Programmable Six Supply Sequencer and Supervisor

Eases Sequencing and Voltage Supervision of FPGA/ASIC/µProcessor Supplies

Many FPGAs, ASICs and microprocessors require tight accuracy and complex sequencing of their power supplies for high reliability and to prevent processor damage. The LTC®2937 is designed to carefully control and supervise these point-of-load supplies, while providing flexibility to reconfigure on the fly—effectively future proofing the design. A unique and flexible sequencing technique turns supplies on and off in any one of 1023 possible sequence positions, separated either with adjustable time delays or by qualifying events. Digitally adjustable ±0.75% accurate undervoltage (UV) and overvoltage (OV) thresholds reduce development time, improve system reliability, and ease resulting power supply tolerances. A simple single wire connection synchronizes up to fifty LTC2937s for sequencing expansion to 300 supplies, simplifying board routing. The LTC2937, along with the LTC2933 and LTC2936 programmable 6-channel voltage supervisors, is supported by an interactive and intuitive GUI for configuration, system diagnostics and debugging.

Features

- Time and Event Based Sequencing for 6 Power Supplies
- 12 Programmable UV and OV Comparators with ±0.75% Guaranteed Accuracy Over Temperature
- I2C/SMBus Adjustable 8-Bit UV and OV Thresholds
- EEPROM for Storing Configuration and Fault Log
- Single Wire Synchronizes up to 50 Devices and 300 Supplies
- Supported by LTpowerPlay® GUI
- No Software Coding Required for Autonomous Operation
- Breakpoints and Sequence Stepping
- Programmable Reset Output Delay
- Wide Supply Range: 2.9V to 16.5V
- 28-Pin 5mm x 6mm QFN Package

Sequenced Power Supply Waveforms
Programmable Time and Event Based Sequencing Example

- System 1: Core and I/O supplies separated with time delay ($t_1$)
- System 2 supplies wait for READY signal from System 1 to cross V3 threshold (event based delay $t_2$)
- System 2: Core, I/O and Aux supplies separated with time delays
- Sequence position clock (SPCLK) connects to other LTC2937s for expansion

SYSTEM 2 DOES NOT SEQUENCE UNTIL SYSTEM 1 IS READY

LTpowerPlay Development Environment

Programmable 6-Channel Sequencer and Supervisors with EEPROM

<table>
<thead>
<tr>
<th>Device</th>
<th>Sequer</th>
<th>Comparator Outputs</th>
<th>Threshold Range</th>
<th>Threshold Accuracy</th>
<th>Power Supply</th>
<th>Package (mm x mm)</th>
<th>Demo Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC2933</td>
<td>No</td>
<td>No</td>
<td>1V to 13.9V (1x) 0.2V to 5.8V (5x)</td>
<td>±1%</td>
<td>3.4V to 13.9V</td>
<td>5x4 DFN-16, SSOP-16</td>
<td>DC1633</td>
</tr>
<tr>
<td>LTC2936</td>
<td>No</td>
<td>Yes</td>
<td>0.2V to 5.8V (6x)</td>
<td>±1%</td>
<td>3.13V to 13.9V</td>
<td>4x5 DFN-24, SSOP-24</td>
<td>DC1605</td>
</tr>
<tr>
<td>LTC2937</td>
<td>Yes</td>
<td>No</td>
<td>0.2V to 6V (6x)</td>
<td>±0.75%</td>
<td>2.9V to 16.5V</td>
<td>5x6 QFN-28</td>
<td>DC2313</td>
</tr>
</tbody>
</table>

* DC1613 I²C-USB adapter connects demo board to computer running LTpowerPlay