

LTC2972

Programming Board for 2-Channel PMBus Power System Manager

DESCRIPTION

The DC2691A programming board contains the circuitry needed to program and verify the EEPROM of the [LTC®2972](#). It is shipped with a clamshell style programming socket installed. The LTpowerPlay® *.proj file that corresponds to the factory default configuration can be found in the GUI.

To properly program and verify the contents of the EEPROM, download and install the [LTpowerPlay](#) software (GUI).

You also need a Linear Technology DC1613 USB to I²C/SMBus/PMBus Controller.

Demo System Required Hardware

- Windows PC
- USB-to-I²C/SMBus/PMBus Controller (DC1613)
- DC2691A

Demo System Required Software

- LTpowerPlay

Power System Manager Features

- Sequence, Trim, Margin, Supervise Power Supplies
- Manage Faults, Monitor Telemetry, Create Fault Logs
- PMBus Compliant Command Set
- Supported by LTpowerPlay GUI
- Margin or Trim Supplies to ±0.25% Accuracy
- Monitor Input Current (±1%) and Accumulate Energy
- Fast OV/UV Supervisors per Channel
- Supports Multi-Channel Fault Management
- Automatic Fault Logging to Internal EEPROM
- Operates Autonomously without Additional Software
- OV/UV V_{OUT} and One V_{IN} Supervisor
- Monitor V_{IN}, V_{OUT}, I_{IN}, I_{OUT} and Temperature
- Time-Based Output Sequencer
- I²C/SMBus Serial Interface
- Can Be Powered from 3.3V, or 4.5V to 15V
- Connect Directly to Regulator IMON Pins
- Available in a 44-Pin 6mm × 7mm QFN Package

Design files for this circuit board are available

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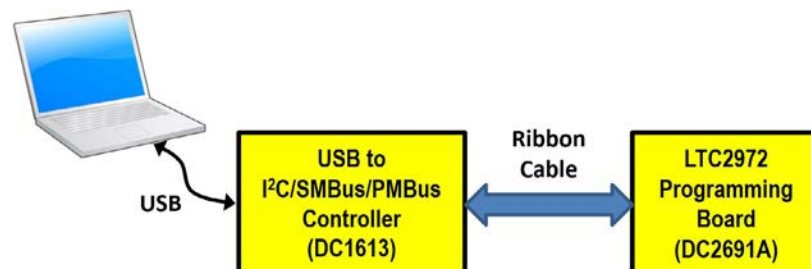


Figure 1. LTC2972 Programming Setup Using DC2691A

DC2691A DETAILS

What You Can Do with the DC2691A

1. Compare the contents of the LTC2972's EEPROM against any LTpowerPlay Project File. (Verify)
2. Program the contents of the LTC2972's EEPROM using any LTpowerPlay Project File. (Program and Verify)

