



TMS320C5515 eZdsp™
USB Stick

*Technical
Reference*

**TMS320C5515 eZdsp™
USB Stick
Technical Reference**

512845-0001 Rev A
February 2010

**SPECTRUM DIGITAL, INC.
12502 EXCHANGE DRIVE, #440 STAFFORD, TX. 77477
Tel: 281.494.4500 FAX: 281.494.5310
sales@spectrumdigital.com www.spectrumdigital.com**

IMPORTANT NOTICE

Spectrum Digital, Inc. reserves the right to make changes to its products or to discontinue any product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

Spectrum Digital, Inc. warrants performance of its products and related software to current specifications in accordance with Spectrum Digital's standard warranty. Testing and other quality control techniques are utilized to the extent deemed necessary to support this warranty.

Please be aware that the products described herein are not intended for use in life-support appliances, devices, or systems. Spectrum Digital does not warrant nor is liable for the product described herein to be used in other than a laboratory development environment. Use in any other environment voids the warranty.

Spectrum Digital, Inc. assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein. Nor does Spectrum Digital warrant or represent any license, either express or implied, is granted under any patent right, copyright, or other intellectual property right of Spectrum Digital, Inc. covering or relating to any combination, machine, or process in which such Digital Signal Processing development products or services might be or are used.

WARNING

This equipment is intended for use in a laboratory test environment only. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment in other environments may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures may be required to correct this interference.

TRADEMARKS

Windows 2000, Windows XP, Windows Vista are registered trademarks of Microsoft Corp.

Code Composer Studio IDE is a trademark of Texas Instruments

"eZdsp" is a trademark of Spectrum Digital, Inc.

Contents

| | | |
|----------|---|------------|
| 1 | Introduction to the TMS320C5515 eZdsp USB Stick | 1-1 |
| | <i>Provides a description of the TMS320C5515 eZdsp USB Stick, and key features.</i> | |
| 1.0 | Overview of the TMS320C5515 eZdsp USB Stick | 1-2 |
| 1.1 | Key Features of the TMS320C5515 eZdsp USB Stick | 1-3 |
| 1.2 | C5515 eZdsp USB Stick Block Diagram | 1-3 |
| 1.3 | C5515 eZdsp Memory Map | 1-4 |
| 1.4 | C5515 eZdsp I ² C Addressing | 1-4 |
| 2 | Physical Description | 2-1 |
| | <i>Describes the physical layout of the TMS320C5515 eZdsp USB Stick and its connectors.</i> | |
| 2.0 | Board Layout | 2-2 |
| 2.1 | Connector Index | 2-3 |
| 2.1.1 | J1, C5515 USB Connector | 2-3 |
| 2.1.2 | J2, XDS100 USB Connector | 2-4 |
| 2.1.3 | J3, Audio In Connector | 2-4 |
| 2.1.4 | J4, Audio Out Connector | 2-5 |
| 2.1.5 | J5, LCD Interface | 2-6 |
| 2.1.6 | J6, Micro SD Connector | 2-6 |
| 2.1.7 | P1, P2, Bluetooth Board Interface | 2-7 |
| 2.1.8 | P4, Expansion Connector | 2-8 |
| 2.2 | System LEDs | 2-10 |
| 2.3 | Switches | 2-10 |
| 2.4 | Jumpers | 2-10 |
| 2.5 | Test Points | 2-11 |
| A | Schematics | A-1 |
| | <i>Contains the schematics for the TMS320C5515 eZdsp USB Stick.</i> | |
| B | Mechanical Information | B-1 |
| | <i>Contains the mechanical information about the TMS320C5515 eZdsp USB Stick.</i> | |

About This Manual

This document describes the board level operations of the TMS320C5515 eZdsp USB Stick. The Stick is based on the Texas Instruments TMS320C5515 Digital Signal Processor (DSP).

The TMS320C5515 eZdsp USB Stick is a USB based printed circuit board (PCB) that allows engineers and programmers to evaluate certain characteristics of the TMS320C5515 DSP.

Notational Conventions

This document uses the following conventions.

The TMS320C5515 eZdsp USB Stick will sometimes be referred to as the C5515 Stick, C5515 USB Stick, or C5515 eZdsp.

Program listings, program examples, and interactive displays are shown in a special italic typeface. Here is a sample program listing.

equations
!rd = !strobe&rw;

Information About Cautions

This book may contain cautions.

This is an example of a caution statement.

A caution statement describes a situation that could potentially damage your software, or hardware, or other equipment. The information in a caution is provided for your protection. Please read each caution carefully.

Related Documents

Texas Instruments Code Composer Studio IDE Users Guide
Data sheet for the TMS320C5515

Chapter 1
Introduction to the TMS320C5515
eZdsp USB Stick

This chapter provides you with an overview of the C5515 eZdsp USB Stick along with the key features.

| Topic | Page |
|--|------------|
| 1.0 Overview of the TMS320C5515 eZdsp USB Stick | 1-2 |
| 1.1 Key Features of the TMS320C5515 eZdsp USB Stick | 1-3 |
| 1.2 C5515 eZdsp USB Stick Block Diagram | 1-3 |
| 1.3 C5515 eZdsp Memory Map | 1-4 |
| 1.4 C5515 eZdsp I²C Addressing | 1-4 |

1.0 Overview of the C5515 eZdsp USB Stick

The C5515 eZdsp USB Stick is an evaluation tool for the Texas Instruments TMS320C5515 Digital Signal Processor (DSP). This USB bus powered tool allows the user to evaluate the following items:

- The TMS320C5515 processor along with its peripherals
- The TLV320AIC3204 codec
- The Code Composer Studio IDE™ software development tools

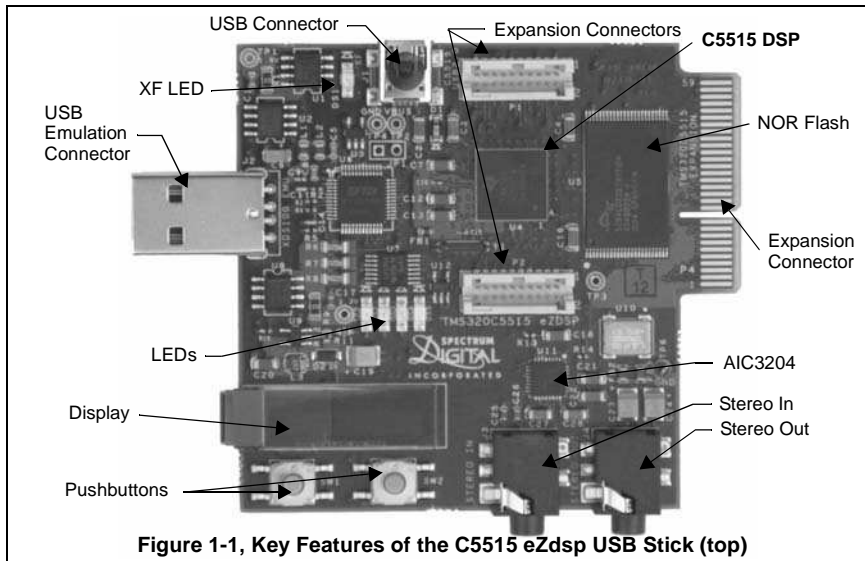


Figure 1-1, Key Features of the C5515 eZdsp USB Stick (top)

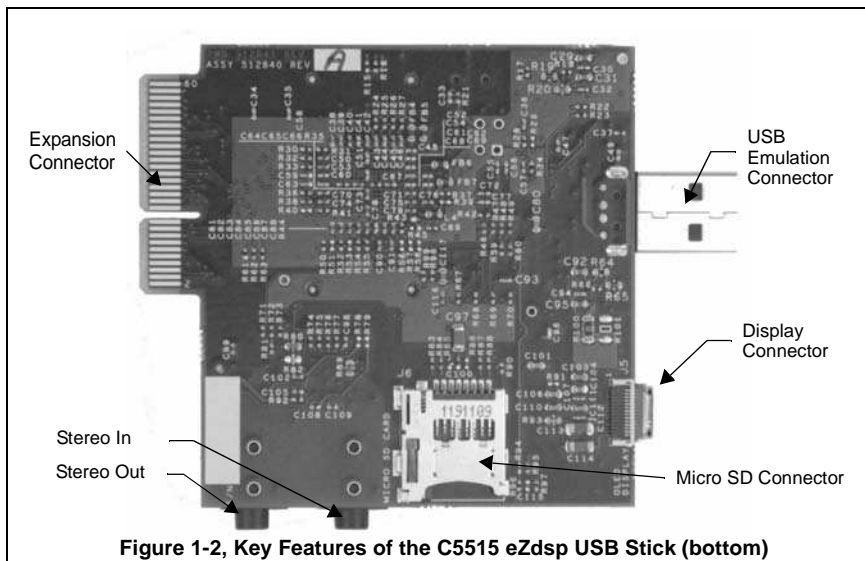


Figure 1-2, Key Features of the C5515 eZdsp USB Stick (bottom)

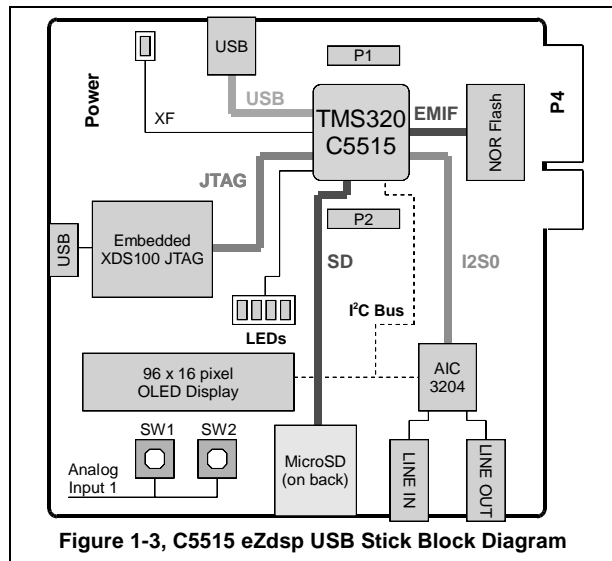
1.1 Key Features of the C5515 eZdsp USB Stick

The C5515 eZdsp USB Stick has the following features:

- Texas Instrument's TMS320C5515 Digital Signal Processor
- Texas Instruments TLV320AIC3204 Stereo Codec (stereo in, stereo out)
- Micro SD connector
- USB 2.0 interface to C5515 processor
- 32 Mb NOR flash
- I²C OLED display
- 5 user controlled LEDs
- 2 user readable push button switches
- Embedded USB XDS100 JTAG emulator
- Bluetooth board interface
- Expansion edge connector
- Power provided by USB interface
- Compatible with Texas Instruments Code Composer Studio v4
- USB extension cable

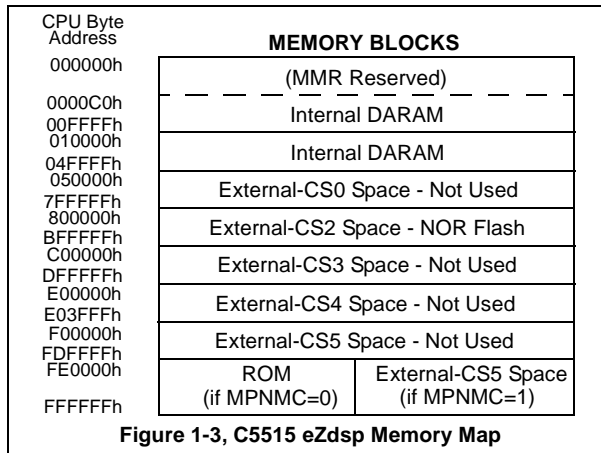
1.2 C5515 eZdsp USB Stick Block Diagram

The block diagram of the C5515 eZdsp USB Stick is shown below.



