Now Analog Devices Launches the **ADM1185**—the World’s Most Accurate Quad Voltage Sequencer and Monitor

**Super Sequencer™** Devices
- 1% accurate thresholds across all voltages and temperatures
- Monitoring of up to 12 voltages on a single device
- Extremely powerful and flexible sequencing solution

**Simple Sequencer™** Devices
- Low cost sequencers
- Capacitor adjustable timeout
- Tiny SC70 packaging

**Typical Power-Up and Power-Down Sequence**

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**World’s Leading Voltage Sequencing and Monitoring Products**

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**ADM1185**

Voltage Monitor and Sequencer for Multiple Power Supplies
ADM1062 to ADM1069: Highest Accuracy Super Sequencer Devices with Margining Control

ADI’s Super Sequencer family consists of configurable supervisory and sequencing devices that offer a single-chip solution for supply monitoring and sequencing in multisupply systems. The devices offer up to 10 programmable supply voltage monitor inputs, and ranges from 0.6 V to 14.4 V can be detected directly. Five of the inputs can also be configured as general-purpose logic inputs. An on-chip, 12-bit ADC allows readback of the supply voltages, offering an extra level of supply supervision. This can be used in a closed-loop system with four or six on-chip DACs for supply voltage adjustment, margining, and trimming. ADM1062 to ADM1069 have flexible, programmable state machine-based sequencing engines. To store configuration parameters, 512 bytes of on-chip EEPROM are available.

### Analog Devices Super Sequencer Devices Portfolio

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Supervising Accuracy</th>
<th>Sequencing</th>
<th>Monitor Inputs</th>
<th>Enable Outputs</th>
<th>Voltage Readback and Margining</th>
<th>Temp Sensing</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM1060</td>
<td>± 2.5%</td>
<td>Combinational logic</td>
<td>7</td>
<td>9</td>
<td>—</td>
<td>—</td>
<td>28-lead TSSOP</td>
</tr>
<tr>
<td>ADM1062</td>
<td>± 1%</td>
<td>State machine</td>
<td>10</td>
<td>10</td>
<td>12-bit ADC + 6 DACs</td>
<td>± 2°C</td>
<td>40-lead LFCS/ 48-lead TQFP</td>
</tr>
<tr>
<td>ADM1063</td>
<td>± 1%</td>
<td>State machine</td>
<td>10</td>
<td>10</td>
<td>12-bit ADC</td>
<td>± 2°C (×2)</td>
<td>40-lead LFCS/ 48-lead TQFP</td>
</tr>
<tr>
<td>ADM1064</td>
<td>± 1%</td>
<td>State machine</td>
<td>10</td>
<td>10</td>
<td>12-bit ADC</td>
<td>—</td>
<td>40-lead LFCS/ 48-lead TQFP</td>
</tr>
<tr>
<td>ADM1065</td>
<td>± 1%</td>
<td>State machine</td>
<td>10</td>
<td>10</td>
<td>—</td>
<td>—</td>
<td>40-lead LFCS/ 48-lead TQFP</td>
</tr>
<tr>
<td>ADM1066</td>
<td>± 1%</td>
<td>State machine</td>
<td>12</td>
<td>10</td>
<td>12-bit ADC + 6 DACs</td>
<td>—</td>
<td>40-lead LFCS/ 48-lead TQFP</td>
</tr>
<tr>
<td>ADM1067</td>
<td>± 1%</td>
<td>State machine</td>
<td>10</td>
<td>10</td>
<td>6 DACs</td>
<td>—</td>
<td>40-lead LFCS/ 48-lead TQFP</td>
</tr>
<tr>
<td>ADM1068</td>
<td>± 1%</td>
<td>State machine</td>
<td>8</td>
<td>8</td>
<td>—</td>
<td>—</td>
<td>32-lead LQFP</td>
</tr>
<tr>
<td>ADM1069</td>
<td>± 1%</td>
<td>State machine</td>
<td>8</td>
<td>8</td>
<td>12-bit ADC + 4 DACs</td>
<td>—</td>
<td>32-lead LQFP</td>
</tr>
</tbody>
</table>
ADM1185: 0.8% Accurate Quad Monitor and Sequencer

The ADM1185 combines four accurate comparators with sequencing logic to provide a complete monitoring and sequencing solution for four voltage rails. External resistor dividers allow user programmability of the voltage thresholds to be monitored to a minimum of 0.6 V. 0.8% accurate comparators ensure voltage rails are monitored to the highest possible accuracy. Intelligent sequencing logic interprets the status of the inputs and provides enable signals for downstream regulators and dc-to-dc converters and a PWRGD output. Internal sequencing delays can be extended with external capacitors.