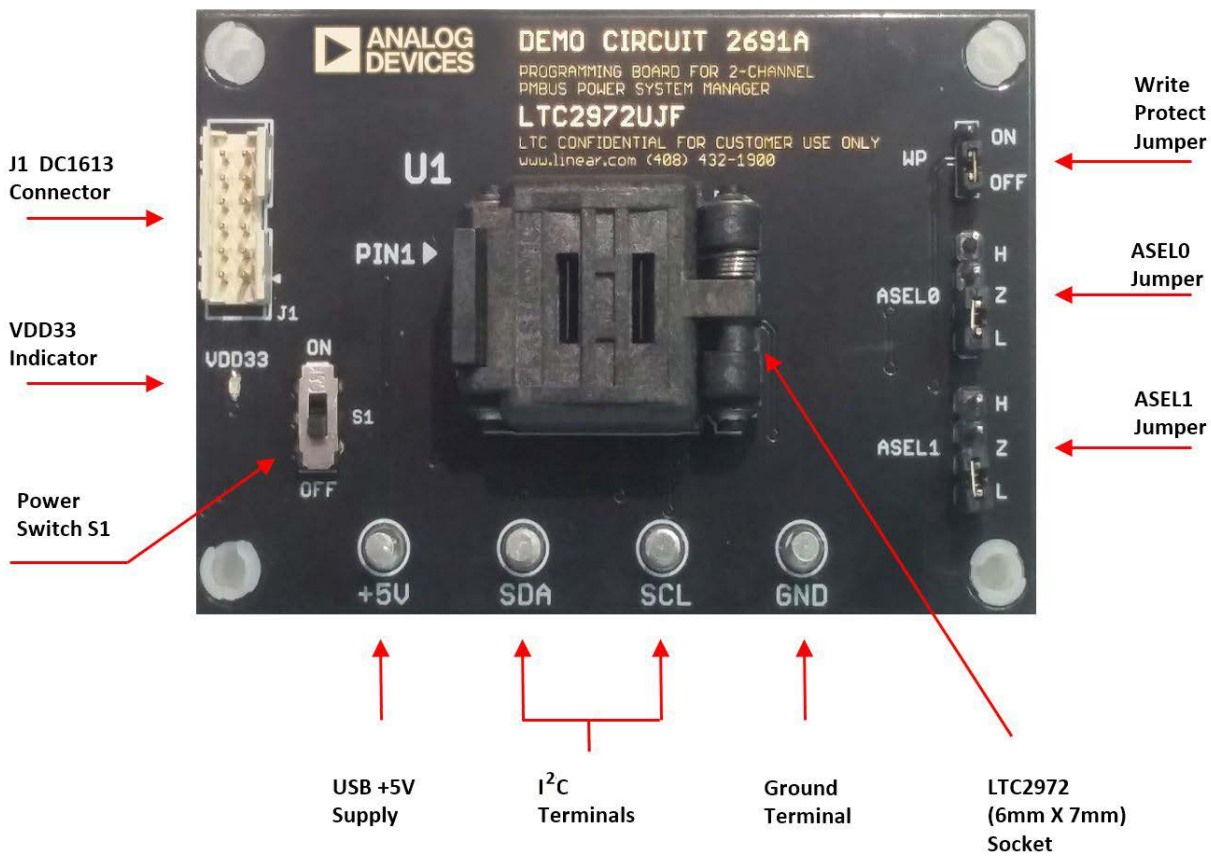


Figure 2. DC2691A Top Side Details

LTPOWERPLAY GUI SOFTWARE

LTpowerPlay is a powerful Windows-based development environment that supports Linear Technology Power System Management ICs with EEPROM. The software supports a variety of different tasks. You can use LTpowerPlay to evaluate Linear Technology ICs by connecting to a demo board system. LTpowerPlay can also be used in an offline mode (with no hardware present) in order to build a multichip configuration file that can be saved and re-loaded at a later time. LTpowerPlay provides unprecedented diagnostic and debug features. It becomes a valuable diagnostic tool during board bring-up to program or tweak the power management scheme in

a system or to diagnose power issues when bringing up rails. LTpowerPlay utilizes the DC1613 I²C/SMBus/PMBus Controller to communicate with one of many potential targets, including the DC2691A programming board or a customer board. The software also provides an automatic update feature to keep the software current with the latest set of device drivers and documentation. The LTpowerPlay software can be downloaded.

To access technical support documents for LTC Power System Management products visit “Help, View Online Help” on the LTpowerPlay menu.