1.3 C5515 eZdsp Memory Map

The C5515 eZdsp supports on chip DARAM, and off chip NOR Flash. The addressing for each of these memory blocks is shown in the figure below.



Note: MPNMC bit in ST3 Status Register is cleared(0) at RESET so the C5515 will attempt to execute its boot load sequence.

1.4 C5515 eZdsp I²C Addressing

The C5515 eZdsp has multiple I²C devices for different purposes. The table below shows the addresses of these devices on the I²C bus.

Table 1: C5515 eZdsp I²C Addresses

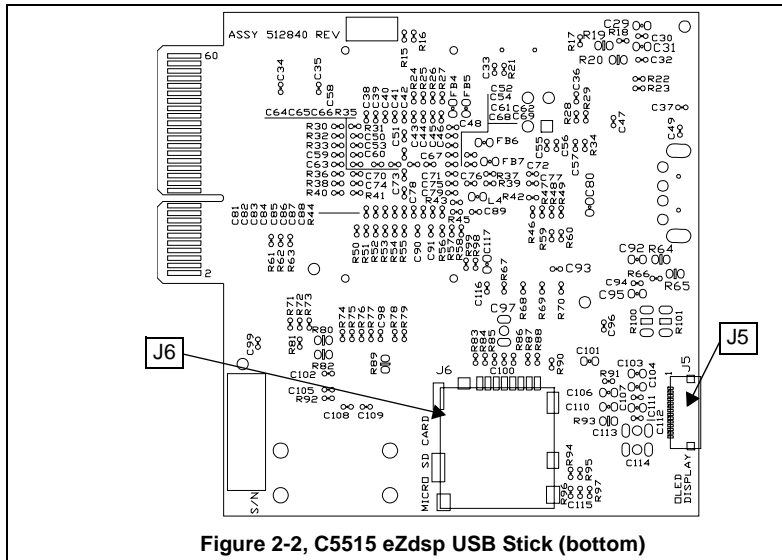
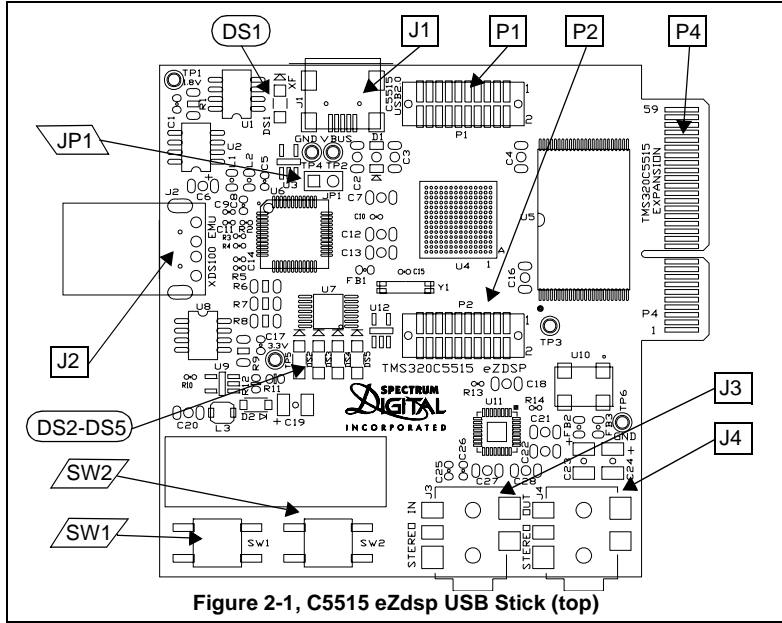
| eZdsp I ² C Device | I ² C Address | Function |
|-------------------------------|--------------------------|--------------|
| TLV320AIC3204 | 0x18 | Audio CODEC |
| OSD9616GLBGG01 | 0x3C | OLED Display |

This chapter describes the physical layout of the TMS320C5515 eZdsp USB Stick.

| Topic | Page |
|---|-------------|
| 2.0 Board Layout | 2-2 |
| 2.1 Connector Index | 2-3 |
| 2.1.1 J1, C5515 USB Connector | 2-3 |
| 2.1.2 J2, XDS100 USB Connector | 2-4 |
| 2.1.3 J3, Audio In Connector | 2-4 |
| 2.1.4 J4, Audio Out Connector | 2-5 |
| 2.1.5 J5, LCD Interface | 2-6 |
| 2.1.6 J6, Micro SD Connector | 2-6 |
| 2.1.7 P1, P2, Bluetooth Board Interface | 2-7 |
| 2.1.8 P4, Expansion Connector | 2-8 |
| 2.2 System LEDs | 2-10 |
| 2.3 Switches | 2-10 |
| 2.4 Jumpers | 2-10 |
| 2.5 Test Points | 2-11 |

2.0 Board Layout

The C5515 eZdsp USB Stick is a 2.85 x 2.65 inch six (6) layer printed circuit board which is powered off the USB bus of personal computer or laptop computer. This means this board does not require an external power supply.



2.1 Connector Index

The C5515 eZdsp USB Stick has nine (9) connectors which provide the user access to various signals on the C5515 Stick. These connectors are shown in the table below.

Table 1: C5515 eZdsp USB Stick Connectors

| Connector | # Pins | Function | Schematic Page | Board Side |
|-----------|--------|---------------------------|----------------|------------|
| J1 | 4 | C5515 USB | 3 | Top |
| J2 | 6 | Emulation USB | 13 | Top |
| J3 | 2 | Audio In | 10 | Top |
| J4 | 2 | Audio Out | 10 | Top |
| J5 | 14 | LCD Interface | 11 | Top |
| J6 | 8 | Micro SD Interface | 8 | Top |
| P1 | 20 | Bluetooth Board Interface | 7 | Top |
| P2 | 20 | Bluetooth Board Interface | 7 | Top |
| P4 | 30 x 2 | Expansion | 12 | Top/Bottom |

The following manufacturer and parts numbers can be used to interface to the connectors on the C5515 eZdsp:

Table 2: C5515 eZdsp Mating Connectors

| Connector | Manufacturer | Part # |
|-----------|--------------|--|
| J2 | PC or laptop | |
| J3 | CUI Inc | CUI SP-3501, Digi-Key CP-3502-ND |
| J4 | CUI Inc | CUI SP-3501, Digi-Key CP-3502-ND |
| P4 | Samtec | Samtec MEC1-130-02-S-D-A, Digi-Key SAM8118-ND |

2.1.1 J1, C5515 USB Connector

The USB connector, J1, is attached the C5515 processor for use by C5515 software applications. The signals on the pins of this connector are shown below.

Table 3: J1, C5515 USB Connector

| Pin # | Signal Name |
|-------|-------------|
| 1 | USBVDD |
| 2 | D- |
| 3 | D+ |
| 4 | ID / NC |
| 5 | USBVSS/GND |
| 6-9 | GND |

2.1.2 J2, XDS100 USB Connector

The USB connector, J2, is used to attach the C5515 eZdsp stick to a personal computer or laptop. The signals on the pins of this connector are shown below.

Table 4: J2, XDS100 USB Connector

| Pin # | Signal Name |
|-------|---------------|
| 1 | 5V_USB |
| 2 | D+ |
| 3 | D- |
| 4 | GND |
| 5 | Shield Ground |
| 6 | Shield Ground |

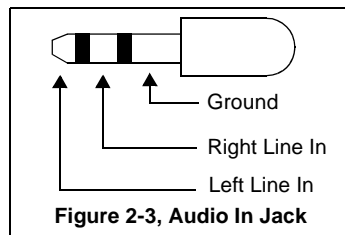
2.1.3 J3, Audio In Connector

The Audio In connector, J3, is used to bring signals into the TLP320AIC3204 codec. The signals on the pins of this connector are shown below.

Table 5: J3, Audio In Connector

| Pin # | Signal Name | AIC3204 Pin # |
|-------|-------------|---------------|
| 1 | GND-AIC | |
| 2 | AIC_LINE2L | 15 |
| 3 | AIC_LINE2R | 16 |
| 4 | No connect | |
| 5 | No connect | |

The figure below shows a typical stereo jack.



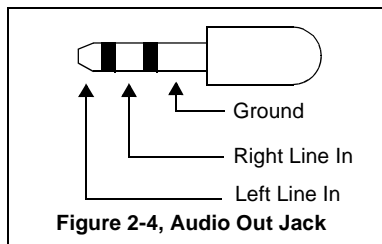
2.1.4 J4, Audio Out Connector

The Audio Out connector, J4, is used to bring signals from the TLP320AIC3204 codec. The signals on the pins of this connector are shown below.

Table 6: J4, Audio Out Connector

| Pin # | Signal Name | AIC3204 Pin # |
|-------|----------------|---------------|
| 1 | GND-AIC | |
| 2 | HEADPHONE_LOUT | 25 |
| 3 | HEADPHONE_ROUT | 27 |
| 4 | No connect | |
| 5 | No connect | |

The figure below shows a typical audio out jack.



2.1.5 J5, LCD Interface

Connector, J5, is used to interface to an LCD character display. The signals on the pins of this connector are shown below.

Table 7: J5, LCD Interface

| Pin # | Signal Name |
|-------|-----------------|
| 1 | C2P |
| 2 | C2N |
| 3 | C1P |
| 4 | C1N |
| 5 | VBAT |
| 6 | VBREF |
| 7 | GND |
| 8 | VCC_3V3 |
| 9 | TARGET_PWR_GOOD |
| 10 | I2C_SCL |
| 11 | I2C_SDA/ |
| 12 | IREF |
| 13 | VCOMH |
| 14 | V13 |

2.1.6 J6, Micro SD Connector

The Micro SD connector, J6, is used to interface the C5515 processor to a Micro SD card. The signals on the pins of this connector are shown below.

