Neuron® Chip Network Processor

Features

- **Maximum clock operation of 20 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**
- **2048 bytes of EEPROM memory for flexible storage of application code and configuration data**
- **10 KB of ROM for storing LonTalk® network protocol firmware**
- **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**
- **32-pin SOIC or 44-pin QFP packages**
- **Low operating current. Sleep mode operation for reduced current consumption**
- **On-chip LVD circuit to prevent non-volatile memory corruption during voltage drops**

- **0.35-μm Flash process technology**
- **5.0V operation**

Functional Description

The CY53120 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 CY53120 is manufactured using the state-of-the-art 0.35-μm Flash technology, providing to the designers the most cost-effective Neuron Chip solution.

Services at every layer of the OSI networking reference model are implemented in the LonTalk firmware-based protocol stored in the 10-KB ROM. In addition, the ROM firmware also contains preprogrammed I/O drivers, greatly simplifying application programming. The application program is stored in the EEPROM memory, and may be updated by downloading over the network.

The CY53120 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 CY53120 Neuron Chip is fully compatible with the Motorola MC143120E2 device.

Logic Block Diagram
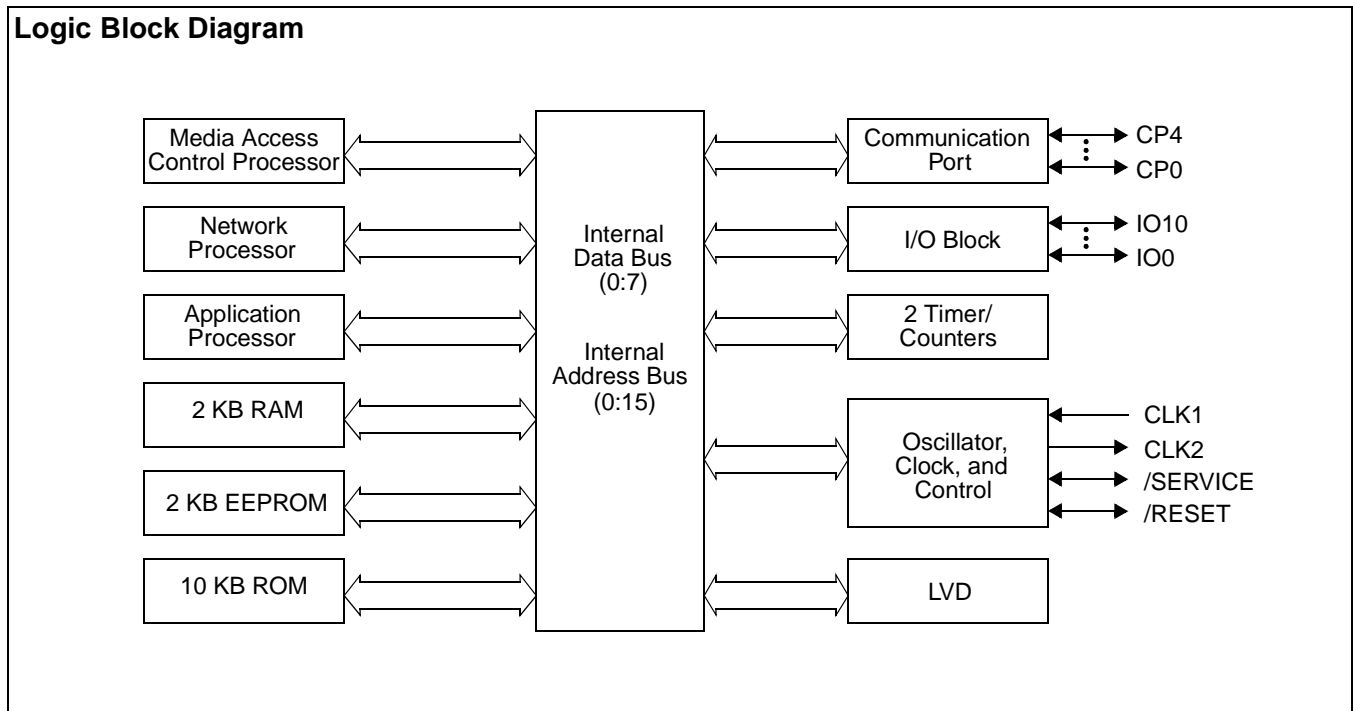
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