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1997

Single-chip MPEG2 encoder (NEC)

~ Integrated Circuit ~

In 1995, the standardization of MPEG 2 (Moving Picture Experts Group 2) was established, and mass production shipments of LSIs for MPEG 2 decoders from worldwide semiconductor companies began for Set Top Box in North America and Europe. NEC also shipped the LSI [μPD 61020] with the AV decoding function on one chip for Set Top Box.

In Japan, the market for DVD players was launched at the same time, and the development of MPEG 2 decoder LSI advanced for this market. The next target of each domestic company was how to develop the first DVD recorder and digital recording VHS ahead of the industry, and the key LSI was the MPEG 2 encoder.

At this time in 1995, MPEG2 encoder LSI could only be realized with a combination of multiple chips, and even though Matsushita, Mitsubishi, C-Cube, etc. had announced the products, they could not be used in the consumer field. MPEG2 encoder had a circuit scale of LSI more than three times that of MPEG2 decoder, but each company started to consider the development of LSIs in expectation of large potential market of consumer-use image recording devices, once cost-competitive products were developed.

In 1997, NEC succeeded in developing the world's first single-chip MPEG2 encoder LSI and announced at ISSCC in February. For this development, NEC launched a development PJ in collaboration with NEC Research Laboratories, and they developed a unique motion detection circuit and an optimal algorithm to realize a high image quality system which had been realized in broadcasting equipment in a smaller sized circuit. At the same time, they developed an algorithm to realize high quality image coding at low bit rate, and by using these newly developed technologies, they succeeded in developing the LSI.
By using this LSI (μPD 61050), the world's first digital VHS was released from Hitachi in July 1999, and also the world's first DVD recorder from Pioneer in December. These moves contributed greatly to the spread of DVD recorders in consumer field which adopted MPEG2 encoders.

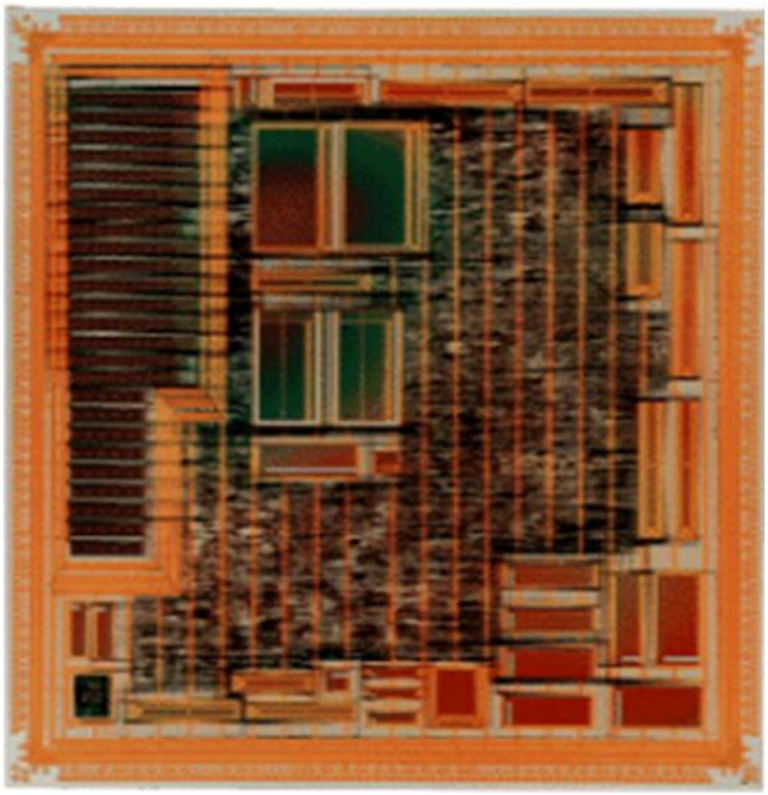

Fig.1: Die Photo of MPEG2 Encoder LSI μPD61050
(By courtesy of Renesas Electronics)

Fig.2: Package Photo of MPEG2 Encoder LSI μPD61050
(By courtesy of Renesas Electronics)