PRELIMINARY

CY53150

Neuron® Chip Network Processor

Features

- **Maximum clock operation of 10 MHz, over a –40 to 85°C temperature range**
- **Three 8-bit pipelined processors for concurrent processing of application code and network packets**
- **11-pin I/O port programmable in 34 modes for fast application program development**
- **Two 16-bit timer/counters for measuring and generating I/O device waveforms**
- **5-pin communication port that supports direct connect and network transceiver interfaces**
- **2048 bytes of SRAM for buffering network data and storing network variables**
- **512 bytes of EEPROM memory with on-chip charge pump for flexible storage of configuration data**
- **Can address up to 58 KB of external memory—6 KB of the address space is mapped internally**
- **Supports slower external memory (120 ns with no decode logic @ 10MHz)**
- **Programmable pull-ups on IO4–IO7 and 20 mA sink current on IO0–IO3**
- **Unique 48-bit ID number in every device to facilitate network installation and management**
- **64-pin QFP package**
- **Low operating current. Sleep mode operation for reduced current consumption**
- **On-chip LVD circuit to prevent non-volatile memory corruption during voltage supply drops**
- **0.35-µm Flash process technology**
- **5.0V operation**

Functional Description

The CY53150 is a Neuron® Chip which implements a node for the LonWorks® distributed intelligent control networks. It incorporates, on a single chip, the necessary communication and control functions, both in hardware and firmware, that facilitate the design of a LonWorks node.

The CY53150 is manufactured using the state-of-the-art 0.35-µm Flash technology, providing to the designers the most cost-effective Neuron Chip solution.

The CY53150 incorporates an external memory interface, which can address up to 64 KB, with 6 KB of the address space being mapped internally. LonWorks nodes that require large application codes can take advantage of the external memory capability. The LonTalk protocol firmware is also stored in the external memory, requiring a space of 16 KB. The configuration data are stored in the on-chip EEPROM memory.

The CY53150 contains a very flexible 5-pin communication port, that can be configured to interface to a wide variety of media transceivers at a wide range of data rates. The most common transceiver types are: twisted-pair, powerline, RF, IR, fiber-optics, and coaxial.

The CY53150 Neuron Chip is a drop-in replacement for the Motorola MC143150B2 device.

Logic Block Diagram