Table 8: J6, Micro SD Connector

| Pin # | Signal Name |
|-------|-------------|
| 1 | DAT2 |
| 2 | DAT3 |
| 3 | CMD |
| 4 | VDD |
| 5 | CLK |
| 6 | VSS |
| 7 | DAT0 |
| 8 | DAT1 |
| 9 | INSERT |
| 10 | INSERT_COM |

2.1.7 P1, P2, Bluetooth Board Interface

Connectors P1, and P2 are expansion connectors used to provide an interface to a Bluetooth board. The signals on the pins of these connectors are shown in the tables below.

Table 9: P1, Bluetooth Board Interface

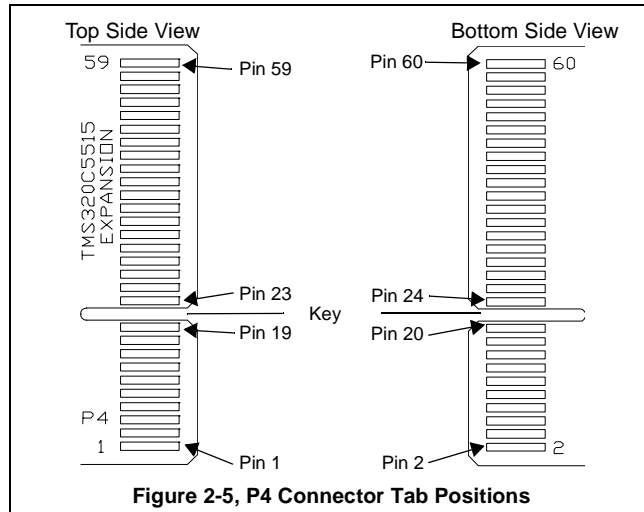
| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | GND | 2 | SD_DATA0 |
| 3 | UART_RTS | 4 | SD_DATA1 |
| 5 | RTC_CLKOUT | 6 | SD_DATA2 |
| 7 | UART_RX | 8 | SD_DATA3 |
| 9 | UART_TX | 10 | GPIO4 |
| 11 | I2C_SDA | 12 | GPIO5 |
| 13 | I2C_SCL | 14 | I2S2_FS |
| 15 | SD_CLK | 16 | I2S2_CLK |
| 17 | SD_CMD | 18 | I2S2_DX |
| 19 | GND | 20 | I2S2_RX |

Table 10: P2, Bluetooth Board Interface

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | NC | 2 | GND |
| 3 | NC | 4 | NC |
| 5 | NC | 6 | NC |
| 7 | VCC_3V3 | 8 | I2S1_DX |
| 9 | VCC_3V3 | 10 | I2S1_RX |
| 11 | I2S1_FS | 12 | NC |
| 13 | GPIO12 | 14 | NC |
| 15 | GPIO14 | 16 | NC |
| 17 | I2S1_CLK | 18 | UART_CTS |
| 19 | GPIO14 | 20 | GPIO13 |

2.1.8 P4, Expansion Connector

The Expansion connector, P4, is used to bring signals from C5515 DSP out to a connector for user interface. This card edge connector has all of the odd number (1,3,....,59) tabs on the top side of the board and all of the even number tabs (2,4,....,46) on the bottom side of the board. The diagram below shows the position of these tabs.



The table below lists the signals that appear on each of the tabs of connector P1. The signals on the pins of this connector are shown below.

Table 11: P4, Expansion Connector

| Pin # Top | Signal Name | Pin # Bottom | Signal Name |
|----------------------|--------------------|-------------------------|--------------------|
| 1 | GND | 2 | GND |
| 3 | SPI_CS1 | 4 | GPIO13 |
| 5 | SPI_CLK | 6 | GPIO12 |
| 7 | SPI_TX | 8 | GPIO14 |
| 9 | SPI_RX | 10 | GPIO15 |
| 11 | GND | 12 | GND |
| 13 | GND | 14 | GND |
| 15 | GND | 16 | GND |
| 17 | I2C_SDA | 18 | GPIO16 |
| 19 | I2C_SCL | 20 | GPIO17 |
| | Key | | Key |
| 23 | I2S2_CLK | 24 | SD_DATA3 |
| 25 | I2S2_RX | 26 | SD_DATA2 |
| 27 | I2S2_DX | 28 | GPIO5 |
| 29 | I2S2_FS | 30 | GPIO4 |
| 31 | GND | 32 | GND |
| 33 | SD_CLK | 34 | UART_RTS |
| 35 | SD_DATA1 | 36 | UART_CTS |
| 37 | SD_DATA0 | 38 | UART_RX |
| 39 | SD_CMD | 40 | UART_TX |
| 41 | VCC_3V3 | 42 | VCC_3V3 |
| 43 | VCC_3V3 | 44 | VCC_3V3 |
| 45 | I2S0_CLK | 46 | SPI_CS3 |
| 47 | I2S0_RX | 48 | VCC_3V3 |
| 49 | I2S0_DX | 50 | GPAIN3 |
| 51 | I2S0_FS | 52 | GPAIN2 |
| 53 | SPI_CS2 | 54 | GPAIN1 |
| 55 | SPI_CS0 | 56 | GPAIN0 |
| 57 | VCC_3V3 | 58 | VCC_3V3 |
| 59 | VCC_3V3 | 60 | VCC_3V3 |

2.2 System LEDs

The C5515 eZdsp USB Stick has 5 Light Emitting Diodes (LED). These LEDs are under the application software control running on the C5515 processor. These LEDs are shown in the table below.

Table 12: System LEDs

| LED # | Color | Schematic Page | Signal Name |
|-------|--------|----------------|-------------|
| DS1 | Green | 2 | C5515 XF |
| DS2 | Green | 11 | GPIO17 |
| DS3 | Red | 11 | GPIO18 |
| DS4 | Yellow | 11 | GPIO15 |
| DS5 | Blue | 11 | GPIO14 |

2.3 Switches

The C5515 eZdsp USB Stick has two push button switches. These switches can be read by application software running on the C5515 processor. These switches are shown in the table below.

Table 13: Switches

| Switch # | Schematic Page | Signal Name/Reading |
|-----------------|----------------|----------------------------------|
| SW1 only closed | 11 | GPAIN1, approximately 1.2 volts |
| SW2 only closed | 11 | GPAIN1, approximately 0.9 volts |
| SW1, SW2 closed | 11 | GPAIN1, approximately 0.72 volts |

2.4 Jumpers

The C5515 eZdsp stick has one jumper, JP1. When this jumper is shorted the C5515 eZdsp stick will be powered from the target USB interface, not the embedded USB interface. When this jumper is shorted the embedded USB emulation and debug capability are no longer available. This jumper is shipped in the "open" state from the factory.

WARNING !

When the jumper J1 is shorted do NOT plug the connector J2 into a USB port. This will damage the C5515 eZdsp stick.

2.5 Test Points

The C5515 eZdsp USB Stick has six (6) test points for the monitoring of signals. The location of the test points are shown in the figure below.

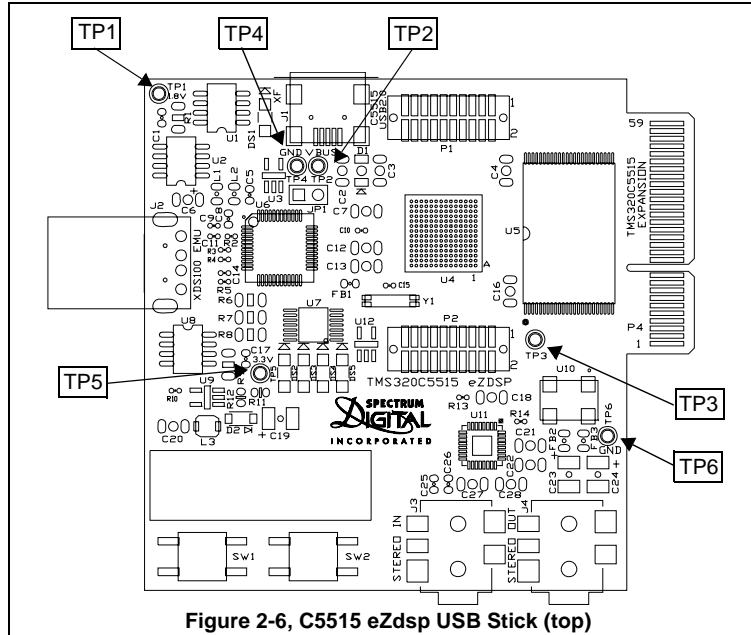


Figure 2-6, C5515 eZdsp USB Stick (top)

The signals on the test points are shown in the table below.

Table 14: Test Points

| TP # | Schematic Page | Signal Name |
|------|----------------|-------------|
| TP1 | 9 | VCC_1V8 |
| TP2 | 3 | VBUS |
| TP3 | 3 | CLKOUT |
| TP4 | 5 | GND |
| TP5 | 9 | VCC_3V3 |
| TP6 | 10 | GND |

Appendix A

Schematics

This appendix contains the schematics for the TMS320C5515 eZdsp USB Stick.

| REV | DESCRIPTION | DATE | APPROVED |
|-----|------------------------------|------------|----------|
| A | Initial schematic for layout | 10/15/2009 | BRP |

NOTES, UNLESS OTHERWISE SPECIFIED:

1. RESISTANCE VALUES IN OHMS.
2. CAPACITANCE VALUES IN MICROFARADS.
3. REFERENCE DESIGNATORS USED:
4. ALL 0.1 uF AND 0.01uF CAPACITORS ARE DECOUPLING CAPS UNLESS OTHERWISE NOTED. THEY ARE SHOWN ON THE PAGE WITH THE INTEGRATED CIRCUITS THEY SHOULD BE PLACED NEAR.

