COLUMN

Cover product:

Digital Controller Sandic PDC-300 from 1985

Author: Nobukatsu Osari

The end of the 1960s was the height of a great transformation for device control technologies. Sanyo Denki technologies, which had been mainly analog up until that time, began transitioning to the world of digital controls.

At that time, school lectures were still discussing vacuum tubes, and technologies like transistors and ICs were just emerging. When I started with Sanyo Denki, one important part for devices was the decimal format counter, and one IC digit of the counter cost 10,000 yen. It cost a total of 60,000 yen just to construct a six digit counter, and if it broke, that was at least 60,000 yen out the window.

It was around this time that a single axis digital controller was developed with software controls. At first, control circuits were made of just transistors and ICs, but they were developed as a response to the sense that controllers lacked universal applicability.

We developed the control circuit using micro-processors, which had just emerged at the time, but we started writing the program directly in the machine language—an inefficient method that would be unheard of today. However, by not using high-level language at the start, we were actually able to gain useful knowledge about the micro-processor.

The digital controller that we developed finally went to market. It was adopted in many devices and became one of Sanyo Denki's main products. However, this was also the result of overcoming many hurdles.

Once, I was called to answer a complaint from a customer about our digital controller. When visiting the customer, I discovered that the client was using the small digital controller to operate all parts of a large-scale device—a usage that was beyond what we had anticipated. I still remember the chill that ran down my spine upon hearing this.

Perhaps the visit I remember the most was when I traveled to a customer's factory to find the cause of an error. I worked until late in the night when I was the only one left. I still remember the cold and hunger as I left the factory. Unlike today, there weren't convenience stores on every corner to sell me food, so I walked all the way home through the quiet, snowy streets.

At times, we even discovered problems within the product itself. In these cases, we needed to fix the problem as quickly as possible, so many times I would take the part back to Sanyo Denki and work on it overnight with my supervisor. When pulling an all-nighter during the winter, the guards would sometimes come around near dawn with some hot water to check on how we were doing.

Furthermore, unlike hardware like ICs, bugs in the software might not be noticed until a year or more after the product has gone to market, depending on how the product is used. Bugs in the software are certainly a defect in the product, and no matter how much it is meant to be a universal device, discovering a bug leaves a bitter taste in one's mouth. To ensure that the discovered bug was corrected, all different versions of the standard digital controller had to be taken in and unified through the software.

The result of this hardship was the digital controller series ranging from single axis to multiple axes. The model introduced on the cover, the "Sandic PDC-300", is a three-axis type of digital controller. This series is used by many customers and has contributed to automation within Sanyo Denki's works. This product series served as an essential product line for Sanyo Denki, upon which all subsequent controller products have been based.

Nobukatsu Osari
1967: Joined Sanyo Denki. Assigned to the Kawaguchi Factory.
1977: Assigned to the 2nd Device Division, Design Department
1982: Made section head of the 4th Device Division, 2nd Design Department
1986: Made deputy manager of the 4th Device Division
1987: Made deputy manager of the 2nd Division in charge of control devices
Made section head of the 3rd Design Department
1988: Made section head of the 2nd Design Department
1944: Made deputy head of the 3rd Sales Technology Department
1995: Made head of the Sales Division, Sales Technology Department
1997: Made head of the Legal Department
2004: Made advisor to the Legal Department
2007: Retired