ORDER NUMBERS:

SCH3112i-NU FOR 128 PIN, VTQFP PACKAGE (LEAD-FREE, ROHS COMPLAINT - INDUSTRIAL TEMPERATURE RANGE)
SCH3114i-NU FOR 128 PIN, VTQFP PACKAGE (LEAD-FREE, ROHS COMPLAINT - INDUSTRIAL TEMPERATURE RANGE)
SCH3116i-NU FOR 128 PIN, VTQFP PACKAGE (LEAD-FREE, ROHS COMPLAINT - INDUSTRIAL TEMPERATURE RANGE)
SCH3112-NU FOR 128 PIN, VTQFP PACKAGE (LEAD-FREE, ROHS COMPLAINT - COMMERCIAL TEMPERATURE RANGE)
SCH3114-NU FOR 128 PIN, VTQFP PACKAGE (LEAD-FREE, ROHS COMPLAINT - COMMERCIAL TEMPERATURE RANGE)
SCH3116-NU FOR 128 PIN, VTQFP PACKAGE (LEAD-FREE, ROHS COMPLAINT - COMMERCIAL TEMPERATURE RANGE)

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General Description

The SCH3112/SCH3114/SCH3116 Product Family is a 3.3V (Super I/O Block is 5V tolerant) PC99/PC2001 compliant Super I/O controller with an LPC interface. The SCH3112/SCH3114/SCH3116 Product Family also includes Hardware Monitoring capabilities, enhanced Security features, Power Control logic and Motherboard Glue logic.

The SCH3112/SCH3114/SCH3116 Product Family's hardware monitoring capability includes temperature, voltage and fan speed monitoring. It has the ability to alert the system of out-of-limit conditions and automatically control the speeds of multiple fans. There are four analog inputs for monitoring external voltages of +5V, +2.5V, +12V and Vccp (core processor voltage), as well as internal monitoring of the SIO's VCC, VTR, and Vbat power supplies. The SCH3112/SCH3114/SCH3116 Product Family includes support for monitoring two external temperatures via thermal diode inputs and an internal sensor for measuring ambient temperature. The nHWM_INT pin is implemented to indicate out-of-limit temperature, voltage, and FANTACH conditions. The hardware monitoring block of the SCH3112/SCH3114/SCH3116 Product Family is accessible via the LPC bus. The same interrupt event reported on the nHWM_INT pin also creates PME wakeup events. A separate THERMTRIP output is available, which generates a pulse output on a programmed over temperature condition. This can be used to generate an reset or shutdown indicator to the system.

The hardware monitoring capability also has programmable automatic FAN control. Three fan tachometer inputs and three pulse width modulator (PWM) outputs are available.

The Motherboard Glue logic includes various power management and system logic including generation of nRSMRST, a programmable Clock output, and reset generation. The reset generation includes a watchdog timer which can be used to generate a reset pulse. The width of this pulse is selectable via an external strapping option.

The SCH3112/SCH3114/SCH3116 Product Family incorporates complete legacy Super I/O functionality including an 8042 based keyboard and mouse controller, an IEEE 1284, EPP, and ECP compatible parallel port, multiple serial ports, one IrDA 1.0 infrared ports, and a floppy disk controller with SMSC'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 SMSC's proprietary 82077AA core. System related functionality, which offers flexibility to the system designer, General Purpose I/O control functions, and control of two LED's.

The serial ports are fully functional NS16550 compatible UARTs that support data rates up to 1.5 Mbps. There are four, 8 pin Serial Ports and two, 4pin Serial Ports. The reduced pin serial ports have selectable input and output controls. The Serial Ports contain programmable direction control, which will automatically Drive nRTS when the Output Buffer is loaded, then Drive nRTS when the Output Buffer is Empty.

The SCH3112/SCH3114/SCH3116 Product Family 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.

The SCH3112/SCH3114/SCH3116 Product Family 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 SCH3112/SCH3114/SCH3116 Product Family 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.

