

Ultra I/O™ Controller

FEATURES

- **5 Volt Operation**
 - Supports Standard 5V Operation
- **Intelligent Auto Power Management**
- **2.88MB Super I/O Floppy Disk Controller**
 - Licensed CMOS 765B Floppy Disk Controller
 - Software and Register Compatible with SMC's Proprietary 82077AA Compatible Core
 - Supports Two Floppy Drives Directly
 - Supports Vertical Recording Format
 - 16 Byte Data FIFO
 - 100% IBM® Compatibility
 - Detects All Overrun and Underrun Conditions
 - Sophisticated Power Control Circuitry (PCC) Including Multiple Powerdown Modes for Reduced Power Consumption
 - DMA Enable Logic
 - Data Rate and Drive Control Registers
 - Secondary Address Option
- **Floppy Disk Available on Parallel Port Pins**
- **Enhanced Digital Data Separator**
 - 2 Mbps, 1 Mbps, 500 Kbps, 300 Kbps, 250 Kbps Data Rates
 - Programmable Precompensation Modes
- **Keyboard Controller**
 - 8042 Software Compatible
 - 8-Bit Microcomputer
 - 2k Bytes of Program ROM
 - 256 Bytes of Data RAM
 - Four Open Drain Outputs Dedicated for Keyboard Interface
 - Asynchronous Access to Two Data Registers and One Status Register
 - Supports Interrupt and Polling Access and DMA Handshake
 - 8-Bit Counter Timer
- **Real Time Clock**
 - MC146818 and DS1287 Compatible
 - 256 Bytes Battery Backed CMOS RAM in Two Banks of 128 Bytes
- 128 Bytes of CMOS RAM Lockable in Four 32 Byte Blocks
- Time of Day in Seconds, Minutes and Hours
- Calendar in Days, Months, Years with Leap Year Compensation
- 12 and 24 Hour Time Format
- Binary and BCD Format
- 1µA Standby Current Draw
- **Serial Ports**
 - Two High Speed NS16C550 Compatible UARTs with Send/Receive 16 Byte FIFOs
 - Supports 230k and 460k Baud
 - Programmable Baud Rate Generator
 - Modem Control Circuitry
 - Infrared - IrDA (HPSIR) and Amplitude Shift Keyed IR (ASKIR)
- **Multi-Mode Parallel Port with ChiProtect™**
 - Standard Mode
 - IBM PC/XT®, PC/AT®, and PS/2™ Compatible Bidirectional Parallel Port
 - Enhanced Parallel Port (EPP) Compatible - EPP 1.7 and EPP 1.9 (IEEE 1284 Compliant)
 - Extended Capabilities Port (ECP) Compatible (IEEE 1284 Compliant)
 - Incorporates ChiProtect Circuitry for Protection Against Damage Due to Printer Power-On
- **IDE Interface**
 - On-Chip Decode and Select Logic Compatible with IBM PC/XT and PC/AT Embedded Hard Disk Drives
- **Two General Purpose 8 bit I/O Ports**
 - Each Port has Independently Programmable Address
 - Each Port has Independent Enable and Power Down/Direction Control
- **Game Port Logic**
- **160 Pin QFP Package**

GENERAL DESCRIPTION

SMC's FDC37C922 Ultra I/O Controller incorporates a keyboard interface, real time clock with 256 bytes of CMOS RAM. SMC's true CMOS 765B floppy disk controller, advanced digital data separator, 16 byte data FIFO, two 16C550 compatible UARTs, one Multi-Mode™ parallel port which includes ChiProtect circuitry plus EPP and ECP support, IDE interface with DMA support, on-chip 12 mA AT bus drivers, game port chip select and two floppy direct drive support. The true CMOS 765B

core provides 100% compatibility with IBM® PC/XT® and PC/AT® architectures in addition to providing data overflow and underflow protection. The SMC advanced digital data separator incorporates SMC's patented data separator technology, allowing for ease of testing and use. Both on-chip UARTs are compatible with the NS16C550. The parallel port, the IDE interface, and the game port select logic are compatible with IBM PC/AT architecture, as well as EPP and ECP. The Ultra I/O

incorporates sophisticated power control circuitry (PCC). The PCC supports multiple low powerdown modes and automatic powerdown modes.

The Ultra I/O's floppy disk controller incorporates Software Configurable Logic (SCL) for ease of use. Use of the SCL feature allows programmable system configuration of key functions such as the floppy disk controller, parallel port, and UARTs. The parallel port ChiProtect prevents damage caused by the printer being powered when the chip is not powered.

