National Semiconductor

ADVANCE INFORMATION
September 2003

LM96010
Hardware Monitor with Dual Thermal Diodes and SensorPath™ Bus

General Description

The LM96010 is part of a hardware monitor system, comprised of two parts the Super I/O (Master) and LM96010 (slave). The LM96010 will be controlled by the Master and report to the master temperature, and voltage measurements using the SensorPath™ single-wire bus. The LM96010 measures the temperature of its own die as well as two external devices such as a processor thermal diode or a diode connected transistor. The LM96010 can resolve temperatures up to 140˚C and down to -55˚C. Using ΣΔ ADC it measures Vccp, +2.5V, +3.3V, +5V and +12V analog input voltages with internal scaling resistors.

Features

- SensorPath Interface
  - — 2 hardware programmable addresses
- Voltage Monitoring
  - — 9-bit ΣΔ ADC
  - — Internal scaling resistors for all inputs
  - — Monitors Vccp, +2.5 V, +3.3 V, +5 V and +12 V
- Temperature Sensing
  - — 2 remote diode temperature sensor zones
  - — Internal local temperature zone
  - — 0.5 ˚C resolution
  - — Measures temperatures up to 140 ˚C
- 14-lead TSSOP package

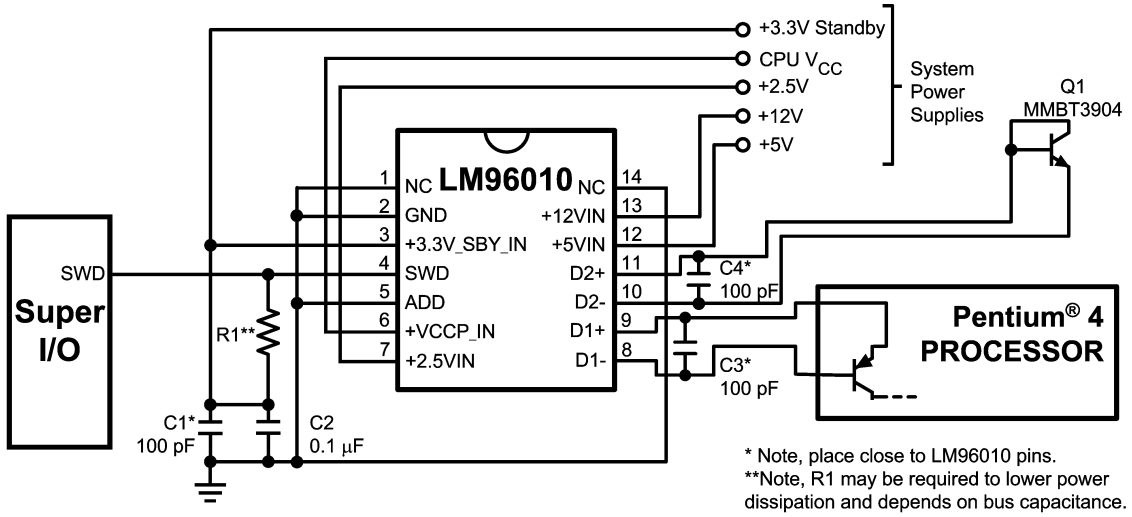
Key Specifications

- Voltage Measurement Accuracy ±2 % (max)
- Temperature Sensor Accuracy ±3 ˚C (max)
- Temperature Range:
  - — LM96010 junction 0 ˚C to +85 ˚C
  - — Remote Temp Accuracy +25 ˚C to +100 ˚C
- Power Supply Voltage +3.0 V to +3.6 V
- Average Power Supply Current 0.5 mA (typ)
- Round-robin Conversion of All Channels 182 ms

Applications

- Microprocessor based equipment
  (Motherboards, Video Cards, Base-stations, Routers, ATMs, Point of Sale, ...)

Typical Application



* Note, place close to LM96010 pins.
**Note, R1 may be required to lower power dissipation and depends on bus capacitance.