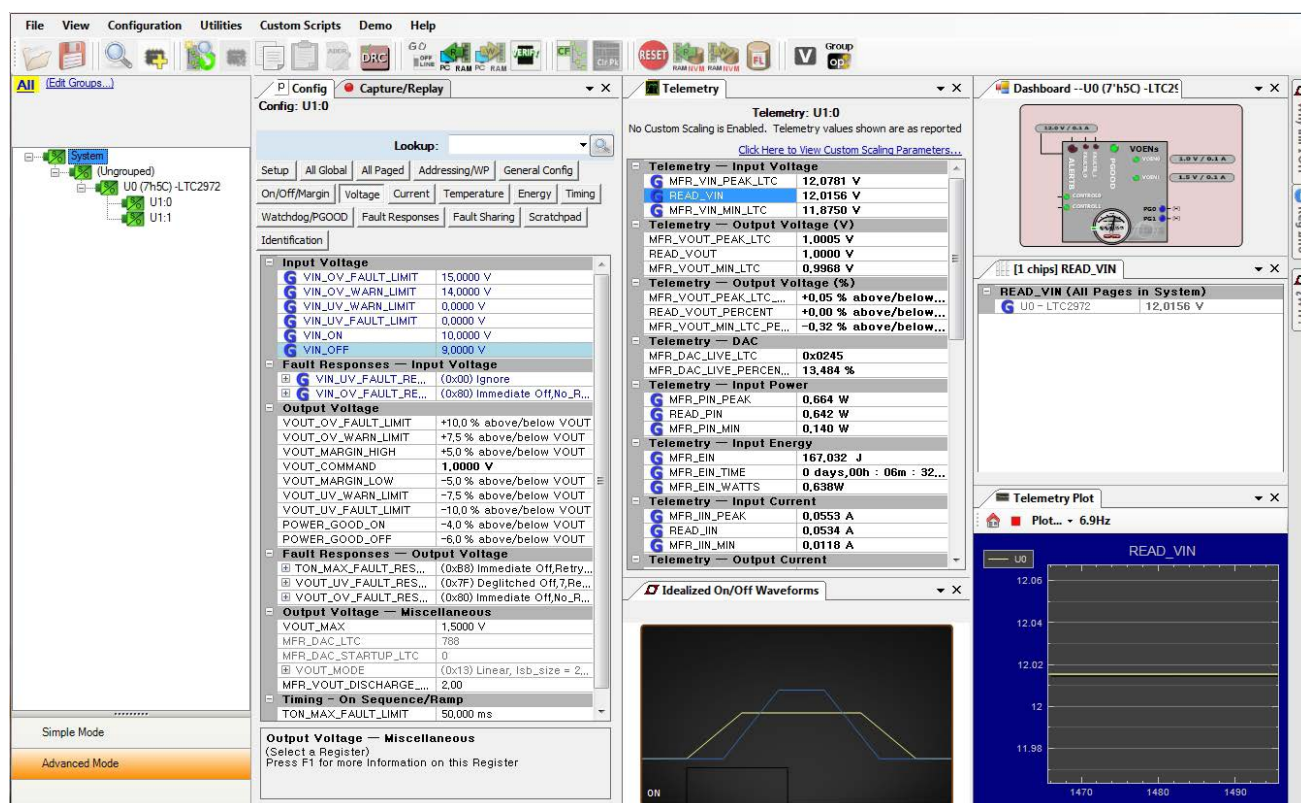


Figure 3. Screenshot of the LTpowerPlay GUI

QUICK START PROCEDURE

The DC2691A programming board makes it easy to program and verify the EEPROM contents of the device.

1. Place jumpers and switches in the following default positions.

WP: OFF

ASEL1: L

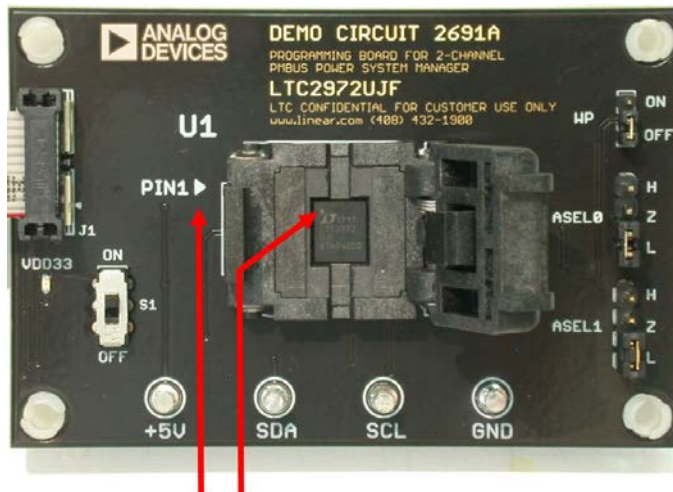
ASEL0: L

S1: OFF

NOTE: By default, ASEL0 and ASEL1 jumpers are both set to low (L). If you wish to program a device with an address other than 0x5C, adjust ASEL0 and ASEL1 jumpers appropriately. Consult device data sheet for details.

2. Connect USB controller to your PC. Plug the ribbon cable into connector J1 of the DC2691A programming board.

3. Open the socket lid. Place the IC inside with pin 1 located in the upper left corner. See Figure 4.



Pin 1 indicators

Figure 4. Open Clamshell Lid

QUICK START PROCEDURE

4. Close lid. It will snap into place. See Figure 5.

NOTE: Removal and insertion of the IC should be done with either tweezers or a vacuum suction device, and with the power switch S1 set to OFF.