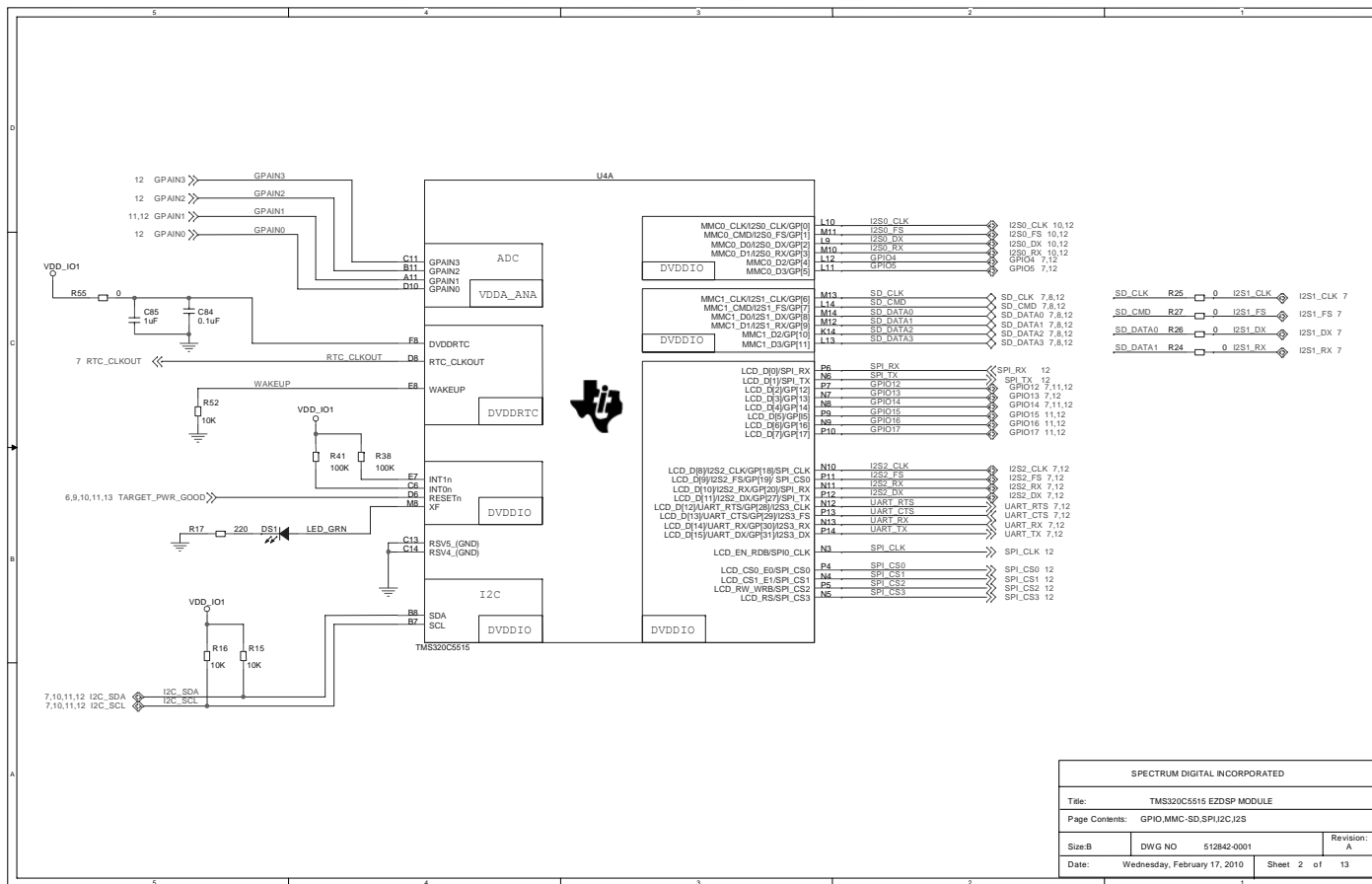
SCHEMATIC CONTENTS

- 01 - TITLE PAGE
- 02 - TMS320C5515 GPIO/MMC/SPI/I2C
- 03 - TMS320C5515 CLK/JTAG/USB2
- 04 - TMS320C5515 EMIF
- 05 - TMS320C5515 POWER
- 06 - NOR FLASH
- 07 - CC BOARD INTERFACE
- 08 - MICRO SD INTERFACE
- 09 - POWER SUPPLIES
- 10 - AUDIO CODEC
- 11 - LCD/USER LEDS/SWITCHES
- 12 - EXPANSION CONNECTOR
- 13 - XDS100 INTERFACE

| REVISOR STATUS OF SHEETS | | | | | | | | | | |
|--------------------------|----|----|----|---|---|---|---|---|---|----|
| REV | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| SHEET | | | | | | | | | | |
| REV | | | | | | | | | | |
| SHEET | | | | | | | | | | |
| REV | A | A | A | | | | | | | |
| SHEET | 11 | 12 | 13 | | | | | | | |
| REV | A | A | A | A | A | A | A | A | A | |
| SHEET | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| REV | | | | | | | | | | |
| SHEET | | | | | | | | | | |

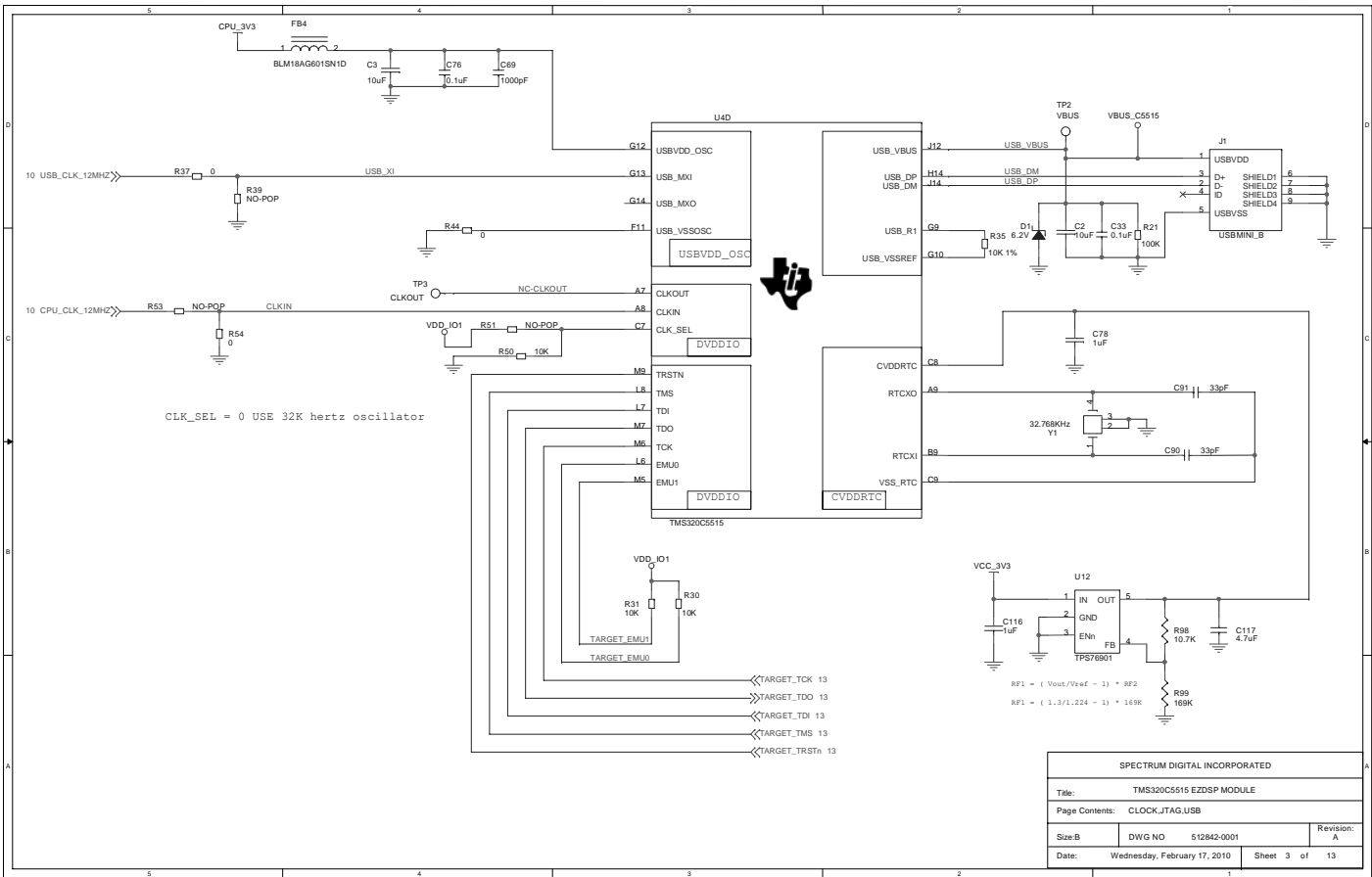
| REV | DATE | BY |
|----------|--------|------------|
| DRN | B.R.P. | 10/15/2009 |
| CHK | T.M.R. | 10/15/2009 |
| ENGR | B.R.P. | 10/15/2009 |
| ENGR-HDR | B.R.P. | 10/15/2009 |
| QA | C.M.D. | 10/15/2009 |
| PRO | B.R.P. | 10/15/2009 |
| USE | B.R.P. | 10/15/2009 |

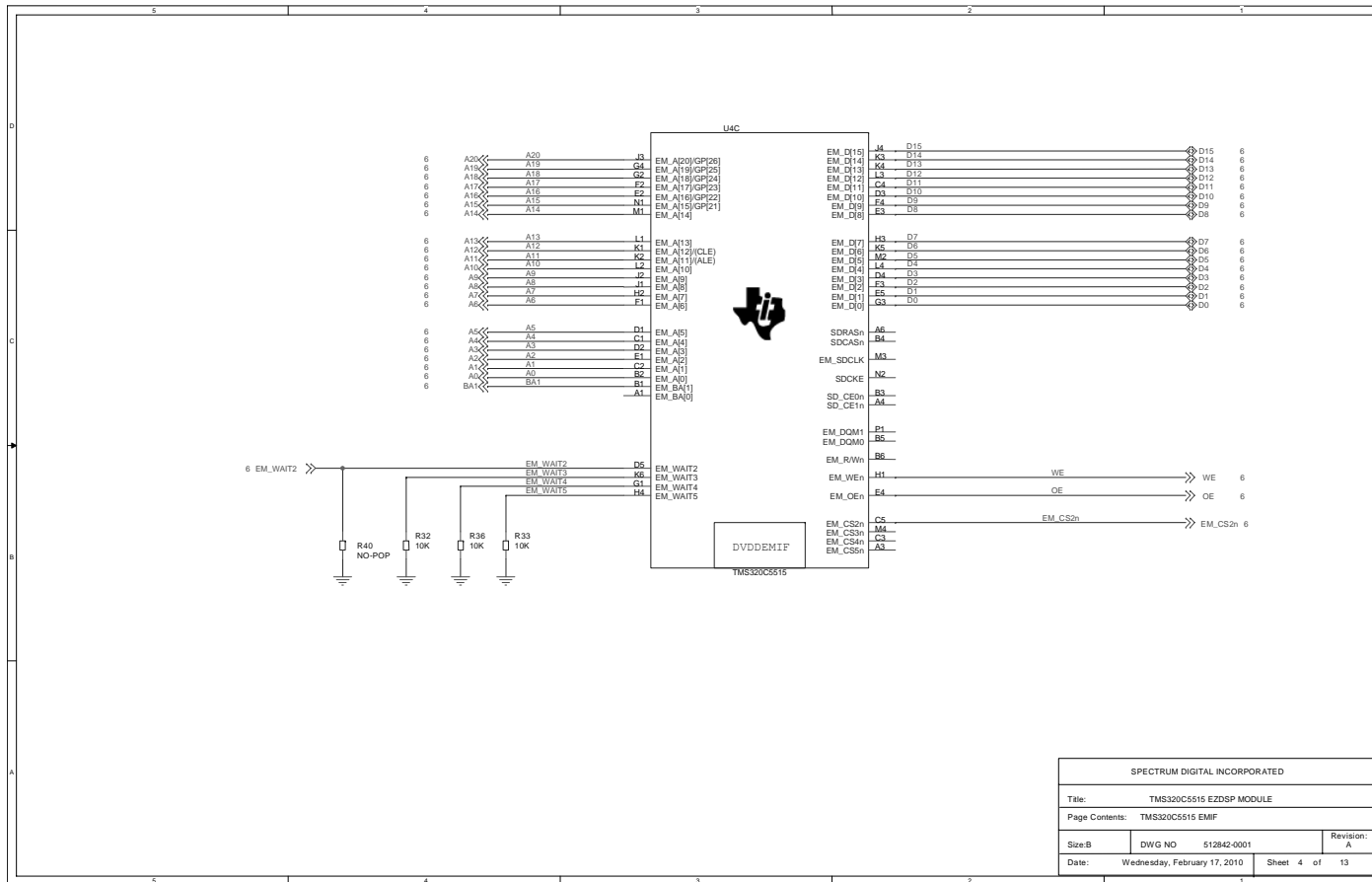
| SPECTRUM DIGITAL INCORPORATED | | | |
|---------------------------------|------------------------------|------------|---------------|
| Title: TMS320C5515 EZDSP MODULE | | | |
| Page Contents: TITLE SHEET | | | |
| Size: B | DWG NO | 512842-001 | Revision: A |
| Date: | Wednesday, February 17, 2010 | | Sheet 1 of 13 |



