Brad's First Connx Book

Collection Editor:
Brad Felix

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Collection Editor:
Brad Felix

Authors:

Elizabeth Bartmess
Connexions
Gary Cziko
Patrick Frantz
Debbie Gulick
Interactive Mathematics Program
Cheryl Matherly
Jana Mills
Bill Wilson

Online:
< http://cnx.org/content/col10510/1.2/ >

C O N N E X I O N S

Rice University, Houston, Texas

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Chapter 1

Chapter 1

1.1 1: Concepts of Information Technology[1]

This module includes the basics and theories of ICT, including types of computer, networks, how, why and who people access informaiton using ICT. This module is the first under the ECDL (AKA ICDL) qualification, written for Windows XP and Office 2003.

1.2 Section 1 for Chap 1

1.2.1 Subsection Test

1.2.1.1 Sub-subsection Test

1.2.1.1.1 Sub-sub-sub section test with longer name

1.2.1.1.1.1 Leadership[2]

This is a module about leadership.

1.3 The Technology Behind the Connexions Roadmap[3]

NOTE: This module has been retired as it contained Connexions documentation which is no longer accurate and/or relevant. Please visit the help page[4] for up-to-date information about the Connexions website, including support for viewing and authoring content and the CNXML language. If you have any additional questions or cannot find the answer to your question, please contact techsupport@cnx.org[5] and we will be happy to assist in any way we can.

[1] This content is available online at <http://cnx.org/content/m13549/1.1/>.
[2] This content is available online at <http://cnx.org/content/m12430/1.3/>.
[3] This content is available online at <http://cnx.org/content/m10341/2.5/>.
[4] http://cnx.org/help
[5] techsupport@cnx.org

Chapter 2

Introduction to IC Manufacturing Technology[1]

It would probably be interesting to spend a little time seeing how integrated circuits are made. This chapter will be long on description, and rather short on equations (yay!). This is not to say that there is not a lot of analytical work in the IC fabrication process. It's just that things get **very** complicated in a hurry, and so we probably are better off just looking at most processes from a qualitative point of view.

Let's start out by taking a look at the state of the industry, and remark on a few trends. Figure 2.1 is a plot of IC sales in the United States over the past 30 years. This might not be a bad field to get into! Maybe there will be a job or two out there when you are ready to graduate.

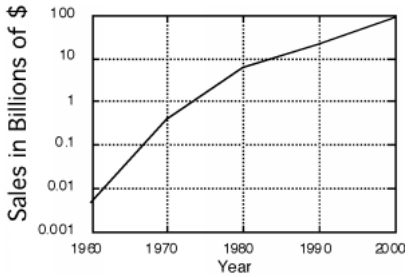

Figure 2.1: Growth of IC Business

There has been a steady shift away from bipolar technology to MOS as is shown in Figure 2.2. Currently, about 90% of the market is composed of MOS devices, and only about 10% of bipolar. This is likely to be the case for some time to come. The change in slope, where MOS starts taking over from bipolar at a more rapid rate about 1987 is when CMOS technology really started to come into heavy use. At that point, bipolar TTL logic essentially faded to zero.

[1] This content is available online at <http://cnx.org/content/m1032/2.9/>.

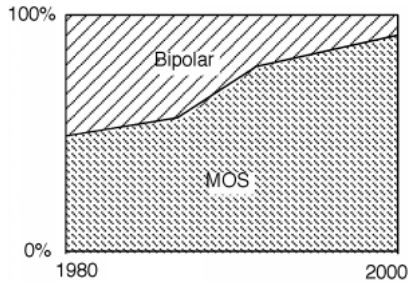

Figure 2.2: Percentage of Business

As you probably are aware, devices have been getting smaller and smaller, and chips have been getting bigger and bigger with time. A most impressive plot (Figure 2.3) is one which shows the number of components/chip as a function of time.

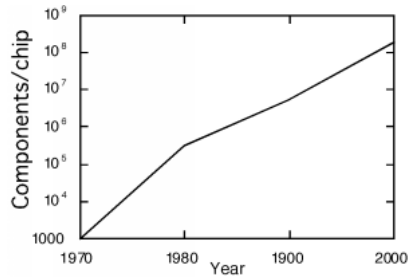

Figure 2.3: Number of transistors/chip

One of the main drivers for this has been feature size, which shows the same nearly exponential behavior as components/chip. This is plotted in Figure 2.4 for your education. What is interesting to note about this is that certain "doom sayers" have been predicting an abrupt halt to this curve for some time now. It stands to reason that you can not image something which is finer than λ, the wavelength of the light you use to project it with. However, by going to the ultraviolet, and using a variety of image enhancing techniques, lithographic engineers continue to be able to make finer and finer structures.

