

## HARD DISK CONTROLLER SINGLE CHIP SCSI WINCHESTER CONTROLLER

### ■ DESCRIPTION

The SPC3120 is a single chip disk drive controller designed for high performance. Combined with a data separator, ENDEC, and microcontroller circuit, this chip will support the functions necessary to build a high performance disk drive. It is packaged in a 100 pin quad flat package and contains the data sequencer, bus interface, buffer manager, and an 88 bit Reed Solomon On-The-Fly Error Corrector. The SPC3120 will support disk data rates up to 32 mbits per second and 8 bit host data transfers up to 5 Mbits per second. Included is a 8K byte buffer to accommodate smaller foot print disk drives with the capability to control an additional 256K bytes of SRAM or DRAM. This device incorporates Servo Gap Skip Circuitry to support zone bit recording.

### ■ FEATURES

#### ○ SCSI Interface

- Supports SCSI-2 protocol
- Supports asynchronous DMA/PIO transfers up to 3 Mbytes/sec
- Supports synchronous DMA/PIO transfers up to 5 Mbytes/sec
- Supports up to 15 byte synchronous transfer offsets and 12 programmable transfer periods
- Controls synchronous transfer overrun/underrun
- Transfers SCSI information to/from the microcontroller through a 16 byte fifo under PIO
- Controls arbitration, selection, and reselection in hardware
- Detects selected or deselected conditions automatically
- Internal 48mA SCSI bus drivers
- Odd parity data verification between SCSI bus and Host interface

#### ○ Advanced Buffer Manager

- Supports 1:1 interleave, zero latency
- Supports external SRAM or DRAM up to 256K
- Provides priority resolution for access to buffer
- Parity generator/checker for external memory

#### ○ Microcontroller Interface

- Automatically detects either 80XX or 68XX type microcontrollers
- Internal ROM address latch to reduce part count
- Multiplexed Address/Data Bus reduce pin count
- Interrupt driven or Programmed I/O interface
- Programmable low power mode (standby operation)

#### ○ Advanced Disk Interface

- Supports NRZ data rates up to 32 Mbits/sec
- Supports both hard and soft sector formats
- Supports sustained 1:1 interleave operation
- Supports multiple sector transfers
- User programmable sector length up to 64K bytes per sector
- 88 bit Reed-Solomon On-The-Fly ECC support
- Hardware input to detect servo areas
- Supports zone bit recording with multiple split Data fields
- *Optional internal 1,7 RLL or 2,7 RLL ENDEC's*

#### ○ Technology

- 3V/5V high speed CMOS
- 100 pin VQFP (14mm x 14mm x 1.4mm)

■ BLOCK DIAGRAM