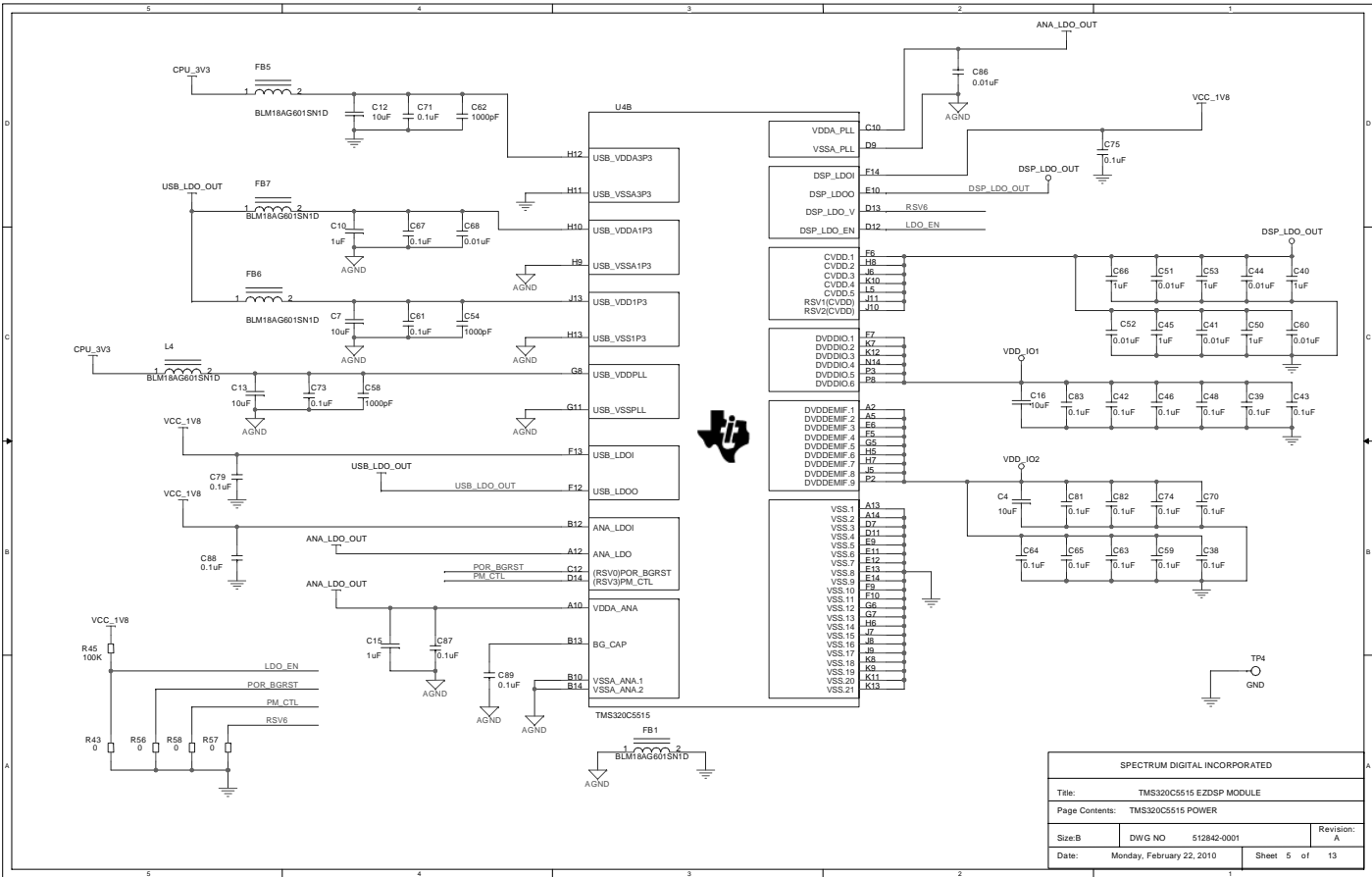
| | | | |
|--|------------------------------|---------------|-------------|
| SPECTRUM DIGITAL INCORPORATED | | | |
| Title: TMS320C5515 EZDSP MODULE | | | |
| Page Contents: GPIO,MMC-SD,SPI,I2C,I2S | | | |
| Size: B | DWG NO | 512842-0001 | Revision: A |
| Date: | Wednesday, February 17, 2010 | Sheet 2 of 13 | |

Spectrum Digital, Inc

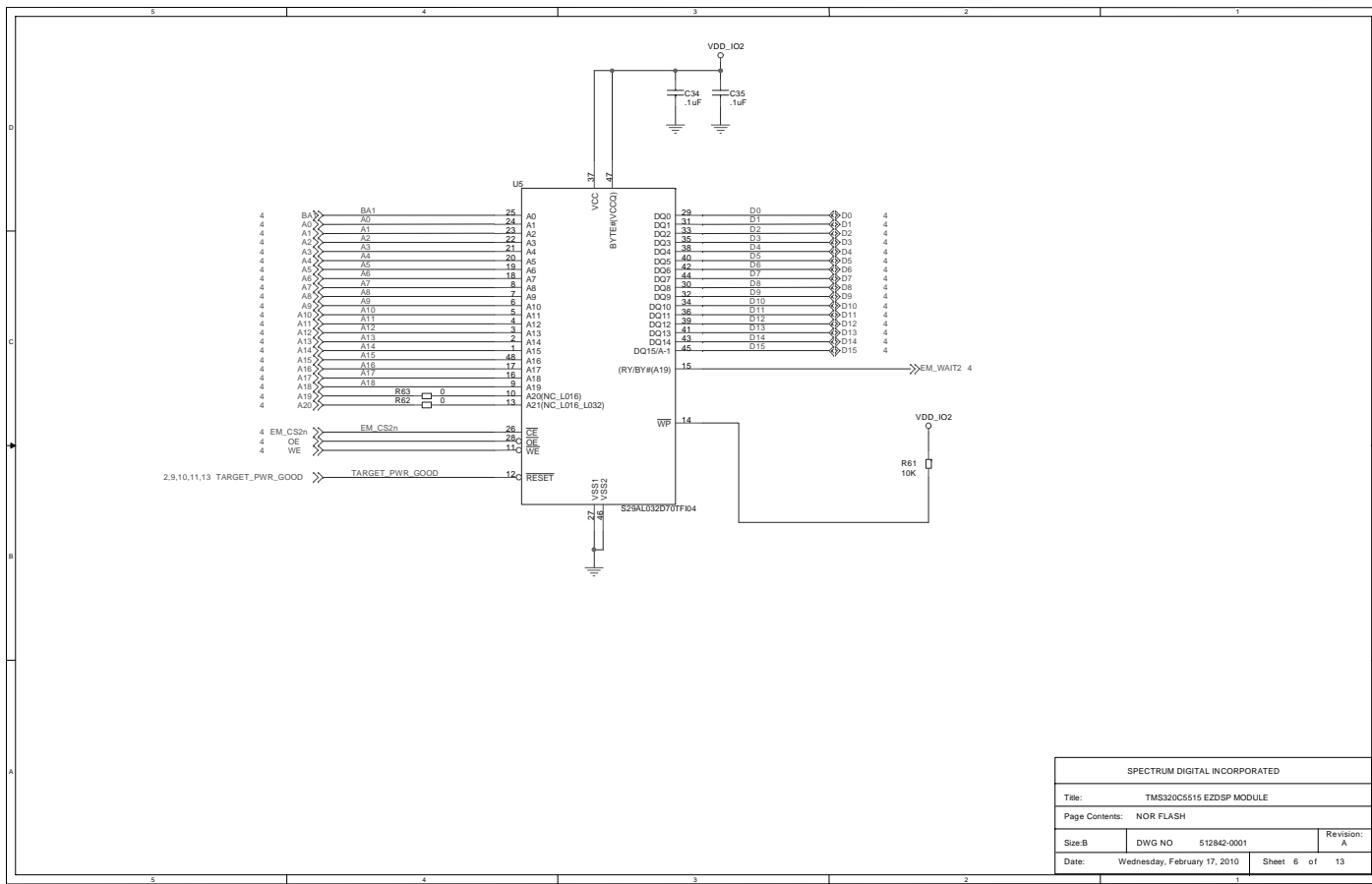




| | | |
|------------------------------------|--------------------|-------------|
| SPECTRUM DIGITAL INCORPORATED | | |
| Title: TMS320C5515 EZDSP MODULE | | |
| Page Contents: TMS320C5515 EMIF | | |
| Size-B | DWG NO 512842-0001 | Revision: A |
| Date: Wednesday, February 17, 2010 | Sheet 4 of 13 | |

