitor	GRM1555C1H181JA01D	1	C40	Murata Electronics North America	CAP,180PF,±5%,C0G, 50V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 180PF 50V C0G/NP0 0402	GRM1555C1H181JA01D	490-3231-1-ND
37	Ceramic Capacitor	GRM1555C1H821JA01D	1	C25	Murata Electronics North America	CAP,820PF,±5%,C0G, 50V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 820PF 50V C0G/NP0 0402	GRM1555C1H821JA01D	490-3242-1-ND
38	Ceramic Capacitor	GRM155R71H102KA01D	6	C50, C51, C52, C53, C54, C55	Murata Electronics North America	CAP,1NF,±10%,X7R, 50V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 1000PF 50V X7R 0402	GRM155R71H102KA01D	490-1303-1-ND
39	Ceramic Capacitor	GRM155R61A224KE19D	1	C83	Murata Electronics North America	CAP,220NF,±10%,X5R, 10V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 0.22UF 10V X5R 0402	GRM155R61A224KE19D	490-3910-1-ND
40	Ceramic Capacitor	GRM155R60J105KE19D	5	C6, C7, C19, C21,C22	Murata Electronics North America	CAP,1UF,±10%,X5R,6.3V,SMD0402 ?suffix J stand for 330mm reel ?	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 1UF 6.3V X5R 0402	GRM155R60J105KE19D	490-1320-1-ND

Copyright © 2016–2019, Texas Instruments Incorporated

Table 9. LAUNCHXL-F28379D Bill of Materials (continued)

Item #	Note	Part Number	Qty	REF Designator	Manufacturer (Digi-Key)	Description	ROHS (Digi-Key)	Lead Free Status	Reach Status (Digi-Key)	Reach Effective Date (Digi-Key)	Availability	Description (Digi-Key)	Manufacturer Part Number Digi-Key)	Digi-Key Part Number (Digi-Key)
41	Ceramic Capacitor	GRM155R60J225ME15D	14	C2, C27, C29, C42, C46, C47, C48, C49, C71, C72, C75, C76, C77, C78	Murata Electronics North America	CAP,2.2UF,±20%,X5R, 6.3V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 2.2µF 6.3V X5R 0402	GRM155R60J225ME15D	490-4519-1-ND
42	Ceramic Capacitor	GRM188R60J106ME47D	5	C68, C69, C70, C79, C81	Murata Electronics North America	CAP,10UF,±20%,X5R, 6.3V,SMD0603	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 10µF 6.3V X5R 0603	GRM188R60J106ME47D	490-3896-1-ND
43	Ceramic Capacitor	GRM188R60J226MEA0D	3	C23,C38, C80	Murata Electronics North America	CAP,22UF,±20%,X5R, 6.3V,SMD0603	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 22µF 6.3V X5R 0603	GRM188R60J226MEA0D	490-7611-1-ND
44	Ceramic Capacitor	GRM32DR71E106KA12L	2	C41, C44	Murata Electronics North America	CAP,10UF,±10%,X7R, 25V,SMD1210	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 10µF 25V X7R 1210	GRM32DR71E106KA12L	490-1867-1-ND
45	Ceramic Capacitor	GRM155R61A104KA01D	35	C1, C5, C9, C12, C13, C14, C16, C24, C28, C30, C31, C32, C33, C34, C35, C36, C37, C39, C43, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C73, C74,C84, C85	Murata Electronics North America	CAP,100NF(0.1uf),±10% ,X5R,10V,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 0.1µF 10V X5R 0402	GRM155R61A104KA01D	490-1318-1-ND
46	Ceramic Capacitor	GRM32ER61E226KE15L	1	C45	Murata Electronics North America	CAP,22UF,±10%,X5R, 25V,SMD1210	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 22µF 25V X5R 1210	GRM32ER61E226KE15L	490-3889-1-ND
47	Ceramic Capacitor	GRM155R60J475ME47D	3	C8, C10, C11	Murata Electronics North America	CAP,4.7UF,±20%,X5R, 6.3V,SMD0402 fix PN add D?20151023?	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 4.7µF 6.3V X5R 0402	GRM155R60J475ME47D	490-5915-1-ND
48	Ceramic Capacitor	GRM188R61A335KE15D	1	C15	Murata Electronics North America	CAP,3.3uF,±10%,X5R, 10V,SMD0603	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 3.3µF 10V X5R 0603	GRM188R61A335KE15D	490-6411-1-ND
49	Ceramic Capacitor	GRM1555C1H360JA01D	4	C3,C4,C17,C18	Murata Electronics North America	CAP,36pF,±5%,C0G,50V ,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	CAP CER 36PF 50V C0G/NP0 0402	GRM1555C1H360JA01D	490-5937-1-ND
50	Inductor	LQH3NPN1R0NJ0L	1	L8	Murata Electronics North America	FIXED IND 1µH 1.62A 40 MΩ SMD,±30%	YES	Lead Free	Reach Not Affected	Jun-2016	Active	FIXED IND 1µH 1.62A 40 MΩ SMD	LQH3NPN1R0NJ0L	490-5342-1-ND
51	Inductor	CDRH2D18/HPNP-2R2NC	1	L7	Sumida America Components Inc.	Power inductor,magnetic shielded,2.2µH,1.6A,0.06 Ω,3.0X3.0X1.8mm,SMD	YES	Lead Free	Reach Not Affected	Jun-2016	Active	FIXED IND 2.2µH 1.9A 60 MΩ SMD	CDRH2D18/HPNP-2R2NC	308-2295-2-ND

