

SCH5127

- Fan Control
 - LPC compliant interface for Hardware Monitoring
 - 3 PWM (Pulse width Modulation) Outputs with High Frequency PWM Support
 - 3 Fan Tachometer Inputs
 - Two Programmable automatic fan control thermal zones based on Selectable Temperature Reading
 - Fan Tachometer Event can generate PME, SMI and/or Speaker Warning
- Temperature Monitor
 - Monitoring of Two Remote Thermal Diodes with $\pm 3^{\circ}\text{C}$ TYP, $\pm 5^{\circ}\text{C}$ MAX Accuracy
 - Internal Ambient Temperature Measurement
 - Beta Compensation for Accurate Temperature Sensing on Intel 65nm CPUs
 - Limit Comparison of all Monitored Values
 - Thermal Event can generate PME, SMI and/or Speaker Warning
- Processor Hot and Thermal Trip Support
- Voltage Monitor
 - Monitor Power supplies (V1_IN for +12V, V2_IN for +5V, +2.5V, VCCP, VBAT, +3.3VTR, +3.3VCC, +1.5VTRIP)
 - Limit Comparison of all Monitored Values
 - Voltage Event can generate PME, SMI and/or Speaker Warning
- Intruder Detection Support
- 8 VID (Voltage Identification) Input/Output Pins
- VRD revision 10 or 11 Detection
- 128-Pin QFP (3.2mm footprint) RoHS Compliant Package

Description

The SCH5127 is a 3.3V (Super I/O Block is 5V tolerant) PC99/PC2001 compliant Super I/O controller with an LPC interface. SCH5127 also includes Hardware Monitoring capabilities, enhanced Security features, Power Control logic and Motherboard Glue logic.

The SCH5127's hardware monitoring capability includes temperature, voltage and fan speed monitoring. It has the ability to alert the system to out-of-limit conditions and automatically control the speeds of multiple fans. There are five analog inputs for monitoring external voltages of +V1_IN (for scaled +12V), V2_IN (for scaled +5V), VTRIP (1.5V), +2.5V and VCCP (core processor voltage), as well as internal monitoring of the SIO's VCC, VTR, and VBAT power supplies. The SCH5127 includes support for monitoring two external temperatures via thermal diode inputs and an internal sensor for measuring ambient temperature. The hardware monitoring block of the SCH5127 is accessible via the LPC Bus. The out-of-limit temperature, voltage of fan tachometer events can be reported on the PME and/or SMI output pin and speaker alarm annunciation.

The Motherboard Glue logic includes various power management and system logic including generation of nRSMRST, SMBus isolation buffers, and buffered PCI reset outputs.

The SCH5127 incorporates complete legacy Super I/O functionality including an 8042 based keyboard and mouse controller, an IEEE 1284, EPP, and ECP compatible parallel port, one serial port that is 16C550A UART compatible, one IrDA 1.0 infrared ports, and a floppy disk controller with Microchip's true CMOS 765B core and enhanced digital data separator. The true CMOS 765B core provides 100% compatibility with IBM PC/XT and PC/AT architectures and is software and register compatible with Microchip's proprietary 82077AA core. System related functionality, which offers flexibility to the system designer, is available via General Purpose I/O control functions, control of two LED's, and fan control using fan tachometer inputs and pulse width modulator (PWM) outputs.

The SCH5127 is ACPI 1.0/2.0 compatible and therefore supports multiple low power-down modes. It incorporates sophisticated power control circuitry (PCC), which includes support for keyboard and mouse wake-up events.

The SCH5127 supports the ISA Plug-and-Play Standard register set (Version 1.0a). The I/O Address, DMA Channel and hardware IRQ of each logical device in the SCH5127 may be reprogrammed through the internal configuration registers. There are up to 480 (960 - Parallel Port) I/O address location options, a Serialized IRQ interface, and Three DMA channels.

