*Data Sheet*
*May 2012*

# MAX24287 EV Kit

# Evaluates: MAX24287

## General Description

The MAX24287 EV Kit is an easy-to-use evaluation kit for the MAX24287 1Gbps Parallel-to-Serial MII Converter. On the network side of the MAX24287 an SFP module cage supports either a 1000BASE-X optical module or a module containing a 10/100/1000Mbps Ethernet PHY with an SGMII system interface. On the system side of the MAX24287 an unmanaged switch IC with integrated PHYs plus magnetics and RJ-45 jacks provides an easy Cat 5 Ethernet connection to test equipment.

An on-board 25MHz XO is provided to allow evaluation of device performance. Also, the board can accept an external oscillator input for testing alternate oscillators.

Typically the board is controlled by EV kit software running on a Windows PC through the USB interface. The board also has SPI and JTAG headers through which the MAX24287 can be controlled by a processor on another board as needed.

## Features

- Network-Side SFP Cage Accepts Optical or Electrical Ethernet SFP modules
- System-Side Unmanaged Ethernet Switch for Easy Connection to Lab Equipment.
- GPIO SMB Connectors to Input or Output Clock Signals and 1PPS Signals
- Connectors and Component Sites for Alternate Oscillators as Needed
- Included Universal 5V Power Supply
- Jumpers to Configure Reset State of MAX24287, GPIO Termination, Ethernet Switch Mode and More
- LEDs for Power Supplies Valid and Port Status
- Soldered MAX24287 for Best Signal Integrity
- Easy-to-Read Silkscreen Labels Identify the Signals Associated with All Connectors, Jumpers, and LEDs
- Windows®-Based Evaluation Software Provides Easy Configuration and Monitoring of the MAX242878 Device
- Evaluation Software Calls MAX24287 HAL Software and Structure is Similar to HAL Software

## Demo Kit Contents

- MAX24287 Board
- Power Supply
- USB Cable

## Minimum System Requirements

- PC Running Windows XP or later
- Available USB Port

*Ordering Information appears at end of data sheet.*

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## 1. Board Floorplan

When the board is oriented as shown in Figure 1, The 5V power supply and USB cable included with the kit are connected to jacks J1 and J2 at the top of the board. An SFP module is inserted into the SFP cage lower-left, and an appropriate cable is connected to the SFP module. The SFP module can be 1000BASE-X optical for a 1000Mbps optical connection, or it can contain a 10/100/1000Mbps copper PHY with an SGMII interface to the MAX24287 and an RJ-45 jack on the other side. The board ships with a 25MHz XO mounted in the Y1 oscillator. The Y2 and Y3 oscillator sites are primarily for the MAX24287 EV kit, which uses the same PCB. Other XOs can be mounted on daughter cards that plug in to connectors at the Y2 site. See section 6 for detailed descriptions of the board's jumpers, connectors and LEDs.

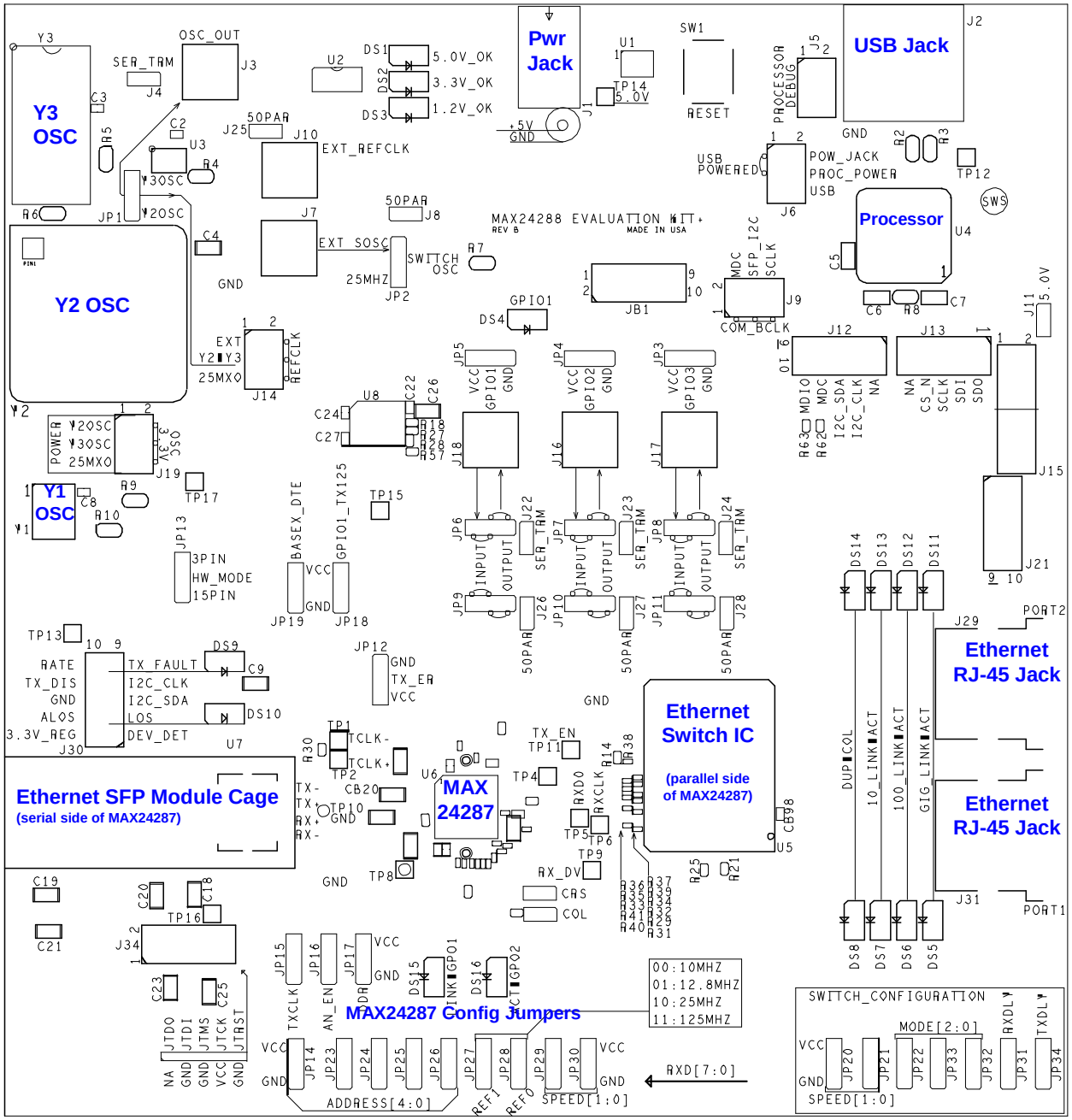



**Figure 1. MAX24287 EV Kit Board Floorplan**

# 2. Connections to the Board

## 2.1 Power-Supply Connection

The board is powered through connector J1 using the provided AC wall-plug 5V power supply. LED DS1 illuminates to indicate that the board is powered.

## 2.2 USB Connection

The MAX24287 EV kit software application communicates with the EV kit board through USB connector J2.

## 2.3 Ethernet Connections and IP Addresses

The Ethernet switch on the board, Realtek RTL8363, operates by default as a simple, unmanaged switch. To avoid set-up problems, each system connected to the MAX24287 EV Kit board must have a unique IP address.

## 2.4 Example Setup

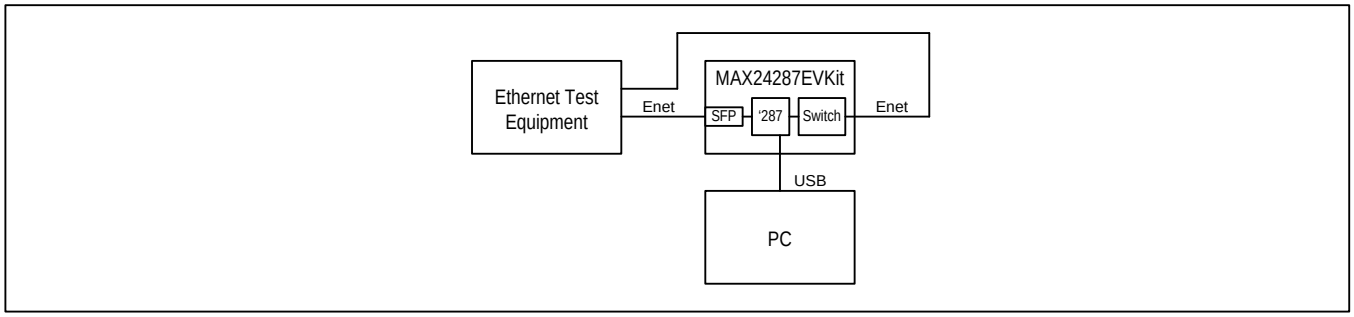



**Figure 2. Example Setup**

# 3. Installing the Software

**Important Note:** *Do not connect the board to the PC until after installing the software*. The device driver for the USB microcontroller will not be installed correctly.

Follow these steps to install the MAX24287 EV Kit software:

1. To install the software, run max24287evk.exe. The latest version of the EV Kit software can be downloaded from the Maxim website at www.maxim-ic.com/MAX24287EVKIT.
2. In the window that indicates the publisher could not be verified, click **Run**.
3. Follow the prompts in the MAX24287 Eval Kit setup wizard, For a default installation, click **Next** three times.
4. Connect the power cord to the J1 connector on the EV Kit board.
5. Connect a USB cable from a USB jack on the PC to the J2 connector on the EV Kit board.
6. In the notification area, Windows will indicate “Installing device driver” and then indicate “Freescale CDC Device (COM6) Device driver software installed successfully.”

   The text “COM6” indicates the virtual COM port number assigned to the board. This number varies from system to system. Write down the assigned number to use when running the EV Kit software.

   If Windows does not show the messages above then verify that the board is powered and is connected to the PC. If the board was already connected to the PC before installing the software then see follow the troubleshooting steps in section 3.1.

## 3.1 Troubleshooting Software Installation

If the board was connected to the PC before installing the software or if the EV kit software does not list the board’s COM port number as an option, then follow these steps:

1. In Windows, go to the Device Manager. In recent versions of Windows this is done by going to **Control Panel** and double-clicking **System.** Then in the upper-left corner click **Device Manager**.
2. In the Device Manager window, under **Other devices**, right-click on **Unknown device** and select **Uninstall**. In the **Confirm Device Uninstall** pop-up click **OK**.
3. In **Control Panel** double-click **Programs and Features**.
4. Right-click on **MAX24287 Eval Kit** and select **Uninstall**.
5. Disconnect power and USB cables from the EV Kit board.
6. Follow the steps in section 3.

## 4. Running the Software

To run the software, double-click on the **MAX24287 Eval Kit** shortcut on the desktop, or in the Windows Start menu, select **All Programs → Maxim → MAX24287 Eval Kit**.

At the prompt enter the COM port number assigned to the board in step 6 in section 3.

The software then displays its main menu, as shown in Figure 3.

To start communication with the MAX24287 on the EV kit board, type **1** then **Enter** to create the MAX24287 HAL. If the software and the USB device driver have been installed correctly then regular screen updates begin.

If the software exits unexpectedly then run the software again and specify a different COM port number. If none of the listed COM port numbers is correct then follow the troubleshooting steps in section 3.1.

