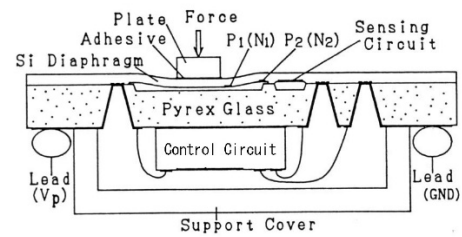
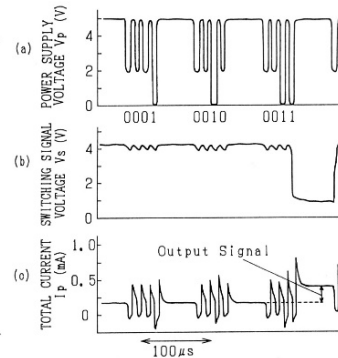
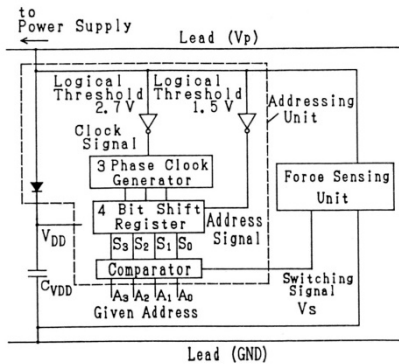
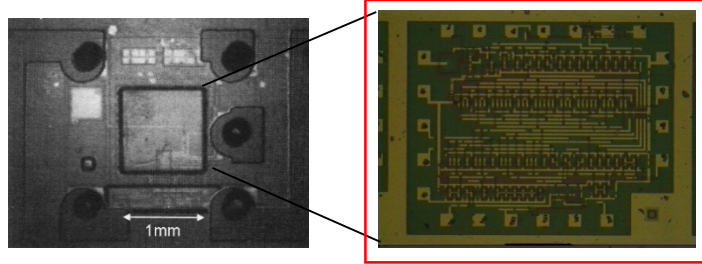
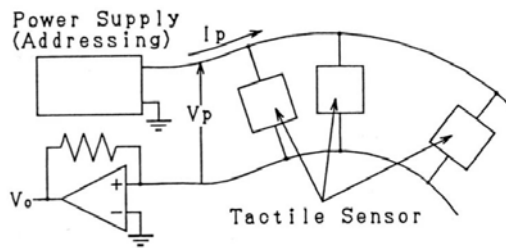


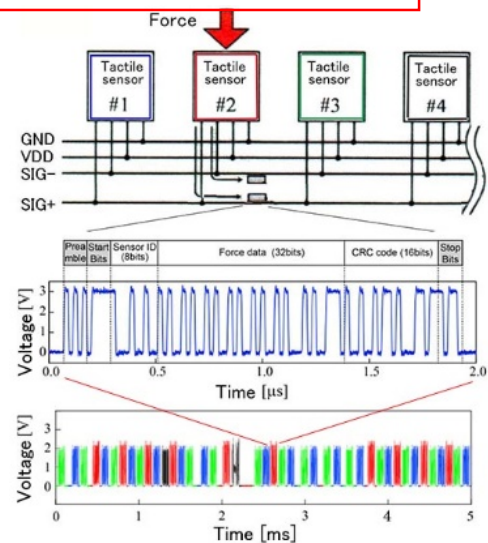
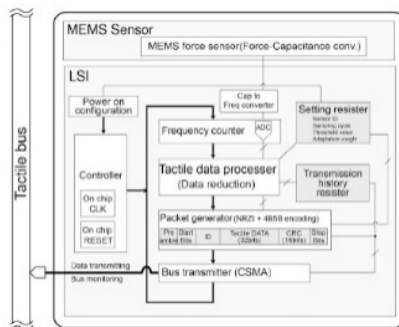
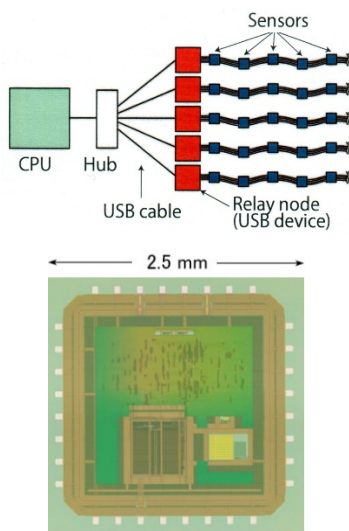
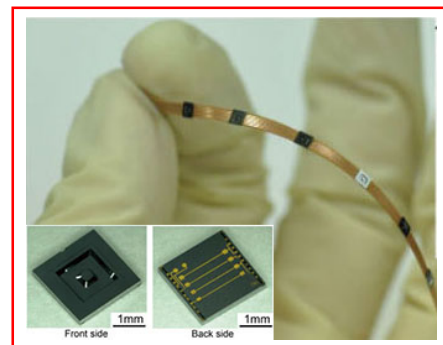
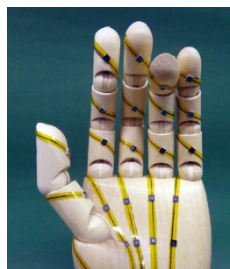
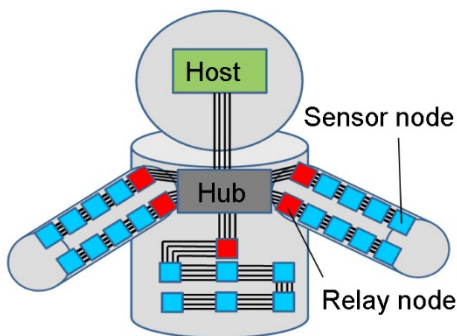
11 Tactile sensor network



Common two-lead tactile sensor array (poling type) Number of transistors max 100 /chip in our laboratory

(In company, 1 million /chip at that time, 10 billion /chip at present)

(S.Kobayashi, T.Mitsui, S.Shoji and M.Esashi : Two-Lead Tactile Sensor Array Integrated CMOS Interface Circuits, Using Piezoresistive Effect of MOS Transistor, Technical Digest of the 9th Sensor Symposium,(1990) 137-140)



Tactile sensor network (event driven tipe) (Tohoku Univ. Toyota, Toyota central research laboratory)

(M.Makihata, S.Tanaka, M.Muroyama, S.Matsuzaki, H.Yamada, T.Nakayama, U.Yamaguchi, K.Mima, Y.Nonomura, M.Fujiyoshi and M.Esashi : Integration and Packaging Technology of MEMS-on-CMOS Capacitive Tactile Sensor for Robot Application Using Thick BCB Isolation Layer and Backside-grooved Electrical Connection, Sensors and Actuators A, 188 (2012) 103-110)