Copyright © 2016–2019, Texas Instruments Incorporated

Table 9. LAUNCHXL-F28379D Bill of Materials (continued)

Item #	Note	Part Number	Qty	REF Designator	Manufacturer (Digi-Key)	Description	ROHS (Digi-Key)	Lead Free Status	Reach Status (Digi-Key)	Reach Effective Date (Digi-Key)	Availability	Description (Digi-Key)	Manufacturer Part Number Digi-Key)	Digi-Key Part Number (Digi-Key)
52	Inductor	CDRH3D16/HPNP-3R3NC	1	L6	Sumida America Components Inc.	Power Inductor,Magnetic shielded,3.3µH,1.4A,0.085Ω,3.8X3.8X1.6mm,SMD	YES	Lead Free	Reach Not Affected	Jun-2016	Non-Stock	FIXED IND 3.3µH 1.8A 85 MΩ SMD	CDRH3D16/HPNP-3R3NC	308-1981-1-ND
53	Ferrite Bead	BLM15AG601SN1D	2	L1, L2	Murata Electronics North America	Ferrite Bead,600Ω@100MHz,±25%,300mA,0.6Ω,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	FERRITE BEAD 600 Ω 0402 1LN	BLM15AG601SN1D	490-1006-1-ND
54	Ferrite Bead	BLM15PD600SN1D	2	L3, L4	Murata Electronics North America	Ferrite Bead,60Ω@100MHz,±25%,1700mA,0.06Ω,SMD0402	YES	Lead Free	Reach Not Affected	Jun-2016	Active	FERRITE BEAD 60 Ω 0402 1LN	BLM15PD600SN1D	490-5201-1-ND
55	Ferrite Bead	BKP1005EM221-T	2	L5, L11	Taiyo Yuden	FERRITE BEAD 220 Ω 0402,±25%	YES	Lead Free	Reach Not Affected	Jun-2016	Active	FERRITE BEAD 220 Ω 0402 1LN	BKP1005EM221-T	587-3290-1-ND
56	LED	150080VS75000	2	D1, D4	Wurth Electronics Inc.	LED, Bright GREEN , 570nm,20mA,SMD,0805	YES	Lead Free	Reach Not Affected	Jan-2017	Active	LED GREEN CLEAR 0805 SMD	150080VS75000	732-4986-1-ND
57	LED	150080BS75000	2	D7, D10	Wurth Electronics Inc.	LED, BLUE ,470NM, 20mA,SMD,0805	YES	Lead Free	Reach Not Affected	Jan-2017	Active	LED BLUE CLEAR 0805 SMD	150080BS75000	732-4982-1-ND
58	LED	150080SS75000	2	D8, D9	Wurth Electronics Inc.	LED, SUPPER RED ,630NM,20mA, SMD,0805	YES	Lead Free	Reach Not Affected	Jan-2017	Active	LED RED CLEAR 0805 SMD	150080SS75000	732-4985-1-ND
59	Diode	1N5819HW-7-F	1	D3	Diodes Incorporated	Diode,Schottky Diode,1N5819HW-7-F,40V,1A,SOD-123,SMD,-65~125,TR	YES	Lead Free	Reach Not Affected	Jan-2017	Active	DIODE SCHOTTKY 40V 1A SOD123	1N5819HW-7-F	1N5819HW-FDICT-ND
60	Polyswitch	MF-MSMF050-2	1	F1	Bourns Inc.	PTC RESETTABLE .50A 15V 1812	YES	Lead Free	Reach Not Affected	Jan-2017	Active	PTC RESETTABLE .50A 15V 1812	MF-MSMF050-2	MF-MSMF050-2CT-ND
61	Crystal	ABLS2-12.000MHZ-D4Y-T	1	Q3	Abracon LLC	Crystal 12MHz ±30ppm (Tol) ±30ppm (Stability) 18pF FUND 50Ω 2-Pin HC-49/US SMD T/R	YES	Lead Free	REACH AFFECTED	Jan-2017	Active	CRYSTAL 12.0000MHZ 18PF SMD	ABLS2-12.000MHZ-D4Y-T	535-9869-1-ND
62	Crystal	ATS100B-E	1	Q1	CTS-Frequency Controls	Crystal 10.0000MHz 30ppm 18pF 60 Ω -40°C - 85°C Through Hole HC49/US	YES	Lead Free	Reach Not Affected	Jan-2017	Active	CRYSTAL 10.0000MHZ 18PF T/H	ATS100B-E	CTX919-ND
63	Pin Header	P6E02A-602530-B1	6	JP1, JP2, JP3, JP4, JP5, JP6		Connector,Pin Header,Straight,Male,1x2Pin,2.54MM pitch,6.00,3.00,Gold Flash 1u, black,DIP,alt_code:15071705								
64	Pin Header	P6E03A-602530-B1	3	J10,J12,J16		Connector,Pin Header,Straight,Male,1x3Pin,2.54MM pitch,6.00,3.00,Gold Flash 1u, black,DIP,alt_code:15071706								