# 5. Software User Interface

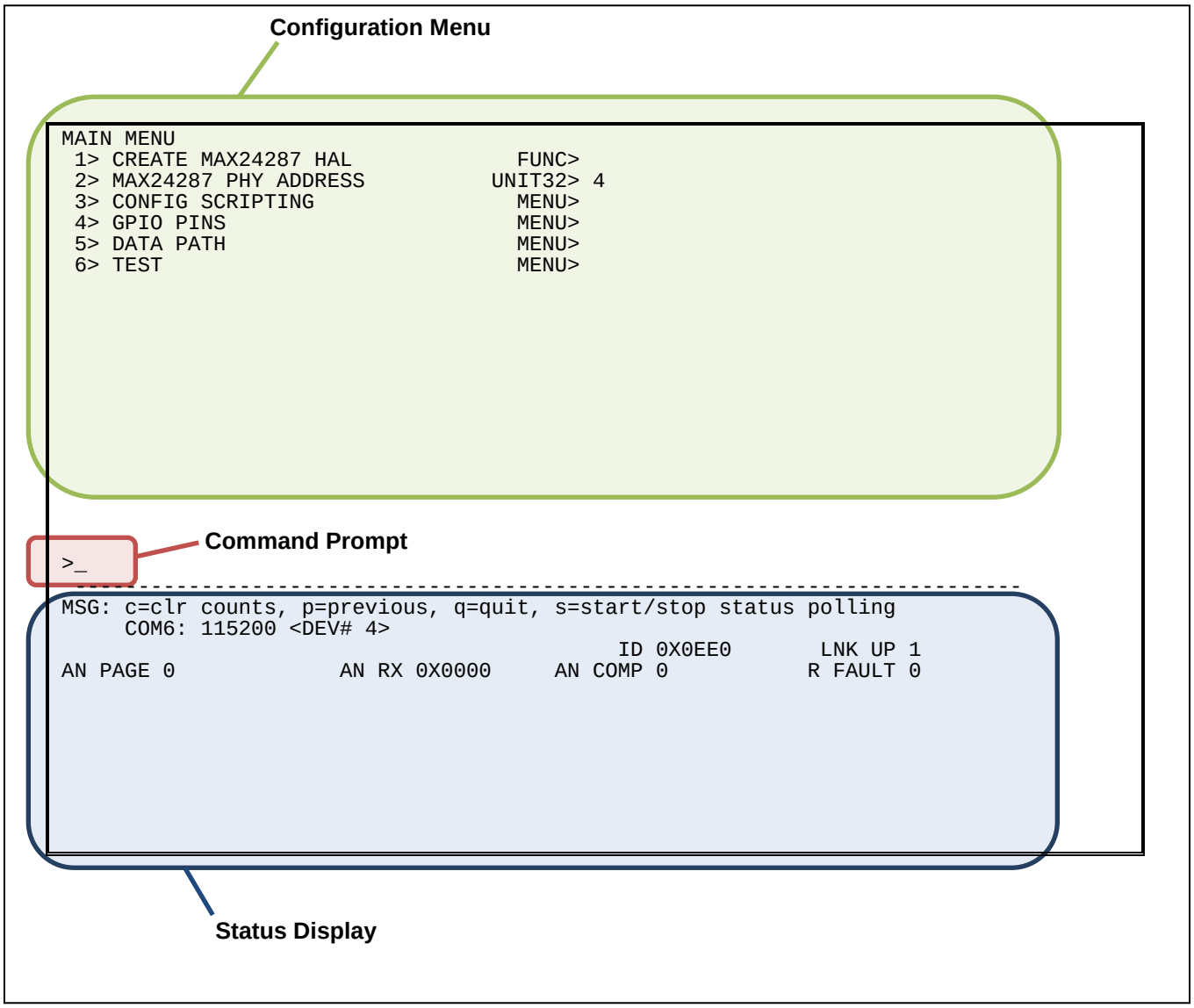



**Figure 3. User Interface Main Screen**

## 5.1 Status Display

The status display area (see the bottom of Figure 3) shows the latest data polled from the device. To start software polling and updating of these fields, select **CREATE MAX24287 HAL** in the main menu. To start or stop polling, use the **s** command at the command prompt. Table 1 lists and describes the status display fields.

**Table 1. Status Display Fields**

| Row | Field | Description |
|---|---|---|
| 1 | ID | Value read from the MAX24287 ID register |
| 1 | LNK UP | Link Up, MAX24287 BMSR register bit 2, 1=link up |
| 2 | AN PAGE | Auto-negotiation page available, 1=yes |
| 2 | AN RX | Auto-negotiation receiver register value |
| 2 | AN COMP | Auto-negotiation complete, MAX24287 BMSR register bit 5, 1=complete |
| 2 | R FAULT | Remote fault, MAX24287 BMSR register bit 4 |

## 5.2 Configuration Menu and Command Prompt

### 5.2.1 Navigating Menus and Changing Settings

Figure 3 shows the main screen of the MAX24287 software. In the upper half of the screen the command menu has two columns. The left-hand column shows numbered command/menu options. The right-hand column indicates what happens when an option is chosen. **FUNC>** indicates that a function is executed, **LIST>** indicates a list of choices will be presented, and **MENU>** indicates that the user will be taken to a submenu. Data types such as **UINT32>** or **STR>** indicate that a value with the specified data type can be entered. **UINT32>**, for example, means a 32-bit unsigned integer. **STR>** means text string.

To change the device configuration, the user types a number at the command prompt followed by the **Enter** key. If the option selected has a data type in the right-hand column, such as **UINT32>** then the cursor moves to the right of the data type. The user then enters the desired value followed by the **Enter** key. The cursor then moves back to the command prompt area.

If the option selected has **LIST>** in the right-hand column, then the cursor moves to the right of the **LIST>** text and a list of options is shown in an additional column on the right. The user then enters the option number from the list followed by the **Enter** key. The value next to **LIST>** then changes to the option selected, and the cursor moves back to the command prompt area.

### 5.2.2 Configuring the Device

All menus of the software are designed to have a two-step configuration process:

1. Configure the relevant values using data-type or **LIST>** menu options.
2. Configure the HAL or the device using a **FUNC>** menu option.

For example, in the **DATA PATH** menu, **AUTO-NEGOTIATE MODE** and **AUTO-NEGOTIATE ADVERT** are configure first, and then **CONFIG AUTO-NEGOTIATE** is selected.

### 5.2.3 Other Commands

In addition to menu item numbers, the following commands are also valid at the command prompt:

**c** – clear counts in status area
**p** – return to previous menu (when in a submenu)
**q** – quit the program
**s** – stop/start status polling

## 5.3 Configuration Menu Detailed Descriptions

**Table 2. MAIN Menu**

| Name | Description |
|---|---|
| CREATE MAX24287 HAL | This function creates the MAX24287 HAL and starts polling device status. The three MAX24287* fields below must be set before this function is executed. |
| MAX24287 PHY ADDRESS | Specifies the address of the MAX24287 on the MDIO bus to the HAL. The MAX24287 gets its PHY address from pins RXD[7:4] and RX_ER when the MAX24287 RST_N pin is asserted. |
| CONFIG SCRIPTING | Opens the CONFIG SCRIPTING menu. See Table 3. |
| GPIO PINS | Opens the GPIO PINS menu. See Table 4. |
| DATA PATH | Opens the DATA PATH menu. See Table 5. |
| TEST | Opens the TEST menu. See Table 6. |

**Table 3. CONFIG SCRIPTING Menu**

| Name | Description |
|---|---|
| READ CONFIGURATION | Function reads configuration information from the file specified by the READ CONFIG FILE NAME parameter below. |
| WRITE CONFIGURATION | Function writes configuration information to the file specified by the WRITE CONFIG FILE NAME parameter below. |
| READ CONFIG FILE NAME | The file name for the READ CONFIGURATION function above. The file extension is .cfg. |
| WRITE CONFIG FILE NAME | The file name for the WRITE CONFIGURATION function above. The file extension is .cfg. |

**Table 4. GPIO PINS Menu**

| Name | Description |
|---|---|
| CONFIG GPIO | Function writes GPIO configuration from the fields below to MAX24287 register GPIOCR1 or GPIOCR2 for the pin(s) specified by GPIO CONFIG SELECT below. |
| GPIO CONFIG SELECT | Specifies one or all of {GPO1, GPO2, GPIO1-7} to be configured by the CONFIG GPIO function above. |
| GPOx MODE, GPIOx MODE<br>(9 fields total) | Specify high-impedance, low, high, and several other options. Other options are pin-dependent and include:<br>INT = interrupt output<br>EXT CLK = Output the PTP_CLKO signal from the time engine<br>REFCLK PLL 125 MHZ = Output 125MHz from the reference clock PLL<br>RX 125/25 MHZ = Output clock from receive clock recovery PLL; the frequency is specified by GPIO RX PLL CLK MODE in the DATA PATH menu.<br>RX 125/25 MHZ SQUELCH = same as RX 125/25 MHZ above and the output clock signal is squelched when certain receiver conditions occur such as LOS or ALOS<br>LOS or ALOS = Output real-time link status, 1= link up<br>CRS = Output carrier sense status<br>See Table 6-4 through Table 6-6 in the MAX24287 data sheet.<br>Note that GPIO4 through GPIO7 are the TXD4 through TXD7 pins, which are not available when the parallel MII interface is configured as GMII. |

**Table 5. DATA PATH Menu**

| Name | Description |
|---|---|
| CONFIG DATA PATH | Function writes configuration from fields LOOPBACK MODE through TXCLK PIN 125MHZ below to MAX24287 registers. |
| DEVICE DATA PATH MODE | Specifies the combination of serial interface type, parallel interface type and interface speeds. Examples include (1) GMII ⇔SGMII (1000Mbps) and (2) RGMII10 ⇔SGMII (10Mbps).<br>*Affects MAX24287 register fields PCSCR.BASEX, GMIICR.SPD, GMIICR.DTE_DCE, and GMIICR.DDR.* |
| LOOPBACK MODE | Controls loopback modes. See the block diagram in the MAX24287 data sheet for loopback locations.<br>*Affects register fields BMCR.DLB, PCSCR.TLB, GMIICR.RLB, CR.DLBDO, CR.RLBDO, CR.TLBDO.* |
| SERIAL TCLK PIN MODE | Enables/disables the TCLKP/N differential pair.<br>*Affects register field CR.TCLK_EN.* |
| GPIO RX PLL CLK MODE | Specifies the frequency, 25MHz or 125MHz, of the receive recovered clock that can be output on GPIO pins. Also specifies whether this clock is squelched when any of several conditions occur, such as Rx loss of signal.<br>*Affects register fields CR.RCFREQ and CR.RCSQL.* |
| TXCLK PIN 125MHZ | In GMII and RGMII modes, the TXCLK pin is not used for parallel interface operation. The TXCLK_EN bit enables TXCLK to output a 125MHz clock from the TX PLL in those modes. TXCLK_EN is ignored in MII mode.<br>*Affects register field GMIICR.TXCLK_EN.* |
| CONFIG DIAG PATTERN | Function writes configuration from fields DIAGNOSTIC PATTERN MODE and CUSTOM 10-BIT PATTERN to MAX24287 registers. |
| DIAGNOSTIC PATTERN MODE | Specifies a diagnostic pattern transmit, typically for jitter testing.<br>*Affects register fields JIT_DIAG.JIT_EN, JIT_DIAG.JIT_PAT.* |
| CUSTOM 10-BIT PATTERN | Specifies a custom 10-bit diagnostic pattern.<br>*Affects register field JIT_DIAG.CUST_PAT.* |
| CONFIG AUTO-NEGOTIATE | Function writes configuration from AUTO-NEGOTIATE MODE and AUTO-NEGOTIATE ADVERT to MAX24287 registers. |

| Name | Description |
|---|---|
| AUTO-NEGOTIATE MODE | Enables/disables MAX24287 auto-negotiation.<br>*Affects register fields BMCR.AN_EN and AN_START.* |
| AUTO-NEGOTIATE ADVERT | Specifies the auto-negotiation tx_Config_Reg[15:0] value for the MAX24287.<br>*Affects register field AN_ADV.* |

**Table 6. TEST Menu**

| Name | Description |
|---|---|
| READ REGISTER | Function reads the register specified by the REGISTER ADDRESS fields below and displays the value in the REGISTER DATA fields below. |
| WRITE REGISTER | Functions writes the data value specified in the register data fields below into the register address specified by the REGISTER ADDRESS fields below. |
| REGISTER ACCESS MODE | Specifies the register access mode.<br>MAX24287 USER MODE: The registers in Table 7-1 of the MAX24287 data sheet are at addresses 0-31 decimal, except that the page 1 (P1) registers are at 16 (decimal) + register number. For example, the ID register at P1.16 is at address 16+16=32 (decimal).<br>MAX24287 MDIO: The MAX24287 registers are addressed using the MDIO addresses in Tables 7-1 and 7-2 of the MAX24287 data sheet. The page number must be manually set by writing the PAGESEL register at address 31 decimal. To use this mode polling must be stopped by entering **s** on the command line. This prevents the polling routine from changing the MDIO page in the PAGESEL register.<br>SW PHY0 (MDIO#8): Accesses the registers of PHY0 on the evaluation board's switch chip.<br>SW PHY1 (MDIO#9): Accesses the registers of PHY1 on the evaluation board's switch chip.<br>SW MAC (MDIO#A): Accesses the MAC registers of the evaluation board's switch chip for the port connected to the MAX24287.<br>SFP CFG (I2C#A0): Accesses the SFP module's internal EEPROM memory.<br>SFP PHY (I2C#AC): Accesses the SFP module's PHY registers. |
| REGISTER ADDRESS HEX | Specifies the register address in hexadecimal for the READ REGISTER and WRITE REGISTER functions above. When REGISTER ADDRESS DEC below is changed, this field is changed to match. The REGISTER ACCESS MODE field above specifies the register mapping. |
| REGISTER ADDRESS DEC | Specifies the register address in decimal for the READ REGISTER and WRITE REGISTER functions above. When REGISTER ADDRESS HEX above is changed, this field is changed to match. |
| REGISTER DATA HEX | Indicates the data value in hexadecimal from the last time the READ REGISTER function was executed or the last time one of the REGISTER DATA fields was change by the user. |
| REGISTER DATA DECIMAL | Indicates the data value in decimal from the last time the READ REGISTER function was executed or the last time one of the REGISTER DATA fields was change by the user. |
| READ SFP MODULE INFO | Functions reads and displays the data from the evaluation board's SFP module. To end the data display and return to the menu, press the ENTER key. |

# 6. Jumpers, Connectors and LEDs

**Table 7. Power and Reset Components**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J1 | 5V jack | Connected | 4 | Power jack for 5V wall adapter (supplied) |
| DS1<br>DS2<br>DS3 | 5.0V_OK LED<br>3.3V_OK LED<br>1.2V_OK LED | On | 4 | Lit when power is within range for 5V, 3.3V, and 1.2V, respectively |
| SW1 | DUT_RST button | Unused | 5 | Manual reset for entire system |

**Table 8. MAX24287 REFCLK Jumpers and Connectors**

**Note**: MAX24287 is intolerant of REFCLK signal changes during operation. To make REFCLK signal changes, power down the board, change the jumpers as needed then apply power to the board again.