The FDC37C922 does not require any external filter components and is, therefore, easy to use and offers lower system cost and reduced board area. The FDC37C922 Ultra I/O is software and register compatible with SMC's proprietary 82077A core.

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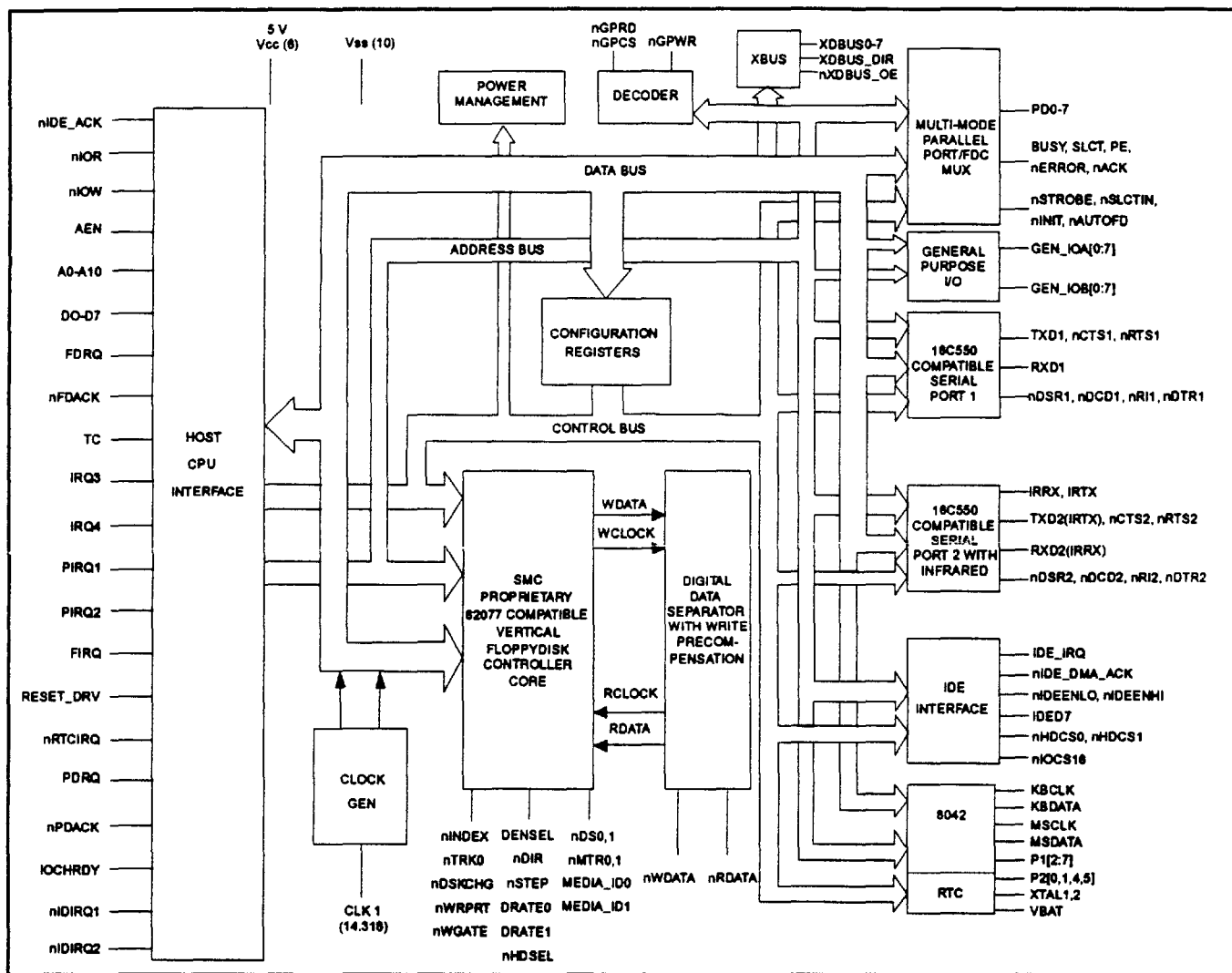


FIGURE 1 - FDC37C922 BLOCK DIAGRAM

SMC

Component Products Division
300 Kennedy Drive
Hauppauge, NY 11788
(516) 435-6000
FAX (516) 231-6004

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