

Acc. 1996.0089

ICE Introduction

AC#600

[Home](#) [Search](#) [Chip Talk](#) [Chip Art](#) [Patents](#) [People](#) [Pictures](#) [Credits](#) [Copyright](#) [Comments](#)

Description:

There are 18 individual series within the ICE Collection. Each series' summary is described in that it includes either content and/or definition of the subject itself.

ADDENDUM:

1999 - ongoing

ICE, originally located in Phoenix & Scottsdale, Arizona, was purchased after ICE's 30-year collection had been donated & accessioned by the National Museum of American History at the Smithsonian Institution.

State-of-the-art research and developments in preserving the histories of integrated circuit technology continues and we are pleased to collaborate with [CHIPWORKS](#), located in Ottawa, Canada; *purchasers of ICE.*

Intellectual property, construction analysis, reverse engineering, chip art and other research assistance has been of historical value to our on-going efforts to compliment the existing collections. We wish to thank Terry Ludlow and his staff for their continued contributions to history!

[Objects](#)

NMAH Accession 1996.0089 and 1996.3017 (600KB)

In-depth research collection of 3-dimensional objects; most are exposed, some cut-aways and others the complete assembly. The Museum's object catalog number is relative to Series 3 Product Evaluation(s) (PE) published by ICE when noted.

For example, information concerning object 1996.0089.101 is the physical evaluation of Intel 8212 I/O Port; 8224 Clock Generator; 8228 System Controller; and 8251 Communications Interface matches PE-101 located in NMAH Archives. Documents in the ICE Series may be reviewed only by an [appointment](#)

[Series 1. Status Reports](#)

NMAH Archives #600

An annual publication which is a comprehensive, illustrated report that includes: A world

U.S. captive producers, ASIC (Application Specific Integrated Circuit) market trends, IC technology trends, and memory & microprocessor IC products. Also an appendix which includes a listing of companies that service the IC industry and IC fabrication facilities worldwide.

• Series 2, Product Analysis

NMAH Archives #600

Highly detailed, extensively illustrated reports (scanning electron micrographs, x-rays, figures, tables, histograms, etc.). The reports are aimed at IC users who need reliable information on component quality for part qualification purposes, and IC manufacturers who need to stay abreast of competitive technologies being offered.

• Series 3, Product Evaluations

NMAH Archives #600

The product evaluation series of reports provides construction and design analyses of a series of microcomputer-related products. The reports identify circuit areas requiring further in-depth analysis for the user's specific application. Special attention has been paid to unusual design and processing techniques, and to identification of functional areas for orientation in test pattern generation, reliability estimates and failure analysis probing. Unusual is understood to be atypical.

• Series 4, Construction Analysis

NMAH Archives #600

Construction Analysis is a complete physical characterization of a specific circuit. The analysis covers x-ray, optical, scanning electron micrographs, cross sections, topological layout and dimensions, layer thickness, and material analysis. ESD and latchup sensitivity are also included on specific circuit analyses. Some of the many uses ICE has found for construction analysis are: access technology, selecting preferred vendors and second sources, documenting process changes, background for failure analysis and patent investigations.

• Series 5, Information Reports

NMAH Archives #600

A collection of research material on integrated circuit technology: published and unpublished. Most of the material is in published, bound form (three ring binders). Of special note: compendium on BIPOLAR and MOS Wafer Processing and MOS Bipolar silicon wafer 1st edition.

• Series 6, Manufacturing Facilities

NMAH Archives #600

Publications which provide organized examination of each major IC process, from the older technologies to the more recent CMOS (Complimentary Metal Oxide Semiconductor) and BiCMOS (Device having bipolar and CMOS transistors) processes. The processes for deposition and the reasons for the use of new materials for IC metalization are reviewed in detail. Each major process from crystal growing through device packaging, is described with clear, concise illustrations (over 400) making it easy to follow the process steps. Of special interest: while the content is primarily based on silicon processing, the basics of gallium arsenide are covered.

• Series 7, Packaging

NMAH Archives #600

state devices. They describe the intrinsic capabilities of IC technologies and the constraints imposed by packaging. The latest being the MCM.

• Series 8. Company Profiles

NMAH Archives #600

Company Profiles: In-depth single publications related to specific companies in the design, development and fabrication of integrated circuits. There are about 75 individual profiles.
Profiles: A world wide survey of IC manufacturers and suppliers. The yearly single volume publication profiles over 175 IC companies. Each company's profile covers: sales history, overviews & strategies, key management personnel, products & process capabilities, IC facility information, and key present and proposed strategic agreements.