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| JP1 | Y2OSC / Y3OSC selection 3-pin header | Jumper connecting pins 2 and 3 | 7 | Drives SMB connector J3 and jumper J14 pin 1.<br>Connect the Y3OSC pin to the center pin to connect the Y3 oscillator output to J3 and J14.<br>Connect the Y2OSC pin to the center pin to connect the Y2 oscillator output to J2 and J14. |
| J3 | OSC_OUT SMB connector | Not monitored | 7 | J3 is driven by a buffer sourced by the center pin of JP1. |
| J4 | SER_TRM 2-pin header | Not monitored | 7 | Install a jumper on J4 to apply 50 ohm parallel termination to J3 |
| J10 | EXT_REFCLK SMB connector | Not monitored | 7 | External REFCLK oscillator input. Signal goes to J14 pin 1. |
| J25 | 50PAR 2-pin header | Not monitored | 7 | Jumper J25 to apply 50 ohm parallel termination to J10. |
| J14 | REFCLK 2x3pin header | Jumper connecting pins 5 and 6 | 7 | Connects 25MHz XO clock or Y2/Y3 clock or external clock to MAX24287 REFCLK pin. Frequency must match the settings of the REF[1:0] jumpers (see Table 9).<br>Connect pins 1 and 2 to select the external clock signal from SMB J10.<br>Connect pins 3 and 4 to select the Y2 or Y3 clock signal from JP1.<br>Connect pins 5 and 6 to select the Y1 clock signal. |
| J19 | OSC 3.3V POWER 2x3pin header | All jumpered | 7 | Connect/disconnect 3.3V power for oscillator components Y1, Y2 and Y3.<br>Connect pins 1 and 2 to power Y3.<br>Connect pins 3 and 4 to power Y2.<br>Connect pins 5 and 6 to power Y1.<br>Note: the silkscreen mistakenly has Y2OSC and Y3OSC labels swapped. |

**Table 9. MAX24287 Pin Configuration Jumpers**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| JP13 | HW_MODE<br>3-pin header | Jumper in the 15PIN position. | 3 | MAX24287 COL pin. At reset this pin specifies 3-pin or 15-pin configuration mode. |
| JP15 | TXCLK<br>3-pin header | Jumper in the GND position. | 3 | MAX24287 TXCLK pin. At reset the value on this pin is latched into the GMIICR.TXCLK_EN bit to configure TXCLK behavior. 0=high impedance. 1=125MHz from TX PLL. Ignored in MII mode. |
| JP16 | AN_EN<br>3-pin header | Jumper in the GND position. | 3 | MAX24287 RX_DV pin. At reset the value on this pin is latched into the BMCR.AN_EN bit to configure auto-negotiation. 0=auto-negotiation disabled. 1=enabled. |
| JP17 | DDR<br>3-pin header | Jumper in the GND position. | 3 | DDR: MAX24287 CRS pin.<br>SPEED[1:0]: MAX24287 RXD[1:0] pins. At reset the values on these pins are latched into the GMIICR.DDR and SPD[1:0] register bits. These jumpers together set the parallel interface mode for the MAX24287. See Table 10 for encodings. The equivalent interface configuration must be made on the Ethernet switch IC MODE and SPEED jumpers (see Table 15). |
| JP29<br>JP30 | SPEED[1:0]<br>3-pin header | JP29: VCC<br>JP30: GND | 3 | |
| JP18 | GPIO1_TX125<br>3-pin header | Jumper in the GND position. | 3 | MAX24287 GPO1 pin. At reset the value on this pin is latched into GPIOCR1.GPIO1_SEL[2] to configure GPIO1 behavior. 0=high impedance. 1=125MHz from TX PLL. |
| JP19 | BASEX_DCE<br>3-pin header | Jumper in the GND position. | 3 | MAX24287 GPO2 pin. At reset the value on this pin is latched into GMIICR.DTE_DCE when SPEED[1:0] and DDR specify 10/100 MII mode or into PCSCR.BASEX when SPEED[1:0] and DDR specify some other mode.<br><br>For 10/100 MII, 0=DCE, 1=DTE and the serial interface is configured for SGMII mode (PCSCR.BASEX=0).<br><br>For other parallel interface modes, 0=SGMII, 1=BASEX. |
| JP14<br>JP23<br>JP24<br>JP25<br>JP26 | ADDRESS[4:0]<br>3-pin headers | JP14: GND<br>JP23: GND<br>JP24: VCC<br>JP25: GND<br>JP26: GND | 3 | MAX24287 RX_ER and RXD[7:4] pins. At reset the values on these pins are latched into the internal MDIO PHY address register. Address 11111 enables factory test mode and should not be used.<br>JP14 is RX_ER and ADDRESS[4].<br>JP23-JP26 are RXD[7:4] and ADDRESS[3:0]. |
| JP27<br>JP28 | REF[1:0]<br>3-pin headers | JP27: VCC<br>JP28: GND | 3 | MAX24287 RXD[3:2] pins. At reset the values on these pins are latched into the internal REFCLK frequency register. 00=10MHz, 01=12.8MHz, 10=25MHz, 11=125MHz. |
| JP12 | TX_ER<br>3-pin header | Jumper in the GND position. | 3 | MAX24287 TX_ERR pin. |

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| TP1<br>TP2 | TP1, TP2<br>Test points | Not used | 1 | Test points for TCLKN (TP1) and TCLKP (TP2) |
| TX-<br>TX+<br>RX+<br>RX-<br>TP10 | TX-, TX+, RX+, RX-, TP10<br>Test points | Not used | NA | Unconnected copper shapes have been placed next to each trace, and a section of the trace metal is exposed. A solder bridge may be used to bridge the trace to the shape, creating a test point. |

**Table 10. MAX24287 Parallel Interface Configuration**

| SPEED[1] | SPEED[0] | Speed | DDR=0 | DDR=1 |
|---|---|---|---|---|
| 0 | 0 | 10Mbps | MII | RGMII-10 |
| 0 | 1 | 100Mbps | MII | RGMII-100 |
| 1 | 0 | 1000Mbps | GMII | RGMII-1000 |
| 1 | 1 | 1000Mbps | TBI | RTBI |

**Table 11. MAX24287 GPIO1 Jumpers and Connectors**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J18 | SMB Connector | Not jumpered | 3 | I/O connector for GPIO1. |
| JP5 | GPIO1<br>3-pin header | Not jumpered | 3 | Can be used to bias GPIO1 high or low. |
| JP6 and JP9 | 3-pin headers | Not jumpered | 3 | To drive a signal from SMB J18 to GPIO1, jumper JP6 pins 2 and 3 and JP9 pins 2 and 3. To drive a signal from GPIO1 to SMB J18, jumper JP6 pins 1 and 2 and JP9 pins 1 and 2. |
| J22 | 2-pin header | Not jumpered | 3 | Install J22 to short the 30 ohm series termination at JP6 pin 2. |
| J26 | 2-pin header | Not jumpered | 3 | Install J26 to apply 50 ohm parallel termination to JP9 pin 2 |
| DS4 | LED | Off | 3 | Lit when GPIO1 is high. |

**Table 12. MAX24287 GPIO2 Jumpers and Connectors**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J16 | SMB Connector | Not jumpered | 3 | I/O connector for GPIO2. |
| JP4 | GPIO1<br>3-pin header | Not jumpered | 3 | Can be used to bias GPIO2 high or low. |
| JP7 and JP10 | 3-pin headers | Not jumpered | 3 | To drive a signal from SMB J16 to GPIO2, jumper JP7 pins 2 and 3 and JP10 pins 2 and 3. To drive a signal from GPIO1 to SMB J16, jumper JP7 pins 1 and 2 and JP10 pins 1 and 2. |
| J23 | 2-pin header | Not jumpered | 3 | Install J23 to short the 30 ohm series termination at JP7 pin 2. |
| J27 | 2-pin header | Not jumpered | 3 | Install J27 to apply 50 ohm parallel termination to JP10 pin 2 |

**Table 13. MAX24287 GPIO3 Jumpers and Connectors**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J17 | SMB Connector | Not jumpered | 3 | I/O connector for GPIO3. |
| JP3 | GPIO1<br>3-pin header | Not jumpered | 3 | Can be used to bias GPIO3 high or low. |
| JP8 and JP11 | 3-pin headers | Not jumpered | 3 | To drive a signal from SMB J17 to GPIO3, jumper JP8 pins 2 and 3 and JP11 pins 2 and 3. To drive a signal from GPIO1 to SMB J17, jumper JP8 pins 1 and 2 and JP11 pins 1 and 2. |

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J24 | 2-pin header | Not jumpered | 3 | Install J24 to short the 30 ohm series termination at JP8.2. |
| J28 | 2-pin header | Not jumpered | 3 | Install J28 to apply 50 ohm parallel termination to JP11.2 |

**Table 14. Processor and Debug Jumpers and Connectors**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J2 (USB) | USB jack | Connected | 8 | USB connector, attach to PC with supplied cable |
| J5 | PROCESSOR DEBUG 2x3pin header | Not Connected | 8 | BDM connector for use with debug pod |
| J9 | COM_BCLK 2x3pin header | Not jumpered | 5 | Used to make a common communication clock. Jumper options allow to short MDC, I2C_CLK and SPI clock. |
| J12 | 2x5pin header | Jumpered 3-4, 5-6, 7-8, 9-10 | 5 | Connection points for processor pins to SFP I2C and MAX24287 MDIO. Disconnect if connecting an external processor. |
| J13 | 2x5pin header | Jumpered 1-2, 3-4, 5-6, 7-8 | 5 | Connection points for processor pins to MAX24287 SPI. Disconnect if connecting an external processor. |
| J15 | 2x7 header | Not used | 5 | Connection for external processor board |
| J21 | 2x5 header | Not used | 5 | SPI bus connection to external board such as Maxim's DS31400DK. |
| J11 | 2-pin header | Not used | 5 | Place a jumper to connect 5V to J15 pin 2. |
| J34 | 2x5pin header | Jumpered 9-10 | 5 | MAX24287 JTAG header. When not in JTAG mode the JTRST pin should be driven low by connecting pins 9 and 10. |
| JB1 | 2x5 header (just below the Maxim logo) | Not jumpered | 8 | Connects to several GPIO on the processor to provide for future board application options. |

**Table 15. Ethernet Switch Jumpers, Connectors and LEDs**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| JP2 | SWITCH OSC 3-pin header | Jumper in the 25MHZ position. | 7 | Selects clock signal applied to the RTL8363 switch XTAL1 pin.<br>Connect center pin to 25MHZ pin to select the clock signal from Y1.<br>Connect center pin to EXT_SOSC to select the clock signal from SMB J7. |
| J7 | EXT_SOSC SMB connector | Not Driven | 7 | External clock for Ethernet switch IC. JP2 must have jumper in the EXT_SOSC position to use this signal. |
| J8 | 50PAR 2-pin header | Not jumpered | 7 | Install jumper to apply 50 ohm parallel termination to the signal on J7. |
| JP20<br>JP21 | SPEED[1:0] 3-pin headers | JP20: GND<br>JP21: VCC | 11 | Switch-IC P2SPD[1:0] pins. Selects speed of MII interface to MAX24287. The equivalent interface configuration must be made on the MAX24287 SPEED jumpers (see Table 9).<br>00: 10M<br>01: 100M<br>10: 1000M |