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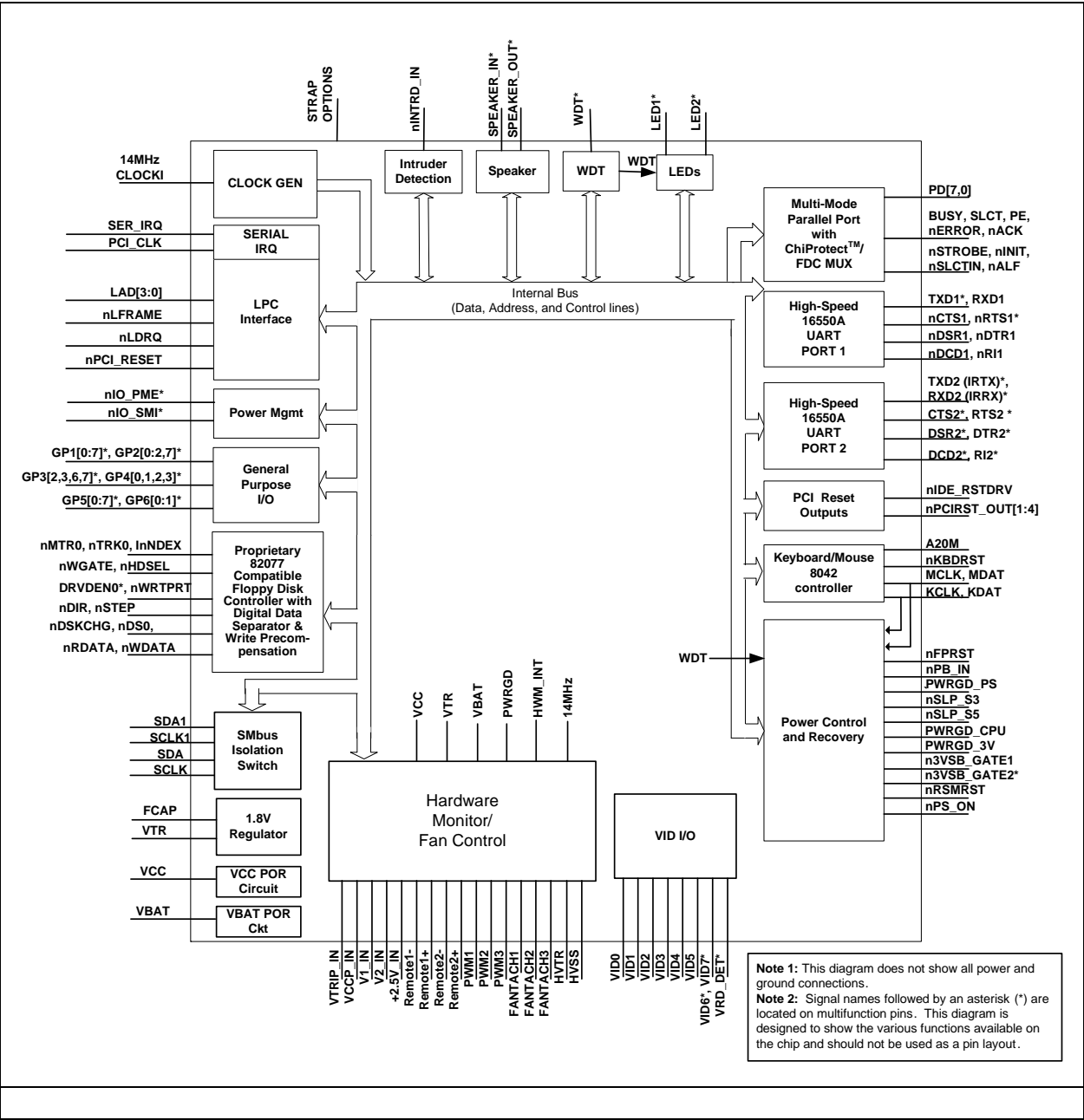
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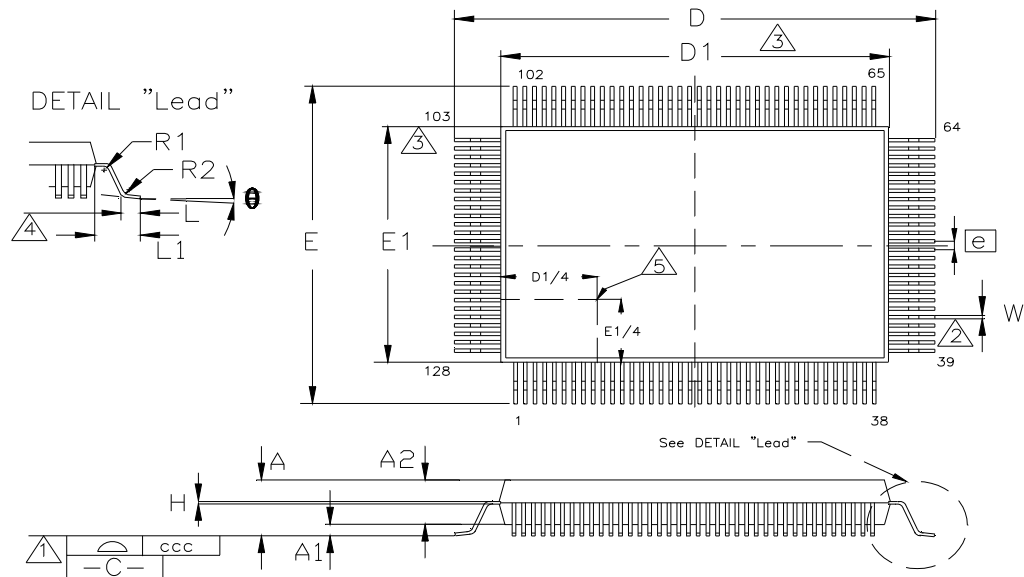
BLOCK DIAGRAM

FIGURE 1: SCH5127 BLOCK DIAGRAM



PACKAGE OUTLINE

128 Pin QFP Package Outline, 14x20x2.7 Body, 3.2 mm Footprint



	Min	Nominal	Max	Remarks
A	~	~	3.4	Overall Package Height
A1	0.05	~	0.5	Standoff
A2	2.55	~	3.05	Body Thickness
D	23.00	23.20	23.40	X Span
D1	19.90	20.00	20.10	X body Size
E	17.00	17.20	17.40	Y Span
E1	13.90	14.00	14.10	Y body Size
H	0.09	~	0.20	Lead Frame Thickness
L	0.73	0.88	1.03	Lead Foot Length
L1	~	1.60	~	Lead Length
e	0.50 Basic			Lead Pitch
q	0°	~	7°	Lead Foot Angle
W	0.10	~	0.30	Lead Width
R1	0.08	~	~	Lead Shoulder Radius
R2	0.08	~	0.30	Lead Foot Radius
ccc	~	~	0.08	Coplanarity

Note 1: Controlling Unit: millimeter.

2: Tolerance on the position of the leads is ± 0.04 mm maximum.

3: Package body dimensions D1 and E1 do not include the mold protrusion.
Maximum mold protrusion is 0.25 mm.

4: Dimension for foot length L measured at the gauge plane 0.25 mm above the seating plane.

5: Details of pin 1 identifier are optional but must be located within the zone indicated.

APPENDIX A: PRODUCT BRIEF REVISION HISTORY

TABLE A-1: REVISION HISTORY

Revision	Section/Figure/Entry	Correction
DS00001786A (07-11-14)	Replaces previous SMSC version Rev. 0.43 (11-17-06)	

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ISBN: 9781632763297

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