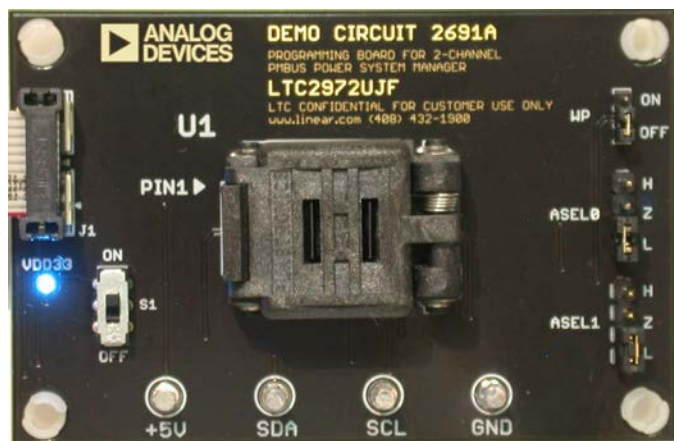


Figure 5. DC1613 Ribbon Cable Attached and Lid Closed

5. Set the power switch S1 to the ON position. The VDD33 LED will illuminate, indicating the on-chip regulator is providing internal power.
6. Launch the LTpowerPlay software from your PC. The LT Device Programmer window will appear. Click "..." next to the selection box and select your .proj file to program the device.

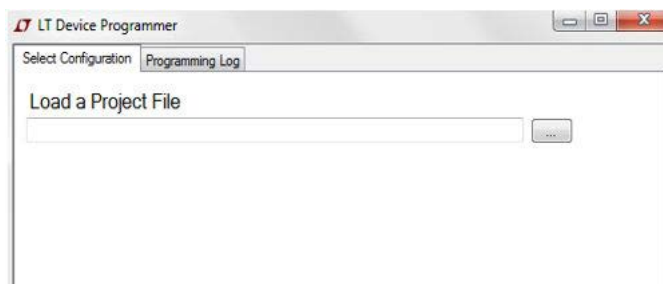


Figure 6. LT Device Programmer

QUICK START PROCEDURE

7. Click the Program and Verify button, and wait for the process to complete.
 - a. LTpowerPlay is ready to program/verify the device.

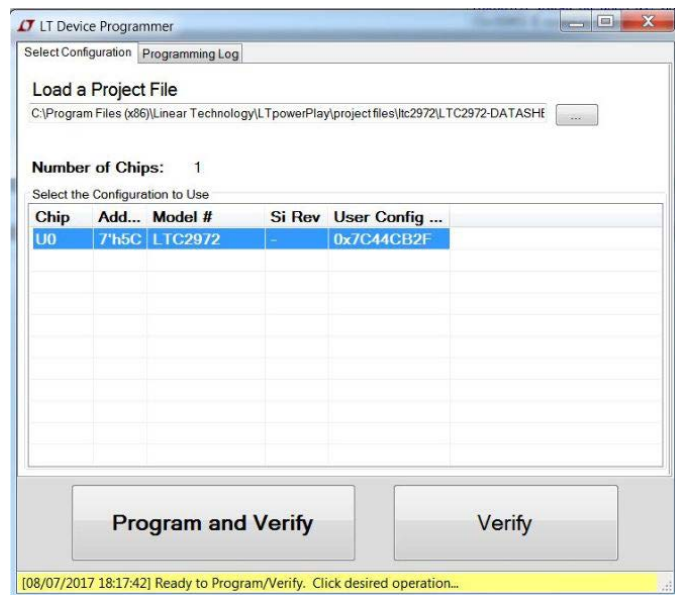


Figure 7. Ready To Program

- b. After the process is complete, you will see "Successfully Programmed and Verified Device" in the status bar at the bottom.