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| JP22<br>JP33<br>JP32 | MODE[2:0]<br>3-pin headers | JP22: GND<br>JP33: GND<br>JP32: GND | 11 | Switch-IC P2IF[2:0] pins. Selects mode of MII interface to MAX24287. The equivalent interface configuration must be made on the MAX24287 DDR and BASEX_DCE jumpers (see Table 9).<br>000: GMII/PHY MODE MII<br>001: GMII/MAC MODE MII<br>010: RGMII<br>011: RMII (do not use, not compatible with MAX24287) |
| JP31 | RXDLY<br>3-pin header | Jumper in the VCC position. | 11 | Switch-IC RXDLY pin, adds delay to RX CLK between MAX24287 and switch IC.<br>Jumper to VCC to add 1.5nsec delay<br>Jumper to GND to add 0 delay |
| JP34 | TXDLY<br>3-pin header | Jumper in the VCC position. | 11 | Switch-IC TXDLY pin, adds delay to TX CLK between MAX24287 and switch IC.<br>Jumper to VCC to add 1.5nsec delay<br>Jumper to GND to add 0 delay |
| J29 | PORT1<br>RJ-45 jack | Not Connected | 10 | Interface to Port 1 of Ethernet Switch IC |
| J31 | PORT0<br>RJ-45 jack | Connected | 10 | Interface to Port 0 of Ethernet Switch IC |
| DS14 | DUP / COL<br>LED | -- | 10 | Port 1 status LEDs, indicate link status and speed. |
| DS13 | 10_LINK/ACT<br>LED | -- | 10 | |
| DS12 | 100_LINK/ACT<br>LED | -- | 10 | |
| DS11 | GIG_LIN/ACT<br>LED | -- | 10 | |
| DS8 | DUP / COL<br>LED | -- | 10 | Port 0 status LEDs, indicate link status and speed. |
| DS7 | 10_LINK/ACT<br>LED | -- | 10 | |
| DS6 | 100_LINK/ACT<br>LED | -- | 10 | |
| DS5 | GIG_LIN/ACT<br>LED | -- | 10 | |

**Table 16. SFP Module Jumpers and LEDs**

| COMPONENT | LABEL AND TYPE | BASIC SETTING | SCHEMATIC PAGE | DESCRIPTION |
|---|---|---|---|---|
| J30 | 2x5pin header | Jumpered 6-8<br>Jumpered 3-4 | 6 | SFP test points and bias points<br>A jumper connecting pins 6 and 8 enables TX.<br>A jumper connecting pins 3 and 4 connects SFP_LOS signal to MAX24287 ALOS pin. |
| DS9 | TX_FAULT LED | -- | 6 | Indicates SFP module transmit fault signal is active. |
| DS10 | LOS LED | -- | 6 | Indicates SFP module LOS signal is active. |

## 7. Component List

| DESIGNATION | QTY | DESCRIPTION | SUPPLIER | PART |
|---|---|---|---|---|
| Reference designators shown on next row (C1, …, CB143) | 81 | 0402 CERAM 1uF 10V | TDK | C1005X5R1A105M |
| C1, C2, C12, C13, C14, C22, C27, CB8, CB10, CB13, CB14, CB21, CB23, CB25, CB28, CB30, CB31, CB34, CB35, CB36, CB37, CB38, CB39, CB40, CB41, CB42, CB45, CB49, CB50, CB51, CB52, CB53, CB54, CB55, CB57, CB58, CB62, CB64, CB66, CB67, CB69, CB70, CB71, CB73, CB74, CB76, CB77, CB79, CB81, CB84, CB86, CB87, CB89, CB91, CB92, CB94, CB95, CB98, CB99, CB100, CB102, CB104, CB106, CB107, CB113, CB115, CB116, CB119, CB121, CB122, CB123, CB124, CB127, CB128, CB129, CB133, CB134, CB135, CB141, CB142, CB143 | | | | |
| Reference designators shown on next row (C3, …, CB145) | 41 | 0402 CERAM 0.01uF 16V 10% | Panasonic | ECJ-0EB1C103K |
| C3, C8, C10, C17, C24, CB3, CB7, CB12, CB26, CB27, CB47, CB59, CB60, CB61, CB63, CB65, CB68, CB72, CB75, CB78, CB80, CB82, CB83, CB85, CB88, CB90, CB93, CB96, CB97, CB101, CB103, CB105, CB108, CB109, CB110, CB111, CB114, CB117, CB118, CB120, CB145 | | | | |
| C4, C9, C11, C15, C16, C18, C19, C20, C21, C23, C25, C26, CB1, CB2, CB4, CB5, CB9, CB11, CB15, CB19, CB20, CB24, CB29, CB32, CB33, CB44, CB46, CB56, CB112, CB125, CB130, CB131, CB132, CB139, CB140, CB146 | 36 | 0603 CERAM 10uF 6.3V 20% MULTILAYER | Panasonic | ECJ-1VB0J106M |
| C5, CB18 | 2 | 0603 CERAM .1uF 16V 20% X7R | AVX | 0603YC104MAT |
| C6, C7 | 2 | 0603 CERAM 22pF 25V 5% NPO | AVX | 06033A220JAT |
| CB17, CB22 | 2 | 0603 CERAM 4.7uF 6.3V MULTILAYER | UNK | ECJ-1VB0J475M |
| CB43, CB48, CB126, CB136, CB137, CB138 | 6 | CAP CER 3.3UF 4.0V X5R 0402 | AMK | AMK105BJ335MV-F |
| CB6, CB16, CB144 | 3 | D CASE TANT 470uF 6.3V 20% | KEM | T491D477M006AS |
| DB1 | 1 | SCHOTTKY DIODE, 1 AMP 40 VOLT | International Rectifier | 10BQ040 |
| DS1, DS2, DS3, DS5, DS6, DS7, DS8, DS11, DS12, DS13, DS14 | 11 | LED, GREEN, SMD | Panasonic | LN1351C |
| DS4, DS15, DS16 | 3 | LED, GREEN, SMD | Panasonic | LN1351C |
| DS9, DS10 | 2 | LED, RED, SMD | Panasonic | LN1251C |
| GND_TP1, GND_TP2, GND_TP3, GND_TP4 | 4 | STANDARD GROUND CLIP | KEYSTONE | 4954 |
| J1 | 1 | 2.0MM SURFACE MOUNT POWER JACK | CUI INC | PJ-002AH-SMT |
| J11 | 1 | 2 PIN HEADER, .100 CENTERS, VERTICAL | Samtec | TSW-102-07-T-S |
| J12, J13, J30, J34 | 4 | TERMINAL STRIP, 10 PIN, DUAL ROW, VERT | DIG | S2012-05-ND |
| J15 | 1 | HEADER, 14 PIN, DUAL ROW, VERT NOT POPULATED | Samtec | HDR-TSW-107-14-T-D |
| J2 | 1 | TYPE B SINGLE RT ANGLE, BLACK | MOL | NA |
| J29, J31 | 2 | CONNECTOR, SINGLE LEVEL, GIGABIT RJ-45, 10 PIN WITH LED | Halo Electronics | HFJ11_1G41E_L12RL |
| J3, J7, J10, J16, J17, J18 | 6 | CONNECTOR, SMB, 50 OHM VERTICAL, 5PIN | AMP | 413990-1 |
| J4, J8, J22, J23, J24, J25, J26, J27, J28, J32, J33 | 11 | 100 MIL 2 POS JUMPER | NA | NA |
| J5, J6, J9, J14, J19 | 5 | TERMINAL STRIP, 6 PIN, DUAL ROW, VERT | Samtec | TSW-103-07-T-D |
| JB1 J15, J21 | 3 | TERMINAL STRIP, 10 PIN, DUAL ROW, VERT DO NOT POPULATE | DNP | DNP |

| DESIGNATION | QTY | DESCRIPTION | SUPPLIER | PART |
|---|---|---|---|---|
| JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12, JP13, JP14, JP15, JP16, JP17, JP18, JP19, JP20, JP21, JP22, JP23, JP24, JP25, JP26, JP27, JP28, JP29, JP30, JP31, JP32, JP33, JP34 | 34 | 100 MIL 3 POS JUMPER | NA | NA |
| LB1, LB3, LB4, LB9, LB10, LB11, LB12, LB13, LB14 | 9 | FERRITE 3A 100 OHM AT 100 MHZ 1206 SMD | Steward | HI1206N101R-00 |
| LB5, LB6, LB7, LB8 | 4 | 1uH ±10% 0805 Multilayer Ceramic 400 mA (ok to sub with 445-3156-1-ND) | Murata | LQM21FN1R0N00D |
| R1, R4, R5, R6, R7, R9, R10, RB5 | 9 | RES 0603 30 Ohm 1/16W | Panasonic | ERJ-3GEYJ300V |
| R11, R18, R19, R21, R57, RB8, RB3 | 4 | RES 0402 0 OHM 1/10W 5% | Panasonic | ERJ-2GE0R00X |
| R12, R17, R20, R22, R23, R29, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56 | 32 | RES 0201 30.0 OHM 1/16W 1% | Panasonic | ERJ-1GEJ300C |
| R13, R14, R25, R26, RB23, RB24, RB25, RB38, RB44, RB45, RB49, RB50, RB51, RB52, RB53, RB54, RB56, RB57, RB63, RB64, RB69, RB71, RB72, RB73, RB77, RB78, RB79, RB80, RB81, RB86, RB87, | 31 | RES 0402 10.0 KOHM 1/16W 1% | Panasonic | ERJ-2RKF1002X |
| R16, RB27, RB28, RB29 | 4 | RES 0402 30.0 OHM 1/16W 1% | Panasonic | ERJ-2RKF30R0X |
| R30, R15 | 2 | RES 0402 100 OHM 1/16W 1% | Panasonic | ERJ-2RKF1000X |
| R2, R3 | 2 | RES 0603 33.2 Ohm 1/16W 1% | Panasonic | ERJ-3EKF33R2V |
| R24, R28, R62, R63, RB13, RB15, RB16, RB17, RB18, RB19, RB20, RB21, RB22, RB26, RB39, RB40, RB41, RB42, RB43, RB82 | 18 | RES 0402 1.00 KOHM 1/16W 1% | Panasonic | ERJ-2RKF1001X |
| R27 | 1 | RES 0402 1.40 KOHM 1/16W 1% | Panasonic | ERJ-2RKF1401X |
| R8 | 1 | RES 0603 1.00M Ohm 1/16W 1% | Panasonic | ERJ-3EKF1004V |
| RB1, RB4, RB9, RB30, RB31, RB32, RB33, RB34, RB60, RN1 | 11 | RES 0603 1.0K Ohm 1/16W 5% | Panasonic | ERJ-3GEYJ102V |
| RB14, RB84, RB85, R60 | 5 | RES 0603 330 Ohm 1/16W 5% | Panasonic | ERJ-3GEYJ331V |
| RB2, RB11, RB35, RB36, RB37 | 5 | RES 0402 49.9 OHM 1/16W 1% | Panasonic | ERJ-2RKF49R9X |
| RB6, RB10, RB83 | 3 | RES 0603 10K Ohm 1/16W 5% | Panasonic | ERJ-3GEYJ103V |
| RB65 | 1 | RES 0603 2.49K Ohm 1/16W 1% | Panasonic | ERJ-3EKF2491V |
| RB7 | 1 | RES 0603 10.0K Ohm 1/16W 1% | Panasonic | ERJ-3EKF1002V |
| RPB5, RPB6, RPB7, RPB9, RPB13 | 6 | RESISTOR, 4 PACK, 330 OHM 5PCT QUAD 0603 | Panasonic | EXB-V8V331JX |
| RPB10, RPB11 | 2 | RESISTOR, 4 PACK, 10K OHM 5PCT QUAD 0603 | Panasonic | EXB-V8V103JX |
| RPB2, RPB3, RPB4 | 3 | RESISTOR, 4 PACK, 33 OHM 5PCT QUAD 0603 | Panasonic | EXB-V8V330JV |
| RPB8, RPB12 | 2 | RESISTOR, 4 PACK, 4.7K OHM 5PCT QUAD 0603 | Panasonic | EXB-V8V472JX |
| SW1 | 1 | SWITCH MOM 4PIN SINGLE POLE | Panasonic | EVQPAE04M |
| TP1,TP2,TP3,TP4,TP5,TP6,TP7,TP8,TP9,TP10,TP11,TP12,TP13,TP15,TP16,TP17,TPB1,TPB2,TPB3,TPB4,TPB5,TPB6, TPB7,TPB8,TPB9,TPB10 | 26 | TESTPOINT, 1 PLATED HOLE, DO NOT STUFF | NA | NA |
| U1 | 1 | MICROPROCESSOR VOLTAGE MONITOR, 3.08V RESET, 4PIN SOT143 | Maxim | MAX811TEUS-T |
| U2 | 1 | VOLTAGE MONITOR 5, 3.3, 2.5, ADJ | Maxim | MAX6709AUB+ |

