PREFACE

Engineer spirit

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I have been involved in development and design of vehicle electronic devices for more than 30 years. I worked on a variety of devices, ranging from vehicle communication equipment (so-called taxi radio) to vehicle body control unit, audio multimedia devices, etc. During those years as an engineer, I consistently focused on one point: What is the best design (consideration and improvement) to ensure stable performance and functions of the device for a long time in a tough environment (power fluctuation, noise and temperature/humidity changes, etc.) in/on vehicles?

The functions and service of vehicle electronics have significantly advanced for these past 30 years to satisfy user needs and to offer new value. For example, vehicle-mounted audio multimedia devices evolved from devices for simply listening to the radio and music in vehicle cabin. They are now compatible with digital media (CD, digital broadcast, etc.) for better sound, and are equipped with a navigation function to lead drivers to destinations safely and comfortably. Being "connected" externally, they even allow users to effectively use abundant information on the Internet in the cabin.

In response to these increasingly diversified functions, our product development has been changing and now needs sophisticated, complex technology and know-how due to: enlargement of software size (approx. 10 thousand times), an increase in human resources for development (approx. hundred times), challenging wiring design, and measures for noise reduction and heat release for hardware including CPUs with faster operating frequency (some hundred times). Moreover, advanced driver assistance system (ADAS) and autonomous (automated) driving system are considered as future growth fields. The society will enter an era of security and safety that will be offered by those systems through accident avoidance while traffic control to be materialized by vehicle control and alert to drivers. To realize that, I believe that we have to accelerate development of the sensing technology, use of society information and development of the advanced information processing technology, across the boundaries of conventional automobile-related technology.

However, there is a thing that has never changed, which is the fact that products are completed by "humans" (\approx engineers) who plan functions and service to offer, overcome technological challenges, and solve other problems (profitability, maintainability, etc.). Tools for data analysis and design assistance have increasingly evolved and advanced. But, the most important thing is the engineer spirit and passion to "bring out this new product." With the spirit in mind, they improve and believe in their own technical competence, overcome all challenges standing in the way, and strive to attain the clear and attractive objective of launching the product. Thus, the products can be materialized. In addition, due to R&D human resources increased by the growing scale of development, team work and communications among the engineers are important more than ever. The engineers must have power to bring ideas into shape based on technological knowledge. In addition, they must be attractive and thoughtful as human beings, and have management capability to unite the team to rack their brain in order to advance projects.

I would like to continue to send hearty cheers to the engineers who work hard to develop products with all the capabilities (engineering power, reliable personality and management capability) for growth of our company in the field of the vehicle electronic devices that is rapidly progressing and changing. At the same time, as an engineer, I am determined to endeavor to deal with challenges and achieve goals and challenges with a passionate spirit until I leave the front line.

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