• Series 9. ICECAP Reports

NMAH Archives #600

An industry wide newsletter/paper, ca. 1980-90. Founded & published monthly by Integrated Circuit Engineering. Addendums and Quotes are attached as ICEBREAKERS and ICEBERGS.

• Series 10. Government/Military

NMAH Archives #600

It has been a longstanding precedent in the U.S. semiconductor community that the Military Aerospace business becomes good business only when there is no mainframe computer/commercial industrial business available. This was evidenced during the recessions of 1958, 1964, 1968, 1970 and the slowdown of 1975. ICE had and continues to have Government contracts from the Departments of Defense, Energy and NASA. Within these contracts are the released (formerly proprietary, confidential and coded) products. The government code name was TASC, which is the finding aid to the coded numbers for specific contracts ICE held with the Government. There is an in-depth publication, Integrated Circuit Military/Aerospace Marketing and procurement Reference manual, 1978 which was released in the 1990s concerning the protocols, arrangements, programs, contracts and investigations which ICE provided the US Government concerning all possibilities regarding VHSI (very high speed integration), the next generation of military/aerospace microcircuits and the microprocessor status report by RADC (Rome Air Defense Center).

Specific to the TASC contracts were United States' Government requests of market analysis concerning Harris Semiconductor, Intersil, Siliconix, RCA, Precision Monolithics, Inc., Analog Devices, and Intel. ICE was mandated to publish the initial documents on beige paper stock, the other colors were sky blue, salmon, green and white. These other colors denoted lesser importance than beige.

• Series 11. Artwork CAUTION - download is relative to your ISP's connection

NMAH Archives #600

Graphics, designs, photographs, charts, circuit diagrams used in a variety of ICE publications. Please make an appointment to review this part of the collection. This series is currently being scanned and available online when time permits.

• Series 12. Trade Catalogs (Equipment Chemicals Products)

NMAH Archives #600

Information related to the semiconductor evolution: product specification sheets, articles on the different types of production, product line reports from an individual company, press

for over a twenty year period, correspondence (unique and specific), price quotes. Additionally, these files relate to TASC files.

• Series 13. Hybrid Circuits

NMAH Archives #600

Processes of bonding conductive copper foils directly to ceramic, alumina, beryllia substrates. Documentation may reviewed by arranging an appointment.

• Series 14. ASIC Outlook

NMAH Archives #600

ASIC (Application Specific Integrated Circuit) is a professional journal; of specific interest: six bound volumes, published, owned and copyright by ICE of ASIC Outlook for the years 1987 and 1991-1996 (ongoing).

• Series 15. TASC Files (Government Contracts)

NMAH Archives #600

Protocols, arrangements, programs, contracts and investigations which ICE provided the US Government concerning all possibilities regarding VHSI (very high speed integration), the next generation of military/aerospace microcircuits and the microprocessor status.

• Series 16. Project Files

NMAH Archives #600

An inventory of the corporate records and files of ICE beginning at the founding year-1964. The list is 400K and reflects each box, folder and file in the series.

• Project SOCRATES:

April 22, 1988 - literal transcription and original document pages.

• Series 17. Litigation

NMAH Archives #600

Documents related to various litigation actions involving ICE.

• The Trade Secret Case:

Motorola sued Fairchild, (also known as *THE TRADE SECRET CASE*) for hiring away Motorola's top scientist, C. Lester Hogan, and eight key executives. This case contains documents (primary correspondence) from ICE; a company that acted as an independent research firm and provided expert witness for Fairchild's defense; a finding aid with a list of names and descriptions of the main people involved in the case, an index of each document, its content, and its location, and a catalyst letter written by Glen Madland, that describes how this case began.

• Series 18. Audio Visual Materials

NMAH Archives #600

Various reports from ICE available on CD-ROM in the Smithsonian collection. Some of the reports are online, and others will be added in the future.

appointment.

The Archives Center maintains container lists with unique collection names, series numbers and most important the Archive Center Number. When requesting information for your research either from the collecting division or the Archives it is imperative to include the associated number(s). Your contacts for requesting information and/or appointments to research the Chip Collection are:

NMAH Archives Center

Technology, Invention and Innovation Collections

Hal Wallace, Curator - CHIPS

Information Technology & Society - Electricity Collections



[Home](#) [Search](#) [Chip Talk](#) [Chip Art](#) [Patents](#) [People](#) [Pictures](#) [Credits](#) [Copyright](#) [Comments](#)