Copyright © 2016–2019, Texas Instruments Incorporated

Table 9. LAUNCHXL-F28379D Bill of Materials (continued)

Item #	Note	Part Number	Qty	REF Designator	Manufacturer (Digi-Key)	Description	ROHS (Digi-Key)	Lead Free Status	Reach Status (Digi-Key)	Reach Effective Date (Digi-Key)	Availability	Description (Digi-Key)	Manufacturer Part Number Digi-Key)	Digi-Key Part Number (Digi-Key)
65	Pin Header	P101-1*05SGF-116A-NX	2	QEP_A, QEP_B		Connector,Pin Header,Straight,Male,1x5Pin,2.54MM pitch,6.06,3.00,Gold Flash 1u, black,DIP								
66	Pin Header	P101-2*04SGF-116A-NX	1	J21		Connector,Pin Header,Straight,Male,2x4Pin,2.54MM pitch,6.06,3.00,Gold Flash 1u, black,DIP								
67	Pin Socket	CRD-081413-A-G	4	(J1,J3),(J2?J4),(J5?J7),(J6?J8)		Connector,Pin Socket,Straight,Female,2x10Pin,2.54MM pitch,8.51,9.91,Gold Flash 10u, black,DIP upgrade MPN. old part->CRD-081413-G-A								
68	USB Connector	897-43-005-00-100001	1	CON1	Mill-Max Manufacturing Corp.	Connector,MiniUSB B port,5 position,Right Angle,Gold flash 30u,black,SMD	YES	Lead Free	Reach Not Affected	Jan-2017	Active	CONN RECEPT MINI-USB TYPE B SMT	897-43-005-00-100001	ED90341CT-ND
69	BTB Connector	DF40C-60DP-0.4V(51)	1	J9	Hirose Electric Co Ltd	CONN HDR 60POS 0.4MM SMD GOLD TR	YES	Lead Free	Reach Not Affected	Dec-2015	Active	CONN HDR 60POS 0.4MM SMD GOLD	DF40C-60DP-0.4V(51)	H11628CT-ND
70	Shunt	MJ501-EOGF-B-K	5	JP1,JP2,JP3,JP4,JP5		Connector,Shunt,open type 2Pin,2.54MM Pitch,6MM Height,Gold Flash 1u,black,Bulk								
71	Tactile Switch	B3F-3152	1	S3	Omron Electronics Inc-EMC Div	SWITCH TACTILE SPST-NO 0.05A 24V	YES	Lead Free	Reach Not Affected	Dec-2015	Active	SWITCH TACTILE SPST-NO 0.05A 24V	B3F-3152	SW410-ND
72	DIP Switch	219-3MST	1	S1	CTS Electrocomponents	Switch, DIP Switches,3 Position,2.54MM Pitch,black housing,white plunger,SMD	YES	Lead Free	Reach Not Affected	Jun-2016	Active	SWITCH SLIDE DIP SPST 100MA 20V	219-3MST	CT2193MST-ND

