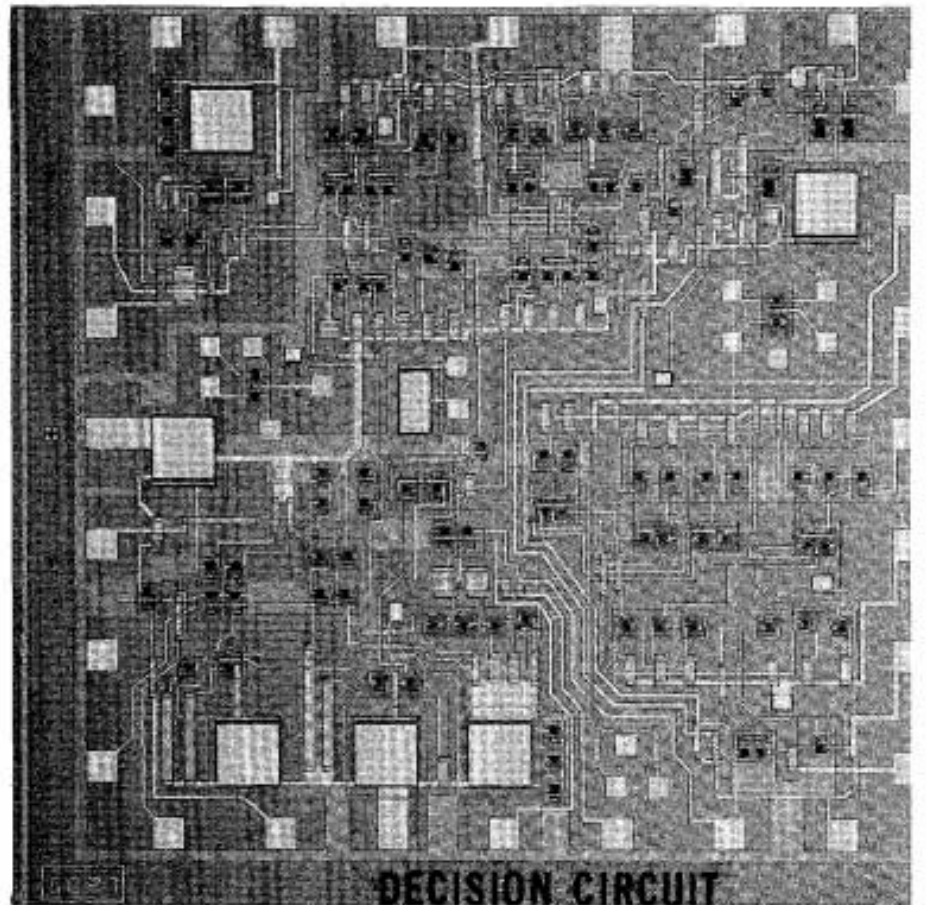
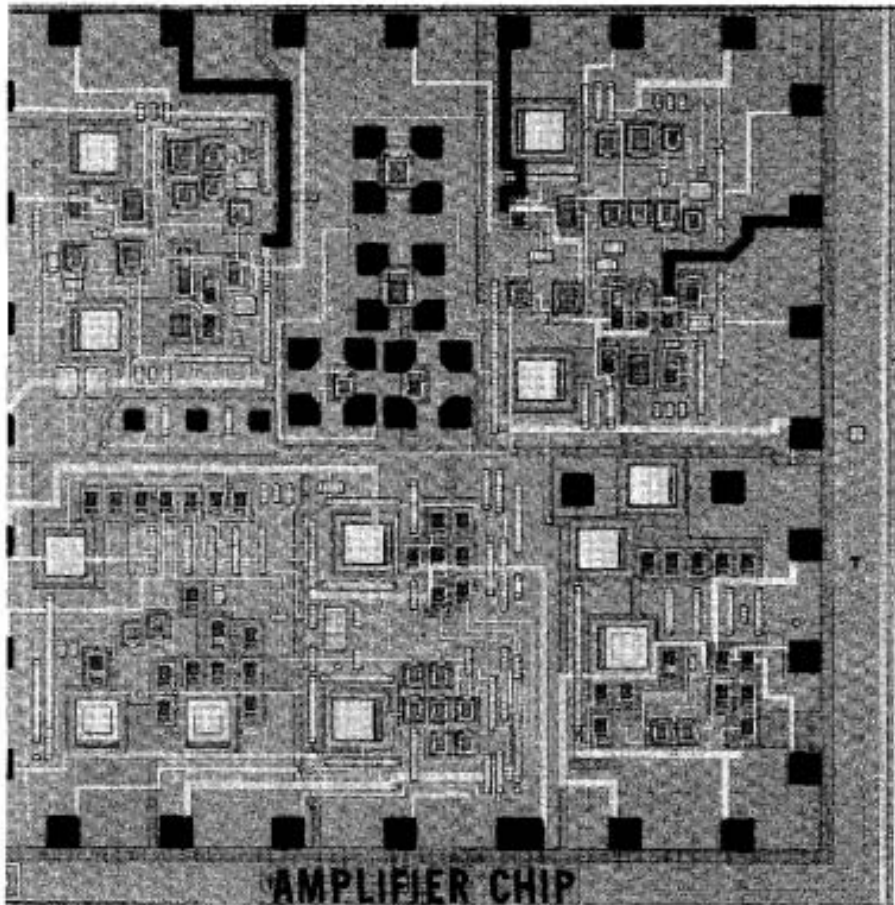


FIRST ICs FOR FIRST TRANSATLANTIC FIBER (TAT-8)

ISSCC 1984



A Regenerator Chip Set for High-Speed Digital Transmission

THESE REGENERATORS FOR a larger-than 300Mb/s undersea fiber optic cable were built in 1983. The regenerators are spaced about 20 miles apart over the 3000 mile span. Similar to later land-based systems, a feeble (-34dBm) light signal is detected with a photodiode, amplified with an LNA and post amplifier, then sliced into zeros and ones in a decision circuit (D-type FF). These are retimed in a SAW-filter-based timing recovery unit. The ICs use a then-unique complementary bipolar $2.5\mu\text{m}$ process, which has NPNs with f_T 's of 4GHz and PNP's with f_T 's of 3GHz.