SuperI/O™ Multi-I/O

National Semiconductor
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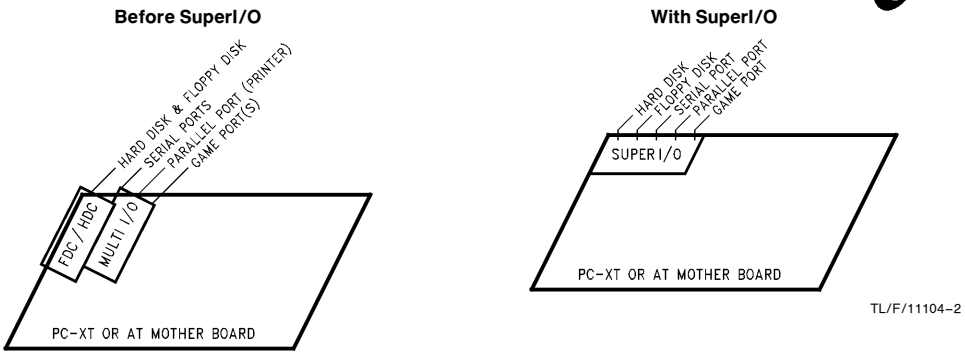

Diagram I

SYSTEM DESCRIPTION

For years the available levels of integration of I/O functions, as well as the uncertainty of which peripherals would be used, have forced the manufacturers of IBM-compatible PCs to design and/or buy add-in boards containing the functions that every PC must have; serial port(s), parallel port, interface to floppy disks and hard disk(s), and a means to control these functions. This traditionally required that at least two add-in boards be added to every PC motherboard to satisfy the end user's demands. With the introduction of the SuperI/O Controller from NSC, these functions are now available in a package the size of a postage stamp!

SuperI/O integrates two 8250/16450-compatible UARTs, a Centronics-compatible, bidirectional parallel port, a floppy disk controller with an analog data separator, an IDE hard disk drive interface, a game port, a configuration register, and address decode for all on-board functions. Using SuperI/O significantly reduces board and chip count for the system, thus creating a smaller footprint, lower costs, and increased reliability.

DESIGN CONSIDERATIONS

Compatibility — If the design is not compatible with the ISA BIOS and popular application programs, then the product will fail.

Integration — Every add-in board required by a PC adds costs incremental to the function provided by virtue of the design and manufacturing expenses incurred to provide this functionality.

Low Power — Certainly in laptop, notebook, and handheld computers, as well as in desktop computers, power consumption is of critical importance.

PC87310 SuperI/O (Block Diagram)

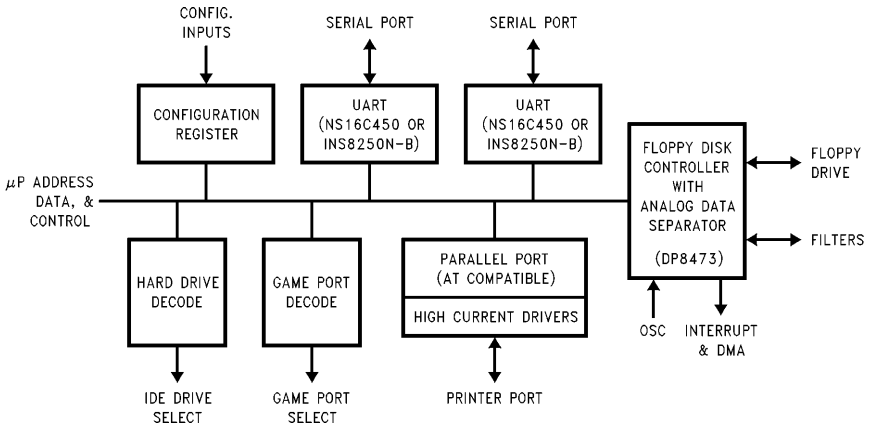

Diagram II

SuperI/O™ is a trademark of National Semiconductor Corporation.

RRD-B30M105/Printed in U. S. A.

KEY COMPONENTS

Description	Part Number	Quantity
SuperI/O	PC87310VF	1
Serial Port Transceivers	DS1488 DS1489	2 3
IDE Interface	PAL16L8 74LS125 74LS244 74LS245	1 1 1 2
Parallel Port	74LS244 NE550	1 1

SuperI/O — SuperI/O is based upon the standards that NSC invented for PC-compatible UARTs and floppy disk controllers. This functionality is integrated onto the motherboard, thus eliminating additional expenditures. NSC's M^{2}CMOS process technology and on-chip power management features are well equipped to satisfy the demanding requirements of the marketplace.

Flexibility — The design of a PC must allow for the end user to add functionality unforecasted by the manufacturer. SuperI/O's on-board configuration register allows either hardware or software control of the on-board functions as regards their address mapping and whether or not they are enabled or disabled.

Reliability — System reliability is improved through the use of fewer boards and fewer components.

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