| DESIGNATION | QTY | DESCRIPTION | SUPPLIER | PART |
|---|---|---|---|---|
| UB3,UB4,UB5,UB6,UB9,UB10,UB11,UB12,UB13,UB14,UB15,UB16,UB19,UB20 | 14 | HIGH SPEED BUFFER | FAIRCHILD | NC7SZ86 |
| U4 | 1 | IC, HCS08 8-BIT MICROCONTROLLER, 32K FLASH, 2K RAM, 2 UART, 2 SPI, I2C, USB, -40 TO 85C, 64 PIN LQFP | FREESCALE | MC9S08JM32CLH-ND |
| U5 | 1 | RTL8363 PHY | REALTEK | RTL8363C |
| U6 | 1 | MAX24287 QFN 8X8 | MAXIM | MAX24287ETK+ |
| U7 | 1 | SFP host / receptacle | PARTS_KIT | SFP_HOST-TYCO |
| U8 | 1 | IC, LINEAR REG ADJ, 2A, 14TSSOP-EP | MAXIM | MAX8526EUD+ |
| UB2, UB7, UB17, UB18, UB21 | 5 | IC, LINEAR REGULATOR, 1.5W, 3.3V OR ADJ, 1A, 16 PIN TSSOP-EP | Maxim | MAX1793EUE-33 |
| XB1 | 1 | XTAL, HC49SD, 12.0000MHz +/-50PPM, CL=20PF | FOX | FOXSDLF-120-20 |
| Y1 | 1 | OSCILLATOR LVCMOS, 3.3V, 25 MHZ, 4 PIN SMD | Connor-Winfield | MX010-025.0M |
| Y2 | 1 | OSCILLATOR, VECTRON OCXO, 3.3V, 12.8 MHZ, 5 PIN THROUGH-HOLE | VEC | MC853X4-035W NOT POPULATED |
| Y3 | 1 | OSCILLATOR, RAKON TC-OCXO, 3.3V, 10MHZ RFPO-30-RX-C-LF | RAKON | P5299LF NOT POPULATED |
| J9 | 1 | TERMINAL STRIP, 6 PIN, DUAL ROW, VERT NOT POPULATED | Samtec | TSW-103-07-T-D NOT POPULATED |
| TP14 | 1 | TESTPOINT, 1 PLATED HOLE RED | KEYSTONE | 5000R |
| U3,UB1,UB8 | 3 | TINYLOGIC HIGH SPEED 2-INPUT AND GATE, 5 PIN SOT23 | Fairchild | NC7SZ08M5 |

## 8. Schematics

The schematics are shown in the following pages.

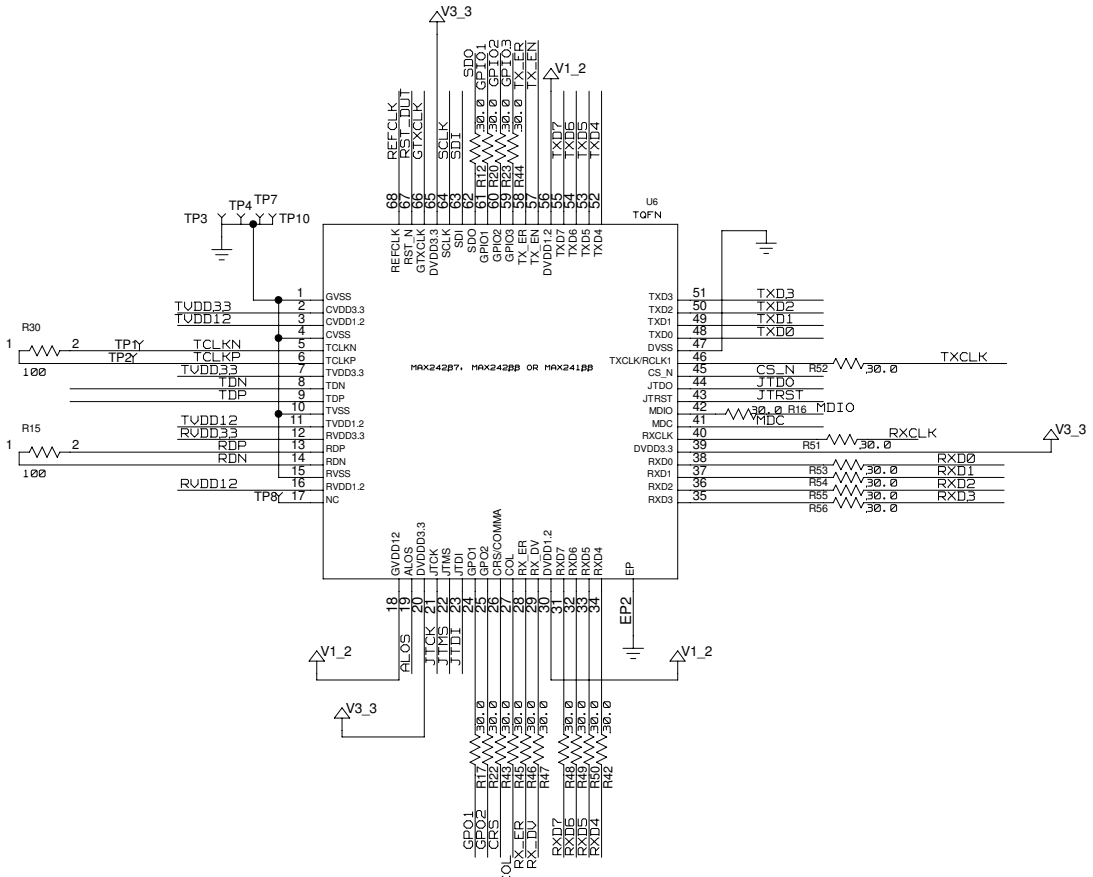
## 9. Ordering Information

| PART | TYPE |
|---|---|
| MAX24287EVKIT | Evaluation Kit |

## 10. Revision History

| REVISION DATE | DESCRIPTION |
|---|---|
| 10/11 | Initial Release |
| 2012-05 | Reformatted for Microsemi. No content change. |

# MAX24287 EVKIT Rev_B




Top level Hierarchy block

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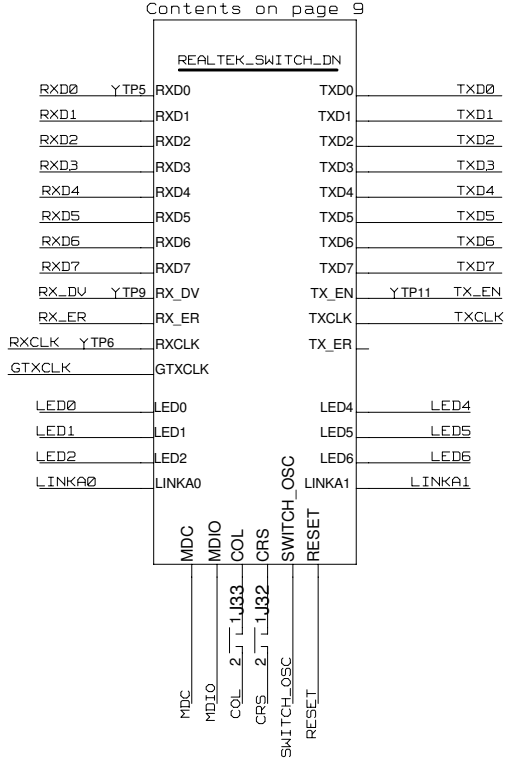
| ENGINEER: Steve Scully | PAGE: 1/11 (TOTAL) 1/B (BLOCK) |

Switch Hierarchy block.
Contents on page 9




Top level Hierarchy block

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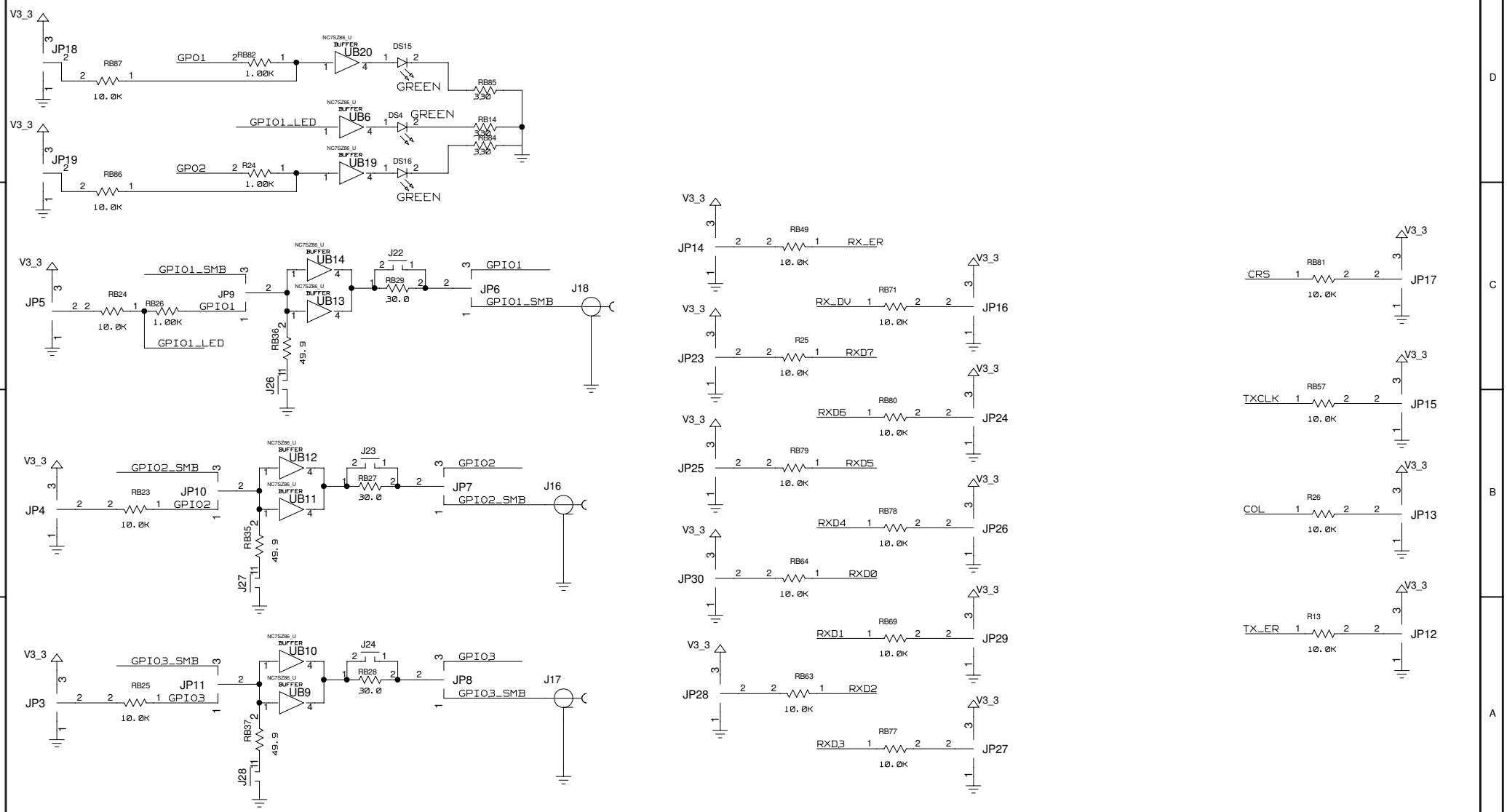
| ENGINEER: Steve Scully | PAGE: 2/11 (TOTAL) 2/8 (BLOCK) |




