

the serial I/O port, which is used for communicating with the external A/D converter chip, expansion of input ports by the external shift register, and other purposes, is designed with the following characteristics so that it can be used as an effective link with other systems:

- all synchronous/asynchronous mode double-serial input/output
- 8 and 9 bit mark/space NRZ data format
- 14 baud rates including synchronous 1M baud
- a number of status flags for interrupt output indicating transfer end and transfer status of each input and output

Figure 13 shows a block diagram of the serial I/O section.

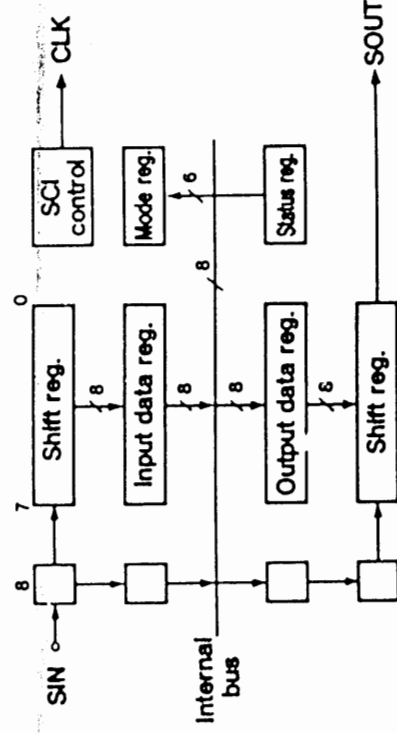


Fig. 13 - Block diagram of serial I/O section

Other Features

The new single-chip microcomputer has the following other features when used in automobiles.

The current consumption by the CMOS CPU is only 20 mA during operation, creating negligible temperature rise by heat generation, and making it thus possible to operate within a wide temperature range between -40°C and 105°C . As for

inputs are equipped with a 2^{-4} μsec filter at the ASR input, port A edge inputs, interrupt signal inputs, CPU control input WI, and HALT (for the stand-by operation). Figure 14 shows the CPU chip layout.

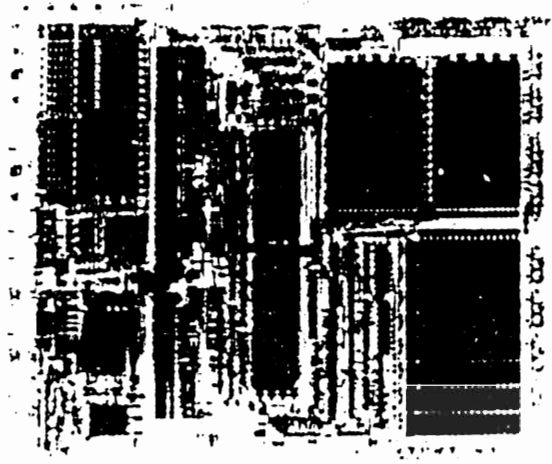


Fig. 14 - CPU chip layout

SUPPORT LSI IN ECU DEVELOPMENT

A memory interface chip has been developed along with the CPU to support the development of the engine control system.

When programs are reviewed using an EPROM, new input/output ports become necessary, since CPU ports A and B are used as address/data terminals. Additional discrete ICs are required for address decoding and address latching, requiring a large space for the ECU, but this is not