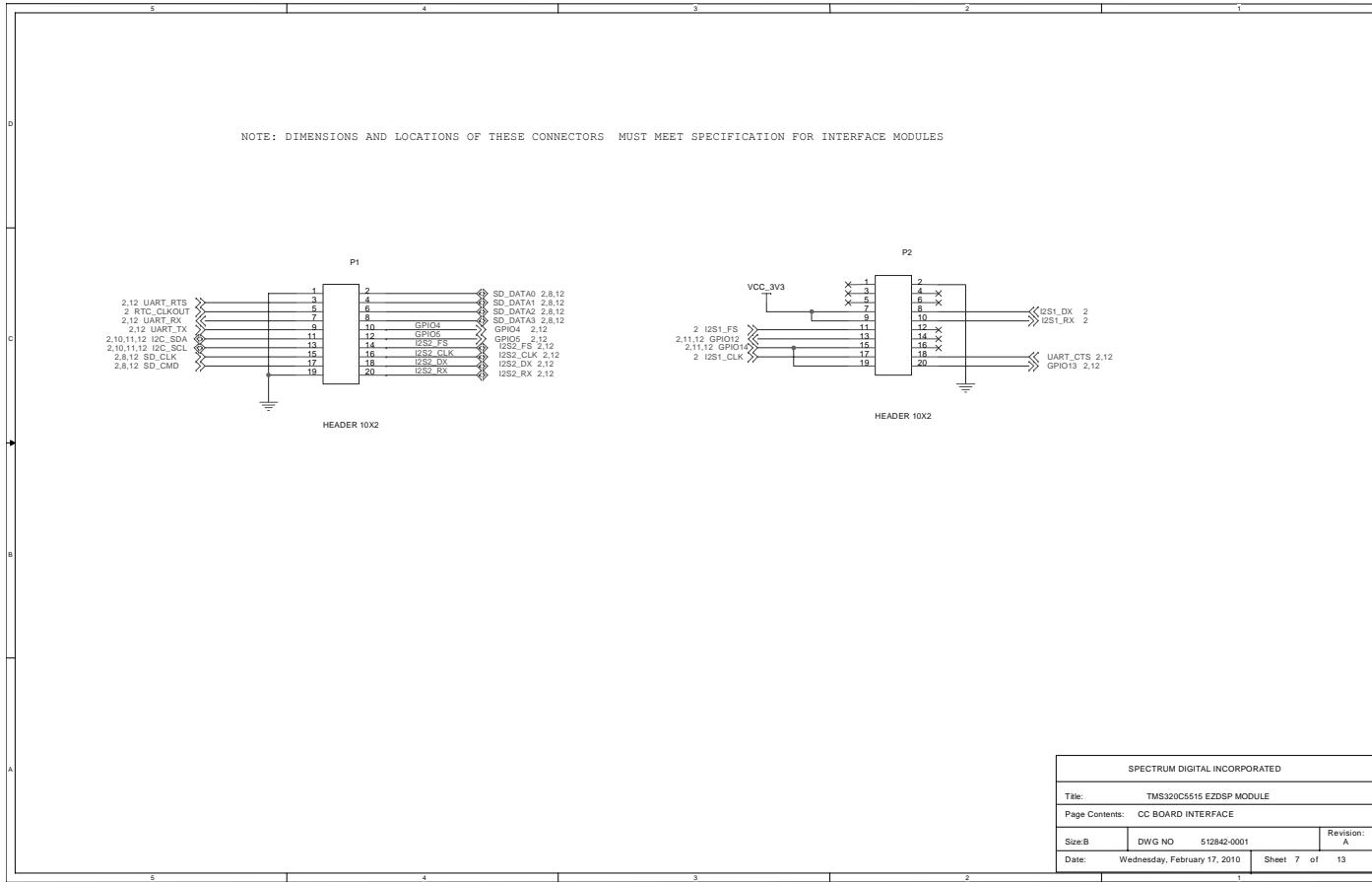


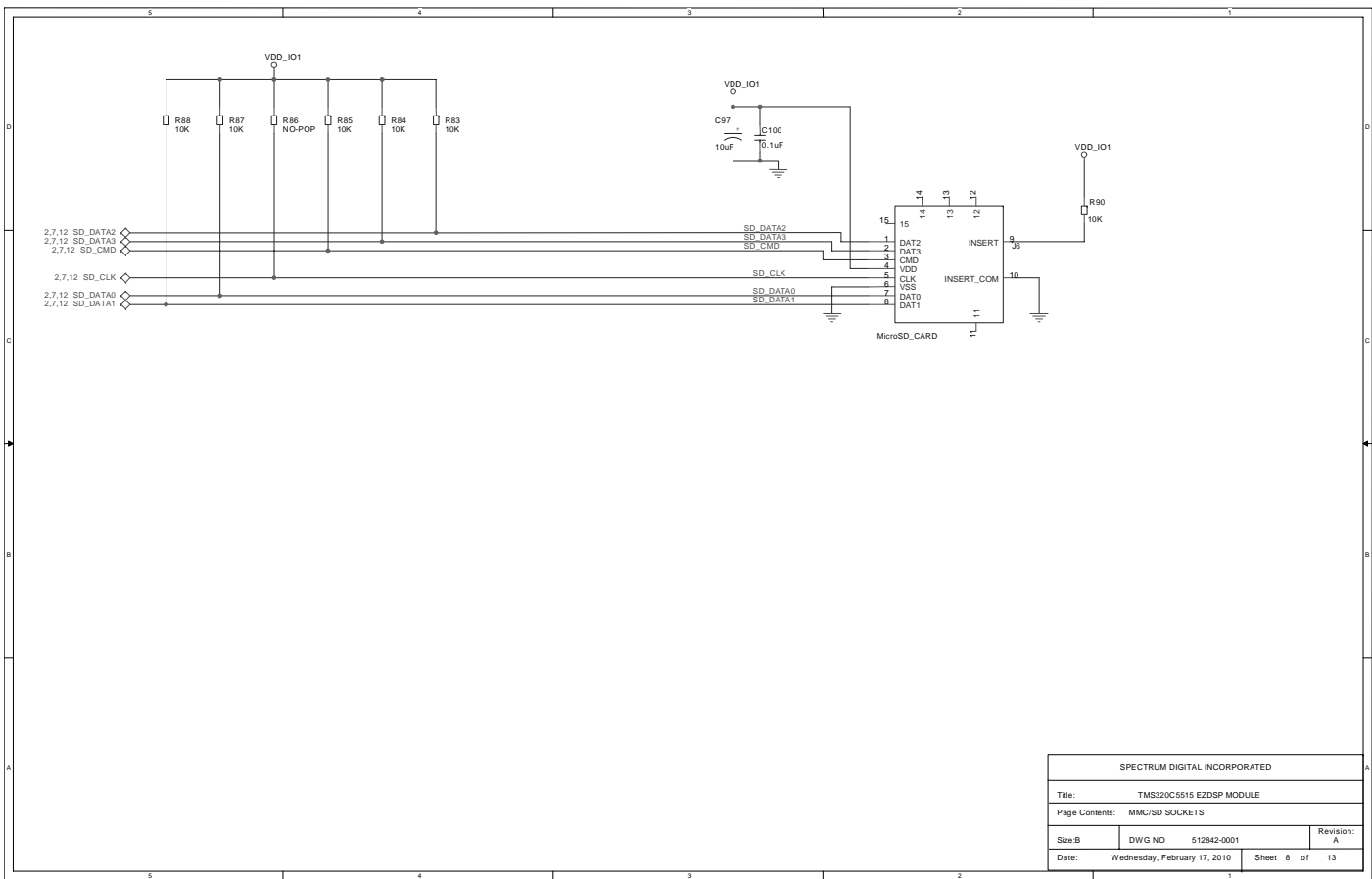
| | | | |
|----------------------------------|---------------------------|---------------|-------------|
| SPECTRUM DIGITAL INCORPORATED | | | |
| Title: TMS320C5515 EZDSP MODULE | | | |
| Page Contents: TMS320C5515 POWER | | | |
| Size B | DWG NO | 512842-0001 | Revision: A |
| Date: | Monday, February 22, 2010 | Sheet 5 of 13 | |



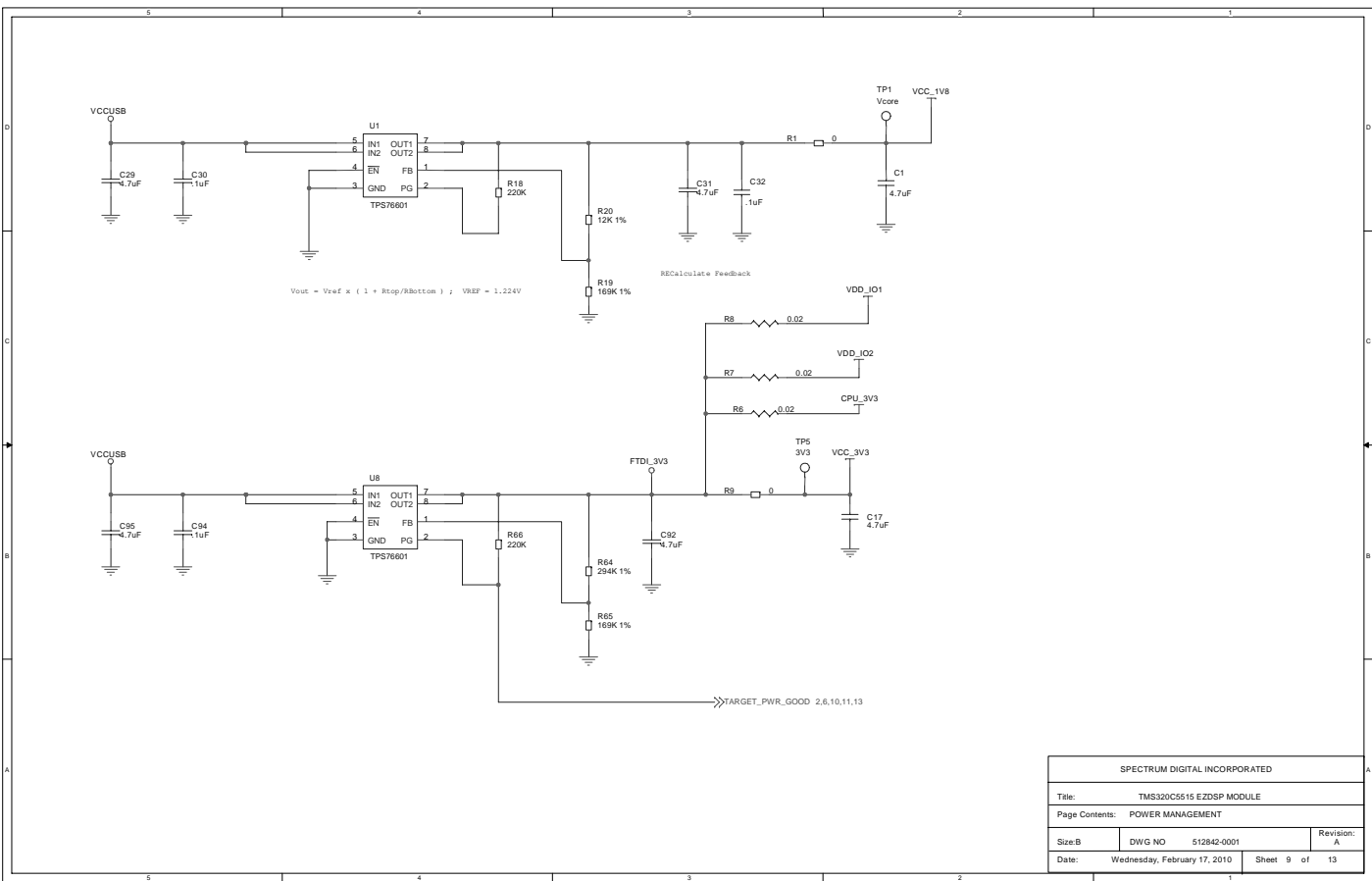
| | | |
|------------------------------------|--------------------|-------------|
| SPECTRUM DIGITAL INCORPORATED | | |
| Title: TMS320C5515 EZDSP MODULE | | |
| Page Contents: NOR FLASH | | |
| Size: B | DWG NO: 512842-001 | Revision: A |
| Date: Wednesday, February 17, 2010 | Sheet 6 of 13 | |