Copyright © 2016–2019, Texas Instruments Incorporated

7 References

The following documents describe the C2000 devices. Copies of these documents are available on the Internet at http://www.ti.com/c2000 and www.ti.com/c2000-launchpad, or click on the links below:

1. *TMS320F2837xD Dual-Core Delfino™ Microcontrollers Data Manual* (SPRS880)
2. *TMS320F28379D, TMS320F28377D, TMS320F28376D, TMS320F28375D, TMS320F28374D Delfino Microcontrollers Silicon Errata* (SPRZ412)
3. *TMS320F2837xD Dual-Core Delfino Microcontrollers Technical Reference Guide* (SPRUHM8)
4. *TMS320C28x Extended Instruction Sets Technical Reference Manual* (SPRUHS1)
5. *TMS320C28x Instruction Set Simulator Technical Overview* (SPRU608)
6. *TMS320C28x Optimizing C/C++ Compiler v6.1 User's Guide* (SPRU514)
7. *TMS320C28x Assembly Language Tools v6.1 User's Guide* (SPRU513)

Copyright © 2016–2019, Texas Instruments Incorporated

8 Frequently Asked Questions (FAQ)

1. Can other programming and debug tools (such as an XDS510 debug probe) be used with the C2000 LaunchPad?

   While a user could potentially connect an external debug probe to the F28379D device present on the LaunchPad, it would require some rework of the board. It is recommended that users who want to use an external debug probe, purchase a controlCard and docking station that includes an external JTAG connector.

2. What versions of Code Composer Studio can be used to develop software for the C2000 LaunchPad?

   It is highly recommend that novice users develop applications with at least Code Composer Studio v6. The drivers, examples, and other associated software are tailored to make the user experience as smooth as possible in Code Composer Studio v6.

3. Why can't I connect to the LaunchPad in Code Composer Studio?

   There are a number of things that could cause this and they all have an easy fix.

   - Is S1 switch 3 in the down position?

     This is the TRST pin that enables and disables JTAG functionality on the chip. This switch must be in the up position for the debug probe to be able to connect.

   - Are both power LEDs lit?

     The board has two power domains because of the isolated JTAG interface. For low-voltage application development, JTAG isolation is not needed and the power domains can be combined to allow for convenience (that is, the board can be powered completely through the USB). Ensure that jumpers are placed on the posts of JP1 and JP2.

   - Are drivers correctly installed for the XDS100v2 present on the LaunchPad?

     Right click on *My Computer* and select properties. Navigate to the *Hardware* tab in the dialog box and open the device manager. Scroll to the bottom of the list and expand the *USB Serial Bus controllers* item. Are there two entries for *TI XDS100 Channel A/B*? If not, try unplugging and replugging in the board. Does Windows give you any messages in the system tray? In Device Manger, do either of the entries have a yellow exclamation mark over their icon? If so, try reinstalling the drivers.

4. Why is the serial connection not working?

   - Are you using the correct COM port?

     Right click on *My Computer* and select properties. Navigate to the *Hardware* tab in the dialog box and open the device manager. Scroll to *Ports (COM & LPT)* and expand this entry. Is there a USB Serial Port listed? If so, read the COM number to the right of the entry; this is the COM number you should be using.

   - Are you using the correct baud rate?

     Most, if not all, of the examples are configured for a baud rate of 115200 when the CPU is running at 200 MHz. If you have changed the PLL settings or written your own application you may have to recalculate the baud rate for your specific application. For information on how to do this, see the *TMS320F2837xD Delfino Microcontrollers Technical Reference Guide*.

5. Why is my program operating at half the frequency of what I expected?

   - By default many of the C2000Ware examples are configured to operate on the TMDSCNCD28379D which has a different clocking circuit, where the external clock is 20 MHz instead of 10 MHz as found on this EVM.
   - A compiler switch was added to various functions to allow a user to change the clocking configuration based on the status of a predefined symbol.
   - To ensure the PLL is correctly configured for the LAUNCHXL-F28379D, Add "_LAUNCHXL_F28379D" to the predefined symbols list.
   - Access the Predefined symbols list by accessing the Project Properties, Navigating to Build » C2000 Compiler » Advanced Options » Predefined Symbols. Figure 22 shows the Project Properties selection tree and the symbol added to the pre-define list.