**Features**

- Four accurate comparators
  - Accuracy = 0.8%
  - 0.6 V references
  - Trip points set with external resistors
- Four open-drain outputs
  - Three enable outputs for regulators
  - One power-good (PWRGD) output
  - Outputs valid for $V_{CC}$ as low as 1 V
- Power-up sequencing:
  - Internal delay on OUT1 = 190 ms
  - Internal delay on PWRGD = 190 ms
- Voltage monitoring:
  - If VIN1 fails: turn all outputs off
  - If VIN2 to VIN4 fail: turn PWRGD off
  - $V_{CC}$ supply range: 3 V to 5.5 V
  - 10-lead MSOP
  - Multiple parts can be cascaded for extended monitoring/sequencing

**WORLD’S MOST ACCURATE QUAD SEQUENCER/MONITOR**

![FUNCTIONAL BLOCK DIAGRAM]
ADM6819 and ADM6820: FET Drive Simple Sequencer Devices

The ADM6819 and ADM6820 are voltage sequencers that provide an accurate time delay between two voltage rails powering up. An on-board charge pump generates a voltage to control the gate of an N-channel FET. The ADM6819 has a fixed 200 ms time delay and an enable input. The ADM6820 uses an external capacitor to accurately set the sequencing delay between the two monitored supplies. The ADM6819 and ADM6820 are packaged in a 6-lead SOT-23 package.

Features

- Powered from 2.95 V to 5.5 V on either VCC1 or VCC2 pins
- Adjustable primary supply monitor monitors down to 0.62 V
- Multiple devices can be cascaded to provide a sequencing solution for more than two supplies
- On-board charge pump to generate gate drive
- ADM6819—enable input and preset 200 ms delay
- ADM6820—programmable time delay via capacitor
- Tiny SOT-23 packages
ADM1085 to ADM1087: Simple Sequencer Devices

The ADM1085 to ADM1087 Simple Sequencer Devices provide an easy, yet powerful and flexible solution to the problem of power supply sequencing. They offer programmable time delays from 5 ms to several seconds and can be cascaded in a variety of ways to give sequencing of multiple power supplies. A choice of active-low or active-high outputs, and push-pull or high voltage open-drain output stages ensures compatibility with the widest possible range of voltage regulators and dc-to-dc converters. The ADM1085 to ADM1087 are available in a tiny, 6-lead SC70 package.

Features
- Provide time delays between enabling of regulators
- Can be cascaded with regulators for multiple supply sequencing
- Power supply monitoring from 0.6 V
- Output stages
- High voltage (up to 22 V) open-drain output (ADM1085/ADM1087)
- Push-pull outputs (ADM1086)
- Fixed (5 ms typ) or capacitor adjustable time delays
- Enable input
- Low power consumption (15 mA)
- Specified over –40°C to +125°C temperature range

Tiny SC70 Package
only 2mm x 2mm

LOW COST SEQUENCING SOLUTION

WORLD’S SMALLEST SIMPLE SEQUENCER DEVICES

ADM1085 USED FOR POWER-UP SEQUENCING

www.analog.com/sequencers
### Analog Devices Sequencing Portfolio

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Supplies Monitored</th>
<th>Voltage Monitoring Accuracy</th>
<th>Number of Output Drivers</th>
<th>FET Drive/ Enable Output</th>
<th>Voltage Readback</th>
<th>Supply Adjustment/ Margining</th>
<th>Programming Method</th>
<th>Package</th>
<th>Price @ 1k (U.S.)</th>
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<td>6-lead SC70</td>
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<td>&lt;7%</td>
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<td>Enable</td>
<td>—</td>
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<td>Analog</td>
<td>6-lead SC70</td>
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<tr>
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<td>&lt;7%</td>
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<td>Analog</td>
<td>6-lead SC70</td>
<td>0.34</td>
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<td>ADM6819</td>
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<td>&lt;2.6%</td>
<td>1</td>
<td>FET Drive</td>
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<td>Analog</td>
<td>6-lead SOT-23</td>
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<td>ADM6820</td>
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<td>&lt;2.6%</td>
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<td>FET Drive</td>
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<td>Analog</td>
<td>6-lead SOT-23</td>
<td>1.20</td>
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<td>ADM1185</td>
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<td>&lt;0.8%</td>
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<td>Analog</td>
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<tr>
<td>ADM1060</td>
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<td>&lt;2.5%</td>
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<td>Both</td>
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<td>—</td>
<td>SMBus</td>
<td>28-lead TSOP</td>
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<tr>
<td>ADM1068</td>
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<td>Both</td>
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<td>SMBus</td>
<td>32-lead LQFP</td>
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<td>Both</td>
<td>12-bit ADC + 6 DACs</td>
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<td>SMBus</td>
<td>40-lead LFCS/P</td>
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<td>SMBus</td>
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<td>12-bit ADC + 6 DACs</td>
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<td>SMBus</td>
<td>40-lead LFCS/P</td>
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<tr>
<td>ADM1066</td>
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<td>10</td>
<td>Both</td>
<td>12-bit ADC + 6 DACs</td>
<td>—</td>
<td>SMBus</td>
<td>40-lead LFCS/P</td>
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</tr>
</tbody>
</table>

### Analog Devices Sequencer Evaluation Systems

#### ADM1062–ADM1069 Main Evaluation Board

ADM1062–ADM1069 Main Evaluation Board

ADM1062–ADM1069 Micro Evaluation Board

For details on ordering evaluation kits, please contact sequencing@analog.com