To search page

1979

Single-chip floppy disk controller (NEC)

~ Integrated Circuit ~

In the 1970s and 1980s, the degree of integration of semiconductors increased, and the performance of information equipment dramatically advanced. The external memory media rapidly changed to magnetic storage media which were easily handled, from paper media such as punch-cards and paper tapes. Especially 8-inch floppy disk, then smaller 5-inch or 3.5-inch floppy disk were developed, and they were installed mainly on personal computers. In this situation, a controller that could be used conveniently and could deal with various data formats was required. Until the development of a one-chip floppy disk controller, it was a module on a printed circuit board, consisting of an LSI that converted the data read from the floppy disk into a serial-parallel format, and a subsystem in which a microprocessor dealt with the floppy disk format.

This controller integrated almost all the functions to control the floppy disk on one chip, and drastically reduced the burden on the host CPU. The controller consisted of a serial data processor that handled serial data and an 8-bit processor that mainly dealt with the format of the floppy disk. In the serial data processor, the read serial data was converted to 8-bit parallel data and cyclic redundant bits were generated, securing that there was no error in the data from the disk. The 8-bit processor performed format control for reading track information, sector information, data, etc. based on the 8-bit data received from the serial processor. Both processors were integrated with ROM and RAM so that the processor could be easily controlled by a high level command from the host processor. Also, by changing the code of the integrated ROM, it was designed to operate with various floppy disk formats and serial data such as UART data.

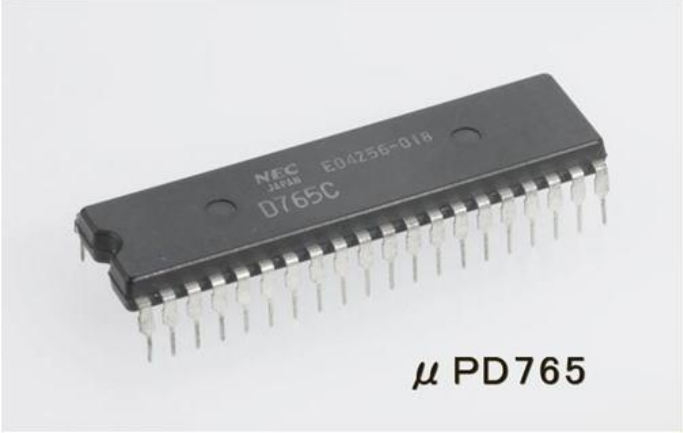

Fig. One-chip floppy disc controller μPD765
(By courtesy of Renesas Electronics)

Version 2019/1/23