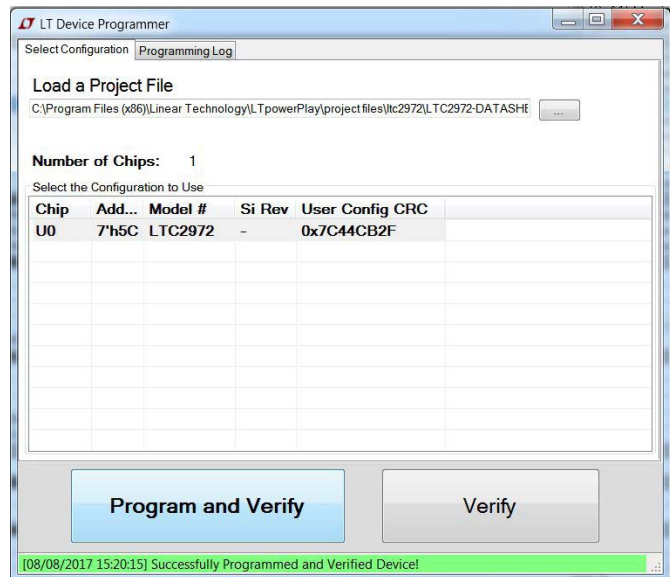
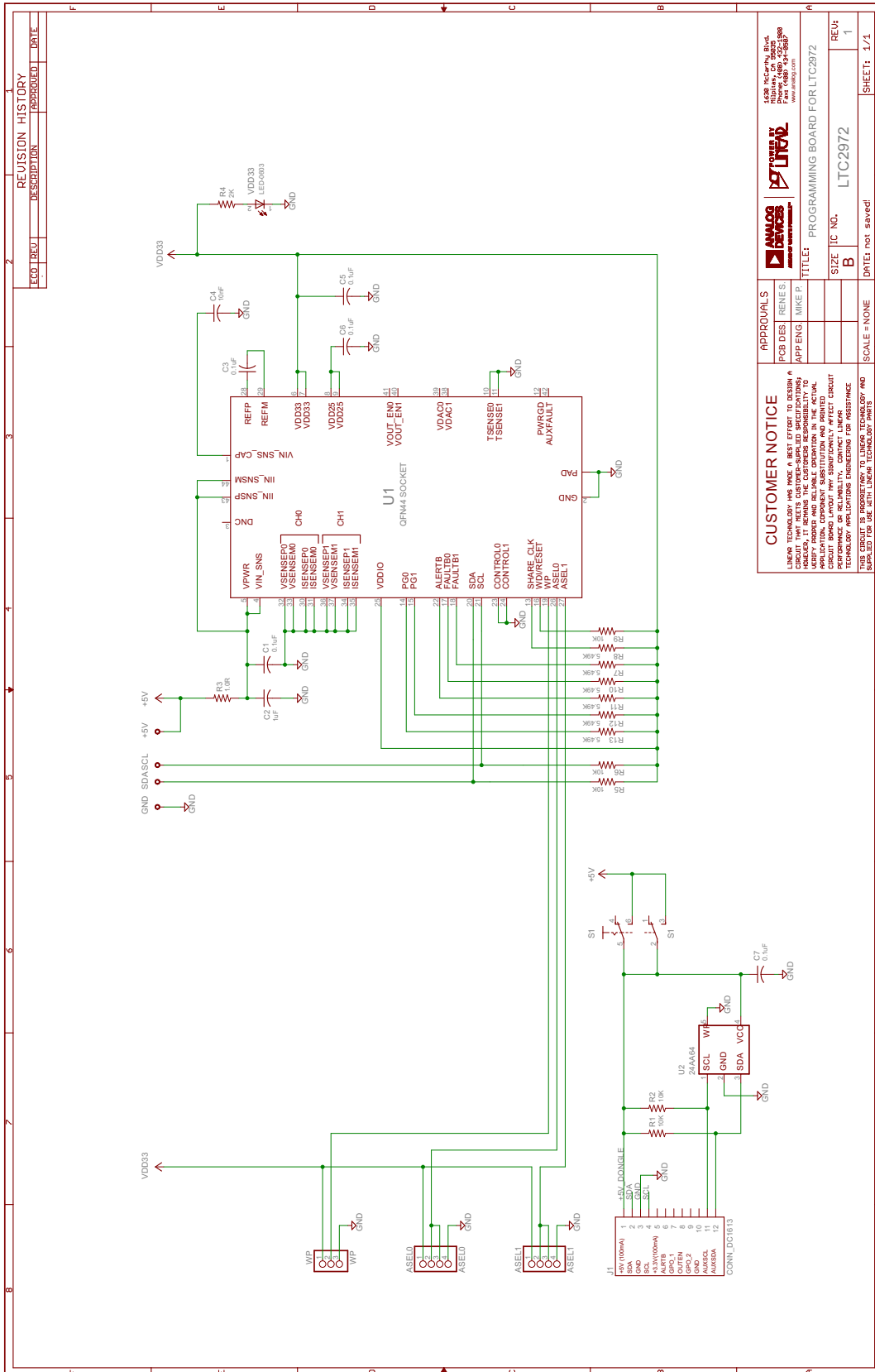


Figure 8. Successfully Programmed

8. Prior to removing the device from the socket, set the power switch, S1, to the off position to remove power from the device. The USB ribbon cable may remain connected to programming board.
9. To program another device, repeat Steps 3 through 5, then Steps 7 and 8. LTpowerPlay's Programming Utility does not need to be closed.

SCHEMATIC DIAGRAM





ESD Caution

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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