

# Foreword

A historically and technically accurate document about the invention of silicon integrated circuit has been the gasping hole in the literature on the history of semiconductor electronics. The fact that such an account has been lacking is not only because those participated starting some fifty years ago (1959-2008) are all still occupied, either professionally active, hence lack of time, or retired, hence also lack of time, but also that the details were hidden and tedious to collect and to discover. It is our pure luck and my ultimate delight that one of my colleagues and co-workers of that era, who had maintained contact with me all these fifty some years, just happened to be interested, if not pure hobby pastime, in the history, for years, the entire 50 years, a fact which I had not known even we have had so many technical and personal communications. In fact, Arjun Saxena has been diligently collecting evidences, through patent searches as well as continued personal contacts with those at the scene and contributed, half a century ago. So to our mutual delight when we discovered each other's hobby, we agreed that he should put his collections and analyses into a monograph, not only to share with all others but also to put the history right. It then became immediately obvious that this subject, on the history of the invention of the integrated circuits, fits perfectly the monograph series on the design of transistors and active and passive diode devices, which are the basic building blocks for the very silicon (and also other semiconductor) monolithic integrated circuits.

This book is the first and only in the literature to give a technically authoritative and historically in-depth, correct account of the invention of the silicon integrated circuit, because the invention has been attributed to two inventors, each from a combating manufacturer in rivalry, eventually with compromised stipulations ruled by the judge in a settlement reached in court, compounded subsequently by popularity recognition of the U.S. Presidential National Technology Award in engineering and also the World's Nobel Prize in Applied Physics, all of which further confused the facts underlying the invention of the integrated circuits. It is hoped that this monograph puts an end to the stipulations and the reader-attracting tales about the IC invention history and its two rivalry and colorful personal-life inventors. The invention of IC is quantitative engineering technology, thus, amenable to precise solution rather than uncertain extrapolations by those without the hands-on information from personal involvement in the events of fifty years ago. This book presents the history as a detective story, by the person who was involved and was on the scene, and who has continually kept track. But at the end, also discovered discrepancies and ambiguities in the incomplete historical records, even appeared meddled intentionally, which have not been known for fifty years, and which would take further efforts using modern techniques from using the integrated circuits themselves to figure out, if at all possible, showing the superior of human intelligence in disguise, not surmountable by human-developed diagnostics techniques using the very integrated circuits themselves. But nevertheless, after reading this book, we will all have learned the documented historical truths rather than the grapevine propagated tales originated from those who had not even the vigorous semiconductor and transistor physics classroom background necessary to judge and delineate.

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