

Even if expansion of functions is necessary in the future, multi-microcomputer configurations (various combinations of 8-bit or 16-bit microcomputers) will allow an ECU to be adaptable to the scale of systems by using the DMAC and the SIO function.

7. Summary

A new 16-bit microcomputer which is flexible and sophisticated, quite suitable for real-time control systems in automobiles has been developed. Use of this microcomputer has permitted the development of a high-speed, high-precision combined control system centered upon engine and transmission control, while reduction of the number of LSIs used and increased operating range have improved the reliability of the ECU. Furthermore, this microcomputer possesses capabilities for a number of advanced functions, and is adaptable to various kinds of automotive systems.

Development in this field has been facilitated by close cooperation among automobile, ECU and semiconductor manufacturers. Future efforts to enhance this type of cooperative relationship will be conducive to the development of even more sophisticated and technologically advanced products.

8. References

- (1) T. Kawamura et al.
"Toyota's New Single-Chip Microcomputer Based Engine and Transmission Control System" SAE 850289
- (2) Y. Ohno et al.
"An Integration Approach To Powertrain Control Systems" SAE 850762
- (3) T. Inoue et al.
"Future Engine Control" SAE 901152