Top level Hierarchy block

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|---|---|
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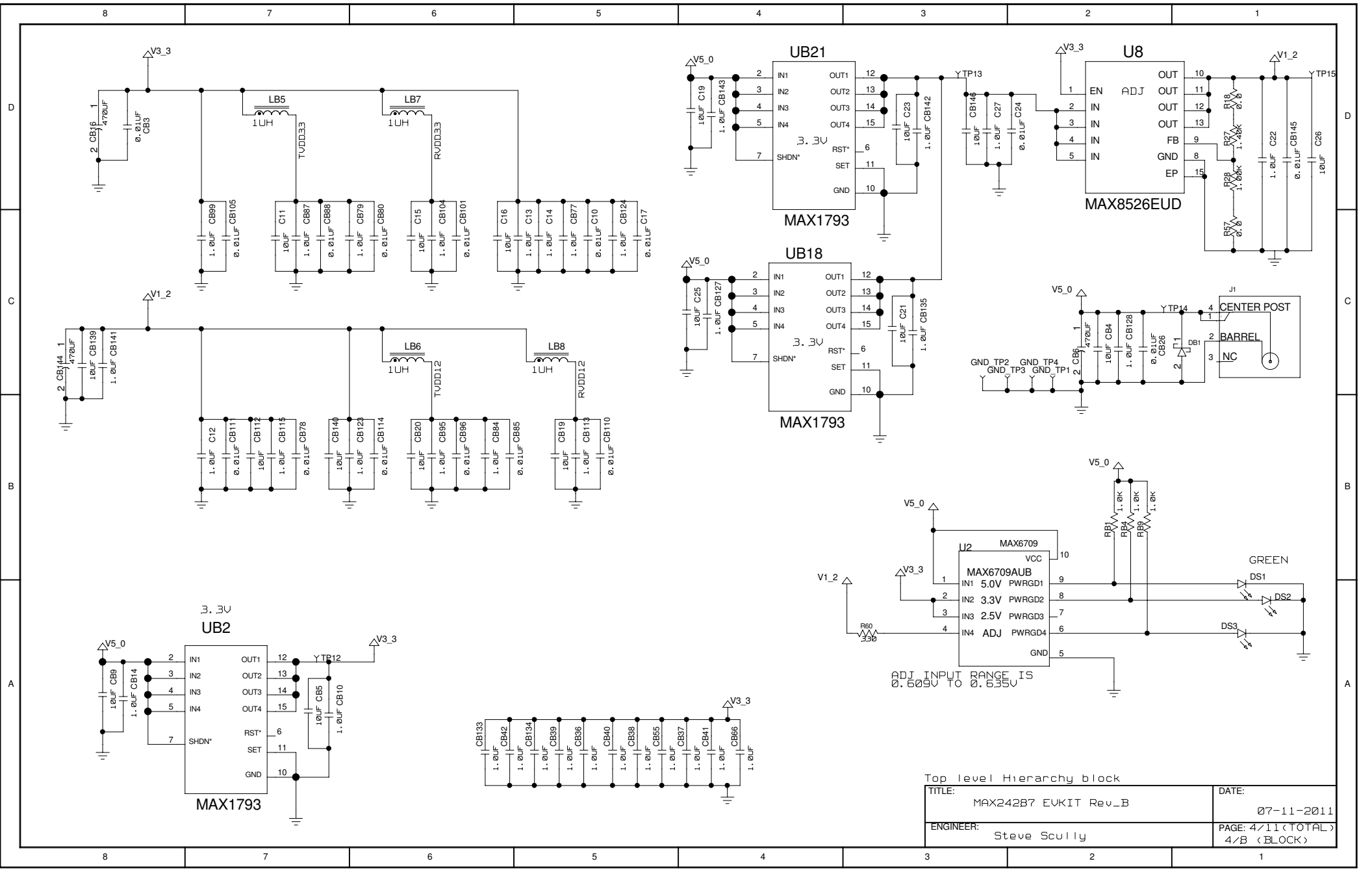
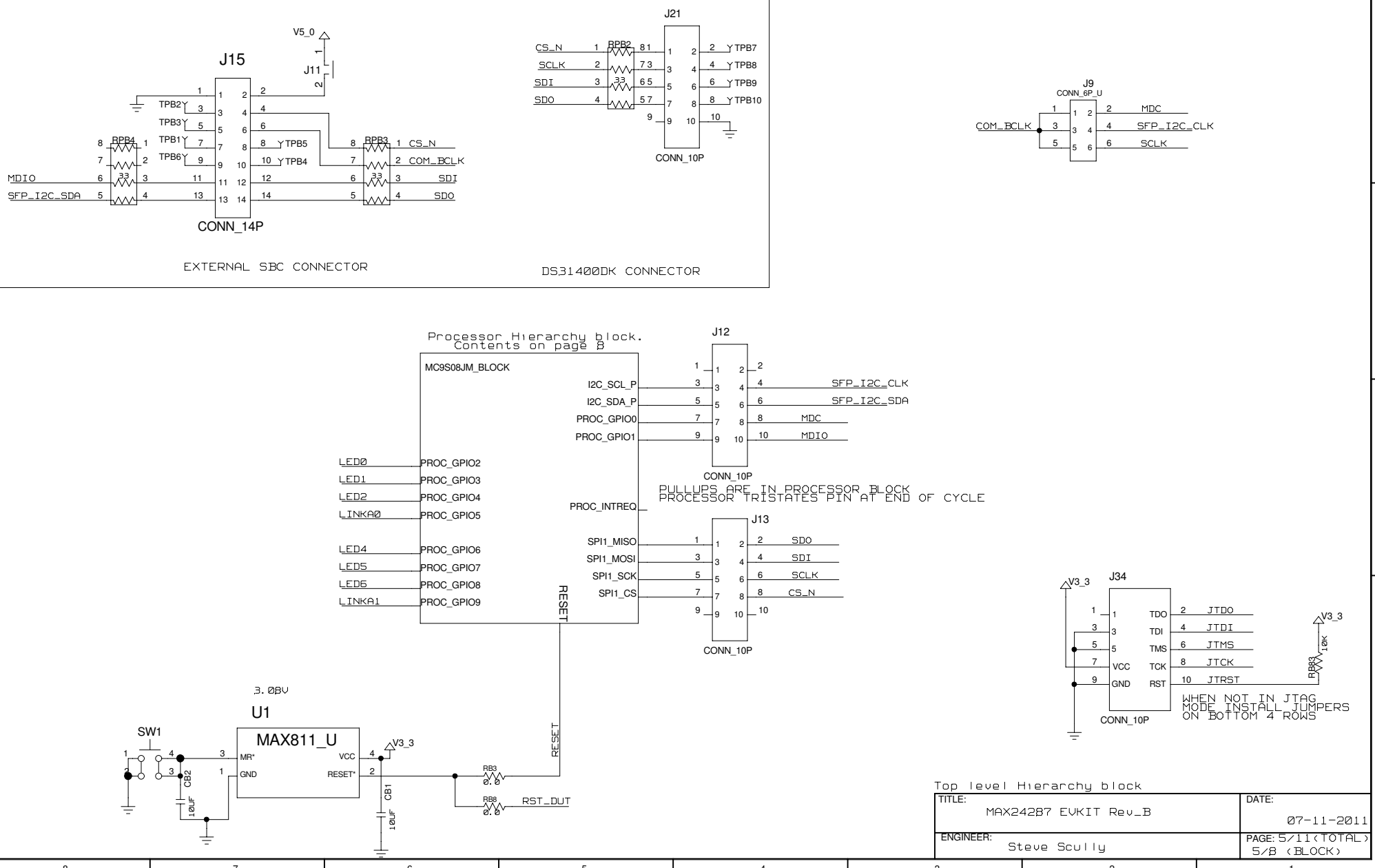
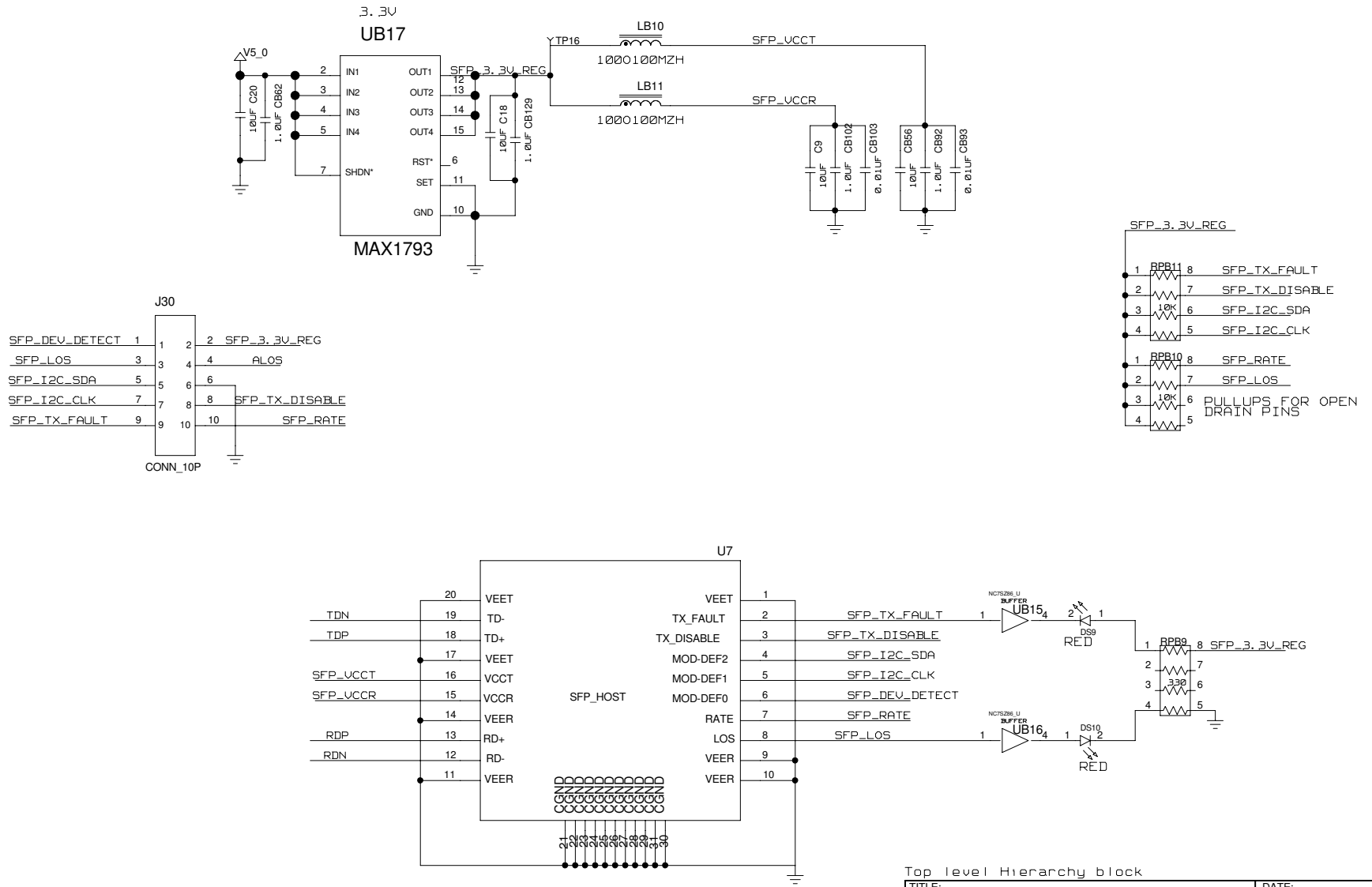
| ENGINEER: Steve Scully | PAGE: 3/11 (TOTAL) 3/8 (BLOCK) |


UB21
MAX1793
UB18
MAX1793
U8
MAX8526EUD
UB2
MAX1793
U2
MAX6709
MAX6709AUB
ADJ INPUT RANGE IS
0.609V TO 0.635V
GREEN
CENTER POST
BARREL
NC
Top level Hierarchy block
TITLE:
MAX24287 EVKIT Rev_B
DATE:
07-11-2011
ENGINEER:
Steve Scully
PAGE: 4/11 (TOTAL)
4/8 (BLOCK)




Top level Hierarchy block

| | |
|---|---|
| TITLE: MAX24287 EVKIT Rev_B | DATE: 07-11-2011 |
| ENGINEER: Steve Scully | PAGE: 5/11(TOTAL) 5/8 (BLOCK) |

