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# 1968

## Pattern Generator

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Integrated circuits (ICs) became miniaturized and highly integrated, and further expanded to various kinds of products. Along with this advancement, manual artwork became difficult for manufacturing photomasks. In 1968, GCA developed and sold a pattern generator (1600 PG) which automatically generated patterns and created reticles to be applied to photo repeaters. Arbitrary rectangular patterns are generated by the apertures which can open, close and rotate, which are reduced projection exposed to 1/10 on the reticle dry plate, and the XY stage is moved at high speed to divide and expose the rectangular pattern one by one to draw a circuit pattern. The size of the aperture and the position of the XY stage were computer controlled. This dramatically improved the reticle fabrication efficiency used for photomask manufacture for contact exposure and projection exposure.

References:

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Version 2022/5/11