Table 1 Device Specific Summary

FUNCTION	SCH3112	SCH3114	SCH3116
LPC Bus Interface	YES	YES	YES
Legacy functional Blocks (1.)	YES	YES	YES
Floppy on Parallel Port Option	YES	YES	YES
Reset Generator	YES	YES	YES
Serial Ports	2	4	6 (2.)
Programmable Clock Output	YES	YES	YES
IDE / PCI Reset Outputs	YES	YES	NO
Power Button / AC Fail Support	YES	YES	NO
GPIOs	40	40	40
GPIO with VID Compatible Inputs	6	6	6
Dedicated GPIOs	16	0	0
Hardware Monitor	YES	YES	YES

1. Legacy Blocks include floppy disk, parallel port, watchdog timer and keyboard controller
2. 2 of the 6 serial ports have 4 pin interfaces

Block Diagram

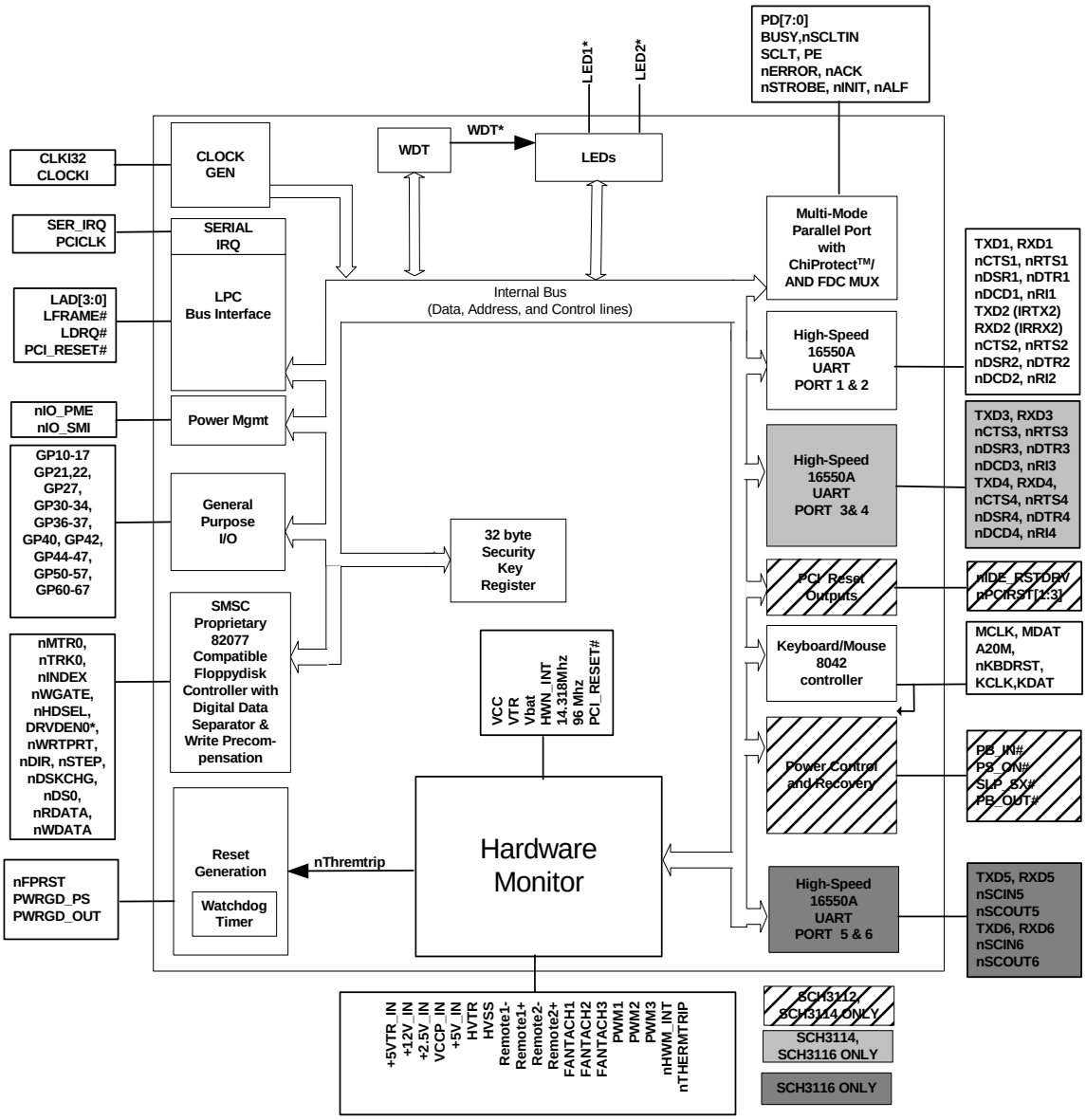

Figure 1 SCH311X Block Diagram

PRODUCT PREVIEW

Package Outline

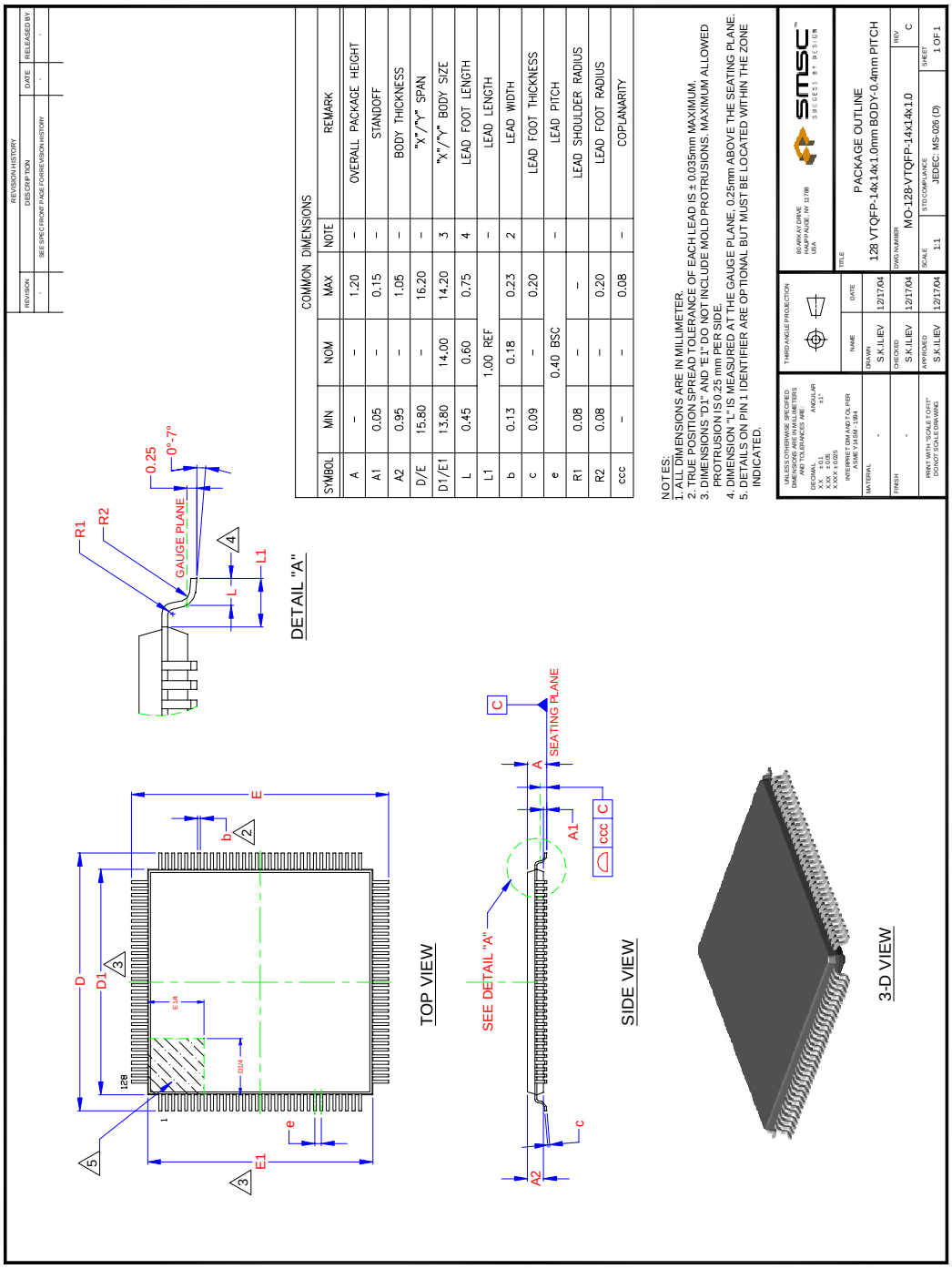

Figure 2 128 Pin VTQFP Package Outline; 14x14x1.0 Body, 2mm Footprint