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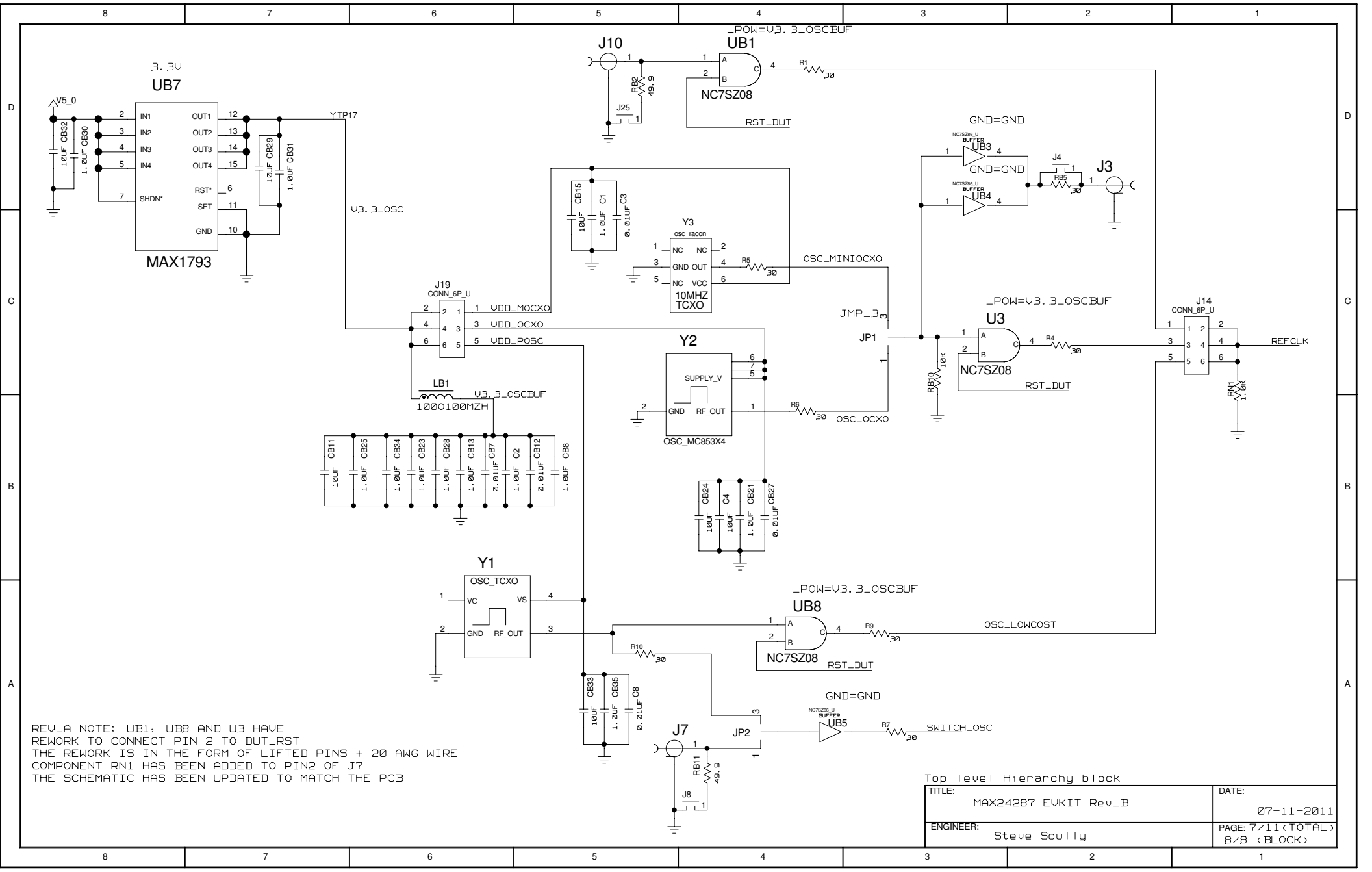
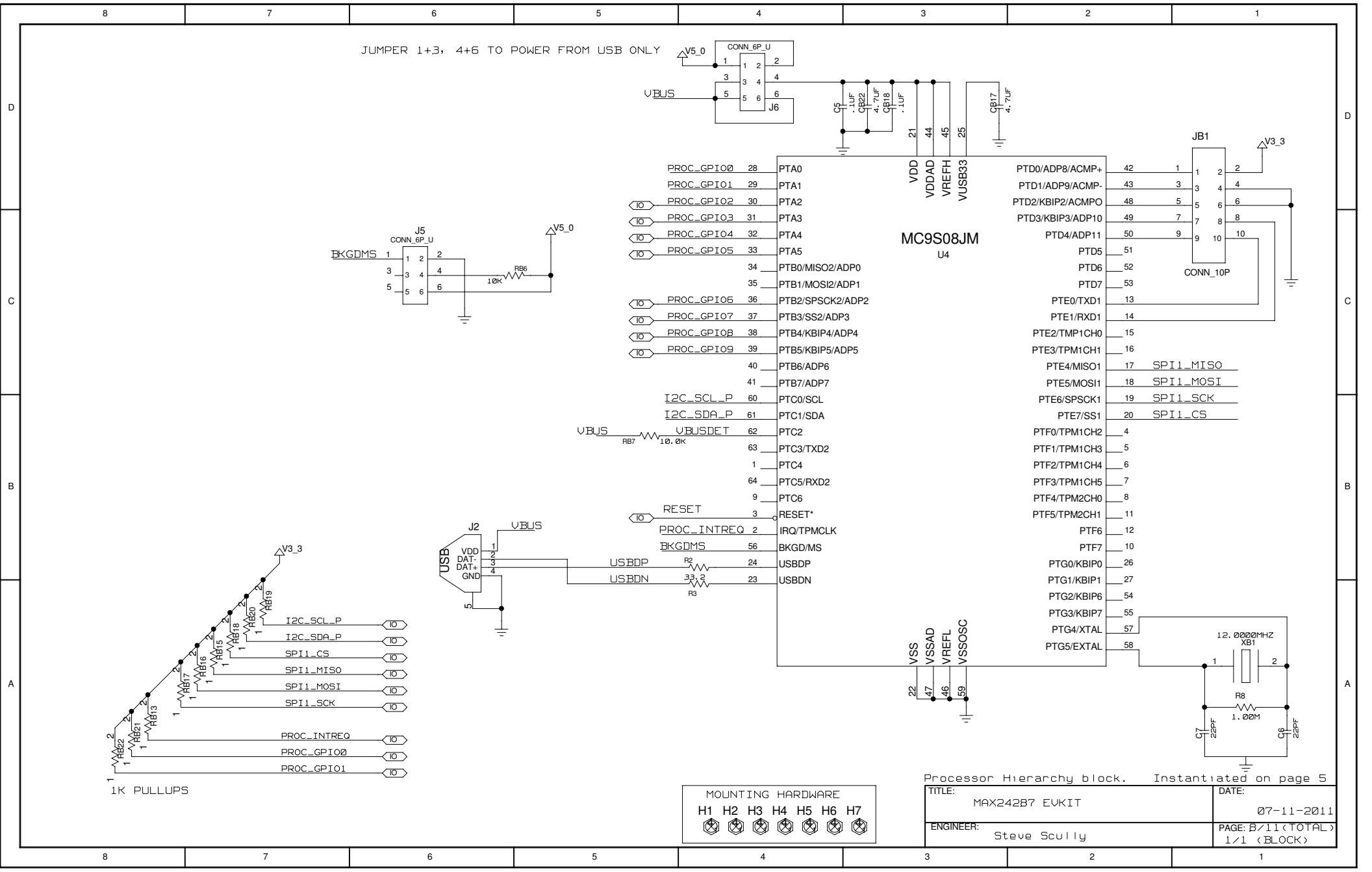
| ENGINEER: Steve Scully | PAGE: 6/11(TOTAL) 6/8 (BLOCK) |

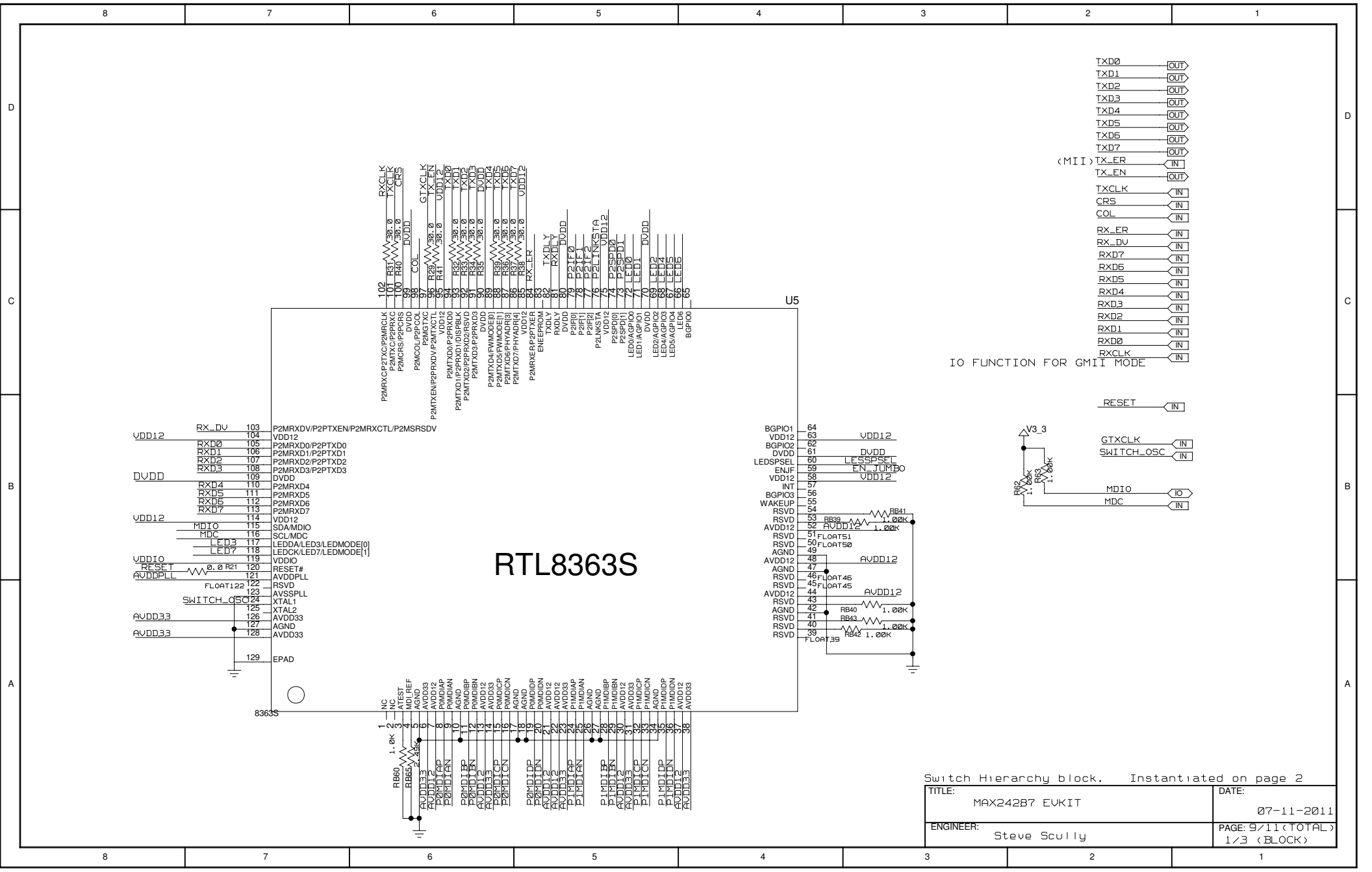


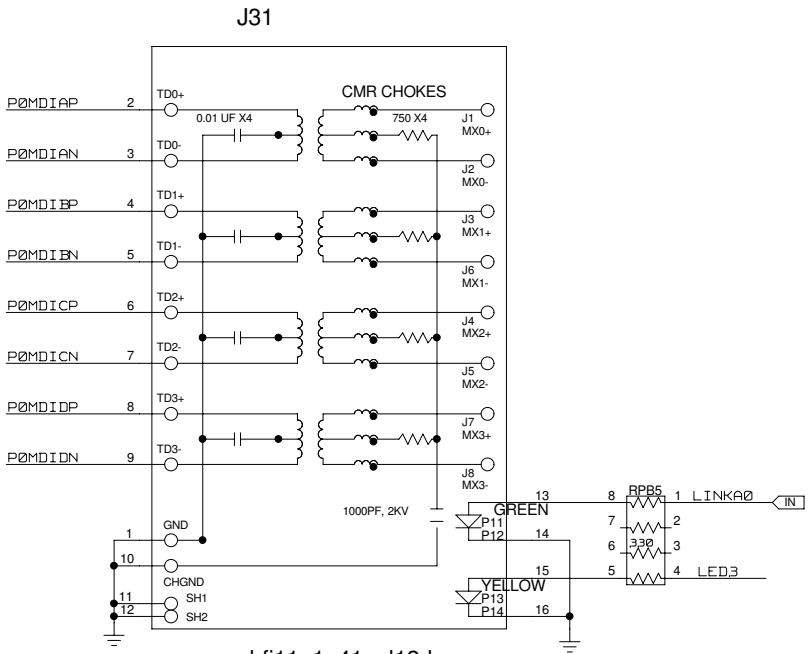

REV_A NOTE: UB1, UB8 AND U3 HAVE
REWORK TO CONNECT PIN 2 TO DUT_RST
THE REWORK IS IN THE FORM OF LIFTED PINS + 20 AWG WIRE
COMPONENT RN1 HAS BEEN ADDED TO PIN2 OF J7
THE SCHEMATIC HAS BEEN UPDATED TO MATCH THE PCB

