

SN74LS610, SN74LS612 MEMORY MAPPERS

D2549, JANUARY 1981 – REVISED APRIL 1990

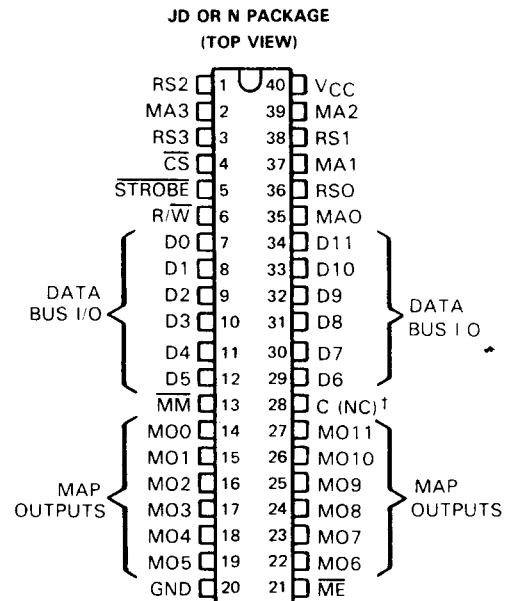
- Expands 4 Address Lines to 12 Address Lines
- Designed for Paged Memory Mapping
- Output Latches Provided on 'LS610
- 3-State Map Outputs
- Compatible with TMS9900 and Other Microprocessors

description

Each 'LS610 and 'LS612 memory-mapper integrated circuit contains a 4-line to 16-line decoder, a 16-word by 12-bit RAM, 16 channels of 2-line to 1-line multiplexers, and other miscellaneous circuitry on a monolithic chip. Each 'LS610 also contains 12 latches with an enable control.

The memory mappers are designed to expand a microprocessor's memory address capability by eight bits. Four bits of the memory address bus (see System Block Diagram) can be used to select one of 16 map registers that contain 12 bits each. These 12 bits are presented to the system memory address bus through the map output buffers along with the unused memory address bits from the CPU. However, addressable memory space without reloading the map registers is the same as would be available with the memory mapper left out. The addressable memory space is increased only by periodically reloading the map registers from the data bus. This configuration lends itself to memory utilization of 16 pages of $2^{(n-4)}$ registers each without reloading (n = number of address bits available from CPU).

These devices have four modes of operation: read, write, map, and pass. Data may be read from or loaded into the map register selected by the register select inputs (RS0 thru RS3) under control of R/W whenever chip select (\overline{CS}) is low. The data I/O takes place on the data bus D0 thru D7. The map operation will output the contents of the map register selected by the map address inputs (MA0 thru MA3) when \overline{CS} is high and MM (map mode control) is low. The 'LS612 output stages are transparent in this mode, while the 'LS610 outputs may be transparent or latched. When \overline{CS} and MM are both high (pass mode), the address bits on MA0 thru MA3 appear at M08-M011, respectively, (assuming appropriate latch control) with low levels in the other bit positions on the map outputs.



†This pin has no internal connection on the 'LS612.

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**TEXAS
INSTRUMENTS**

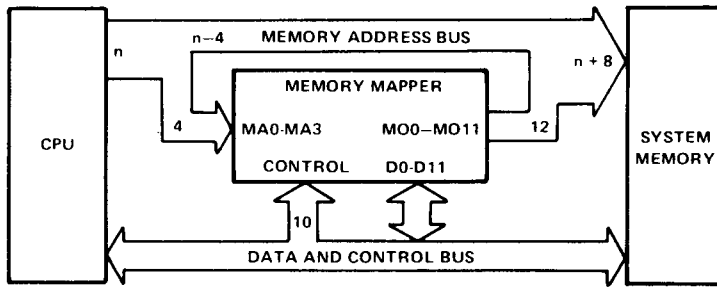
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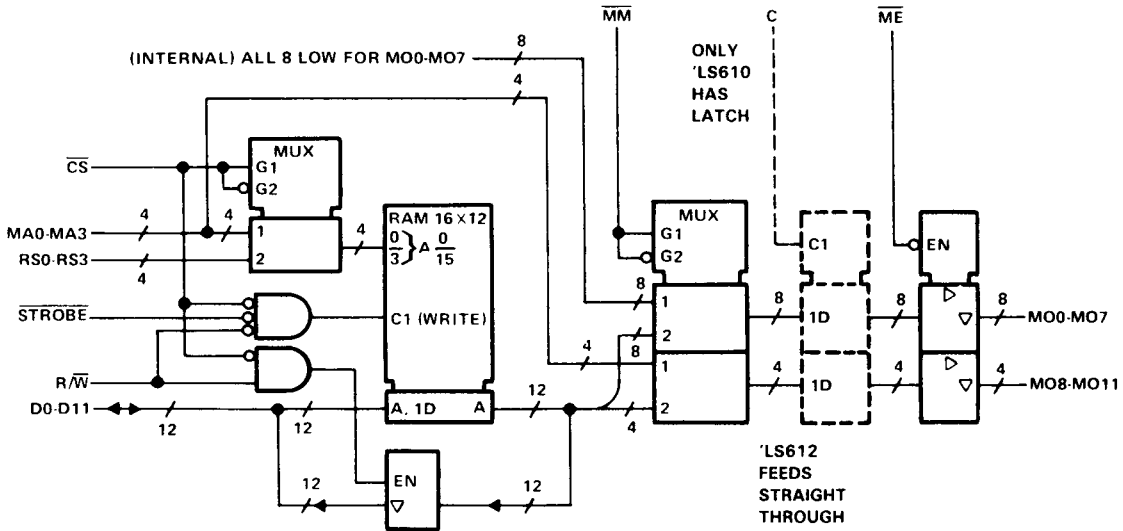
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SN74LS610, SN74LS612 MEMORY MAPPERS

system block diagram



logic diagram (positive logic)



for complete data sheet

The complete version of this data sheet and application information can be found in the *Cache Memory Management Data Book*, Literature #SCAD002. To obtain a copy of this data book, contact your local TI sales representative or call the TI Customer Response Center at 1-800-223-3200.