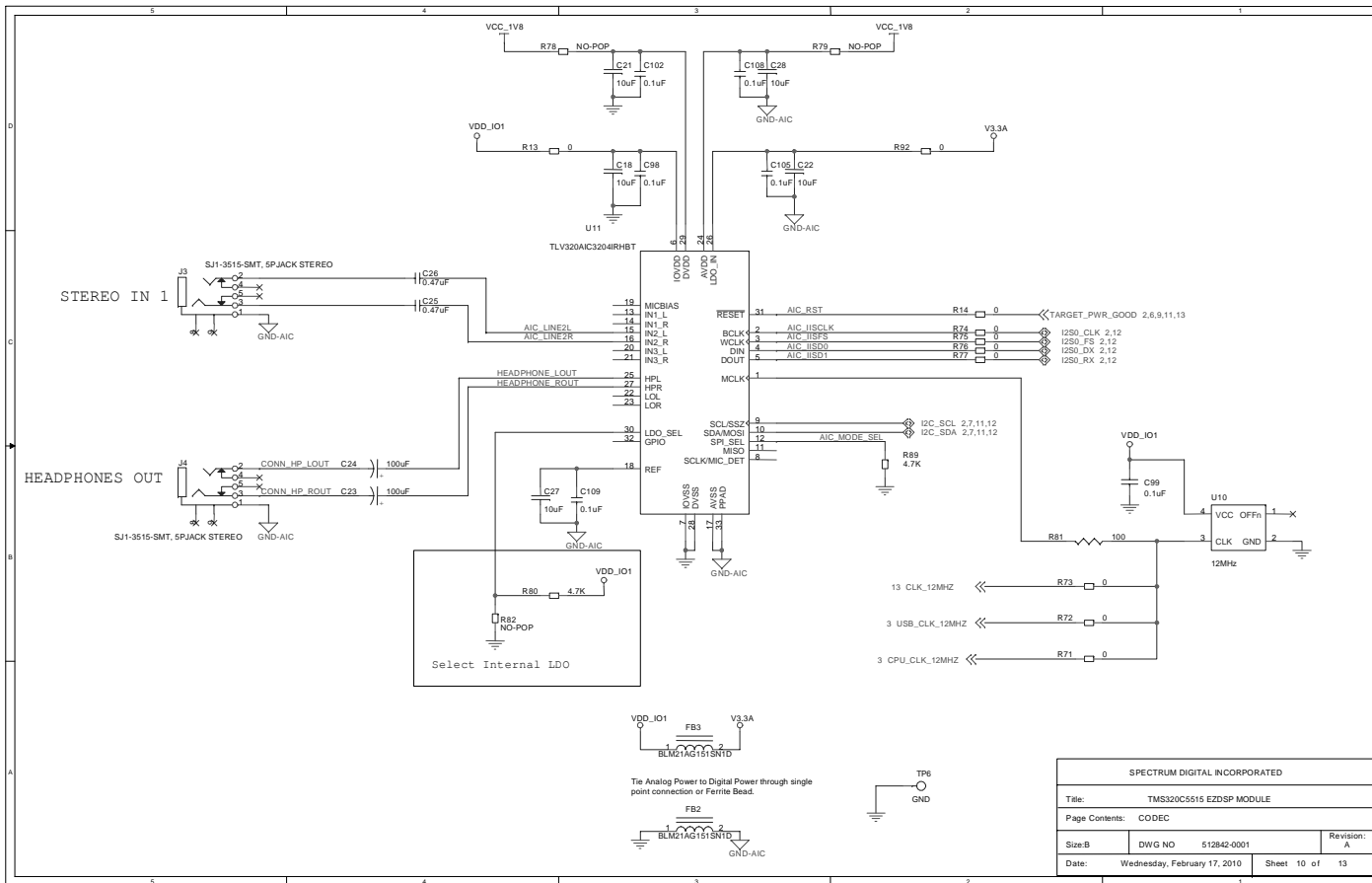
Spectrum Digital, Inc





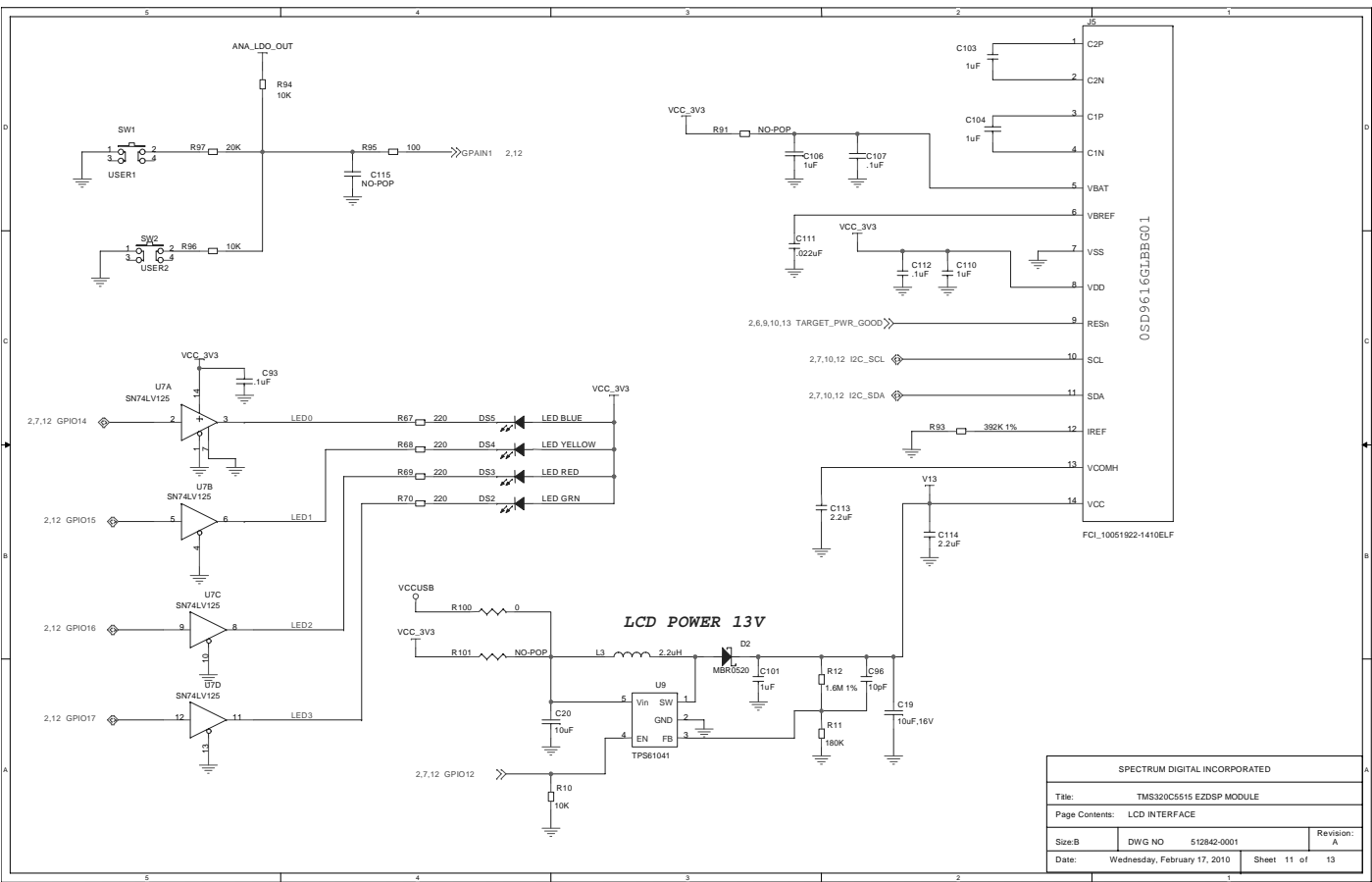
| | | | |
|------------------------------------|---------------------|-------------|--|
| SPECTRUM DIGITAL INCORPORATED | | | |
| Title: TMS320C5615 EZDSP MODULE | | | |
| Page Contents: MMC/SD SOCKETS | | | |
| Size: B | DWG NO: 512842-0001 | Revision: 4 | |
| Date: Wednesday, February 17, 2010 | Sheet 8 of 13 | | |