Copyright © 2016–2019, Texas Instruments Incorporated

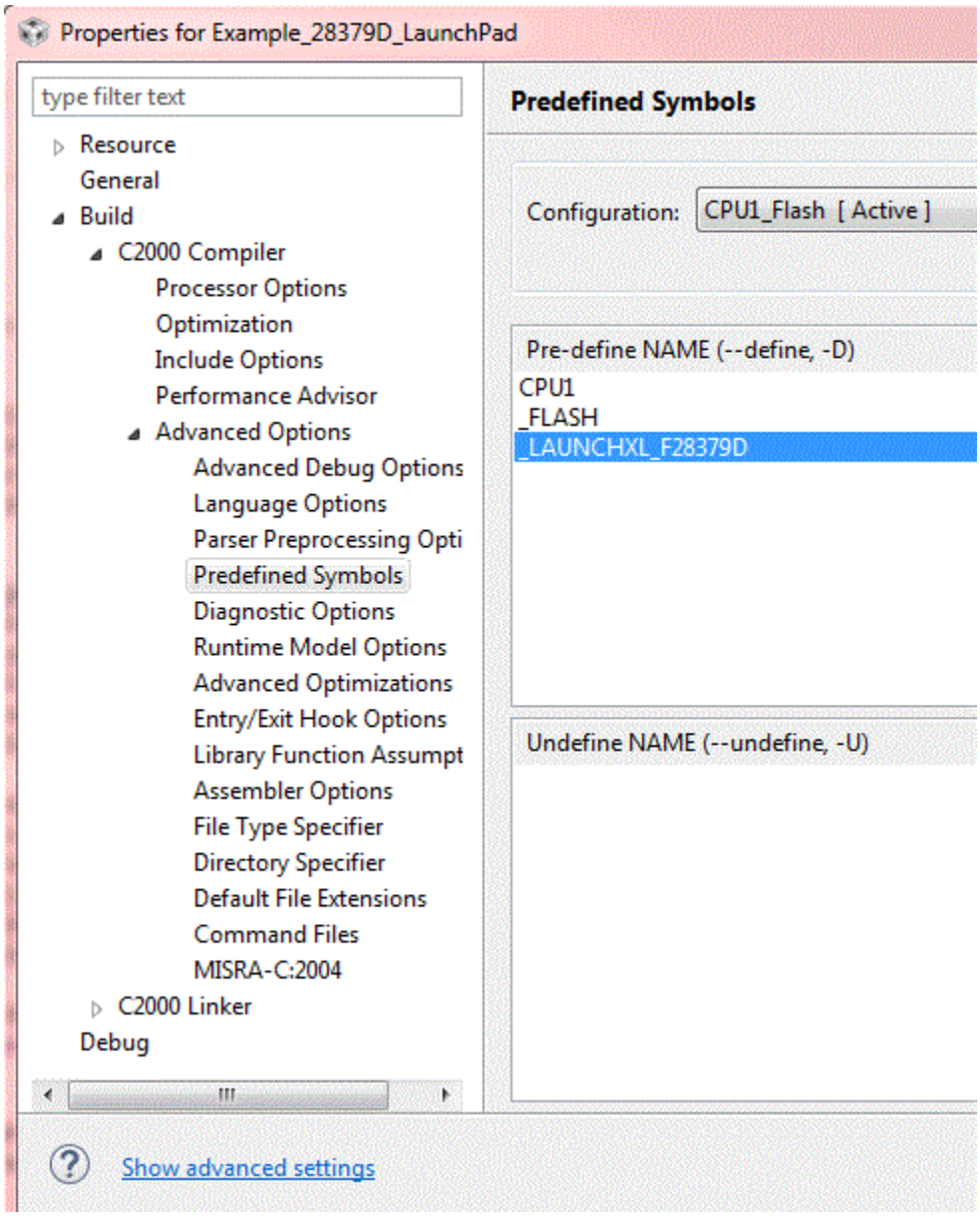


Figure 22.

Copyright © 2016–2019, Texas Instruments Incorporated

Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from B Revision (June 2018) to C Revision **Page**

- Global Replacement of "emulator" with "debug probe". 1
- Added list of known issues for all revisions of the EVM to Section 2.1. 3
- Added note about lack of Boot-to-SCI options on this board in Section 2.1. 3
- Added Section 4.4. 5
- Added an FAQ in Section 8 for code executing at half of the expected frequency. 27

Copyright © 2016–2019, Texas Instruments Incorporated

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2019, Texas Instruments Incorporated