Top level Hierarchy block

| | |
|---|---|
| TITLE: MAX24287 EVKIT Rev_B | DATE: 07-11-2011 |
| ENGINEER: Steve Scully | PAGE: 7/11(TOTAL) 8/8 (BLOCK) |


JUMPER 1+3, 4+6 TO POWER FROM USB ONLY
V5_0
CONN_6P_U
VBUS
J6
C5 .1UF
CB22 4.7UF
CB18 .1UF
CB17 4.7UF
VDD
VDDAD
VREFH
VUSB33
MC9S08JM
U4
PTA0
PTA1
PTA2
PTA3
PTA4
PTA5
PTB0/MISO2/ADP0
PTB1/MOSI2/ADP1
PTB2/SPSCK2/ADP2
PTB3/SS2/ADP3
PTB4/KBIP4/ADP4
PTB5/KBIP5/ADP5
PTB6/ADP6
PTB7/ADP7
PTC0/SCL
PTC1/SDA
PTC2
PTC3/TXD2
PTC4
PTC5/RXD2
PTC6
RESET*
IRQ/TPMCLK
BKGD/MS
USBDP
USBDN
PROC_GPIO0
PROC_GPIO1
PROC_GPIO2
PROC_GPIO3
PROC_GPIO4
PROC_GPIO5
PROC_GPIO6
PROC_GPIO7
PROC_GPIO8
PROC_GPIO9
I2C_SCL_P
I2C_SDA_P
VBUSDET
RESET
PROC_INTREQ
BKGDMS
J5
CONN_6P_U
BKGDMS
RB6
10K
RB7
10.0K
J2
USB
VDD
DAT-
DAT+
GND
R2
33.2
R3
JB1
CONN_10P
V3_3
PTD0/ADP8/ACMP+
PTD1/ADP9/ACMP-
PTD2/KBIP2/ACMPO
PTD3/KBIP3/ADP10
PTD4/ADP11
PTD5
PTD6
PTD7
PTE0/TXD1
PTE1/RXD1
PTE2/TMP1CH0
PTE3/TPM1CH1
PTE4/MISO1
PTE5/MOSI1
PTE6/SPSCK1
PTE7/SS1
SPI1_MISO
SPI1_MOSI
SPI1_SCK
SPI1_CS
PTF0/TPM1CH2
PTF1/TPM1CH3
PTF2/TPM1CH4
PTF3/TPM1CH5
PTF4/TPM2CH0
PTF5/TPM2CH1
PTF6
PTF7
PTG0/KBIP0
PTG1/KBIP1
PTG2/KBIP6
PTG3/KBIP7
PTG4/XTAL
PTG5/EXTAL
VSS
VSSAD
VREFL
VSSOSC
12.0000MHZ
XB1
R8
1.00M
C7 22PF
C6 22PF
RB19
RB20
RB18
RB15
RB16
RB17
RB13
RB21
RB22
1K PULLUPS
MOUNTING HARDWARE
H1 H2 H3 H4 H5 H6 H7
Processor Hierarchy block. Instantiated on page 5
TITLE: MAX24287 EVKIT
DATE: 07-11-2011
ENGINEER: Steve Scully
PAGE: 8/11 (TOTAL)
1/1 (BLOCK)


RTL8363S
U5
8363S
IO FUNCTION FOR GMII MODE
(MII)
TXD0
TXD1
TXD2
TXD3
TXD4
TXD5
TXD6
TXD7
TX_ER
TX_EN
TXCLK
CRS
COL
RX_ER
RX_DV
RXD7
RXD6
RXD5
RXD4
RXD3
RXD2
RXD1
RXD0
RXCLK
RESET
V3_3
GTXCLK
SWITCH_OSC
MDIO
MDC
Switch Hierarchy block. Instantiated on page 2
TITLE: MAX24287 EVKIT
DATE: 07-11-2011
ENGINEER: Steve Scully
PAGE: 9/11 (TOTAL) 1/3 (BLOCK)

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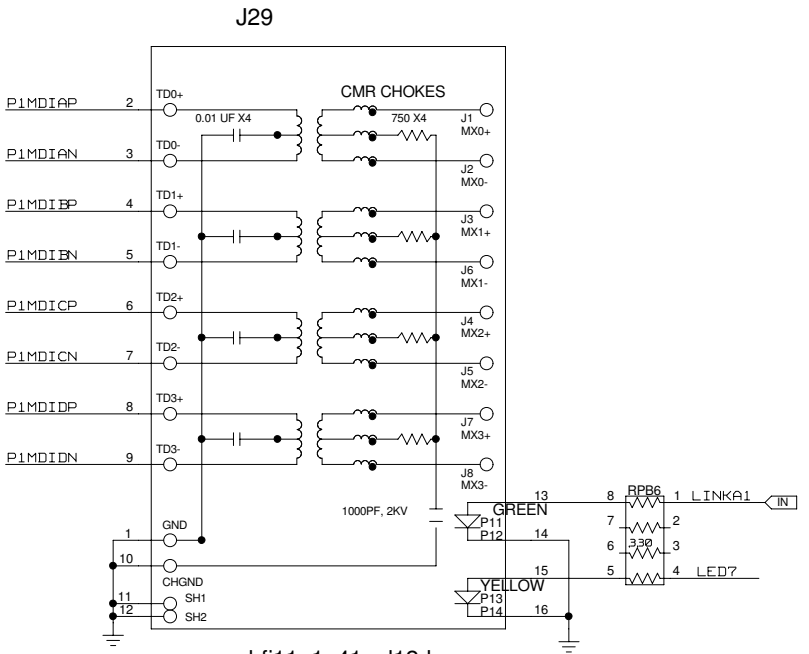



conn_hfj11_1g41e_l12rl

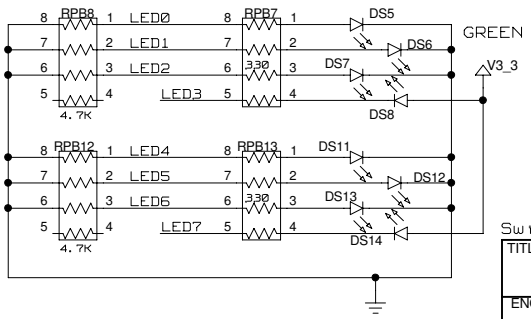
INDICATIONS FOR PARALLEL MODE0

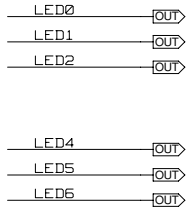
SWITCH0

LED0=GIG_LINK/ACT
LED1=100_LINK/ACT
LED2=10_LINK/ACT
LED3=DUP/COL

SWITCH1

LED4=GIG_LINK/ACT
LED5=100_LINK/ACT
LED6=10_LINK/ACT
LED7=DUP/COL




Switch Hierarchy block.

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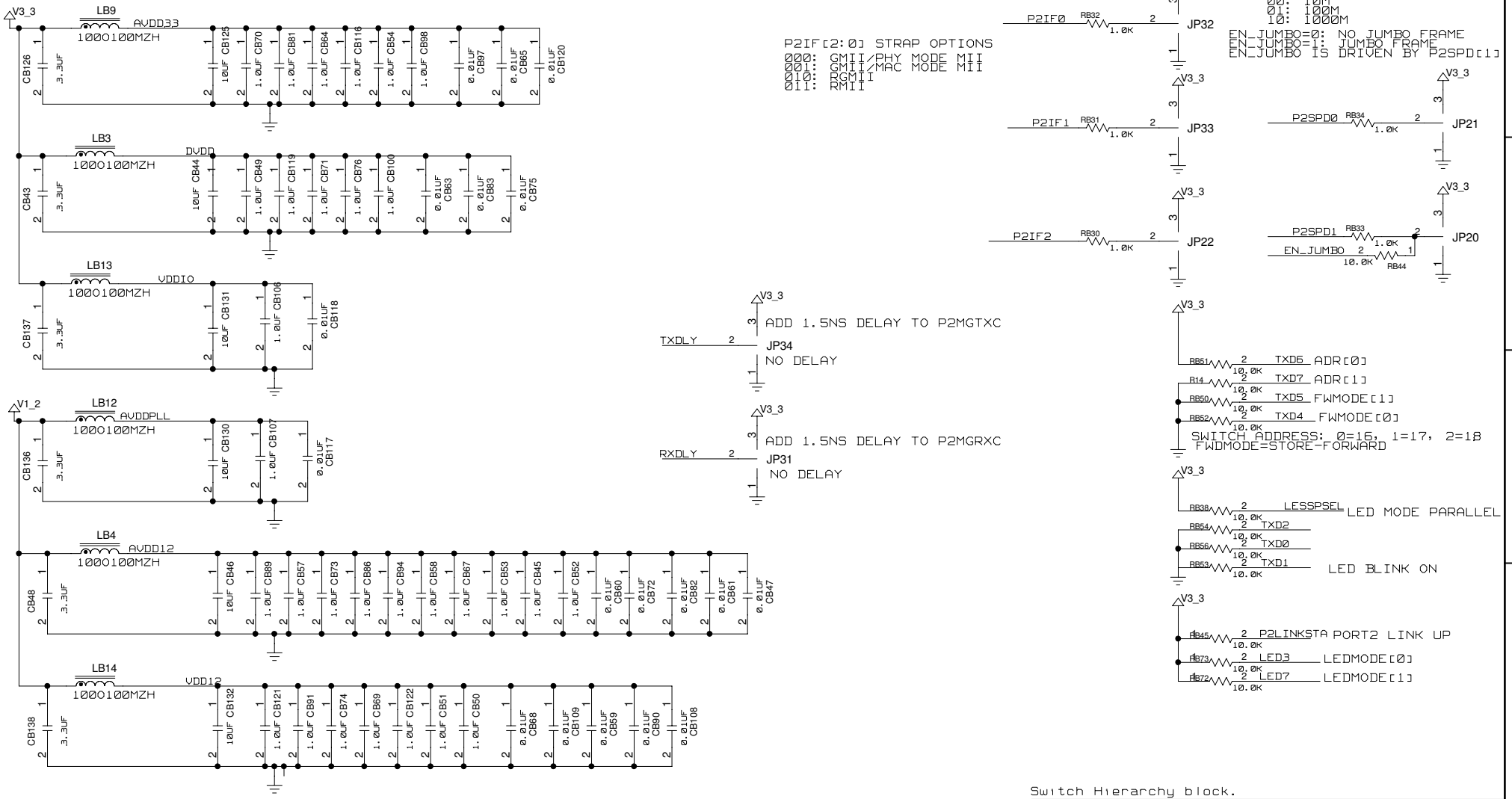
| TITLE: MAX24287 EVKIT | DATE: 07-11-2011 |
| ENGINEER: Steve Scully | PAGE: 10/11 (TOTAL) 2/3 (BLOCK) |

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|---|---|
| TITLE: MAX24287 EVKIT | DATE: 07-11-2011 |
| ENGINEER: Steve Scully | PAGE: 11/11 (TOTAL) 3/3 (BLOCK) |

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Microsemi Corporation (NASDAQ: MSCC) offers a comprehensive portfolio of semiconductor solutions for: aerospace, defense and security; enterprise and communications; and industrial and alternative energy markets. Products include high-performance, high-reliability analog and RF devices, mixed signal and RF integrated circuits, customizable SoCs, FPGAs, and complete subsystems. Microsemi is headquartered in Aliso Viejo, Calif. Learn more at **www.microsemi.com**.