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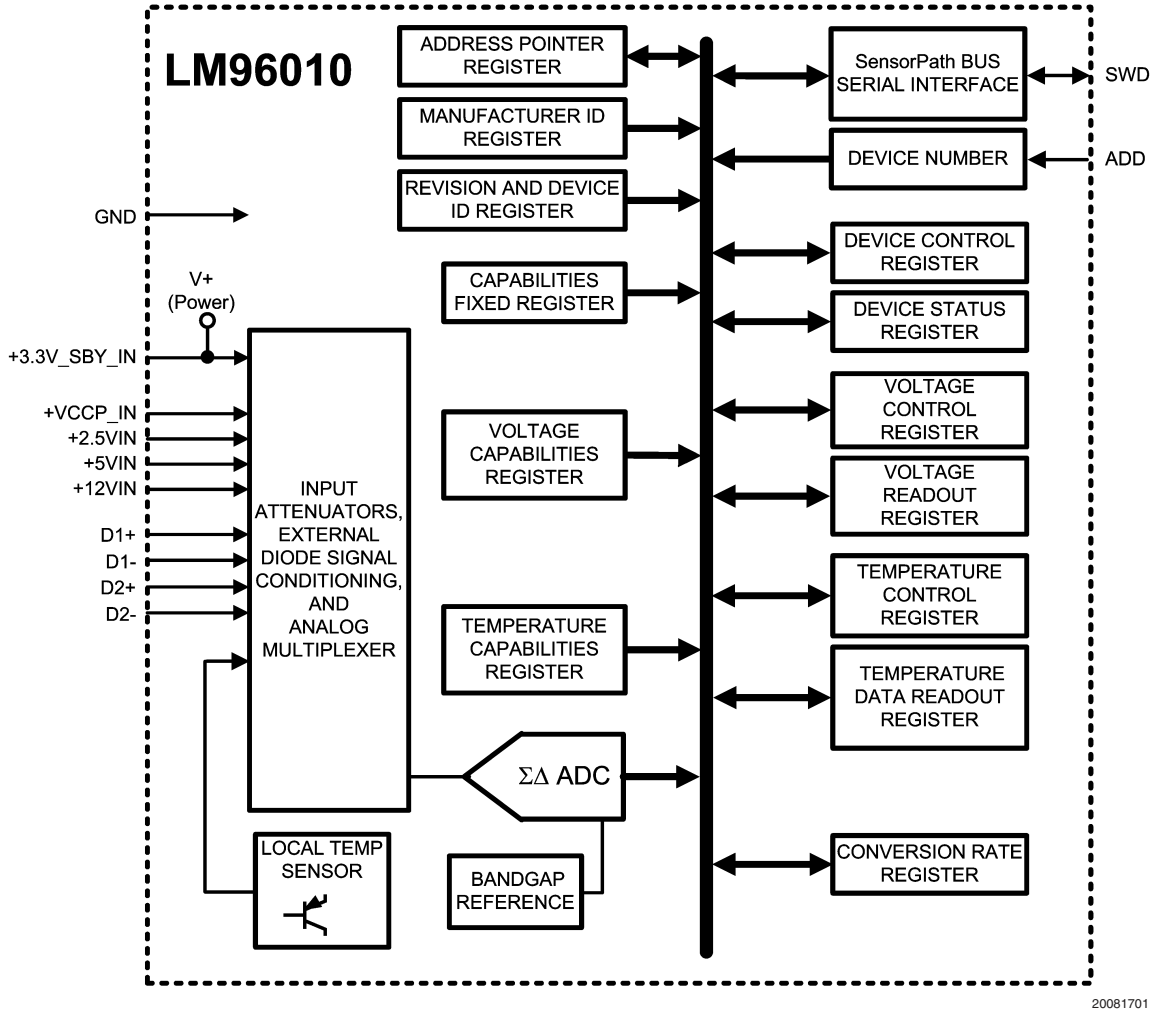
Block Diagram



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