
Features

- Programmable Interrupt Controller
- Eight Interrupt Priority Levels Cascadable to 64
- Low Power Consumption for Battery-powered Applications
- Small Size: Approximately 1567 Gates
- Part of PC Chipset Design Kits
- Complete Register Compatibility
- Compatible with Standard Software
- Gate Count: approximately 2KGates

Description

The CB_8259A is a programmable interrupt controller design for incorporation in Asic products. The device can handle 8 vectored priority interrupts. Its highly efficient design allows integration into Asic technology functions that could not be economically integrated in the past. The CB_8259A forms part of the Atmel Macrocell Library which includes other macrocell functions required for PC, XT and PC/AT motherboard Asic designs.



Standard Interface Macrocell

CB_8259A Interrupt Controller

0887A/cb_8259a.fm5-8/97



Pin Description

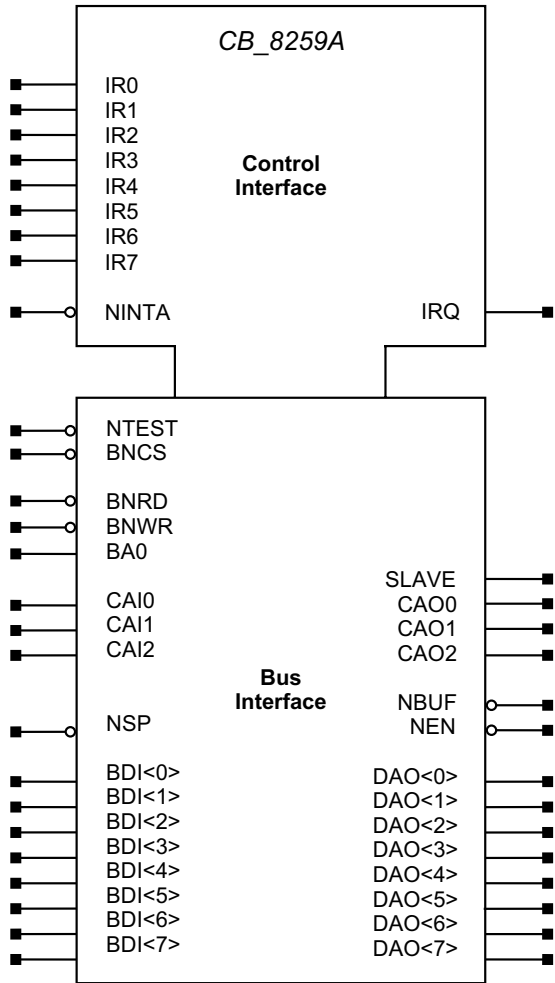


Table 1. Control Interface

Signal Name	Type	Description
IR 0-7	Input	Interrupt Request Lines 0 to 7
NINTA	Input	Not Interrupt Acknowledge
IRQ	Output	Output Interrupt Request

Table 2. Bus Interface

Signal Name	Type	Description
NTEST	Input	Test Mode Input (low true)
BNCS	Input	Not Chip Select
BNRD	Input	Not Read
BNWR	Input	Not Write
BA 0	Input	Address Line
CAI 0-2	Input	Cascade Input Bits 0 to 2
NSP	Input	Not Slave Program
BDI 0-7	Input	Input Data Bits 0 to 7
SLAVE	Output	Bi-direct Control Signal for CAI and CAO lines
CAO 0-2	Output	Cascade Output Bits 0 to 2
NBUF	Output	Bi-direct Control Signal for combining NSP and NEN lines
NEN	Output	Not Buffer Enable and Bi-direct Control Signal for DI and DA busses
DAO 0-7	Output	Output Data Bits 0 to 7

The interface signals have the same function as the standard 8259A except:

- The NTEST input signal is not present in the standard chip.
- The bi-directional lines (the data bus, the cascade bus and the NSP/NEN line) are split into input and output sections.

All signals have the same sense (low or high true) as in the original device, and all bidirectional control lines are low true. The total number of interface signals is 41. Of these 26 are input signals and 15 are output signals. All signals have to be multiplexed out for test purposes.

The bi-directional control signals are low true; when low the outputs are enabled and the inputs should be tri-stated, and when high the outputs are disabled and the inputs may be driven.

Operation

The CB_8259A can be programmed from the CPU with two classes of command. The first class initializes the CB_8259A before it can be used and are called Initialization Command Words.

The second class of commands are called Operation Command Words and these configure the CB_8259A into its different operating modes.

Test Mode

The test mode on the CB_8259A allows the internal circuit nodes to be examined for fault cover. It is also possible to perform a reset in this mode so that the fault coverage can be checked.