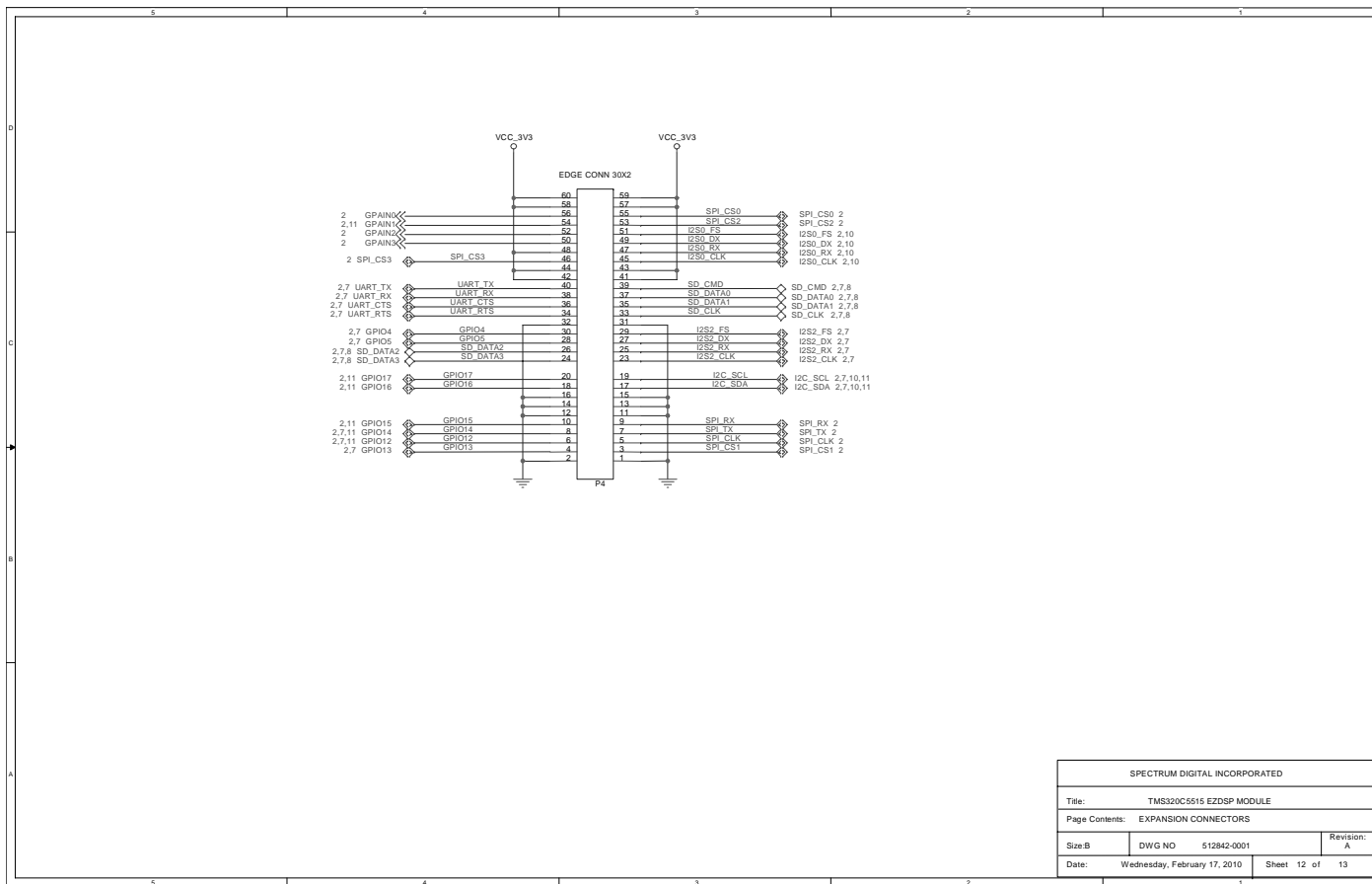


| SPECTRUM DIGITAL INCORPORATED | | | |
|------------------------------------|---------------------|-------------|--|
| Title: TMS320C5515 EZDSP MODULE | | | |
| Page Contents: CODEC | | | |
| Size: B | DWG NO: 512842-0001 | Revision: A | |
| Date: Wednesday, February 17, 2010 | Sheet: 10 of 13 | | |

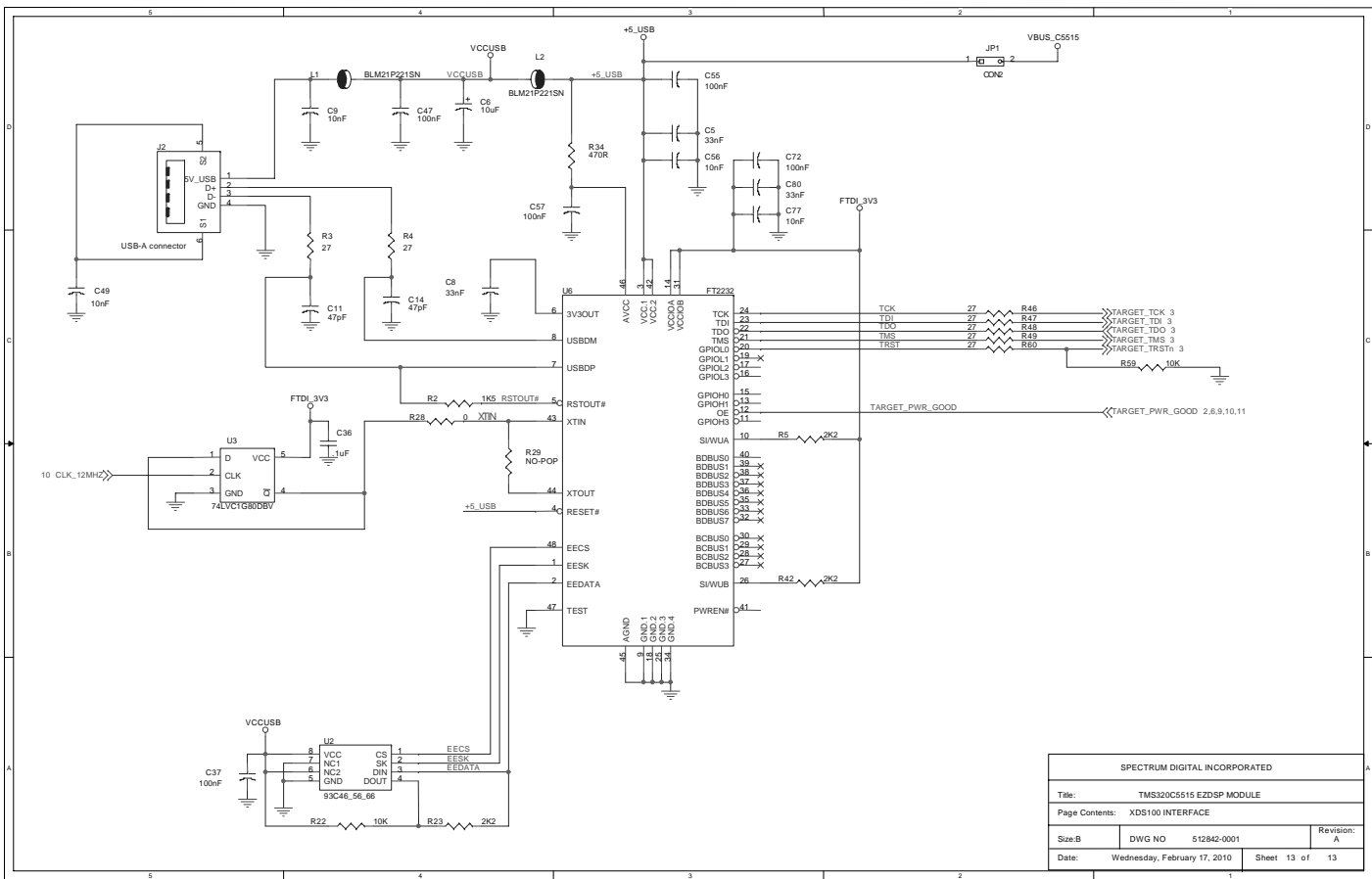
Spectrum Digital, Inc



| | | |
|------------------------------------|---------------------|-------------|
| SPECTRUM DIGITAL INCORPORATED | | |
| Title: TMS320C5515 EZDSP MODULE | | |
| Page Contents: LCD INTERFACE | | |
| Size: B | DWG NO: 512842-0001 | Revision: A |
| Date: Wednesday, February 17, 2010 | Sheet 11 of 13 | |



| | | | |
|-------------------------------------|---------------------|-------------|--|
| SPECTRUM DIGITAL INCORPORATED | | | |
| Title: TMS320C5515 EZDSP MODULE | | | |
| Page Contents: EXPANSION CONNECTORS | | | |
| Size: B | DWG NO: 512842-0001 | Revision: A | |
| Date: Wednesday, February 17, 2010 | Sheet 12 of 13 | | |

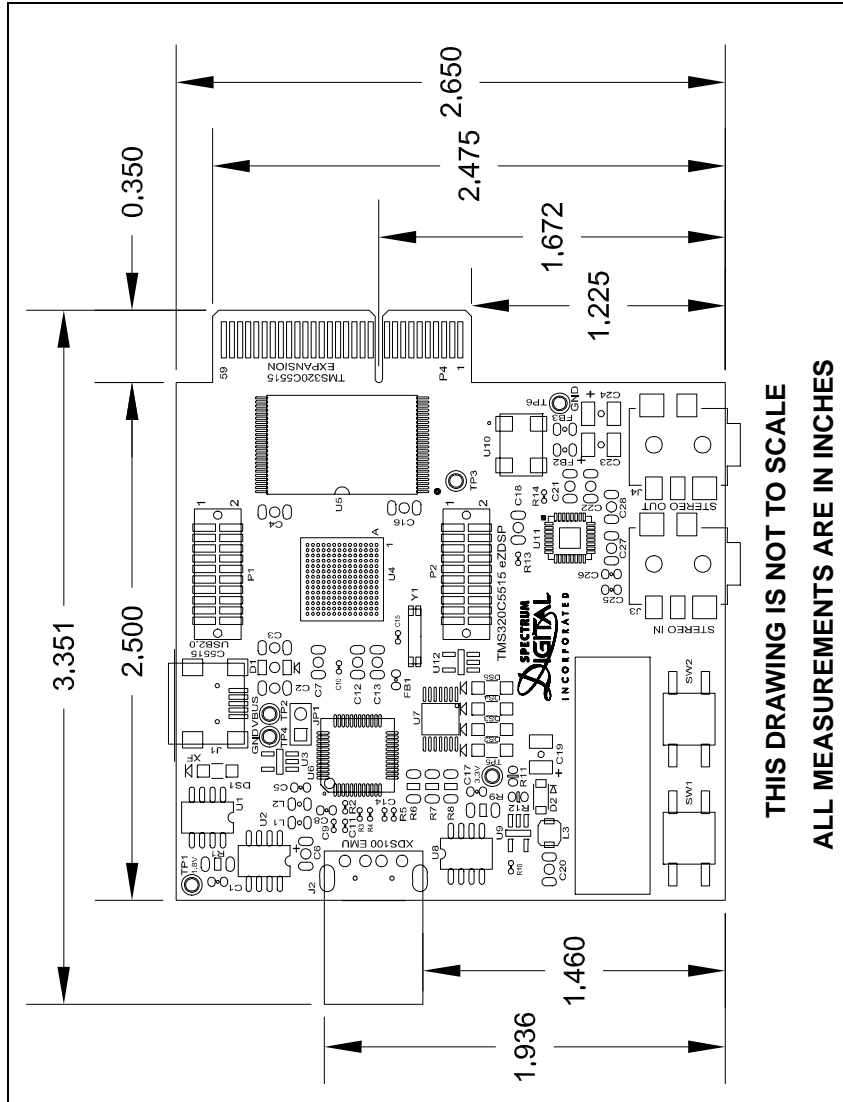


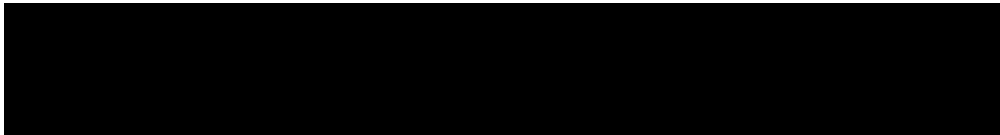
| SPECTRUM DIGITAL INCORPORATED | | | |
|------------------------------------|---------------------|-------------|--|
| Title: TMS320C5515 EZDSP MODULE | | | |
| Page Contents: XDS100 INTERFACE | | | |
| Size: B | DWG NO: 512842-0001 | Revision: A | |
| Date: Wednesday, February 17, 2010 | Sheet 13 of | 13 | |

Appendix B

Mechanical Information

This appendix contains the mechanical information about the TMS320C5515 eZdsp USB Stick.





Printed in U.S.A., February 2010
512845-0001 Rev A