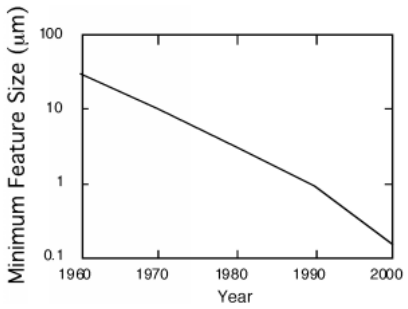

Figure 2.4: Feature size with time

Chapter 3

The Importance of Patterns[1]

The Interactive Mathematics Program teacher materials have been moved to the Key Curriculum Press website. This link [http://www.keypress.com/keyonline[2]] will take you to the login page. After creating an account for yourself, you'll be able to access the full IMP Teacher's Guide.

[1] This content is available online at <http://cnx.org/content/m15623/1.7/>.
[2] http://www.keypress.com/keyonline

Chapter 4

Autonomous Technology-Assisted Language Learning[1]

Autonomous Technology-Assisted Language Learning (ATALL) refers to (a) the development and use of technological tools to facilitate foreign language (FL) or second language (L2) learning (both to be used synonymously hereafter), and (b) research on the development, use, and effects of such tools for language teaching and learning.

ATALL is autonomous in that it provides the means for language learners to improve their L2 proficiency whether or not they are taking formal courses in the language they are learning. Thus, ATALL can be used by students in conjunction with formal L2 study or by learners who are not taking L2 classes. ATALL activities can be used as an integrated component of formal L2 courses or for supplemental study (and perhaps extra credit) within L2 courses. ATALL can also be used by non-native L2 teachers who wish to improve their L2 skills and show their students how they can continue to develop their L2 proficiency outside of class. "Autonomous" also implies that the tools are widely available (such as via the World Wide Web) at no or low cost (see Bibliography of Learner Autonomy[2] for resources about autonomy and language learning; for a comprehensive, empirically-based theory of human autonomy, see Perceptual Control Theory[3] and the Control Systems Group[4]).

ATALL encompasses all forms of electronic and information technology that can be used to facilitate L2 proficiency. This includes the obvious tools of computer and Internet technology. But it also includes other forms of communication technology such as wired and wireless telephony, television and radio (broadcast, satellite and cable) and the integration of older communication technologies with newer information technologies.

ATALL is based on the latest theory and research on Second Language Acquisition (SLA)[5] , the psychology of learning and Computer-Assisted Language Learning (CALL)[6] . Research and theory provides directions and implications for how technology can best be used to improve L2 proficiency in the areas of listening, speaking, reading and writing. Principles derived from L2 research and theory are applied to the development of ATALL tools and activities.

ATALL activities can be divided into the five primary domains of input, output, interaction, exercise, and assessment.

[1] This content is available online at <http://cnx.org/content/m15244/1.8/>.
[2] http://www.hayo.nl/autonomybibliography.php
[3] http://en.wikipedia.org/wiki/Perceptual_Control_Theory
[4] http://www.perceptualcontroltheory.org/
[5] http://en.wikipedia.org/wiki/Second_language_acquisition
[6] http://en.wikipedia.org/wiki/Computer-assisted_language_learning

Index of Keywords and Terms

Keywords are listed by the section with that keyword (page numbers are in parentheses). Keywords do not necessarily appear in the text of the page. They are merely associated with that section. *Ex.* apples, § 1.1 (1) **Terms** are referenced by the page they appear on. *Ex.* apples, 1

B basics, § 1.1(1)

C computer-assisted language learning, § 4(9)
concepts, § 1.1(1)

F foreign language learning, § 4(9)
foreign language teaching, § 4(9)

I IC, § 2(3)
integrated circuits, § 2(3)

L Leadership, § 1.2.1.1.1.1(1)

M mozilla, § 1.3(1)

R roadmap, § 1.3(1)

S second language learning, § 4(9)
second language teaching, § 4(9)

X xul, § 1.3(1)

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This is the summary of my first book published within Rhaptos

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